



The Antarctic Society

"By and For All Antarcticans"

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BRASH ICE. Well we are finally off and running after having taken a hiatus over the summer. Although in reality, we have kept the home fire burning by periodically submitting news items to our website, which we hope you surf from time to time. There have been several prominent Antarcticans who have cashed in their chips since last spring. We have more or less established a policy whereby we will only write up one loss per Newsletter, putting the other notices/obituaries onto the website. For this issue, we have chosen the reserved and revered John Twiss, a most eminent marine-mammal man as our Obituarian of the Summer. John was a loyal supporter of our Newsletter, and once off-the-record offered to pay out of his own pocket, the binding of all of our Newsletters. It wasn't possible then because of its narrow margins, but it was a most kind offer from a very sensitive man who we deeply appreciated.

Jackie Ronne died shortly after our early summer Newsletter. I don't know of any Antarctic death, with the possible exception of Larry Gould, which received more national coverage than Jackie's death. Being one of the first two women to ever winter over in Antarctica made her very good copy. We immediately put Karen's obituary on her mother onto our web-site. Also on the web-site you will have found the touching eulogy that Ann Hawthorne presented at Jackie's service in Bethesda. Jackie joined our society under somewhat trying conditions. It was back in the days when you could get away with writing almost anything. I received a call from Jackie, and she said "I understand that you wrote an article in the Antarctic Society Newsletter about men and the Antarctic." I replied that I had, that's its title was "The End of a Great Era." She then asked if she could see it. I gulped once, twice, maybe three times before I said "Yes, you can see it, but please remember there was a companion article right next to it by Mildred Crary who wrote "It's About Time." So I sent off the issue, and heard nothing for several weeks. Then another call from Jackie and she asked "Could I please see other copies of your Newsletters?" I knew right then and there that I was in a heap of deep trouble, as I had not been too kind to her husband Finn, but I had no choice, so sent her a batch of them.

Another interlude before Jackie called again. She said, "I see the handwriting on the wall, I am not going to join your Society." I was ready for that and replied "The incoming president of our Society is going to be Pete Burrill, a good friend of yours and Finn. If you join our Society, I promise never again to write anything nasty about Finn." And so she and Karen joined our Society and I think we lived peacefully ever after. I also served a function for her at our gatherings when people like John Behrendt and Nolan Aughenbaugh were in town, and she wanted to know who was who!

Dr. Jerri Nielsen Fitzgerald, medical doctor at the South Pole, who as a cancer victim had to be air evacuated to the States in early October of 1999, died early this summer in Massachusetts at age 57. Five years ago she came down with another round of cancer, which spread to her brain. C'est fini.

The Board on Geographic Names confirmed the naming of Gibbs Point on Horseshoe Island, Marguerite Bay after George Washington Gibbs, Jr. mess attendant 1st Class on the U.S.S. BEAR on the Antarctic Service Expedition (1939-41). To the best of our knowledge, he is the earliest American of African descent to have had a feature named for him in Antarctica.

Now, how about living people, people who are now important to our Society. There are two who deserve special mention, our webmaster, Tom Henderson, and our Incoming President, Charles "Chips" Lagerbom. Both are not only National League fans, but both are St. Louis Cardinals loyalists. In each Newsletter, Tom has been and will be writing on what's new on our website, and in this issue he will be telling you what great things have developed over the summer. Chips introduces himself in his column, even though many of you have already met him through his free scanning services. These are two of the nicest guys who you would ever care to meet. Support them whenever they need your help.

CALENDARS. If you want the New Zealand-produced Hedgehog calendar on Antarctica for 2010, please order now. We have a limited number left, and if there is anything we hate it's getting orders from you people in December for one of these calendars. If you order by mid-November, closing date, we will guarantee your calendar(s) by mid-December. The calendar for next year is superb, best one in the last several years. Order NOW. Price is the same - \$15.00 USD.

TWO YEARS IN REVIEW Last summer's election in Port Clyde brings a new president for the Society, so Art Ford heads off into the sunset of retirement. Impressive Society accomplishments of the past two years have included: (1) Bringing together many of the remaining youngsters, now residing in aged bodies, from the IGY years and soon after for two memorable reunions at the lobster-haven of Port Clyde, Maine; for which gratitude goes to hosts Paul Dalrymple and Gracie Machermer; (2) The production of an incredible documentary set of DVDs preserving some Antarctic history from the memories of the reunion attendees, for which thanks go to moviemaker Dr. Ed Williams; (3) The development of one of Antarctica's best websites, www.antarctican.org, containing the unique "Time-Trek" and five decades of Newsletters and much, much more, for which special thanks go to webmaster Tom Henderson and Amos Alubala; (4) The start of an immense project to preserve Antarctic history for the new digital world, now in old kodachrome slides and other imagery of aging Antarcticans, with thanks to scanningmaster Charles "Icechips" Lagerbom; and (5) The production of another two years' issues of our Newsletter, with "Brash Ice," and the continuation of the Society's financial solvency, with special gratitude to Treasurer Paul Dalrymple. Great accolades go also to super-typist Jo Lindsay for putting up with Newsletter authors, as well as to her husband, musician Steve, for entertainment at our Gatherings. Our Society thanks them all and many

others for contributing talents and support for our Society, and welcomes Charles Lagerbom, another Mainer, to take over the stirring of the lobster pot.

NEW SOCIETY PRESIDENT (By Charles H. Lagerbom) Hello. My name is Charles H. Lagerbom and I am honored to be your next President of the Antarctic Society. I realize I have big shoes to fill from my predecessors and will work hard to keep the Antarctic Society an important and viable organization. I believe in its motto "By and For All Antarcticans." As overseer of the slide-scanning project, I am very interested in preserving the history of our memberships' involvement with the Antarctic. To that end, I would like to focus on getting everyone to dig out their albums, films, photos, journals, slides, and memorabilia of their time in Antarctica. Go back through them, share them with family or friends again, label and date things that are not readily identified, write down or record the stories they might bring to mind, perhaps consider getting your images and journals and slides digitized onto a more modern format. Maybe even consider writing a book or article about your time there. Please take the time NOW to preserve your connection with Antarctica, not just for you or the society but for future generations as well.

And now some background about me...I grew up in the wheat fields of central Kansas and received a BA in History from Kansas State University. From there, I migrated to New England and received an MA in History and Archaeology from the University of Maine at Orono. My MA thesis was on an American Revolutionary War Trading Post that we excavated along the banks of the Penobscot River here in Maine. While finishing my MA, I signed on as a field assistant to a University of Maine Quaternary Institute glacial geology research team under the direction of Dr. George H. Denton and Dr. David R. Marchant and spent two field seasons in the Dry Valleys of Antarctica. Upon my return, I wrote and

published a biography of Henry "Birdie" Bowers who died alongside Captain Robert F. Scott coming back from the South Pole in 1912. Then having the great opportunity to meet many polar personalities, I soon became involved with the American Polar Society as its membership chairman, at which I still serve. In 2006, I compiled an index of the issues from the first volume of the APS' journal **The Polar Times**. I was also fortunate to guest lecture aboard a cruise ship to the Antarctic Peninsula. I served as Historian for the Antarctic Society and became its Secretary a few years back. Maybe my most important contribution has been manning the barbecue grill at the last three Antarctic Society gatherings at Port Clyde, Maine! Having a passion for all things polar (and a very understanding wife named Jennifer), I have amassed a polar book collection that is nearing 2000 titles. And in 2008, I began a PhD program in History at the University of Maine where my dissertation research will focus on tracing the economic, historic and scientific connections between Maine and the polar regions. I teach history and coach the golf team at Belfast Area High School on the coast in Maine and have two school-age children named Charlie and Audrey.

SLIDE-SCANNING UPDATE (By Charles H. Lagerbom) The Antarctic Society's slide scanning project is in full swing and I am heartened by the wonderful response from the many of you who have taken the time to dig out and organize your many images of Antarctica. I have been working with both large and small collections. Thousands of slides have been scanned and preserved into the new digital format. These images might otherwise have been lost or forgotten in some attic or basement. The slides have also been cataloged to allow easy search through different categories. As a result, the society thus far has amassed quite an archive of historical images and data about the history and science of Antarctica. Many Antarcticans have also shared their journals, notes and other information to augment their

image collections. The society's webmaster Tom Henderson has begun to make some of these images available on the website, so please check them out. With news that Kodak will no longer manufacture Kodachrome slide film, the end of an era is definitely at hand. So please consider making use of the slide scanning service.

WEBSITE UPDATE (Tom Henderson)

By the time you read this, the new version of Time Trek should be online. I know, I know ... I said it would be up shortly after the last newsletter. The bane of software development has always been uncovering "bugs" in final testing. We found a significant one in Time Trek and it has taken a lot of time to resolve this pest. As I stated earlier, this version is important because it supports multiple browsers – including MacIntosh's Safari – rather than just Microsoft Internet Explorer. It does require the download of Google Earth's API plugin, but that is a simple process. Instructions on how to do this will be found on the Time Trek page of the website.

Google released the newest version of Google Earth on September 9. Further, the Google Earth API plugin is built right into it for Microsoft IE browser users so when you download it, you automatically are set up for Time Trek. If you are a Mac user you have a separate download of the API plugin on the Google website. This is good news because the new version is 25% faster than the previous one and has some new features as well. Again, all of this is covered on the Time Trek page of our website.

The website survey was completed by 29 members. That is not a large number, but the responses were sufficient for me to better understand what you like and don't like about the website. It has given me some good input for future development. You may read the details of the responses on the website under What's New. Here is a brief summary:

Profile of Respondents

- 83% of respondents are over age 50
- 48% visited Antarctica as scientists, 31% as civilian or military support, 31% as tourists
- 46% visit the website monthly, 46% less than that
- 68% visit to learn what is happening in Antarctica
- 66% find the What's New and Pack Ice pages to be the most useful
- Of the 13 respondents who said they use Time Trek, 12 use the Google Earth version and 9 use the Static Map version
- 75% of Time Trek users find the Features and Stations information to be the most useful

Comments

Respondents submitted 21 separate comments. Here are the common criticisms noted:

- Clearly, there were a number of Apple MacIntosh users in this group. Six of the comments addressed the lack of Apple browser (Safari) compatibility, especially for Time Trek.
- Four respondents mentioned insufficient content in Time Trek

There were also several very positive comments about the website, as well as some specific technical suggestions. You can see all of the results and comments by reading the summary on the What's New page of the website.

This survey has clarified some of the directions to prioritize in the ongoing development of the website:

- More than two-thirds of the respondents visit to see what is happening in Antarctica. The newsletter has been the main means of conveying this information to members in the past, and it will continue to do so. However, since it is typically several months between

issues, the website could provide some up-to-date information in the interim. A common way that other websites do this is through what is called "RSS feeds." These are somewhat like links, but they are more powerful in that they summarize key information from other websites when those websites are updated. I also plan to add more websites to the Site Links list. This has been on the "to do" list for some time, but now it will be raised to a higher priority.

- The lack of MacIntosh Safari compatibility will be addressed in Time Trek by the new Google Earth version. Further, other parts of the website will be reviewed to be sure that the functions are Mac-friendly.
- The technical suggestions will be implemented quickly if they can be. Others, such as search capability for the entire website, will take a little more time but will be raised in priority.
- I will make every effort to add content on a regular basis. There is certainly more than enough material to use right now. In particular, my goal is to add at least 30 images every month to Time Trek, along with the events that correspond to those images.

The website survey provided a lot of valuable input. However, please don't wait until the next survey to offer your comments. I am always eager to hear from you about your likes and dislikes. It is, after all, your website!

NEW DIRECTOR AT BYRD POLAR RESEARCH CENTER. Dr. Ellen Mosley-Thompson has been named the new Director of Byrd Polar Research Center at The Ohio State University, Columbus. Ellen and her husband, Lonnie, both Senior Scientists at BPRC, have spent some 25 years studying ice cores from around the world, and are world's experts on dust in the

cores. Sources of the dust can be determined to evaluate climatic conditions at the time that the dust (in snowfall) was deposited. Ellen's research focus is paleoclimatic reconstruction from the chemical and physical properties preserved in ice cores. She has conducted ice-core drilling programs in Antarctica (8 expeditions) and in Greenland (6 expeditions), concentrating on the polar regions' ice, as well as their interpretation, reconstructing conditions recorded by the ice. Her husband, Lonnie, concentrates on field operations on high-altitude tropical glaciers. As a team, they have authored more than 150 peer-reviewed papers using materials preserved in ice cores from Antarctica to Greenland, and also have been awarded, jointly or individually, about 10 distinguished international awards as recognition of their contributions to Earth's environmental histories as recorded in ice. More than 20 of their papers have been cited more than 20 times. Together, they have led 58 field programs (2008). Ellen received her M.S. and Ph.D. degrees in Geography from The Ohio State University, and is a Professor in the Department of Geography at OSU since 1995. Mosley-Thompson Cirques are named for Ellen.

John Splettstoesser

A STAR IN OUR MIDST. Susan Solomon is widely recognized as one of the leaders in the field of atmospheric science. Since receiving her PhD degree in chemistry from the University of California at Berkeley in 1981, she has been employed by the National Oceanic and Atmospheric Administration as a research scientist. Her scientific papers have provided not only key measurements but also theoretical understanding regarding ozone destruction, especially the role of surface chemistry. In 1986 and 1987, she served as the Head Project Scientist of the National Ozone Expedition at McMurdo Station, Antarctica and made some of the first measurements there that pointed towards chlorofluorocarbons as the cause of the ozone hole. In 1994, an Antarctic glacier

was named in her honor in recognition of that work. In March of 2000, she received the National Medal of Science, the United States' highest scientific honor, for "key insights in explaining the cause of the Antarctic ozone hole." She is the recipient of many other honors and awards, including the highest awards of the American Geophysical Union (the Bowie Medal), the American Meteorological Society (the Rossby Medal), and the Geochemical Society (the Goldschmidt Medal). She is also a recipient of the Commonwealth Prize and the Lemaitre Prize, as well as the ozone award and Vienna Convention Award from the United Nations Environment Programme. In 1992, R&D magazine honored her as its "scientist of the year". In 2004 she received the prestigious Blue Planet Prize for "pioneering research identifying the causative mechanisms producing the Antarctic ozone hole." She is a recipient of numerous honorary doctoral degrees from universities in the US and abroad. She is a member of the U. S. National Academy of Sciences, the American Philosophical Society, and is a Foreign Associate of the French Academy of Sciences, the Royal Society, the Royal Society of Chemistry, and the European Academy of Sciences. Her current research includes climate change and ozone depletion. She served as co-chair of the Working Group 1 Fourth Assessment of the Intergovernmental Panel on Climate Change (IPCC, 2007), providing scientific information to the United Nations Framework Convention on Climate Change. IPCC and Albert Gore, Jr. jointly received the Nobel Peace Prize in 2007. In 2007 she was honored with the Lowell Thomas Award by The Explorers Club in the category "Exploring Climate Change." She was named one of the year's 100 most influential people in *Time* magazine in 2008. She also received the Grande Medaille of the Academy of Sciences in Paris for her leadership in ozone and climate science in 2008. In 2009 she was awarded the Volvo Environmental Prize, for "outstanding innovations or scientific discoveries which

in broad terms fall within the environmental field." The award recognizes and honors Solomon's work in the Antarctic and her leadership during the last IPCC assessment.

As a testament to her credibility in her field, her publications tell a story by themselves. As Guy Guthridge mentions elsewhere in this Newsletter, ozone studies have played a major part in Antarctic research. A survey of the intellectual structure of Antarctic science is illustrated in a publication in the journal *Scientometrics*, v. 77, no. 3, Dec. 2008, in which the authors conducted a 25-year analysis (1980-2004) of the worth of science based on the times that authors of scientific articles are cited. A paper by J.C. Farman *et al.* in *Nature*, 1985, is most often cited because of the first announcement of the ozone 'hole' by Farman (British Antarctic Survey), followed by a paper in 1986 by Susan Solomon *et al.* that ranked 5th. The *Scientometrics* article mentions that publications by Farman and Solomon are co-cited most frequently. That has several meanings, one of which is that Susan convincingly earned all the awards mentioned above. It also means that NSF-Polar Programs got its investment returned as a result of Susan's international acclamation. **John Splettstoesser**

WHAT'S THE MOST IMPORTANT ANTARCTIC SCIENCE (By Guy Guthridge)

In 1980 the National Science Foundation funded a study that found 52 specialties of science in which Antarctic research had a big role. The specialties ranged from atmospheric pollution to zooplankton fecal pellet transport, but the heavy hitters back then were continental movement and magnetospheric ionization. The study was not at all subjective. It counted the number of times scientists, in published research papers, referred to (cited) the papers reporting the research. At the top of the list, with 546 citations, was a 1968 paper by Jim Heirtzler on motions of the ocean floor and continents. The Institute for Scientific

Information, which did the study, found 83 other Antarctic “citation classics” – papers cited more than 50 times between 1961 and 1978. At the Science Foundation we sighed with relief because the study found that while Antarctic research as a whole was cited less than other research in the same fields, Antarctic research that the Foundation had funded was cited more. The 1980 study had examined 2,942 Antarctic papers. A new study, published in 2008, shows that, back then, the party was just getting started. From 1980 to 2004 scientists from 80 countries published 10,942 Antarctic papers. The number per year rose from 165 in 1980 to 552 in 2004.

Topping the new list? Of course: a 1985 paper by Jim Farman (British Antarctic Survey) and others in *Nature* about the ozone hole. A 1986 paper in *Nature* about the ozone hole by Susan Solomon and others ranks 5th. Second place in the new list has some poignancy. It’s Dave Drewry’s 1983 folio depicting the surface of the ice sheet, which took over a decade of flying instrumented LC-130s back and forth over Antarctica. Nowadays Radarsat and Icesat do the same work in weeks. But you don’t have to be recent to be noticed. J.W.S. Marr’s 1962 classic on the natural history and geography of krill makes 3rd place in the new list. [Marr was one of Shackleton’s boy scouts on the *Quest* expedition in 1922.] Heirtzler’s 1968 paper didn’t make the cut this time. The 2008 citation study (NSF didn’t fund it) is, “Intellectual structure of Antarctic science: a 25-years analysis,” by Prabir G. Dastidar and S. Ramachandran, in *Scientometrics*, Vol. 77, No. 3 (2008), 389-414.

CREVASSE ROULETTE, The First Trans-Antarctic Crossing, 1957-58. Rosenberg Publishing, Pty, Australia, 2009, ISBN 9781877058660, 192 pp., \$50 USD. By Jon Stephenson (Review by Art Ford) A most appropriate title, as you’ll see when reading how tortuous routes through crevasse fields and over deadly, thinly snow bridged chasms were crossed by tracked vehicles and dog teams in reaching the polar

plateau, and then beyond to the Pole and THE FIRST surface crossing of Antarctica, by the 1955-58 (Commonwealth) Trans-Antarctic Expedition, or TAE. Miraculously, all came through unscathed. Australian Stephenson, the geologist and a dog-team driver of this intrepid group has come up with a book among the BEST of the literature arriving from the aging polar explorers of the 1950s and soon after, a period that includes the 1957-58 IGY, the International Geophysical Year. Though largely coeval, the crossing was not an official part of the British IGY research program.

This was an epic event, and of course the British HAD to do this one, after Shackleton (1908) and Scott (1912) lost the Pole to Amundsen in 1911. Crossings had been attempted before, but Filchner (1912) and Shackleton (1915) were beset before ever reaching shore. Mechanized technology using icebreakers and aircraft support, with aerial photography as well as motorized, tracked vehicles for over-snow travel were required, and those awaited the IGY. Two main bases were built for the TAE: Shackleton Base on the Weddell Sea and Scott Base on the Ross Sea side of the continent. TAE’s supply ship, the *MV Theron*, lost critical time trapped in the pack before eventually arriving at Vahsel Bay barely with time to set up the base for the first winter, as described in Anthea Arnold’s 2007 book, “Eight Men in a Crate.”

Vivian “Bunny” Fuchs, a geologist and later Director of the British Antarctic Survey, led the crossing, while New Zealand beekeeper Edmund Hillary — made “Sir” for his 1953 First on Mount Everest — led the Scott Base party’s task to establish supply depots for the crossers coming from the Pole to the Ross Sea. (Fuchs’s own knighthood awaited that success.) Stephenson’s book provides entertaining personal views and many interesting anecdotes to fill in details to the leaders’ official account in their 1958 book “The Crossing of Antarctica.” Those leaders, among others, are now gone, and we

are very fortunate to have Stephenson's additional memories, photographs, and notes for the record of this unique adventure.

Hillary's group in his iconic Ferguson tractors established a route with 47 tons of fuel and supplies cached in depots to take Fuchs' TAE from the Pole to the Skelton Glacier, then down to the Ross Ice Shelf and Scott Base, as described in the chapter, "Hillary's dash for the Pole." The Wellington (N.Z.) press seems to have wanted to raise some public interest (and sales?) so somehow obtained private radio communications between the leaders, as explained in the passage entitled "The Cause Célèbre." Hillary had recommended to Fuchs that he split his crossing between two seasons, and on his arrival at the Pole to be flown out and back to England, for completion of the crossing the following summer. Bunny responded strongly that for many reasons the crossing had to be completed, no matter the risks. Those two couldn't have had more opposite personalities: Bunny's suspicious and withdrawn, whereas the beekeeper's ebullient and outgoing. Both are smiling, though as Ed greets Bunny on 19 January 1958 and welcomes him to the Pole, overwatched by U.S. Navy "Operation Deep Freeze" Commander, Admiral Dufek.

The McMurdo band was playing "God Save the Queen" upon arrival at Scott Base. (Band membership required no musical talent, only one to play LOUD.) The whole journey, covering 2,158 miles, took 99 days from Shackleton Base (Fuchs had predicted 100). A chapter "After TAE" tells later fates of expedition members. The final one, "Then and Now," takes on more ethereal topics like "Science and Exploration," "IGY and Its Aftermath." As a lecturer later on tourist ships, Stephenson is a part of both generations. The five appendixes are packed with useful information, ranging from the history of exploring the Weddell Sea and of IGY explorations in that region, to some sea-ice records and even plate tectonics. One diagram nicely compares the

hull design of three famous polar ships, in a search to explain why some ships are crushed in the pack and others not.

Diligent searching will come across a few inconsequential typos and such, but overall, the publisher and, especially, the author are to be commended for this fine product. The large page size (28 x 21 cm) allows sufficient space for uncluttered maps and spectacular photographs of polar scenery. The print and illustrations are of exceptional quality, making the reading of the book an enjoyable experience. The book seems well documented and indexed. A glossary explains potentially unfamiliar terms, such as Katabatic and Polynya.

In a monster Soviet helicopter in 1977, as exchange scientist with the 22nd Soviet Antarctic Expedition, I passed Stephenson Bastion en route from Druzhnaya ("Friendly") Base to the Shackleton Range for geological studies, and looking down on the ice-strewn 800-million-year-old bedded structures of the Stephenson Formation I wondered who that guy Stephenson was. Now I know.

JOHN RUSSELL TWISS, JR. (1938 - 2009). John Russell Twiss, Jr., known as Jack to *Old Antarctic Hands*, died on 23 July 2009 in The Plains, Virginia, after a long battle with Parkinson's disease. He is survived by his wife Mary and three children: John, Alison, and Emily.

He was born in New York City, attended the Phillips Exeter Academy, and was a 1961 graduate of Yale University. He began his government career that same year in the National Science Foundation's Office of Antarctic Programs (now the Office of Polar Programs). During the 1964-65 Antarctic field season, Jack was the U.S. Antarctic Research Program's (USARP) representative in Antarctica, the youngest individual to ever serve in that capacity. After a four year hiatus, during which he worked for two scientific laboratories and helped start a scientific equipment company, Jack rejoined the NSF in 1970. For the next

four years he served as the Acting Director and Special Assistant to the Director of the International Decade of Ocean Exploration. Many Society members who worked on the ice and on the *Eltanin* in the 1960s and early 1970s will have memories of Jack's active presence and contributions to U.S. Antarctic and oceanographic research programs.

In 1974, Jack, subsequently known as John, left the Foundation to become the first Executive Director of the newly established Marine Mammal Commission. The Commission and its Committee of Scientific Advisors on Marine Mammals were established to overview and provide advice to Congress and the responsible regulatory agencies on actions necessary to meet the intent and provisions of the 1972 Marine Mammal Protection Act. Under his direction, the Commission acquired a reputation for providing advice based on sound science, and when appropriate, taking into consideration uncertainty concerning the science and the possible socioeconomic and biological-ecological consequences of alternative management actions. Until his retirement in September 2000, the Commission maintained an active interest and involvement in Antarctic matters, particularly those affecting the conservation of marine mammals and marine ecosystems in the Southern Ocean. As one example, the Commission played a leading role, working with the Department of State, the NSF and the National Marine Fisheries Service, to formulate and implement the "ecosystem approach" to living resource conservation embodied in the 1981 Convention for the Conservation of Antarctic Marine Living Resources.

In addition to his leadership role in marine mammal and marine ecosystem conservation, John was a proponent of land stewardship through youth education. He served on the Board and in 1986-89 and again in 1997-99 was elected Chairman of the Board of the Student Conservation Association, incorporated in 1964 to give high school and college students first-hand

experience working in and promoting stewardship of the country's national parks and refuges. From 1990 to 1994, he served on the Strategic Advisory Council of Yale University's School of Forestry and Environmental Studies. After his retirement from the MMC, he served on the advisory boards of The Ocean Conservancy and the Marine Conservation Biology Institute. His dedication and unique contributions to conservation, science, and public service have been widely recognized.

In 1966, "Mount Twiss" in the Ellsworth Mountains was named in his honor; in 1993 he received the Outstanding Public Service Award from the American Society of Public Administration; in 2000 he received the Founders Award from the Student Conservation Society; and in 2006 he was elected an honorary, emeritus member of the Society for Marine Mammalogy, the only non-scientist ever to be so honored.

John made a difference in the world. He was an outstanding public servant, a generous friend, and a role model for all of us. Friends and colleagues who knew him, and would like to help keep his legacies alive, can make contributions to the Student Conservation Association, or the endowment for the "Twiss Award" established by the Society for Marine Mammalogy following his retirement from the MMC in 2000. Contributions to the SCA should be sent to The Student Conservation Association, Attn. Vicki Cota / JRT, P.O. Box 550, Charlestown, NH, 03603-0550. Contributions to the endowment for the Marine Mammal Society's Twiss Award should be sent to Steven Swartz, Treasurer of the Society for Marine Mammalogy, at 14700 Springfield Road, Darnestown, MD 20874. Contributions to both organizations are tax deductible. **Bob Hofman.**

WHAT DO THE TOURISM NUMBERS MEAN? (By *John Spletstoeser, Advisor to IAATO.*) As planning develops for the coming tourism season in Antarctica, 2009-10, the International Association of Antarctica Tour Operators (IAATO) is busy

preparing for it, by informing its members of requirements needed for proposed itineraries within the Antarctic Peninsula, the area of most of the tourism cruises, the remainder occurring in the Ross Sea area. Seasonal instructions have already been forwarded to all operators, much of it similar to previous seasons, but with an addition based on a health concern. British Antarctic Survey, which for some years has allowed tour ships operated by IAATO members to visit its stations (Rothera, Signy, Halley), has cancelled all visits by tour ships this coming season as a precaution against swine flu infecting station staff. It is not uncommon for incoming guests/tourists/station staff to visit a station where winterovers have not had any visitors, and the first occurrence often means an introduction of common colds or worse.

Although the numbers of tourists, operators, ships, and yachts have grown over the past decade or more, the sagging economy showed itself in the tourism industry in the 2008-2009 austral summer, the active season spanning October into the following March. The industry is managed by IAATO, an organization founded in 1991 to advocate, promote, and practice safe and environmentally responsible private-sector travel to the Antarctic. From an initial number of seven founding members in 1991, the organization has now grown to 110, consisting of ship owners and charterers, travel agents, ship agents, conservation groups, service companies, and government offices. The 110 members are based in 16 countries plus the Falkland Islands/Islands Malvinas. The IAATO website at www.iaato.org includes tourism numbers, Information Papers presented at Antarctic Treaty Consultative Meetings, Directory of all the members, Environmental Guidelines, and other information for public referral.

A few brief statements illustrate what the tourism numbers mean, by way of comparing selected seasons of operation, some trends, and the modes of travel of a mainly ship-borne industry.

1999-0 * 17 operators * 21 ships/yachts * 13,687 passenger landings * 936 cruise-only passengers

2008-09 * 44 operators * 51 ships/yachts * 26,933 passenger landings * 10,652 cruise-only passengers

There were 112 different nationalities represented in the tourists for the 2008-09 season, with most from the U.S., U.K., Germany and Australia.

For the 23rd consecutive year, land-based activities such as mountaineering have operated from Patriot Hills, Ellsworth Mountains, managed by Adventure Network International (plus Antarctic Logistics and Expeditions), with nearly 500 people involved in the 2008-09 season (273 clients, the remainder consisting of government visitors and VIPs, guides, staff, and air crew).

Prior to 1999 there were no cruise-only operators, an activity that has increased greatly since then because of the popularity of larger vessels. IAATO Bylaws do not permit landings of passengers from ships with more than 500. Also, the 2008-09 figures are all reduced from the previous season (2007-08) (about 18% for landings), presumably a factor of the economy. When looking at the total number of tourists visiting Antarctica, it should be kept in mind that the 'footprint' (those making landings) is less than the total, thus reducing the overall potential environmental impact on the continent. Tourism has no stations on land, the ship providing the 'hotel', as it were.

For a recent article on tourism, readers can find more at the Society website where an article from September 1, 2009, in the *Providence Journal* (Rhode Island) provides an honest assessment of the industry.



The Antarctic Society

"By and For All Antarcticans"

VOLUME 09-10

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NO. 2

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BRASH ICE. Dr. Roy Cameron recently issued a complaint that comes regularly into our office, both from old geezers like Roy and from young recruits: they find little in our Newsletters which is about events in their era. Well, we have members from fifty different years, and what we try to do is find current news which is of some current significance. If you are a true Antarctic, we feel you would like to know what we think is happening on the ice.

But as we approach the 100th anniversary of both Amundsen and Scott reaching the Pole, there may be an overload on those expeditions. But here is an anniversary story which appeared recently thanks to the AP which should be of interest to all. Ken Moulton forwarded the news about Scotch whiskey discovered recently beneath the floorboards of Shackleton's hut at Cape Royds. In Shackleton's 1907-09 Antarctic expedition, 15 men wintered at the hut at Cape Royds, as did two crates of McKinlay & Co. Scotch whiskey. After all the years of "Scotch on the Rocks," the crates were discovered in 2006, embedded in ice beneath floorboards of the hut. The New Zealand Antarctic Heritage Trust will attempt to remove some of this treasure this coming year, perhaps returning a bottle to the company, now called Whyte & Mackay.

The biggest anniversary stories for this Newsletter are several accounts on the ill-fated DC-10 crash 30 years ago on Mt. Erebus. A couple of our "staff", namely John Spletstoesser and Tom Henderson, were actually at McMurdo on that terrible day. And it was a terrible day for many of us Polies who had gotten to love Peter Mulgrew like a brother after his elongated stay at the Pole after arriving there with Ed Hillary's party. There is a rather long and very interesting letter from Peter to PCD which appears on our web-site. Read it. And in recent days our beloved voice from Christchurch, Margaret Lanyon, has sent us many very interesting articles from their local press which updates us on several aspects of the crash.

And probably you have heard or read news items on the final disposition of the Dome at the South Pole. As we go to press, it looks like the brain trust hasn't made any final decision as to where this large piece of Antarctic history is destined. Read all about it herein, and if you feel strongly about your personal feelings, let Ballston know.

Talk has continued to arise as we approach the 100th anniversary of Amundsen's arrival at the South Pole as to whether anyone could locate and excavate his tent. An attempt was made in 1993-94, without success, but a real coup would be if they could find the tooth that had to be extracted by Amundsen after they reached the Pole.

We deeply regret to announce the passing of a most dearly beloved member of our Society, one of our past Vice Presidents and former member of our Board of Directors, Pete Barretta. He died November 16th, at age 89, after 25 years of fighting various ailments. He was a sweet, kind, most considerate person, and had the most extensive polar aviation souvenir collection of cachets in existence. Pete, we loved you, and will sorely miss you. Say hello for us to your dear friend and ours from Meadville, Ruth.

As you may have noticed, this Newsletter is getting more and more like a staff production, especially this one. John Spletstoesser wrote several articles, assembled all the inputs, and edited the material. We now have a Presidential Letter in which Charles Lagerbom reports on his fantastic freebie scanning services. Tom Henderson brings us up to date in each issue with the current on-going additions. Two ex-presidents, Art Ford and Rob Flint, have book reviews herein. Our overseas correspondent, Margaret Lanyon, is ever providing information from Kiwiland, and Polly Penhale tells us about some of the activities at NSF. Billy-Ace Baker was an unpaid consultant-at-large for this issue. Truly "By and For All Antarcticans."

I, Paul Dalrymple, have been writing Brash Ice for evermore, write an occasional anonymous article, usually assemble the Newsletters, send out membership notices, mail calendars, and answer a lot of mail. A non-Antarctican, Jo Lindsay, puts the Newsletters to bed when she is not playing tennis, ice hockey, sailing, or whatever. Then the team of Grace Machemer and I put

labels and stamps on envelopes, and stuff them with Newsletters. Really a team effort.

HEADS UP. *Antarctic Festival*, Christchurch, New Zealand. Commencing September 27, 2010

LETTER FROM THE PRESIDENT. By Charles Lagerbom. Photos. Journals. Movie film. Letters. Patches. Slides. Clothing. Anecdotes. Any and all of these items about your time in Antarctica are unique treasures that are historically important. The Society is working hard to get members and others to identify, catalog and preserve these personal experiences. The slide scanning service is moving a tremendous amount of images onto a new digitized format, cataloging and preserving thousands of images that otherwise might be lost. Our webmaster has started a voice-recording program that enables participants to record their stories, narrate their photos and films, and air their thoughts about their time on the ice. The website has also been posting photos, diaries, philatelic material, recordings, video and other items as well. Many members (and loved ones of past members) have been willing to share their materials and tell their stories. Please join them and take advantage of these possibilities by contacting me or the webmaster, Tom Henderson. We are willing to go to great lengths to ensure that your personal experiences with Antarctica will not be lost or forgotten. On other Antarctic Society fronts, there are talks underway about the fate of the geodesic dome at the South Pole due for demolition this year. Discussions are also taking place about the possibility of getting the *Antarctic Journal of the United States* digitized with a searchable database and put on our website.

We are closing in on the 9,000th slide to be scanned. Nearly twenty collections have been or are in the process of being cataloged and scanned. Some collections contained over a thousand slides, some under a hundred. Some are from the 1950s and some from the previous decade. Some represent

just one season or a short visit while others represent an entire career of work on the continent. What I find most interesting are the shots of everyday life at the stations, in the field, on a ship, or what they did for fun or amusement. The people do not seem to change all that much, maybe clothing or hairstyles, but not the expressions and poses and backgrounds which seem to provide a continuity and a sense of timelessness about Antarctica. That is why the attempt to provide a voice-recorder to people to narrate these images and provide their personal impressions would make this an even more powerful and historically important work of preservation. So please consider contacting Tom Henderson, our webmaster, for details on making use of the voice-recorder.

WEBSITE UPDATE. By Tom Henderson. The material for Time Trek keeps coming in on a regular basis, more regular than I can keep up with. However, I have taken time since the last newsletter to completely revise the Time Trek User Guide to be consistent with the current version of the application. A lot has changed since the original Guide was posted so the revision was badly needed. Now you can follow the examples in the Guide and they will match what you see on Time Trek. You will find a link to the Guide on the left-hand column of the Time Trek main page.

More images are coming (I promise!). I am in a happy dilemma now as the Scanning Service continues to be a great success (see the update by Charles Lagerbom in this newsletter) so the pipeline of new images is full-to-bursting. I am striving to meet my goal of posting at least 30 new images each month.

Work has begun on restructuring the database tables behind Time Trek. This will allow much more flexibility in linking not only events but also stations, features and even images to all sorts of additional information. For example, a feature description could be linked with an image showing that feature, or a station description

could be linked with a document from the early days of the station or an old film of the station. This is all aimed at making Time Trek a valuable multi-dimensional historical resource.

Finally, those of us who use computers extensively every day tend to forget that not everyone is “computer savvy.” So here are a few things that some users of the website might not be aware of:

- Any time you see a bit of underlined text on the website, chances are that it is a link to another website page or to a document. You can tell for sure by passing your mouse cursor over the text. If it changes color, it is a link! Clicking on these links takes you to the new page or the document.
- Clicking anywhere in the banner of any page on the website (the part that has the title “The Antarctic Society” and the logo) will take you directly to the Home Page of the website.
- The “What’s New” title on the Home Page is a link by itself. While items of current interest are listed below this title, there is a separate What’s New page that contains a lot of additional material, including a table of changes to the website.
- Popup windows are used extensively on the website. These are windows that appear over other windows and are smaller than the main window on your computer screen. They can be expanded to full screen size by clicking the small “square” symbol in the upper right of the popup window. The size of the popup window can also be expanded to your liking by putting your cursor on the side you want to expand, holding down the left mouse button, and “dragging” the side out to make the window larger. Finally, some browsers by default do not allow popups. If you get a

message saying that popups are blocked, there is usually another part of the screen (a yellow strip near the top for the Internet Explorer browser) that allows popups if you click there.

Late breaking news! Google has just announced that Version 5.1 of the Google Earth plugin is now in final release. This update has fixed some bugs but most importantly has included support for MacIntosh right in this version (previously Mac users had to download a separate version of the plugin). Once the plugin is installed in your browser, it automatically detects and supports applications that have imbedded Google Earth – such as Time Trek. You can download the latest version at <http://earth.google.com/>.

WHO'S WHO AT NSF/OPP? New appointments, and one veteran departed. Karl Erb, Director of the Office of Polar Programs, recently announced some new faces. **William Colston**, Director of the Antarctic Infrastructure and Logistics Division (AIL), replaced Mr. Erick Chiang. Mr. Colston was formerly at the U.S. Department of State, Bureau of Overseas Buildings Operations, and Department of Defense Renovation Program following the Sept. 11 terrorist attack. Prior to that he was in private business and also an officer in the U.S. Coast Guard.

Brian Stone is Deputy Division Director of AIL, with 18 years experience in polar operations, logistics, and research support. **Dr. Alexandra Isern** is Program Director for Antarctic Earth Sciences, was formerly at the NSF Division of Ocean Sciences, and taught at the University of Sydney.

AIR NEW ZEALAND FLIGHT 901 AND MOUNT EREBUS –30 YEARS LATER.

(By John Spletstoeser, with input by Margaret Lanyon.) On flights that Air New Zealand initiated in February 1977, tourists enjoyed the long flight from Auckland to McMurdo and scenery of the Transantarctic Mountains and Ross Island

and return to Christchurch. Flight 901 on November 28, 1979, was different, resulting in the DC-10 crashing into Mount Erebus at an elevation of about 1,500 feet on its southbound itinerary, killing all 257 on board – 237 passengers and 20 crew. A whiteout certainly contributed to the accident, merging the cloud layer with the white of the mountain, resulting in a 'go-around' attempt to be too late. How such a disaster, the worst aircraft catastrophe in Antarctica, could occur is still a contentious issue, even though an accident report of May 1980 resulted in pilot fault as the cause. Further investigation by justice Judge Peter Mahon, however, indicated that the airline changed the computer track of the aircraft without informing the air crew, thus placing the DC-10 east of the original route and on a collision course with Mount Erebus. Claims were made that a whitewash developed, with airline executives and management pilots acting in a conspiracy to exonerate the airline. Air New Zealand appealed to a Court of Appeal, and Mahon appealed to Privy Council in London. The upshot was that the Court of Appeal verdict was upheld, and Mahon's appeal was out of order and dismissed. This legal entanglement probably did not resolve anything, and the families of the victims are still in a quandary and not convinced of a true resolution.

Although the families that received compensation (averaging \$100,000) for the victims were sworn to secrecy, the information was revealed in an article titled CRASH CASH UNCOVERED in the Christchurch Star, 18 November 2009, sent by Margaret Lanyon. The 200 New Zealanders received a total of \$21 million (all these figures presumably in N.Z. dollars). About a third (\$6.9 million) was paid by the Government after Civil Aviation was named in a class action by a passenger consortium. The consortium sued Air New Zealand, and also the Crown for failing to monitor the planning and preparation of the flight. Another \$4 million was paid to families of the 24 Japanese. Payouts varied

depending on personal circumstances, with families of the most elderly receiving less than \$25,000. After more than 2 years, compensation was settled out of court when airline insurers, Lloyds and AIG, “did a deal” with the Government.

Some unknowns still remain, even though the cockpit voice recorder and digital flight data recorder were recovered, along with the instrument panel of the wreckage. A Press Clip sent by Margaret Lanyon from the Christchurch Star, 18 November 2009, provided details of the “Notebook Mystery,” involving a diary and the pilot’s flight bag, found near the body of Captain Jim Collins, the man in charge of Flight 901. The flight bag later went missing and has never been found. Pages from the diary that were originally seen with wording and numbers legible, and another with Collins’ name, turned up in a different condition. When a black diary found its way to Collins’ widow the pages seen earlier by two individuals at the crash site were gone. An accident inspector at McMurdo declared there was nothing relevant in either of the diaries. After 30 years have passed, some of the individuals involved in researching the event have passed on, and the issue could be attributed to a conspiracy, but remains unsolved.

Because of the time of the season, field parties were waiting in line to begin field work, but delays occurred for reasons of weather and also the accident. McMurdo was experiencing a busy time, with a group of Distinguished Visitors (DVs) there on a tour of station and also to commemorate Admiral Byrd’s flight over the South Pole on Nov. 29, 1929. The ceremony was held on November 28 at the bust of Admiral Byrd next to the Chalet, with speeches made by some who were on that expedition (Larry Gould, Norman Vaughan), as well as relatives of Byrd (Senator Robert F. Byrd, Jr., Byrd’s great-grandson Robert Byrd Breyer), and NSF’s National Science Board members Grover Murray and Norman Hackerman. NSF Rep Dave Bresnahan had

the honor of guiding the distinguished group on this historic event. The original plan was to fly the dignitaries to the Pole the next day, 50 years after Byrd’s flight, but was modified because of the DC-10 crash. A few individuals did visit Pole the next day, but not all of them. The quick flight to Pole, with a minimum of time on the ground, was followed by a return to McMurdo and transfer from LC-130 to a waiting C-141 and a flight to Christchurch.

News of the missing DC-10 aircraft found its way quickly around the station, and discovery of the crash site confirmed the tragedy. The outcome was the dedication of helicopters and pilots, plus a team of investigators from New Zealand, as well as the survival team of mountaineers at Scott Base and McMurdo, to spend the next days at the crash site to collect bodies and body parts for return to McMurdo, and ultimately to New Zealand. Of the passenger and crew manifest, 213 were identified. Nationalities included 200 from New Zealand, 24 Japan, 22 Americans, 6 British, 2 Canadians, and 1 each from Australia, France, and Switzerland. One of the field programs scheduled for that austral summer was a large helicopter-supported camp in the Ellsworth Mountains, with a large complement of geologists and surveyors with three helicopters and flight crew. The upshot was a late start, with me, Tom Henderson and others waiting for the season to start, having been delayed for a time by the crash and also weather problems. Good weather and generous support by helicopters and crew resulted in a successful season, despite the delay.

What has happened since? New Zealand instituted a “Special Service Medal (Erebus)” in Nov. 2006 to recognize the service of New Zealanders, Americans and others involved in participation at the crash site and directly involved in any activity related to the crash. Dave Bresnahan received the medal, whereas Billy-Ace Penguin Baker, USN communications at McMurdo who provided ‘comms’ during

Search and Rescue and recovery operations, did not, but knowing Billy-Ace, he would have made sure that other Navy personnel who were more directly involved received the medal.

In addition, on October 23, 2009, the Air New Zealand CEO unveiled the sculpture “Momentum” at the company headquarters in Auckland to commemorate the event and the anniversary. Meanwhile, an aluminum cross has been erected at Scott Base to acknowledge the accident, and the site of the crash itself (77°25’30”S, 167°27’30”E) has been designated as a Tomb “to be left in peace” by Antarctic Treaty Parties at its Consultative Meeting XI, Buenos Aires, 1981. In a news clipping of December 1 sent by Margaret Lanyon, a story of healing and closure was told about relatives of the crash victims who were flown to McMurdo in an effort to place a wreath and other items at the crash site, but unfavorable weather conditions on Mt. Erebus made a visit impossible. Instead, a memorial service was held for the relatives at Scott Base, and all returned to New Zealand afterward.

DOOMSDAY FOR SOUTH POLE DOME. By John Splettstoesser and a Pole winterer, Tom Henderson. The Dome at South Pole Station is about to become history. As we are writing this, snow drift is being removed from the base of the Dome in order to begin the dismantling process. It was dedicated in the 1974-75 season, and was officially replaced by the new facility in January 2009. Early on, drifting began to be an issue, as it has been with almost all Antarctic stations. The answer is the remarkable structure designed as an above-surface station that is supported on pillars, allowing blowing snow to pass beneath the station, rather than drifting upon the sides of buildings. The expert builder of the new station is to be commended for providing us and NSF grantees with a modern structure on the ice. His name is Jerry Marty, a name not to be forgotten, formerly with the NSF / OPP staff but retired as of this year. Translation: we cannot rely on Jerry to

contribute to this article because of his restriction by NSF to not engage in anything related to his former employment. There is a fancy acronym for this, but it doesn’t matter. Jerry is still ‘Mr. South Pole’ in our eyes. He also helped us in establishing the naming and the space for the ‘Ruth Siple Memorial Library’ at the new South Pole Station.

Now, to the point. After all the dialogue about the Dome and what to do with it, environmental reasons related to the Antarctic Treaty dictate that it will be removed. How to do it? This season, the three upper rings of the 55-foot-high Dome are to be removed and will hopefully be preserved after transport to Port Hueneme, California, to become part of a museum.

The bulk of the dome, which has 904 panels and 1,448 struts in all, is held together by about 60,000 bolts, all of which would have to be cut apart. NSF has budgeted \$150,000 for the project to remove the dome, which is scheduled for completion in March 2010. That is not too far away, and NSF cannot budget the supplementary funds. NSF might already be trying to extend the March 2010 date for an additional year, but the point is that a budget of \$150,000 is far under budget to remove the dome and have it transported to Port Hueneme. An estimate of \$500,000 above the \$150,000 is more like the actual cost to disassemble the entire dome bolt by bolt and shipping it stateside. The option of removing the entire dome, which is mandatory, and disposing of its parts in a landfill or recycling plant, is abhorrent to Polies, as you might expect.

ICEBERGS ARE HEADING NORTH. From Margaret Lanyon, modified by John Splettstoesser from Christchurch Press, 24 November 2009. More of Antarctica is losing its ice, as evidenced by possibly hundreds of icebergs floating toward New Zealand. The icebergs are visible on satellite images, which implies 200 meters across or more, and might have

come from the Ross Sea area and broke off the Ross Ice Shelf, floated northwest toward Cape Adare and then were caught up in the circumpolar current, but escaping in currents that brought them farther north. Another possibility is that the source could be any of numerous ice shelves around the continent's perimeter, and currents brought the bergs around the coastline to an area of currents that diverted them northward. Iceberg movement is primarily by ocean currents rather than winds, because about 90% of the ice is below the water line.

Large icebergs as much as 2 km long were seen earlier in November off Macquarie Island, so the ones recently sighted are probably broken remnants of those. The current icebergs were seen by Rodney Russ on the polar tourist vessel *Spirit of Enderby* off New Zealand's Auckland Islands, heading north toward the South Island, about 450 km away. In Nov. -- Dec. 2006, large icebergs were seen off the coast near Dunedin, South Island, and became a tourist attraction. A helicopter company flew clients to the icebergs for close viewing for up to \$330, in one case landing on a berg that had Adelie penguins on it. The farthest north sighting of an iceberg was in the South Atlantic Ocean on 30 April 1894 from the vessel *Dochra* -- 26° 30'S, 25° 40'W -- between the latitudes of Rio de Janeiro (22° 57'S) and Buenos Aires (34° 35'S).

WOMEN IN ANTARCTICA – 40th ANNIVERSARY. By John Spletstoesser. It was the 1969-70 summer season in McMurdo, when something different was apparent--- there were women walking the streets of Mac-Town, something that had never occurred in the past. The U.S Navy, relaxing from its mandate of no women on board Navy ships or on Antarctic assignments, worked with NSF (and Colin Bull, Director of the Institute of Polar Studies, The Ohio State University (OSU), who promoted the idea) to agree to women on NSF-funded projects in Antarctica. Previously, Mary Alice McWinnie had the

privilege of conducting her biology programs on the *Eltanin*, but never got ashore until some years later when she wintered at McMurdo. The name Lois Jones will live in immortality as the leader of an OSU field party to work in the Dry Valleys. She enlisted three other women, two of them wives of men who had already achieved reputation as researchers in the field in the Antarctic -- Kay Lindsay (wife of John Lindsay, geologist), Eileen McSaveney (wife of Mauri McSaveney, geologist), along with Terry Tickhill, an undergraduate student, for the field work. In addition, a reporter from a Detroit newspaper, Jean Pearson, accompanied the women to Antarctica to report on this historic event. Further women in the programs that year included Christine Muller-Schwarze, wife of Dietland Muller-Schwarze, Principal Investigator of a study on penguins at Cape Crozier, and Pam Young, wife of a New Zealand biologist, working out of Scott Base.

All went well, as expected, no mishaps or perturbations in the program occurred, and women have been in Antarctica ever since. For example, there were 33 women at the South Pole, photographed on November 12, 2009, on the 40th anniversary of the event in 1969-70. More than 50 women are working at the Pole this year, 2009-10. More than 160 women have wintered at South Pole since Lois's intervention in the program, including Dr. Michele Raney, M.D., who was the first woman to winter at the Pole.

"GOING WITH THE FLOE?"— An analysis of luck versus skill in the epic polar expeditions of Fridtjof Nansen and Sir Ernest Shackleton," *American Scientist*, v. 97, Nov.-Dec. 2009, pp. 484-493. By Stephanie Pfirman (Barnard College), Bruno Tremblay (McGill Univ.), and Charles Fowler (Colorado Center for Astrodynamics Research and developer of Ice Tracker). (Review by Art Ford)

Nansen's 1893-1895 Fram and Shackleton's 1914-1916 *Endurance* expeditions at opposite ends of the Earth had much in common, as the

authors describe, notably in that both were beset in ice, after which their travels were at the whim of the pack, driven erratically at times by winds and currents. All occupants of both ships survived, although outcomes of the two ships were far different. The restored *Fram* now resides on display in an Oslo museum; while debris of the crushed *Endurance* lies scattered somewhere across the floor of the Weddell Sea.

In order to assess various possible drift paths of these vessels under different ice conditions and the possible scenarios for their different eventual fates, the authors used a computer program, Ice Tracker, as well as modern ice variations obtained from satellite data banks. Information on this software, developed at the University of Colorado, Boulder, is located at <http://tinyurl.com/icemotion> and the Ice Tracker tool is at <http://tinyurl.com/icetracker>. Using this tool and the sea ice data, the authors produced possible ship drift tracks for the years 1981-1997 that might have occurred over different years starting from their known besetment points. Possible tracks are highly diverse. For Nansen's drift, some possible routes would have taken him to his goal of a drift across the North Pole; whereas for Shackleton, possible routes farther east would not have been in regions of thick, multiyear ice under compression near the Antarctic Peninsula, and wherein the *Endurance* might have escaped the pack to sail back home to England. Quite interesting speculation, indeed, but of course there are other considerations that might help explain differences in outcome, such as differences in ship construction.

But there is one other question to ponder: Why did Wilhelm Filchner's 1911-1913 ship *Deutschland* escape from being crushed after being beset near the edge of Filchner Ice Shelf not far from that of *Endurance* later? It would be interesting to plot the *Deutschland*'s track on the authors' diagram showing drift of *Endurance*. This well-illustrated report is one that any Nansen or Shackleton addict would find of considerable interest.

RETURN TO ANTARCTICA: *The Amazing Adventure of Sir Charles Wright on Robert Scott's Journey to the South Pole.* Adrian Raeside, John Wiley & Sons Canada, Ltd., 2009, 324 pages hardback, \$29.95 US. Reviewed by Rob Flint

In a way, Sir Charles was my first employer. When I graduated from a Master's Degree program in electrical engineering at Stanford University my first job was a research assistant at Byrd Station, Antarctica. One of the programs for which I ran equipment and collected data was the recording of magnetic micropulsations for Pacific Naval Lab of Victoria Canada. This program was under the direction of Sir Charles, who had been the physicist on Scott's last expedition. To prepare for this program, I was sent in fall of 1963 to Victoria to meet Sir Charles and to be trained on his program. We met several other times in the next few years, most notably at McMurdo Station in December of 1965, when he and I took a walk up to the gap on the way to Scott Base on a beautiful day - and inadvertently threw the McMurdo authorities into a tizzy, when the MOST distinguished of their Distinguished Visitors went missing! (We knew where we were). It was therefore with great interest that I read Sir Charles' grandson's book. Raeside has a triple blood connection to Scott's expedition: not only is he Sir Charles' grandson, but is also great nephew to expedition members Raymond Priestly and Griffith Taylor. This book is in part inspired by a tour Raeside took in the 2008-2009 austral summer on the Kapitan Khlebnikov, when he visited the historical huts in McMurdo Sound as well as the site of the incredible survival of the Northern Party at Evans Coves.

Raeside is a political cartoonist, and his cartoonist wit and irreverence - ("The Royal Geographic Society was founded in 1830 to promote the advancement of geographical science-and as a discreet place to drink ones face off.") - makes this book a delightful entertainment as well as a good retelling of the story of the ill-fated expedition. The

book contains a thumbnail history of Antarctica, but it is mainly the story of the Scott Expedition and especially the role of Sir Charles (or Silas as he was known then). There are many quotes from Silas' diaries. Silas was well aware of Scott's weaknesses, and he did not like the strict Naval discipline that Scott enforced, but he got along well with other expedition members and was apparently well-liked and respected. Raeside does describe the squabbles among the expedition members – we are fortunately past the age in which those things were ignored or glossed over. Scott's errors are described honestly and generally sympathetically ("It is a pity that Scott was in the Antarctic before. He learned all the wrong things"). Many sidebars and asides give information about expedition members, comparisons to the 1908 Shackleton expedition, and Amundsen's concurrent progress toward the South Pole.

Pat Wright and Colin Bull's book *Silas* (Ohio State University Press, 1993) has a more complete version of Wright's memoirs, but the present book brings a unique perspective and a modern day look at Wright and the heroic age of Antarctic exploration. With many historical black and white photographs, drawings by Pat Wright and the author, and a complete index. Contains a few misprints and typos.

NASA ICE CAMPAIGN IN

ANTARCTICA. By John Splettstoesser, with excerpts from NASA website and *Antarctic Sun*. 'Operation Ice Bridge' is a 6-year campaign of annual flights to each of Earth's polar regions. The Fall 2009 campaign in Antarctica, led by Principal Investigator Seelye Martin, University of Washington, already began with the first flight on 16 October, with 17 flights planned over different parts of the continent this Fall, focusing on the ice sheet, glaciers and sea ice in West Antarctica. Flights are made on a NASA DC-8 instrumented aircraft with the objective to collect data that will bridge the gap between NASA's Ice, Cloud and Land Elevation Satellite (ICESat), presently

operating, and ICESat-II, scheduled for launch in 2014. ICESat was launched in January 2003, and since then, its sole instrument – a precise laser altimeter – has helped scientists map ice sheet elevation, calculate sea ice thickness, and monitor changes in both. Dr. Jay Zwally of NASA's Goddard Space Flight Center, Greenbelt, Maryland, and ICESat investigator on the mission said that shifts in surface elevation have previously revealed the draining and filling of lakes below Antarctic ice, something otherwise unknown. Robin Bell, Lamont-Doherty Earth Observatory, is another investigator on the mission.

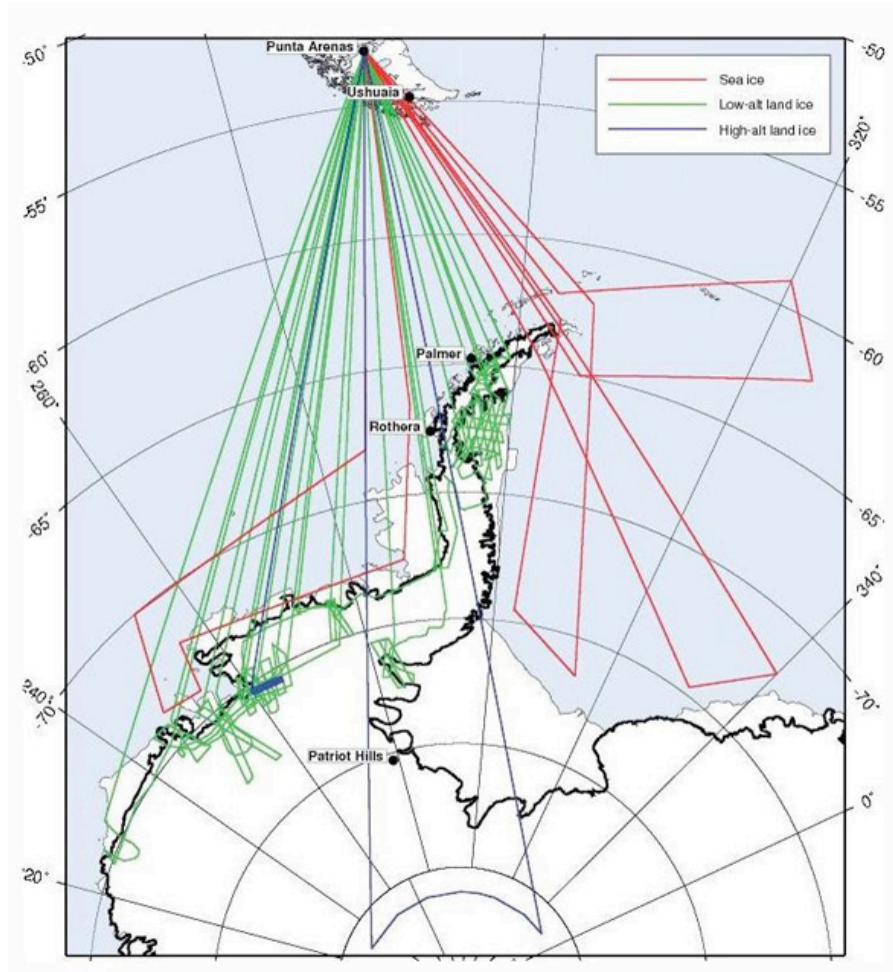
Among the variety of 'gee-whiz' equipment that includes lots of buzzwords and new acronyms, NASA's includes an Airborne Topographic Mapper (ATM), which pulses laser light to the ground that is reflected back to the aircraft, resulting in elevation maps of the ice surface. University of Kansas scientists operated a Multichannel Coherent Radar Depth Sounder, which measures ice sheet thickness and varied terrain beneath the ice. A Snow Radar measures thickness of snow on top of sea ice and glaciers, a Ku-band radar altimeter measures surface elevation of sea ice and ice sheets, and a Laser Vegetation Imaging Sensor, developed at Goddard, mapped large areas of sea ice and glacier zones from high altitudes. Finally, a gravimeter measured the shape of seawater-filled cavities at the edge of some fast-moving major glaciers. As expected, the disintegrating Larsen Ice Shelf and Pine Island Bay were major targets of the flights.

(See figure on page 10, which shows flight paths in red to measure sea ice; green to measure low-altitude land ice; and blue for high-altitude land ice.)

Think back to IGY and succeeding years when Charlie Bentley, John Behrendt and others on oversnow traverses on Sno-Cats set off seismic charges to measure ice thickness and dug snow pits for firn stratigraphy, gradually gaining point

information in remote parts of Antarctica. In the 1970s, radio-echo sounding from LC-130 aircraft advanced the state of the art even more to determine ice thickness and suspicions of subglacial lakes, on a continuous basis in a series of overflights in grid patterns. Now we no longer have to resort to Sno-Cats or Herc flights to ‘read’ virtually everything the ice sheet has on its surface and inner sanctum, but can fly a DC-8 aircraft from Punta Arenas, Chile, the center of operations for Operation Ice Bridge, to the Peninsula, and 11 hours later land at home base and sip pisco sours in a comfortable hotel.

It makes it difficult to tell young-uns war stories in the future, but we are grateful to advances in technology for making it all possible.



In addition to NASA, NSF was not directly involved in supporting Operation Ice Bridge, but assisted NASA with an environmental assessment of the project. Low-altitude flights at about 450 meters, one of the planned altitudes for some of the data collection, could have disturbed penguin and seal colonies, according to Polly Penhale at NSF, so by knowing where all those colonies are located along the length of the Peninsula, flights were planned to avoid them altogether.



The Antarctic Society

"By and For All Antarcticans"

VOLUME 09-10

APRIL

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BRASH ICE. It has been a long, long time since our last Newsletter. Has global warming or the health care reform bill held us up? We actually look for a top line story to highlight our Newsletter, and we have had two on the burner since late fall, but were told along the road by Washington to avoid writing about them at this time. One was a scheduled announcement on the award of the next Antarctic contractor, which was supposed to have been last fall. We still don't have the green light on that one, but now we find others are going ahead and putting it onto their web site. So why not us? It seems that the powers-to-be requested additional information, and this has all taken time. Now it appears that the selection will not be made until some time this coming fall.

The other item that they were holding off on was the final disposition of the dome at South Pole Station. How could this be considered a secret when personnel were on site dismantling the dome, packing it up, and sending it off to the States? And recently this news has been shown on various web sites, as well as the Antarctic Sun.

However, your Society has not been exactly underground for the past few months. Our web site, under the guidance of our hard-working webmaster, Tom Henderson, never takes a holiday. You should access our web site on a continuous basis, as Tom is always adding new items. We are so proud of what Tom has done, and he is bringing in all kinds of accolades for what he has and is doing. Meanwhile, our ever-working president, Charles Lagerbom, continues on a non-reimbursable basis the scanning of your polar pictures. What a team, be sure and read their columns in this Newsletter.

Recently there was a most outstanding publication from the International Polar Year, 2007-2008, published by SCAR, the Scientific Committee on Antarctic Research, entitled ANTARCTIC CLIMATE CHANGE AND THE ENVIRONMENT. John Spletstoesser offered to review this publication after he received a complimentary copy from the SCAR office, but whereas I was involved in a companion publication on climate change, CLIMATE CHANGE TO THE YEAR 2000, published by the National Defense University in---get this---1978, I preempted John's offer. Both

of these publications had similarities, although they are highly different. The biggest similarity being that both were the products of a team of experts, SCAR's publication is the end result of a hundred scientists, from many disciplines, from all over the world and pooling their expertise. The one I was associated with employed only climatologists, twenty in number, including the distinguished Hubert H. Lamb, Helmut Landsberg, J. Murray Mitchell, Reid Bryson, Hermann Flohn, Will Kellogg, and Steve Schneider. We even used climatologists known to polar people, like Wally Broecker, Willi Dansgaard, Roger Barry, Harry Van Loon, Jerome Namias, and Joseph Smagorinsky. Our study was initiated by the Department of Agriculture, who was concerned with northward movement of crops with global warming. As I look back at our work, done 40 years ago, we were looking as far downstream as the year 2000! And as we look at the names of our experts, only a few are still alive. Life is precarious, we are mere mortals.

Climate is the tale that has wagged the dog named Antarctica, going back to and including the Byrd expeditions. Probably the best known of all Antarctic climatologists, certainly in the States, came out of Byrd's First Antarctic Expedition, from Erie, Pennsylvania, Explorer Scout Paul Allman Siple, our Society's 2nd president. From that same expedition, Henry Harrison, meteorologist, became the very first certified Consulting Meteorologist of the American Meteorological Society. One could argue that Mort Rubin, Harry Wexler's right hand during the IGY, was as much climatologist as meteorologist. Joe Fletcher of Fletcher's Ice Island, T-3, was an Antarctic climatologist of note. J. Murray Mitchell may have been the first pure climatologist that was ever sent by NSF to the South Pole. Bill Spriggs of the National Climate Program Office followed Murray to the Pole, going there several years later.

John Roscoe, one of our Ancients and Honorables, has died, although we were

remiss in the earlier announcement. John was involved in both Operation High Jump and Operation Windmill back in the 1940s. He was born March 23, 1919, in Syracuse NY, and died 23 Feb. 2007, short of his 88th birthday. He was a very well known geographer, and one of his claims to fame was a large publication that does not even bear his name, an extensive bibliography of 147 pages on Antarctica that he produced when he worked for the U. S. Navy. It seems the Navy had a policy then that author's names could not be shown on the cover, so you won't find John's name on the cover. But John, being a wise man, beat the Navy at its own game; inside the bibliography he lists the publication and its author, John Roscoe! It seems that John was a bad pack rat, and his poor widow has been engulfed with his memorabilia, and she has come to our Society for help. Our Society president has a most extensive polar library of his own, and as we go to press it could be that he will come to her rescue.

Another one of the good old boys, American toponymist Fred G. Alberts, Secretary, Advisory Committee on Antarctic Names, 1949-1980, passed away on March 3, 2010, at the age of 88. Pete Bermel described Fred as "one of the nicest and gentlest men that I have ever known". Pete went on to say "the Antarctic community has lost the single-most knowledgeable person in the field of Antarctic toponymy. Guy Guthridge wrote that Fred "continued to provide indispensable scholarly service to the US-ACAN. The U.S. Board on Geographic Names and worldwide users of the Antarctic Gazetteer owe him a large debt for the integrity and wisdom of his guidance and for the unassailable administrative record he created during his tenure as secretary. He was central to the development of international practices for resolving names decisions, earning admiration for the United States throughout the Antarctic Treaty System."

The New Zealand Geographic Board named Mount Alberts at 73°02'S, 167°52'E after

him, and the UK-APC named Alberts Glacier, 66°52'S, 64°53'W after Fred. He made summer visits in 1962-63 to Byrd Station, the South Pole, Hallett Station, and McMurdo Station. He compiled and edited GEOGRAPHIC NAMES OF THE ANTARCTIC, United States Board on Geographic Names, 2nd Edition, 1995.

Fred had an abdominal aortic aneurysm that he had known about for a year or more. It seems that Fred's brother had the same issue a few years ago, had an operation, but lived for only nine more months. Fred decided that he would not go through with the operation, although it evidently weighed heavily on his mind. When he did not feel well on March 2nd, he committed himself to the hospital the following morning. It was determined that the aneurysm was bleeding and emergency surgery was performed. When they tried to restart Fred's heart, it was too weak to handle the blood and restart. He had a talk with his wife, Marilyn, before going into surgery and "he gave her that little look."

If any of you folks are vacationing along coastal Maine this summer, let us know, and we will try to meet you and share a lobster roll.

MEMBERSHIP -- GOOD NEWS, BAD NEWS. Eighty-seven per cent of our members have paid up for this year, but there are still forty-one delinquent members. However, there is a welcome number of multi-year renewals this year, seventy per cent, which we dearly appreciate as it cuts down on our paper work. We had to drop ten members last year who went delinquent on us, and another ten passed away. We only picked up nine new members, so we show a negative gain for the year, leaving us with only 339 total members (when the current delinquents renew!).

We are also most pleased to announce that a goodly number of you (Joe Dukert, Art Ford, Al Fowler, Ann Gallager, Guy Guthridge, Jennie Harter, Austin Hogan,

Garry McKenzie, Ken Moulton, Sy Roman, Bob Rutford, Kirk Spelman, Don Wiesnet, and Rich Wilson) have added contributions onto their checks for the Ruth J. Siple Memorial Library Fund. The Fund is doing quite well, and we hope/anticipate that we will be able to continue to make annual book selections and shipments to the South Pole Station.

Valmar Kurol, our Antarctic musical specialist from Montreal, has come up with ten additional Antarctic CDs which will be shipped off to the Ruth J. Siple Memorial Library.

SINFONIA

ANTARTICA/SHACKLETON/KIRBY/CARR

SONIC ANTARCTICA by Andrea Poli

SHACKLETON VOYAGE by Eureka

ANTARCTIC BALLADS by Cliff Wedgbury

ANTARCTICA by KevOz

T & T REAL TRAVELS IN

ANTARCTICA by Thomas Downie

ANTARCTIC SYMPHONY (Compilation)

ANTARCTICA by Mr. I

ICELIGHT by Michelle Ende

WHITEOUT (Motion Picture Soundtrack)

OUR PRESIDENT SPEAKS (Charles Lagerbom) The Antarctic Society is working diligently to preserve the history of our involvement with the Antarctic Continent. Everyone needs to check out the new and interesting material being posted on our society's web page. We have added photos, documents, audio and digital footage of a lot of our members and their Antarctic experiences. This will only increase in time. The scanning service is also helping preserve thousands of images by putting them into a modern digital format. We hope to see more people take advantage of this service. If you have any questions or would like to participate, please contact us.

There are also some interesting developments in efforts to try and save the South Pole Station Dome, which was taken down this past austral summer. Plans for its

eventual destination, whether it be by shredder for a landfill or safely re-erected in part or totally and preserved, are still up in the air. See our Society webmaster Tom Henderson's report to learn more.

The Society is also working to preserve the collections of materials, memorabilia and other artifacts from members who would like to see them taken care of, appreciated and/or stored in some suitable arrangement. Other polar organizations are in the same boat with older members who might not want to see their materials wind up in the dumpster after they are gone or to have their kids put their things up for auction on Ebay. People have asked me what should they do with their loved one's slides or momentos or other materials (including one who asked me about his grandfather's waffle-weave long underwear!) It is a difficult conundrum and one in which an increasing number of members seem to find themselves thinking about. As Antarctic Society president, I would like to offer the Society's help to anyone in this situation. We can offer to have materials cataloged, archived, digitized and/or possibly stored. The connection and appreciation of our polar past is what makes this society a venerable institution. It is only fitting that we stay active in trying to preserve the legacy and heritage of the members who came before us. If there is some way we can help, please let us know. My new work email address is: clagerbom@rsu20.org or I can be always reached at icechip@bluestreakme.com.

WEBSITE UPDATE (by Tom Henderson).

The restructuring of the database behind Time Trek is nearing completion. The most obvious way the user will see this change is on the popup windows that appear when an event, station, or feature is selected. There will now be tabs at the top of the popup window that, when clicked, will show the user what related information is available. The tabs are for Stations, Events, Images, Features and Links. By default, the category of the original popup is shown first. For example, if I select "McMurdo Station" the

popup will show the description of the station under the "Station" tab. The other tabs may then be clicked to reveal what else in the database may be of interest related to McMurdo. "Links" contain links to any documents, video, audio, websites or other supplementary information that is pertinent. The new structure provides a more organized way of cataloging and making accessible the wealth of historical information that is gradually accumulating in Time Trek. We hope you will find it helpful.

There will be new photos from our slide-scanning project posted in Time Trek on a regular basis. The backlog continues to grow. If you want to know what has been added, click on "Time Trek Content Changes" on the "Time Trek" page.

Other new material that will be posted soon includes an extensive video interview with Jules Madey and a fine video production by Society members Dr. Ed Robinson and Ed Williams, M.D. The former was perhaps the most well-known amateur (ham) radio operator during the IGY and for a number of years following. Jules was only 16 when he first began phone patching for the IGY Antarcticans, but soon developed a reputation as a very reliable and mature operator. He made over 10,000 patches to the Ice. The latter is a documentary of traverses that were undertaken between 1959 and 1961 using the huge Tucker Sno-Cats, including one from McMurdo to the South Pole. Ed Robinson was a scientist on these traverses, but fortunately also acted as filmmaker when time permitted. These are excellent glimpses into traverse life and conditions in those days.

A longer-term project now underway is the audio narration of the extensive photo collection of Dr. Charles Swithinbank by Charles himself, a long-time Society member. He has graciously consented to non-exclusive use of his photos on our website. His collection covers all seven decades of his long experience in Antarctica.

A number of the photos have appeared in his various books, but others will be publicly seen for the first time on our website. His personal audio narration adds a different dimension to the historical aspects of the photos as opposed to just a written description. These will be worth waiting for!

BILL SLADEN, 7-DECADE

ANTARCTICAN. William J.L Sladen and Charles Swithinbank had planned to celebrate their 7th decade as Antarcticans on a cruise in November to Antarctica to include South Georgia, Antarctic Peninsula, and South Orkney Islands. However, Bill has recently fallen upon some tough days. He was recently hospitalized for a minor stroke, but is now home. Because he is in his 90th year and Swithinbank getting along, they have both put this off, at least for 2010. They still might make it! We will keep you posted on the web site. Right now Bill reports a miserable lumbar vertebral collapse, with pain. Incidentally, Bill founded NSF's USARP Bio-Medical Program in 1957, was one of our Society's earliest presidents, and is the only scientist to have presented three of our Memorial Lectures. Please note, this is NOT an obituary, not even a "Swan SONG", just an announcement of the slowing down of one of our most respected and beloved Bio-Medicos (OR maybe better termed Penguinologists!).

It should be mentioned that Bill Sladen introduced Sir Peter Scott and Roger Tory Peterson to their first Antarctic penguins at Cape Crozier in the 1960s. Sir Peter was only two years old when his father, Captain Robert Scott, died on his return from the South Pole in 1912. Later, Scott and Peterson were, with Lars-Eric Lindblad, responsible for bringing women (their own wives) to Antarctica, and thus providing encouragement later for national organizers for the first time to encourage women scientists there. Scott and Peterson each gave one of our Memorial Lectures at the National Academy of Sciences, and helped

much in promoting Antarctic wildlife conservation.

Peter Scott was co-founder of the World Wildlife Fund (WWF) and created its original Panda Logo. However, the Europeans later changed the title to "World Wildlife Fund for Nature" and redrew the Panda Logo. However, under Russ Train's leadership the American branch of WWF insisted in keeping the original title and Scott's Panda Logo. By the way, the American branch is still the largest and most successful branch of WWF worldwide and Peter always stayed with the Trains when in USA and working with Sladen's swans.

DOMES AWAY FROM HOME (from NSF press release of March 9, 2010 with additional information provided by John Perry, Lee Mattis, and Jerry Marty) After more than three decades of service to researchers and staff stationed at the bottom of the world, the dome at the Amundsen-Scott South Pole Station was deconstructed this austral summer. Pieces of the structure are now headed back to the United States for a new duty – a museum exhibit at the new U.S. Navy Seabees museum in Port Hueneme, California.

Designed by TEMCOR of Torrance, CA and constructed by the Seabees in the early 1970s, the dome's geodesic design provided a unique solution to the challenges posed to engineers trying to build structures at the South Pole. The dome was sufficiently strong enough to withstand the weight of snow that would blow onto it, and its round shape helped deflect the fierce winds that blow almost constantly at the site. Because the dome needed no internal columns, it provided a wide and flexible space inside, where it protected buildings housing researchers and support staff, as well as laboratories, supplies, and other necessities from the harsh polar environment outside.

The dome provided a platform for countless scientific discoveries in astronomy, physics, climatology, and other fields, and it also

provided a home away from home for the station's 'winter over' crew during 8 months at the station during the austral winter, much of the time in darkness. The dome could no longer accommodate the demands of research activities taking place there, however, and each year the structure sank deeper into the ice it was built on. The blowing snow that collected on top of the dome and around it had to be removed and hauled away each year, burning up precious fuel and crew time during the short austral summer. The international treaty that governs human activities in Antarctica requires that obsolete buildings and equipment be removed and the site remediated whenever possible, necessitating the dome's deconstruction and removal.

The dome was also designed to be flown to the South Pole with relative ease in small pieces and then assembled using a system of struts, bolts and gusset plates. While construction at the South Pole is never easy, this simplicity in design helped the Seabees tremendously while they built the dome and aided in the disassembly of the dome over the past few months. Another factor aiding in the deconstruction is the fact that some individuals involved in the dome's disassembly team, had years of polar experience working on the new station that replaced the dome. An estimated 90% of the dome's components were successfully deconstructed and can possibly be reassembled in the future.

After so many years of service to science in the harshest place on Earth, part of the dome will enjoy retirement in southern California. The top sections of the dome are headed to the new U.S. Navy Seabees museum in Port Hueneme, where they will be reassembled and suspended above a larger exhibit on the Seabees work in Antarctica.

John Perry, USN CDR (retired) was the Officer in Charge (OIC) during construction of the dome. Lee Mattis was the TEMCOR engineer of record and was on site during construction of the dome. Jerry Marty was

Holmes and Narver Assistant Construction Manager at South Pole Station in 1975 and NSF Construction and Operations & Maintenance Manager for the new South Pole Station that has replaced the dome.

ANTARCTIC CLIMATE CHANGE AND THE ENVIRONMENT, A

Contribution to the International Polar Year, 2007-2008. Scientific Committee on Antarctic Research. A review. This telephone-directory-sized book had a limited publication in hard copy form, only 500, so you won't find it at your favorite corner bookstore. But you can access it electronically at

<http://www.scar.org/publications/occasional/s/acce.html>,

complete with original figures in color. However, I don't think it is a book that many of you will want, as basically it is a high reference type tome. I doubt if anyone will ever read every word in this book, certainly not this reviewer. Even one of the prime nine editors admitted to me that he had not read the whole book. So take it from there. It is not that the book could be injurious to your health, or conversely be a health stimulant, it is, well, just too much.

Besides the nine editors -- three from the U.K., two from the U.S., two from Germany, one from Italy, one from SCAR -- there are a hundred scientists who contributed to the book. There are 1829, yes, 1829, references at the end. There are seven major headings. If your time were valuable, I would recommend that you just read the Executive Summary and the Recommendations. Even these can get to be a bit overbearing, as there are 80 highlights shown in the Executive Summary and 32 Recommendations. Wow!

We like the way the chapters are organized, starting out with The Antarctic Environment and the Global System. It's not too long, being only 32 pages, but it is a good introduction. Chapter two is on Observations, Data Accuracy, and Tools. A total of authors fill up 82 pages. Ozone

observations only rate a single page. The third chapter is on Antarctic Climate and Environment History in the Pre-Instrumental Period, some 68 pages. The fourth chapter was the most interesting one to me. It was The Instrumental Period, a team high of 64 authors filled over a hundred pages (116). However, it is the only chapter in the whole book where the figures are not numbered. The fifth chapter was on The Next Hundred Years.

I was as much surprised as to who/what was excluded as to who were selected. Of all those 1829 references, Susan Solomon only shows up once, as a co-author. And this is a book on climate change? There is only a single reference to Wally Broecker. And how about Bob Rutford, Gunter Weller, Uwe Radok, Harry Wexler, Mort Rubin, Bert Crary, Joe Fletcher, and Heinz Lettau? They must have done something that would put them in the everlasting list of references

Isn't ozone a big player in the Antarctic climate, but it appears to be well camouflaged in this large volume?

Although the next century (Chapter 5) will no doubt include studies of subglacial lakes in Antarctica, only one reference refers to the subject.

On the plus side there are heavy contributions from Paul Mayewski, Robert Bindschadler, Richard Alley, David Bromwich, Jay Zwally, George Denton, and my old South Pole roommate, Mario Giovinetto. There is another American shown in the references, a man who worked for me, but his name is misspelled!

Oh, go ahead and look at it electronically. You might even like it if you are scholarly.

SOUTHERNMOST WIND FARM OPENED (Margaret Lanyon from Christchurch Press). Three turbines installed at Scott Base by Meridian Energy started supplying electricity to a new shared power grid that connects the New Zealand research station to its U.S. neighbor at

McMurdo Station on January 16, 2010. The turbines will cut the need for diesel to run both bases by 11 per cent. A stage two with a dozen more turbines is being considered, and could eventually supply more than half of the energy needs at the two stations. The wind farm is part of a longer-term commitment to reduce carbon footprints at the two stations, and is part of New Zealand's contribution to the joint logistics pool. Other recent changes at Scott Base include quadruple-glazed windows, "waterless" urinals, and a new helicopter that uses 40 per cent less fuel.

**ANTARCTICA—FIRST JOURNEY:
The Traveller's Resource Guide.**

Geoffrey Carpentier, Hidden Brook Press, 2009, 359 p. ISBN-978-1-897475-36-2. \$33.50.

The author is a Canadian who has worked in Antarctica on expedition tour ships as staff, and his experience shows in the content of this book. The sub-title of the book implies another version of a Lonely Planet edition of Antarctica, but the content is different in many ways, and so is the author's style of presentation in the text. One way to review the content is to summarize briefly some of the 9 chapters, which include considerable details on preparation for departure (do's and don'ts), how to conduct oneself while in Antarctica, summaries of wildlife, with an index at the end of scientific names for wildlife, numerous locations that tour ships visit, and a timeline of expeditions with brief annotations. Another way to review it is to paraphrase the statement on the cover of the book. *"There are many books about Antarctic wildlife and how to identify virtually everything that lives there, visits by cruise vessels, preparations and planning before the big event occurs, but this book concentrates on many things others do not, mainly for first-time visitors., the author anticipates the issues that might at first seem perplexing to anyone planning to visit Antarctica, and covers them in detail. It is a worthwhile purchase in order to*

prepare for a visit, as well as to have on hand while there. Recommended for all first-time travelers, as well as veterans to read what you have been missing.”

Regrettably, the book does not have an index included, a factor of publisher's budget, so the author has provided one at his website www.avocetnatureservices.com. (JFS)

ANTARCTIC TREATY MEETINGS.

Polly Penhale, Environmental Officer at the NSF Office of Polar Programs, has passed along interesting information on upcoming meetings. The Antarctic Treaty Meeting of Experts (ATME) at the Antarctic Treaty Consultative Meeting XXXII in Baltimore (2009) agreed to convene a Meeting of Experts with the aim of discussing relevant matters related to implications of climate change for management and governance of the Antarctic region. The ATME was held in Svolvær, Norway, 6-9 April 2010. The following topics were discussed relevant to climate change in Antarctica:

- Key scientific aspects of climate change and consequences of such change to the Antarctic terrestrial and marine environment,
- Implications of climate change to management of Antarctic activities,
- The need for monitoring, scenario planning and risk assessments,
- Outcomes of the Copenhagen negotiations relevant for the Antarctic,
- The need for further consideration of any of the above issues and manners in which this can be achieved.

Results of the ATME will be reported to the Antarctic Treaty Consultative Meeting XXXIII in Punta del Este, Uruguay, 3-14 May 2010.

NSF POLAR PROGRAMS 2010-2011 BUDGET. The initial announcement of the 2011 budget request (all figures in millions of dollars) for NSF/OPP stated \$528 (rounded), with a few subheadings that show

an increase for Arctic Sciences of \$106.31 in 2010 to \$111.36 in 2011. Antarctic Science budget was \$71.08 (2010) to \$75.18 (2011), and Antarctic Infrastructure & Logistics from \$266.76 (2010) to \$280.18 (2011). U.S. Coast Guard is in the listings, with \$54 for 2011. The good news is that the figures are on the upward side, but whether inflationary factors are in effect might have a different meaning to the 2011 requests. A later Newsletter might have final figures, along with priorities and targets for budget detail.

SOUTH KOREA – NEW STATION IN ROSS SEA. (modified, from Margaret Lanyon) South Korea has expanded its sphere of activities in Antarctica by locating a place for a new station in the western Ross Sea in the Terra Nova Bay region (approx. 74°S, 164°E), on the basis of a survey from its first icebreaker, *Araon*. South Korea's first station, Sejong, is located in Maxwell Bay, King George Island, and was built in 1988. The Ross Sea area will provide additional opportunities to conduct new types of research in the interior of Antarctica, and will be aided in that location by the proximity of other bases for cooperative efforts. Currently, McMurdo (U.S.), Scott Base (New Zealand), Zucchelli (Italy) and Gondwana (Germany) operate in the Ross Sea region. South Korea's new station is estimated to cost about \$88 million, will be completed by 2014, and will consist of five buildings and accommodate 60 scientists. The plan for the station will be submitted to the next Antarctic Treaty Consultative Meeting (ATCM XXXIII) in Punta del Este, Uruguay, 3-14 May 2010.

NSF POLAR PROGRAMS ANTARCTIC LOGISTICS

CONTRACTOR UPDATE. In the 1960s and later, the contractor support was simply called 'Logistics,' but modern terminology has included 'Infrastructure,' a sign of the times and the growing needs of supporting U.S. science in Antarctica. Another sign of the times regarding the contractor support is when Arctic Institute of North America

contracted with NSF to provide clothing and field items such as tents and other things for field parties. An issued parka in 1960 thus paid no attention to what had been learned over the years by Eskimos and others about how to design clothing to keep warm. Times have changed, so have the parkas, and so have the contractors. The NSF Chalet building at McMurdo was constructed by Holmes and Narver (H & N) in 1969-70, completed in that one season with the help of the Seabees. Since then, the most visible and current name in the contractor scene for OPP has been Raytheon, although there have been others, but since a solicitation for bidding was issued by NSF for the future, more names and acronyms have entered the picture. In August 2009, NSF advised the seven major bidding teams that everything was off, and a revised schedule and solicitation was forthcoming. Final turnover to the new contractor is estimated to be 1 April 2011, and the new names in the forefront include the major company TransPolar, with corporate partners AECOM (successor to H & N) and Raytheon, with key subcontractors SAIC, NCSA, Chenega Corporation, and Shaw. Space limitations prevent the meaning of all that alphabet soup, but if you click on Bill Spindler's website at <http://www.southpolestation.com/trivia/ncs/ncs.html>, you will be enlightened. There appears to be no relation of one of those corporate institutions to the name of a former Vice-President.

CONTRACT UPDATE ON ABOVE – A press release issued in early April informed us that Raytheon Company's "Raytheon Polar Services" has been awarded a one-year extension to its contract to March 31, 2011. Raytheon Company's headquarters in Waltham, Mass. employs 75,000 people worldwide. Raytheon Polar Services employs about 350 full-time staff and 1,400 contract employees from its offices in Centennial, Colorado. Its Program Director, Sam Feola, said the company appreciates the opportunity to continue support for the valuable scientific research underway in

Antarctica. This is a keystone program for the company.

ANTARCTIC MARATHONS (from Margaret Lanyon, expanded from *Christchurch Press*, 18 January 2010) **McMurdo Marathon**. This event attracted about 50 runners from McMurdo and Scott Base, plus a few cross-country skiers, who raced across the Ross Ice Shelf this month. The route formerly (1970s) included a run between Scott Base and Scott's 1901 hut at McMurdo, but this one was a loop connecting two airfields, Williams Field and Pegasus. Footwear for some included plastic clip-on running-shoe crampons because of the terrain. The winner was technician Curtis Moore from South Pole station, in a time of three hours and seven minutes. The Kiwis might have finished after the fact, but continued their unbroken win record in the inter-base rugby match held two weeks previously. The Ice Blacks trounced McMurdo's Mount Terror Rugby Club 23-0. No one ever said that rugby was an American super-sport.

Antarctic Marathon on King George Island. For those who are interested in commercially-operated marathons in Antarctica, the 12th Antarctic Marathon is scheduled for February 2011, with the usual route at Maxwell Bay, King George Island, passing amongst roads and paths between the so-called 'United Nations' stations located there – Great Wall (China), Marsh/Frei (Chile), Bellingshausen (Russia), and Artigas (Uruguay). Runners have a choice of a full marathon or a half-marathon, depending on stamina or other factors. Because of its longevity and popularity over the years it has attracted the attention of those who oversee tourism in Antarctica, the Antarctic Treaty Parties and the International Association of Antarctica Tour Operators (IAATO), to the extent that IAATO has issued "Draft Guidelines for Organising Marathons or Running Events." Consistent with IAATO Bylaws, no more than 100 people are allowed ashore at any one time, the event requires a permit applied

for by the operator, an observer must be on hand to oversee the event, and whatever is brought ashore must be returned to the offshore tour vessel that brought the runners there. The event is sponsored and managed by a IAATO-member ship-borne operator, with staff ashore to ensure a problem-free event. The popularity of the event is apparent when looking at the waiting list for the following years. It is sold out for 2011, 2012, and 2013, with a waiting list for others.

Antarctic Ice Marathon. If you are interested in something a bit more ‘polar’, sign up for this marathon, operating out of the Patriot Hills camp, Ellsworth Mountains, at 80°S latitude. Don’t expect to see wildlife, because penguins don’t appear that far south, but choices include a 26.2-mile run or the 100-k ultra race. The camp is operated by another IAATO member, Adventure Network International/Antarctic Logistics and Expeditions, but a commercial company advertises the event for its own clients. Its popularity is shown by some who are members of a Seven Continents Club (marathons on each continent), and nearby mountains add an additional challenge to climb Vinson Massif, the highest peak in Antarctica, for those who belong to the Seven Summits group (climbing the highest mountain on each continent). For a little extra cash, ANI/ALE will also take you to the South Pole for those who are bi-polar (and many are). So what will the Ice Marathon itself set you back? How about 9,900 euros (about \$13,000 USD)? However, the adventure of the location might be the attraction, and odds are that none of your neighbors has ever done it, or is interested. Check the website for these marathons for further details.

BEFORE



Deconstruction of the Amundsen-Scott South Pole Station Dome (December, 2009 – March, 2010)

AFTER





The Antarctic Society

"By and For All Antarcticans"

VOLUME 10-11

SEPTEMBER

NO. 1

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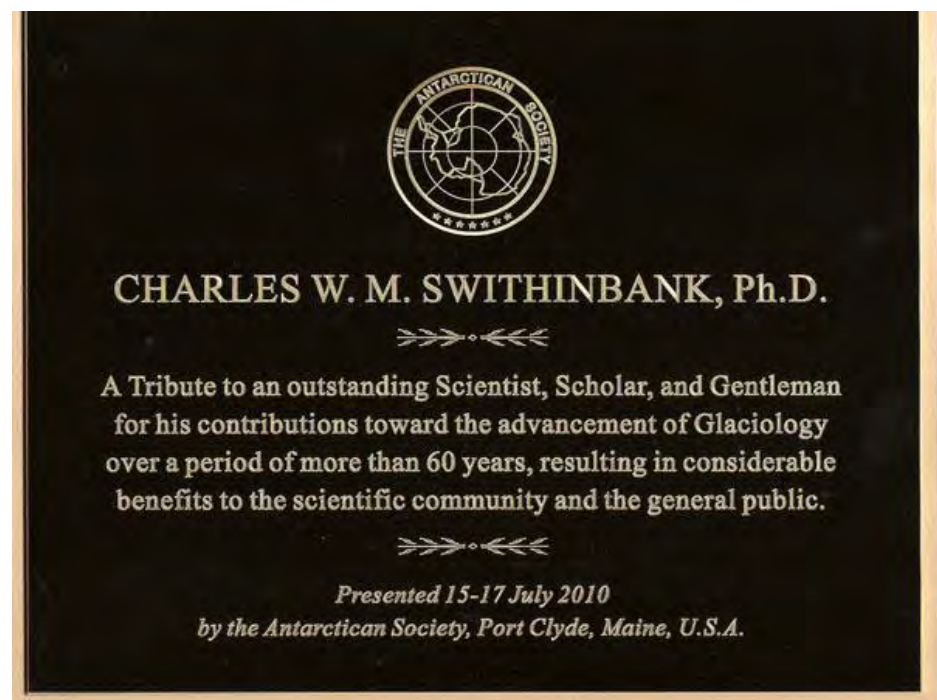
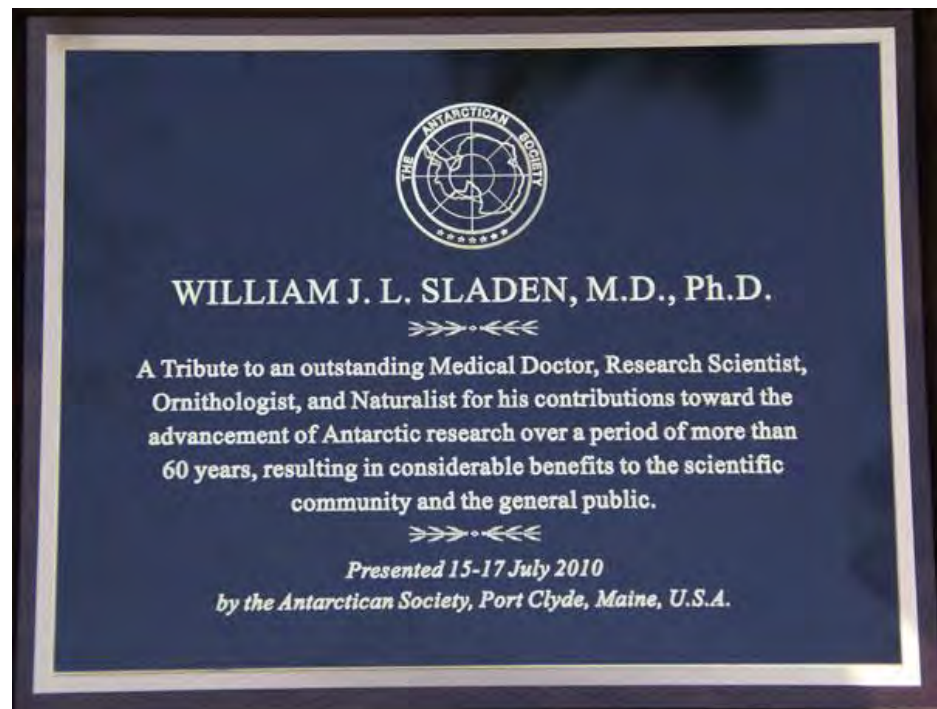
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BRASH ICE. A lot of interesting things are happening, so can we have your complete, undivided attention for a while? To begin with, you may have noticed on our cover page that we now have Charles Swithinbank as our Honorary President. In our fifty-year history, we have had only two other Honorary Presidents, Ambassador Paul C. Daniels and Ruth J. Siple. Charles is most worthy to succeed Ruth, even though he is a Brit, who has masqueraded with Americans for a goodly part of his life. See and read his **ALIEN IN ANTARCTICA**. Really he is non-denominational, and his passport should show “Antarctica” as his homeland. In our estimation, there is no one, I repeat, no one, living or dead, who has seen more of Antarctica than Charles. And he knows more about the continent than any other soul. He is The Walking Antarctic Encyclopedia. But he is much more than the above, he is The Perfect Gentleman, the kind of person that all of us males hopelessly aspire to be. Charles, we are honored and delighted that you have accepted our invitation to be our incoming Honorary President. Be sure to read John Spletstoesser’s resume of the life of his good friend and colleague, which appears later in this Newsletter.

Members on the Board of Directors are always shown on our web-site, occasionally on our cover sheet. The nine current members of our Board, in alphabetical order, are Bob Allen, Hal Borns, Art Ford, Guy Guthridge, Katy Jensen, David Marchant, Jerry Marty, Michele Raney, and Warren Zapol. It is an excellent mix of some with a lot of experience, some who are still young

and vibrant, and of both sexes. With the exception of Bob Allen and Hal Borns, all were given a chance to decline. We have to keep an

eye on Bob so that he doesn’t get remarried, so he was assigned to the BOD. Besides, he is the Most Loved Member of our Society. Hal Borns was in the field working in Labrador, but anyone with all those trips to the ice in Antarctica, twenty-eight, we believe, must serve on our BOD. What do our Board members do? They, like our officers and Honorary President, vote over the phone or via e-mail to each and every question posed by our president on the affairs/conduct of our Society. A quorum is mandated before anything passes, and usually there is no arm twisting, as they all vote for the betterment of our Society.

We are proud of our motto, “By and For All Antarcticans”. We are what all of you make us, as you all make contributions to us in one way or another, and we are particularly proud of the immediate team that serves you. Towards keeping that team in place for as long as possible, tenure in office for our president, vice-president, secretary, treasurer, and webmaster has been extended to a minimum of five extra years. In the case of our fantastic webmaster, who is just a kid insofar as we are concerned (early 60s) we sincerely hope that his tenure will be eternal. We have run out of space on our cover sheet, but you can find a listing of all of our past presidents and Memorial Lecturers on our web-site.

Speaking of our Memorial Lecture series, we have good news on the horizon. It appears that they will be reinstated. Not only reinstated, but also back to our Heartland, Washington, DC. We have established contact with a key official of the National Archives, the Registrar in the Exhibit Office, where a series of exhibits on polar heroes has been initiated (currently Matthew Henson, upcoming Russell Porter, Admiral Peary, Paul Siple, and Admiral Byrd), and it looks like we can commence with a Memorial Lecture at their Headquarters on Pennsylvania Ave. in the spring of 2011.

Dues Increase. Our membership dues are going up the first of the year (2011), but there is still time to take advantage of our current rate of \$15 per year by renewing now for multiple years downstream. It will not only

save you five dollars per year, but also help us out by not having to bill you in January. We would welcome a check for \$60.00 for a four-year extension, and would become real ecstatic with a check for \$150 for a ten-year extension! Twenty have NOT paid your dues this current year, and your last notice is included with this newsletter. C'mon -- I think you can trust your Society to spend your dollars efficiently and effectively. Each year one dollar of your membership fees goes to our charity, the Ruth J. Siple Memorial Library at the South Pole station. We plan on following in the footsteps of our forefathers with basic black and white Newsletters with only an occasional colored print, which costs a dollar a page. Our top priority will no doubt be upgrading our web-site technology, as we want to keep it, as much as possible, the state of the art for your enjoyment. Five years ago the Newsletters wagged the tail of the Society, now it plays second fiddle to our web-site.

Antarctic writers who are trying to get their books published are finding it a hard sale. We know of a half dozen within our Society who are frustrated in their efforts to get their words into print. One of our members, Ed Stump of Arizona State University, has had a book manuscript on the Transantarctic Mountains accepted by Yale University Press. However, at the same time that they approved a press run of 10,000 copies, they are holding the palms of their hands skyward looking for a windfall of at least 15K to grease the publication wheels. They refer to this as a "subvention", evidently a common practice to underwrite a portion of a publication. And they want it by the first of October! I have been aware of the spectacular mountain photography of Ed's since he gave a lecture to our Society in Wash. D.C. twenty years ago, and have championed this publication. I think it should do well. If any of you Antarcticans want to support this publication by Yale, get in touch with Ed (School of Earth and Space Exploration, Arizona State University, Tempe, AZ 85287-1404; tel (480) 965-3971; email ed.stump@asu.edu).

We want to mention that Ed has already beat the bushes locally for help, and his University has come up with \$5,000, and another source an

additional \$2,500. In other words, he has initiated what might be called a cost-sharing or matching-funds situation in order to get his book published. What he needs by October 1 is the balance, and we hope as much as can be solicited from Society members, and the sooner the better because of the looming deadline. His book manuscript was reviewed for Yale University Press by Guy Guthridge and John Spletstoesser, and both of them praised the book in the highest sense, remarking that it would be unique with no others like it, as well as a photo atlas of the geology and topography of the TA Mountains that relies on numerous photos taken by the author of essentially the entire range. Ed has been to parts of the mountains that no one else has seen, and his photos represent coverage that not even the trimetrogon photos taken decades ago by the U.S. Navy can compare with.

Once upon a time we had two prominent Yalies, Ambassador Paul Daniels and the Science Editor of the New York Times, Walter Sullivan, but both are now long gone when Ed needs their support. Ed will be the Chief Scientist of the Central Transantarctic Mountains project this coming season, where one of the helicopter sites will be the same one that he used twenty-five years ago! Holdovers from that season with Ed will be Edie Taylor and David Elliot!

This past summer our Society finally got around to honor two of Antarctica's Most Ancients and Honorables, Bill Sladen who dates back to Hope Bay, 1948, followed by Signy, 1952, and Charles Swithinbank, who pioneered his ice career on the Norwegian-British-Swedish Expedition to Maudheim, 1949-52. They spent more decades on the ice, seven, than most of us have even lived. We had hoped both would be present in Port Clyde, Maine this past mid-July when a group of their colleagues were mustering to honor them. The Gathering came forth, over a hundred and twenty in number, but Bill Sladen was not among them, as he had suffered a stroke in the spring and was at home in Virginia in a recuperative mode. However, the presentation ceremonies went on as if he were there, and the citation for Bill was read by one of his own types, Dick Chappell of Hunter College and the Marine Biological Laboratory at Woods Hole,

Massachusetts. Tony Gow, who was once honored himself by the International Glaciological Society bestowing the Seligman Crystal upon him, did the presentation to Charles who stood as firmly and as erect as any self-respecting king penguin. It is truly amazing after all of his years in the polar regions that he is still only 83 years of age. Although both were born in the UK, we look upon both Bill and Charles as adopted Americans. Bill carries passports from both countries. Thank you both for serving our country so admirably and with such distinction in Antarctica, as well as in the Arctic. You have truly made us proud of yourselves.

Summer must be over, as Winfly has started with the first landing at Pegasus airfield near McMurdo Station on August 15th. The flight was noteworthy for the use of night-vision goggles, which helped the C-17 pilots land on the ice runway in conjunction with reflective runway markers. Although the Air Force tested night-vision capability in 2008, this was the first year that passengers flew on a night-vision mission. About 120 people were aboard the plane. Seven flights were programmed for August. The main summer field season will begin in late September. Will you be ready, Gus Shinn? How about you, Bob Dale? And you, Ray Hall? "Heads Up, as Wild Bill Cromie's story on the Ross Ice Shelf Traverse, 1957-58, will soon appear on our web-site, and you wouldn't want to miss whatever he writes."

We wrote this with a heavy heart, as the wife of a close member of most of our staff passed away this week. Ed Robinson represented the Society at a Visitation at the church of the Williams family on August 28th. Dr. Ed, we grieve with you over the loss of your beloved Jean, and hope as time goes on that you will get some comfort from your many Antarctic friends who will stand in support of you and your family.

Antarctic geologist of the 1960's-1970's, Willis H (Willie) Nelson, died after surgery complication in Los Altos CA on August 26th, age 89. Art Ford knew him as a close friend and as a wonderful trail mate. Willie's obituary will appear in our next Newsletter.

Red Jacket Jorgensen, meteorologist South Pole 58, survived major surgery on September 9th, proving again only the good die young.

CALENDARS. We have a limited number (twenty-six) of the Hedgehog Antarctic calendars for next year, 2011. These are a royal pain for us to handle, as we can never guess how many of you are going to buy. And invariably, many don't order until mid-December. But we are forewarning you now, we will not accept any orders after the first of December. The cost this year for Stateside buyers is the same as last year, \$15.00. Order now, PLEASE, or forever hold your peace.

OUR PRESIDENT SPEAKS (Charles Lagerbom) Greetings! It is my hope that everyone who made it to the gathering this summer at Port Clyde had a good time. It was great seeing many of you, although I felt like it was a wedding where you might only get a quick chat with most of the attendees. If I did not personally greet or speak with you, I am very sorry. Anyway, I appreciate everyone's help in making it a memorable occasion and am happy I was able to meet a few new faces as well.

I would also like to welcome the new members who have agreed to serve on our Board of Directors (see Brash Ice for their names) and I am constantly amazed and heartened by people's willingness to step up and help out. These efforts by so many are what powers this society and helps it chug onward.

As we enter fall, I would like remind members of the society's focus on helping to preserve your history and memorabilia of your time in Antarctica. Please make time to dig out your material and go through it once again, not necessarily for the society, but maybe just to spur your own memories, or to provide material for a memoir you are planning to write, or maybe to simply check on its condition. It would be a tragedy to lose this stuff. We view these as treasured items worthy of saving. So if the society can be of any help, please contact us. Our slide scanning service is in full swing but could always make room for more slides. Our web page is putting up some great material, so please

take a moment and check it out. For example, member Bill Cromie recently sent us a narrative of his adventures with the Ross Ice Shelf Traverse. It is a great read and will no doubt make its way onto our website at some point for you to enjoy as well.

The society is active and energetic with a lot of good things going on as we move through the second decade of the 21st century. Thank you for all your efforts. I am honored to serve as your president. Finally, I would like to extend our thoughts and sympathies to the people of Christchurch, New Zealand recently struck by a devastating earthquake. Many Antarcticans, both young and old, have cherished memories of their time in Christchurch and its great people. Please keep them in your prayers.

THE EARTH SHOOK IN

CHRISTCHURCH. By Margaret Lanyon, known to many Society members as our 'Meet-and-Greet' person for many years in Christchurch, N.Z. In a first-hand account of an earthquake, Margaret Lanyon tells what it's like to be awake just after 4:00 a.m. on Saturday, Sept. 4, when a roar like a freight train came through the house. The house rocked and rolled and she had to hang onto the bed to avoid being thrown around. Her 9-year-old house stood up well, with only a crack in a floor tile inside the front door. All the drawers flew open and items were flung from shelves, but no crockery was broken. However, Margaret did lose a Royal Dalton Plate and a Grecian urn. The initial quake was 7.1 on the Richter scale, which makes it quite serious, especially in an inhabited area such as Christchurch. Many buildings in the city were affected, with at least 90 to 100 to be demolished. The good news is that the Gothic Anglican Cathedral in the city square withstood the event. The fault was apparently a mystery to geologists, with evidence of it covered many years ago by gravel deposits on Canterbury Plain, and not connected with the Alpine Fault that transects the Southern Alps. The fault line is about 30 km in length, extending toward Rolleston, with the initial epicenter near Darfield in rural Christchurch. Seven aftershocks have occurred, and continue to occur, as much as 5 on the Richter scale. We wish Margaret well, and

are thankful that all is well at her house and with her.

Update received from Margaret on 8

September-- Margaret said that three shocks occurred during the night... To date, 355 seismic shocks totaling 2 hours, 49 minutes of tremors have occurred over 5 days. Some people have been fleeing the city, new tremors have occurred from new sources, one of them under the tunnel between Christchurch and Lyttelton. Keep tuned. The following websites provide details of what the earthquake has done in Christchurch and area of the fault trace:

<http://www.youtube.com/watch?v=LBMD2iKgyL0&NR=1>

<http://www.youtube.com/watch?v=Npqx3WmNkv4>

WEBSITE UPDATE (by Tom Henderson) The most significant thing to report about the website is the imminent posting of a new version of Time Trek. This version will have an improved look and some important changes in structure. Amos Alubala, our consultant who has programmed Time Trek from the start, recommended that we move the user interface (i.e., what you see as a user of Time Trek) to a fairly new web development environment called Flex. Based on the ubiquitous Adobe Flash technology, Flex allows user interfaces to be built that look and work exactly the same in any web browser (Internet Explorer, Safari, Firefox, etc.). The bane of web developers has always been the inconsistent ways that various browsers render the same web application code. Flex solves that problem because Adobe Flash is presented the same way on all browsers. Flex also has some nice tools for improving the look of an interface. I am confident that you are going to like the results.

Amos has been doing this work at no cost to the Society as a learning experience on the new Flex technology. I can tell you that if it had been done at his regular fee, it would have cost at least \$2,000. This is not the first time that Amos has charged us less than he could have. I am very grateful – as the Society should be – for the work that Amos has done for us all.

The new interface is not the only change in Time Trek. The previous newsletter article discussed

the major database changes that were implemented in Version 2.1. With this next release we are taking advantage of those changes to add a new category to Time Trek: People. In hindsight, one could wonder why this was not done in the first place. The Antarctic Society has always been focused on people. Now profiles of individual people can be linked to documents, audio, video, other websites, images, events, and even stations. It was just a matter of adding a few tables to the database. Like Events, People will include not only prominent Antarcticans but can also include any of those whose contributions to Antarctica research, exploration or support appear in Time Trek. Also like Events, it will take time to grow this repository. Please be patient, and add your biographies to the Members Info page; you never know when they might appear in Time Trek!

“RACE TO THE END OF THE EARTH” (by Tom Henderson) The American Museum of Natural History recently opened an exhibit titled “Race to the End of the Earth” to commemorate the 100th anniversary of Amundsen and Scott reaching the geographic South Pole. The exhibit is curated by Ross MacPhee, who also curated the excellent 1999 exhibit on Shackleton’s Endurance expedition. The current exhibit does not have the impact of the Shackleton exhibit, but that is perhaps an unfair comparison considering the historical artifacts available from the respective expeditions. The Shackleton exhibit allowed visitors to see and touch the actual small boat – the James Caird - which carried Shackleton and a small crew 700 miles from Elephant Island to South Georgia Island across the roughest seas on the planet. Nothing can really compare to that connection with history. However, “Race to the End of the Earth” is a superb re-telling of the story of two very different men and two very different approaches to polar exploration. MacPhee does not take sides in the ongoing Amundsen-versus-Scott controversy, but rather carefully lays out the facts of the two expeditions and allows the visitors to draw their own conclusions. Like the Shackleton exhibit, the visitor follows a chronological timeline represented by linear graphics that curve through the exhibit showing where each party was at a given number of days

into their journey. Along the way, artifacts from each expedition including compasses, pennants, skis, binoculars, photos, drawings and diaries are displayed, along with a reconstruction of Scott’s Cape Evans hut and a diorama of the snow tunnels and under-snow work spaces at Amundsen’s Framheim base. Traditional fixed museum displays are augmented with video, audio and even an iPad-like electronic book. It is a well-done glimpse into a major historical event. The exhibit has a companion book that can stand on its own merit as a reference that any serious student of Antarctic history would be proud to have in their collection. It is detailed and beautifully presented. The book can be purchased at the exhibit or online through the AMNH bookstore.

Should you be in or near New York City before the end of this year, plan to visit the Museum and see this fine rendition of one of the pivotal events in Antarctic history. The exhibit is scheduled to close on January 2, 2011. For an online preview, go to <http://www.amnh.org/exhibitions/race/>.

CHUCK STEARNS DIES

(AUTOMATICALLY) (Matthew Lazzara) Professor Charles R. Stearns (1925-2010) passed away on Tuesday, June 22, 2010. He recently celebrated his 85th birthday. Dr. Stearns was a professor in the Department of Atmospheric and Oceanic Science and Senior Scientist at the Space Science and Engineering Center, both at the University of Wisconsin-Madison. His association with the University of Wisconsin spanned over a period of 64 years. He was an undergraduate student at the University from 1946 to 1950 earning a Bachelor of Science in Physics, after his service in the United States Army (1943-1946). Stearns graduated with his Master of Science degree in 1952, and later his Doctorate of Philosophy in 1967, both in Meteorology. He served as a member of the faculty since 1965. Stearns taught over 11 classes during his career and was involved in over 9 field projects. He was the principal investigator of the Antarctic Automatic Weather Station (AWS) Program from 1980 to 2008. The AWS project was the first large-scale meteorological instrumentation of the Antarctic continent. He deployed to Antarctica 17 times. He was advisor to 30 students over his career, and provided

significant assistance to a half dozen other students in the US and abroad with their research. Professor Stearns was a deeply respected colleague and a generous spirit who spent years instrumenting the Antarctic continent and exploring its weather and climate as well as their impacts on the rest of the world. His work on instrumenting and observing the Antarctic was world-renowned. He will be sorely missed.

IGOR ZORITOV DIES. (obituary from Russia to Vladimir Eisen forwarded to colleague Bob Dale) Igor Alekseevich Zotikov at the age of 83 - famous Russian glaciologist died on August 23 in Moscow following severe illness. Igor Alekseevich Zotikov was a famous scientist, authority specialist in thermal physics of the glaciers, Antarctic researcher and one of those who opened Lake Vostok. He was a chief research associate in the Institute of Geography RAS, correspondent member of the Russian Academy of Sciences. He had published many scientific monographs and papers but also he had created a number of novels and was a member of the Union of Writers, Igor was a great amateur painter as well. Igor Zotikov worked at the Institute of Geography RAS for 40 years. Number of times he was in expeditions to Antarctica and spent winter at the Mc Murdo station. He had developed the theory of continuous subglacial melting and predicted presence of subglacial lakes in Antarctica. He had worked on glacier-ocean interactions model for Antarctica. For all of us it is a grievous loss. Igor was an open-hearted man of exceptional kindness. He had many talents among which the main was his love for surrounding people. We were reading along his books "I've looked for Kiwi bird", "Japanese sister", "Polar seas saga" and others and were always waiting for his new publications. His landscape paintings were always tense and authentic. We will miss our conversations to Igor Alekseevich Zotikov very much. Memory of Igor will be in our hearts forever.

IRREPRESSIBLE! (Bob Dale) That's the only word that flashes through my mind as I recall my friend, Igor Zotikov, who died of prostate cancer August 23rd in Moscow.

We met at McMurdo in 1965. Igor had wintered over there just as I had 5 years earlier. He was a Soviet glaciologist. I was the Air Operations Officer on the CNSFA Staff. Between my rusty Russian and his navy English we got along well, on the ice and off. As the summer season wound down we found ourselves in Chch with an invitation from Phil Smith to go jet-boating up the Waimakariri R. Then we went our separate ways northward. But we stayed in touch. A year later I retired and went to work for OPP.

In the late 60's and early 70's Igor (and even his stepson) worked on RISP. From time to time Igor would show up at NSF en route to or from the ice. I took him to a session of Congress, to Smithsonian, to a noon formation of midshipmen at the Naval Academy. At these times Igor stayed at my house in Annapolis, a town strictly off limits to Soviets during the Cold War. Skip Dawson and I carpooled to NSF in those days and Igor rode with us. One afternoon he failed to return to OPP in time for his ride back to Annapolis. Undeterred, he found a bus and showed up at my door hours later. He had fallen in love with his lovely seat-mate in that 45 minute ride. Irrepressible!

I left NSF in 1975 to build a log home and live off the grid on an island in Maine. Igor visited several times. Early one morning I looked out to see him painting a scene of my house, his easel set up on the shore. Years later (1988), passing through Moscow en route to China via the trans-Siberian RR, I spent my 64th birthday with Igor and his wife, Valya. Igor had been writing about his travels and his stints on the ice. He suggested that we co-author a book about our seemingly parallel lives: born in the mid-'20s, similar interests in flying (he learned to fly in his youth), nuclear backgrounds (his in the thermodynamics of ICBM nose cone reentry; mine in flying the Navy's first carrier-based atomic bombers in the '50s), our urge to travel, our polar work, being raised in opposing political systems. In those Cold War times it seemed such a story could have an interesting East-West twist. In typical Igor irrepressibility, first we had to have bookjacket photos made, and a title: "Winter Soldiers". (I didn't like it but that's how

it came out.). Then we talked to a publisher - over cocktails. However, the difficulties later in collaborating later between Moscow and an island in Maine, coupled with the demise of the USSR, caused the venture to lose, for me, its immediacy.

A few weeks after my birthday visit I found myself in the oasis of Turpan in westernmost China. There, in the only hotel, I encountered another Soviet glaciologist, Volodya, down from a Tian Shan Mountain project for some R&R. I asked if he knew Igor. "Of course. We work for the same institute". I told him I'd stayed at Igor's apartment only a few weeks before, after traveling from Maine. "I know your place on the island! I read Igor's book. I saw the painting of your house!" Small world!

Around the time of the collapse of the USSR Igor brought Valya to Hockomock Island. It was then he told me about his escapade (Heads up, Rutford!) as he was about to leave CRREL. Needing his pay, he borrowed a U.S. Army truck, drove to Ft.Devons, rode an elevator full of beribboned brass (Can't you see it?!) to the Paymaster. The next day being a national holiday and wanting to see Boston before his departure, Igor found a parking garage, slept in the truck, saw the holiday sights of Boston the next day 'til dark, and sped back to CRREL, picking up a speeding ticket in the middle of the night. (A story in itself. "Where are you from?"; "Russia": "Tell it to the judge!". A nightmare for anyone else because he had a ticket to fly home that very day, he faced the judge a few hours later who said, in effect, "Oh to hell with it. Get out of here! Igor did, irrepressibly.

Igor sent me a copy of his Lake Vostok report a few years ago. Then we were out of contact much of the last five years as my wife, Jean, and I transitioned to civilization. A few months ago I received an email from Igor, followed by 325 pages -- his manuscript of "our" book, "Winter Soldiers" -- in Russian! Irrepressible Igor! I miss him.

**OUR INCOMING HONORARY
PRESIDENT, CHARLES W.M.
SWITHINBANK** (by John Spletstoesser)

Charles and the science of Glaciology are one and the same, as his colleagues are well aware of his numerous achievements in that field. As a general statement that includes much of his career, it can be said that he has measured glaciers and their features for much of 60 years of his life in polar research, beginning with his participation as a student at Oxford University in an expedition in 1947 to Vatnajökull, the largest glacier in Iceland. He began long-term studies in Antarctica in 1949, which at that time and thereafter related to mapping of previously unvisited areas, the dimensions and health of the Antarctic ice sheet and trends in its growth and decline, firstly in ice-coring and its analysis, and more recently in satellite imagery as a tool to determine the coastal configuration of the continent as a result of supposed climate changes. He was the first to measure accurately the flow rates of the major glaciers that flow into the Ross Ice Shelf from East Antarctica (early 1960s), followed by detailed measurements of Byrd Glacier in the 1970s-80s, the largest and fastest that flows into the ice shelf.

Prior to the onset of the Treaty, his role in the Norwegian-British-Swedish Antarctic Expedition, 1949-52, introduced him to the importance of international cooperation in establishing goals and objectives and carrying them out as a team. In addition, he wintered twice at Antarctic stations operated by the Soviet Union, worked as a scientist in Antarctic programs sponsored by his native Britain and also the United States, and has shared these results in numerous co-authored publications.

His extensive work as a glaciologist has shown its importance by virtue of numerous scholarly publications that are cited commonly in the literature as examples of original research on ice shelves, glaciers, and continental ice as a whole. Among other responsibilities because of his expertise, he thus has been engaged as a consultant in the long-term production of maps published by the U.S. Geological Survey on 'Coastal-Change and Glaciological Maps of Antarctica' (U.S.G.S. Geologic Investigations Series Map I-2600). This series of 23 proposed maps is designed to illustrate through historical time and knowledge the state of coastal changes

of the continent in light of climate changes by analysis of satellite imagery and field mapping. The coastal-change maps, along with his 60 years of experience in measuring glaciers, places him as a forerunner in the long-term studies of climate change and current issues of global warming. His experience is illustrated in the list of awards and honors he has held throughout his career (see below).

As a side issue related to his expertise as a glaciologist, he was the first to recognize the value of blue-ice fields in Antarctica as potential landing runways for wheeled aircraft rather than normal glacier or snow-covered areas required for ski-equipped aircraft. This aspect resulted from his personal field observations and also satellite image analysis, and became commercially valuable in one case for a temporary summer field camp in the interior of the continent that has been used since 1985 as a staging area for private adventure expeditions

and mountaineering, a major enterprise operated by British entrepreneurs. Several other similar areas have since been identified and are in use for the same aircraft types.

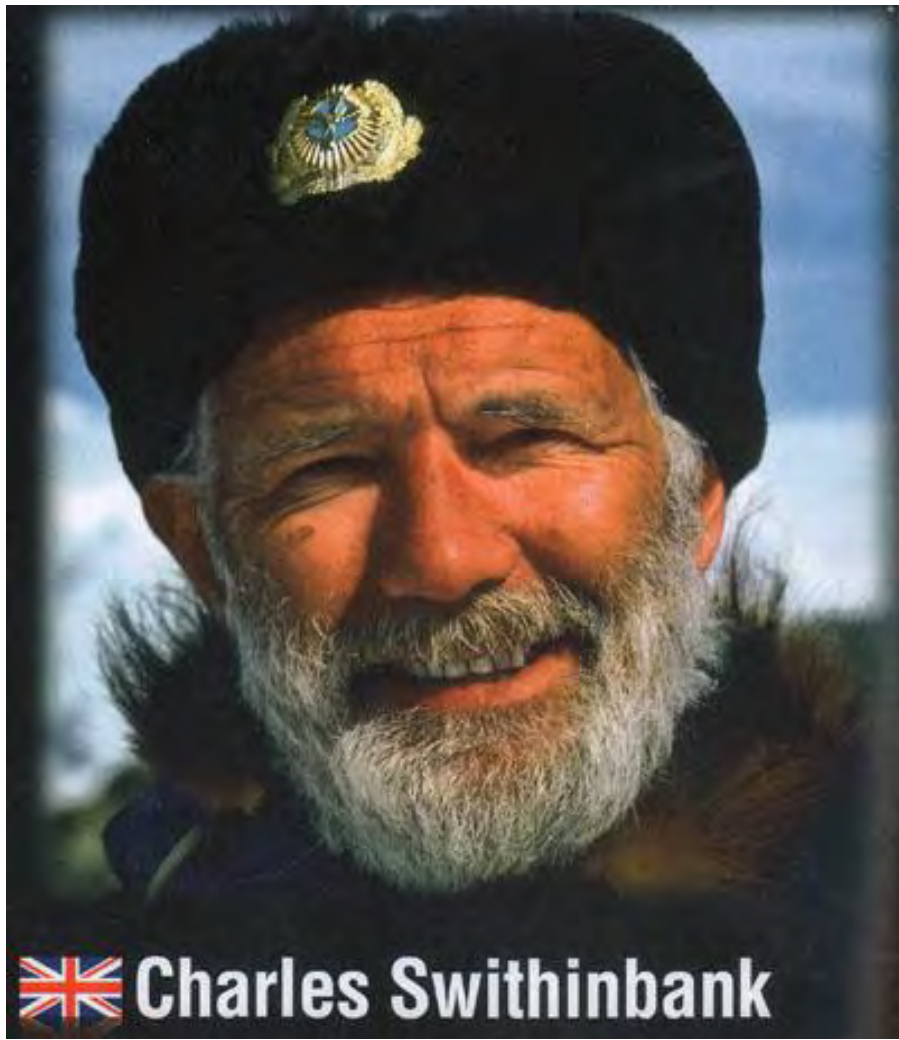
A further contribution of his publications record is in the subject matter of four books written for a general public. The contents include his participation on the Norwegian-British-Swedish Expedition, 1949-1952, wintering with the Soviets in Antarctica, and other subjects on his adventures as a glaciologist and researcher. These books have value for an audience that consists not necessarily of his peers, but the general public as an educational tool to understand the significance of this type of research and what it means to the world as a whole.

See <http://www.spri.cam.ac.uk/people/swithinbank> for further information.

Charles's employment and professional career begin in large part in the 1950s through the present day, much of it with the British Antarctic Survey in the 1960s, 1970s, and 1980s, as well as with the distinguished Scott Polar Research Institute, Cambridge, England. It is likely that he has seen more of Antarctica than any other living person, and studied much of it in his specialty of glaciology. Geographic Features in Antarctica – six, including a mountain range and a glacier. Further details on his life can be found in Polar Record, v. 38, no. 206, July 2002, p. 249-262.

Honors and Awards:

- 1952 King Haakon VII of Norway – Medal of Merit
- 1953 Scott Polar Research Institute – Watkins Award
- 1954 Royal Geographical Society – Ness Award
- 1956 Queen Elizabeth II – Polar Medal
- 1966 King Gustav VI of Sweden – Retzius Medal
- 1970 American Geographical Society – Honorary Fellow
- 1971 Royal Geographical Society – Patron's Medal
- 1974 United States Antarctica Service Medal
- 1989 Milwaukee School of Engineering – Honorary Ph.D.
- 1990 Royal Scottish Geographical Society – Mungo Park Award
- 1997 International Glaciological Society – Honorary Member
- 2010 Antarctic Society – Honorary President



Honorary President



The Antarctic Society

"By and For All Antarcticans"

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NOVEMBER

NO. 2

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BRASH ICE. This is being put to bed in the height of the rescue of the Chilean Miners, which CNN covered so magnificently, with occasional references being made to similarities in Antarctica and the people living there. But my Antarctic experience could in no way be comparable to the hardships that the 33 miners must have experienced. But the euphoria of being liberated from a stalag in Germany was certainly comparable to the thrill of the miners coming back into civilization. I have no idea at all how hard the miners must work when they are performing their regular duties, but I do have a slight idea how hard it was to mine snow in the 90-foot pit at the South Pole. The Siple family thought that Paul's efforts in working so hard in the mine at the South Pole in 1957 was the beginning of the deterioration of his health. They may have had a valid point.

I could not help laughing at the miner coming back up to two women, one his wife, one his mistress. But that was nothing compared to an Antarctic who was stranded at a foreign station who had three women awaiting his return. This man was completing his second year at the station, and found himself facing a third consecutive year there when ice conditions were so severe that they could not resupply the station. Meanwhile his wife, his fiancée, and his mistress were all bugging Washington to get him back home. His wife wanted to divorce him, his fiancée wanted to marry him, and his mistress wanted him back as a lover. It just happened that Bert Cray, who was a wheel in the polar office, who knew the guy personally, was in a South American city where he could contact the American by phone. And he said to him, "Hey, there are a bunch of women back in the states who want you back pretty badly, but it would cost us a fortune to fly a plane over there to get you. What would you say if we left you there for a third year?" Without a second's hesitation he responded, "That's okay, Bert, just leave me here, no problem."

Who is a typical Antarctic, is there a prototype? I have had several Antarctic Gatherings at my home in the past four summers, and the amazing thing to me is how similar the new crowd is to the old folks.

Thanks to the Logans, Drew and Diana, who live here in Maine, we have been blessed by them introducing us to people who have wintered over in recent years. But take Ed Flowers, a meteorologist at the South Pole, who passed away in the past month. I knew Ed back in 1956 before he went to the ice and I knew him after he went to the ice.

But he was what I would call an atypical Antarctic, yet a couple of years later he went back to the South Pole to winter over again, he was married, dead-pan serious, and a professional all the way--trained in meteorology. About twenty-five years after the IGY, a bunch of us South Pole veterans from that era decided to have a composite IGY reunion from both IGY years, including both sandcrabs and swabees. We actually had a great turnout, but one exception was this fellow Ed Flowers who responded, --"I am going to spend that kind of money traveling, I am going to go see my grandchildren, not going back to see you guys". Well, Ed is gone now, and I doubt if his last thoughts were about the Antarctic. But when I go, which won't be too far away -- I'm 87 in November--I think my last thoughts will be flying up the Beardmore in an R4D with Gus Shinn in the pilot seat. What a thrill that was to me.

We are also thinking of streamlining our Society's Newsletter, especially making it more interesting to the younger people, also our newer members. If you have a desire to write an Antarctic story of interest, send it to our secretary, John Spletstoesser, and he will put it into the bin for the next Newsletter. His email address and postal address are on the cover page. As our Honorary President, Charles Swithinbank, recently wrote, --"We do need a broader net sweeping in more contributors from our membership, especially the younger people who will be our heirs." We should probably limit obituaries to one, book reviews to no more than two, and as many recent news happenings on the ice that we can muster

We hope that all of you are using our web site to keep abreast of all of the great things that Tom Henderson is doing as our webmaster. It is a continuing labor of love for Tom, and one of his most recent changes is a simplification of his Time Trek program. He initiated this very recently with an update on Charles Swithinbank. Be on the lookout for more of your favorite Antarcticans. Meanwhile, our president, Charles Lagerbom, continues his wonderful free slide-scanning program for Society members. What a team, join us in making your own contributions, helping to build our Society even more.

We are pleased to note that many of you responded to the item in the previous newsletter about the need for Ed Stump to come up with what is known as a subvention by the publisher of his book manuscript, --*Exploring Deep Field Antarctica*,-- a very thorough coverage of the geology of the Transantarctic Mountains by means of spectacular photographs and text at the level of semi-technical readers. The publisher specified a necessary dollar amount in order to go further with its publication, and Ed has informed us that the amount has been reached through the generous donations of members and others. His next step is to do final editing to bring it to the publisher's requirements, and a book is expected in 2011. Good fortune, Ed!

Time is running out on your opportunity to extend your membership at our current low price of \$15.00 per year -- memberships go up to \$20.00 per year on January 1, 2011. Many of you have extended your membership five to ten years downstream, which certainly helps the paper work of your treasurer. We hope to get a supplemental shipment of the 2011 Hedgehog Antarctic calendars, but this will be it. So if you want one of these special calendars, send a check for \$15.00, made out to the Antarctic Society, to us in Port Clyde, Maine. No guarantees honoring orders after the first of December.

SOCIETY'S CENTENNIAL MEDAL HONORING AMUNDSEN-SCOTT. Just prior to this Newsletter going to press, our Vice-President, Tony Gow, and our Treasurer, Paul Dalrymple, visited an artist by the name of Jack Chase in Jericho, Vermont, on an exploratory visit about Jack designing for our Society a Centennial Medal honoring the 100th anniversary of Amundsen and Scott arriving at the South Pole in December 1911 and January 1912. Jack is a very accredited sculptor, being one of the finalists for the design of the Viet Nam Memorial. Look him up on the internet. We have been thinking about the upcoming Centennial for some time, and came before Jack with several of our own suggestions. Then Jack showed us what he thought that he could design and which would be most appropriate for the occasion, and at a price that we felt would be in the range of our member's pockets.

We wanted a design that would be relevant to both Amundsen and Scott, and, indirectly to our Society. The one common element seemed to be snow, which both had to travel over to reach the South Pole. We had a snow expert in our midst in Tony Gow, the recipient of the Seligman Crystal from the International Glaciological Society. And we were in Jericho, Vermont, birthplace and home of Wilson Bentley, who was widely known for his remarkable scientific research and photographic work in the study of snowflakes, beginning with his successful print in January 1885 and culminating with well over 5000 microphotographs of snow crystals during his lifetime of 66 years. And Jack, himself, has made many sculptures utilizing snowflakes. Everything was pointing towards a design featuring snowflakes!

Right now Jack is working on his preliminary design for our Amundsen-Scott Centennial Medal, working in conjunction with Tony Gow. We hope to have a design and leaflet printed and distributed to you by the end of the current calendar year. This medal will come with a neck chain, and will also show Roald Amundsen's name and date of his arrival at the

South Pole, plus the same for Robert Falcon Scott.

OUR PRESIDENT SPEAKS (Charles Lagerbom) There will be a celebration for Captain Robert Scott in Plymouth, England next June 4-5-6, 2011. It will be one of many festivities of a much larger, year-long recognition of his expedition that reached the South Pole in January 1912. I have made tentative plans to visit and take part in the celebrations, my small role being a short talk about Henry Bowers of Scott's polar party.

So I checked in with some of my Antarctic buddies from our fieldwork days in the Dry Valleys to see if they might want to come along as well. Why not use this occasion to gather? These were the guys who made my Antarctic experience all the more memorable. We were the S-156 field party from high up in the cirques of Upper Wright Valley, the grunts, the beakers, whatever you wanted to call us. We worked hard, played hard and learned quite a lot. I learned how to get along, I learned what I could or would put up with, and where I would draw the line. It was one of the more formative times in my life. We saw the best and worst of each other and forged some strong bonds, like a band of brothers.

Well, it has now been twenty years and I notice that we do not seem to gather as often as when we first got back. We did so at the big occasions such as weddings and occasional vacations but time has gone by and our moments of seeing everyone have grown fewer and farther between. We have moved on to other parts of the country and begun lives separate and distinct from anything Antarctic related. Good thing for emails, Christmas cards and phone calls, but we all know that that does not quite really cut it.

And that got me thinking about Henry Bowers and his place in Scott's expedition. What a dynamo of energy and industry! Everyone seemed to have nothing but praise for the young Scotsman. He seemed to be one of those guys who was everywhere, involved in most

aspects of the expedition and well-liked by most, if not all participants. He was also quick to volunteer, a hard worker, willing to do what was necessary, steadfast and reliable to the end.

So I am looking forward to seeing the celebrations in Plymouth next June, with the opportunity to talk about the incredible Henry Bowers. But no doubt more important for me, I will get the chance to once again see the people from my own Antarctic experience. For further information: <http://www.scott100.org/events/641/>. Also, inquire at scott100@plymouth.ac.uk.

CHRISTCHURCH EARTHQUAKE FOLLOWUP (Received Oct. 9, 2010) In the words of Margaret Lanyon, —What makes an earthquake so terrifying is you don't know how strong it is or how long it's going to last. The totally unexpected and violent 7.1-m earthquake experienced in Christchurch on September 4 was no exception.” We asked Margaret for this follow-up because she was there at the time (4:36 a.m.) and experienced some damage in her house. She continues to say, —Improved building codes helped to prevent more damage than was experienced, although many old buildings have to be demolished before they disintegrate.” Some damage continues as a result of aftershocks. Estimated damage to homes and other buildings amounted to \$4 billion [N.Z.\$], and to date has led to almost 100,000 claims to the Earthquake Commission. About 1,000 claims per day are still being lodged. The government has rushed emergency legislation through Parliament to override laws with a view to removing bureaucracy, which could slow recovery. Hundreds of houses have been declared unfit for habitation, and thousands more have sustained serious damage. Many businesses have been forced to close down or relocate because of structural damage to premises. In the space of five weeks, there have been 1576 seismic shocks in the province of Canterbury, and the count increases daily. Margaret said the probability of large-magnitude aftershocks occurring is decreasing,

although a number of them have been in the 5.1-m range, and some may continue for months, but hopefully decreasing in size and frequency. The good news is that Margaret is fine, with minor damage to her house, and she says that Spring has arrived in Christchurch, and many of our readers know what that means..... a beautiful time of the year.

Later message from Margaret on Oct. 20 – During a 36-hour period earlier this week there were 34 aftershocks, including one of 5.0 yesterday, which seemed more severe than the earlier 7.1 quake, but it was centered just 10 km southwest of the city and only 9 km deep. No injuries, but a bit of damage to some buildings and liquefaction around the epicenter.

[**Note about earthquake definitions.** m' as noted in Margaret's personal account is a seismic moment', a measure of the size of an earthquake based on the concept of rupture and slippage along a fault plane as a rotational moment about a point on the fault. Kind of fancy, but it is more common these days than measuring an earthquake on the Richter scale, which shows the size or magnitude of the earthquake ranging from 1 to 10. The Mercalli scale, another way of labeling the event, is a measure of intensity ranging from 1 to 12 (almost total destruction). No matter what you call it, it can be terrifying if you're in it. Some of the differences between those scales show as scribbles on a seismograph, or simply breakage of household goods, such as things flying off shelves. JFS]

COLIN BULL PASSES. By John Spletstoesser. It is an honor for me to write the obituary for Colin Bull for the Newsletter, as he shaped my life toward my personal involvement in polar regions from the time that he hired me in 1967 as Assistant Director of the Institute of Polar Studies (IPS), The Ohio State University (OSU). Colin was born in Birmingham, England, on 13 June 1928, and earned his Ph.D. degree there in Physics. Colin passed away on 7

September 2010 at the age of 82 while on a cruise to Alaska with his wife, Gillian. Obituaries composed for Colin that I am aware of are filled with accolades and praise for a man who affected many people in many ways. In the case of graduate students (14 Ph.D., 8 M.S.), he was a mentor for their success. The Antarctic Society Newsletter is a venue for serious content (but you might have to search for it), and it is also a means for me to include some scholarly tidbits about Colin as well as some of the wit that Colin was inevitably bound to express, whether in the field with students or anywhere else. For more serious obituaries of Colin, refer to upcoming issues of *Polar Record* and *Arctic*, and others. I have taken the alternate route, illustrating that Colin was a serious scholar and scientist, but also a talented wit with an unequalled sense of humor.

Rather than belabor details about his early education, a few highlights of his life are worth pointing out, an early one that perhaps shaped his life and career, was his participation in the British North Greenland Expedition, 1952-54. Afterward, he and his new wife Gillian elected to move to New Zealand where Colin would take a position in the Physics Department at the Victoria University of Wellington. Shortly after, he led an expedition to the Dry Valleys of Antarctica, described in the second *-Innocents...*” book below.

It is apparent from reading his recent books on *Innocents* that he must have been a delight to be with in the field, cheerful under the worst of circumstances, and also a good leader. For example, in *-Innocents in the Arctic, the 1951 Spitsbergen Expedition*” (University of Alaska Press, 2005), which provides an amusing but factual account of events, Colin said that the three-month expedition was his first of more than 20 expeditions made to the polar regions over the last 50 years. —*it was the most memorable of them all. I’ve been sopping wet countless times but that was the only occasion I’ve started the day by wringing icy cold rainwater from the sleeping bag in which I intended to sleep again the following night.*” (p. 239.) Only Colin could have put it into

words that imply misery in the field, but making light of it.

In his latest book, *-Innocents in the Dry Valleys, an account of the Victoria University of Wellington Antarctic Expedition, 1958-1959,*” (Victoria University Press, 2009), a similar type of anecdotal account flows from Colin, with his wit evident in relating many episodes of field work.

The greatest thing that ever happened to OSU and polar sciences there occurred as a result of a meeting with Dick Goldthwait from OSU who invited Colin to move to Columbus in 1961 to help set up the Institute of Polar Studies. The position was for 15 months, and he and his family stayed for 25 years. The moves that followed were quick, with Doc G moving from Director of IPS to become Chairman of the Geology Department and Colin taking over as IPS Director, 1965-69. This period of his life was my learning period to work with someone who was a born leader and who looked for opportunities that advanced the lives and careers of, not himself, but those around him, and as a result, I am indebted to Colin as a mentor. Many of Colin’s students went on to distinguished careers in their professions, many of them still active in several countries and in responsible positions. Some have earned the kudos of their peers by professional society awards at the highest level—Seligman Crystal, National Medal of Science are only two examples. Whenever possible, Colin would encourage his students to present the results of their research, even though preliminary, at technical symposia or meetings in order for them to achieve recognition as a start to their careers.

Continuing in his upward leaps within OSU administration, Colin replaced Doc G as Geology Chairman, 1969-72, followed by Dean of the College of Mathematical and Physical Sciences, retiring in 1986. Soon after, Colin and Gillian moved to Bainbridge Island, Washington, where Colin established a business buying and selling *Polar Books*.

Colin's scholarly works numbered some 60 or more papers or publications, including the two books mentioned above, as well as a thorough review of the literature published as —Snow Accumulation in Antarctica,” 1971, a paper written while Colin was on a Quarter leave from OSU at the Scott Polar Research Institute. He also edited, with Pat F. Wright (Sir Charles' daughter), —*SILAS: The Antarctic Diaries and Memoir of Charles S. Wright*,” Ohio State University Press, 1993, an example of Colin's interest in making public the records of early explorers.

Perhaps one of the more classic articles by Colin appeared with one of his graduate students as senior author, and Valter Schytt, visiting scientist at OSU, who worked with Colin and Olav Orheim in the field, resulting in —Climatological studies of past climatic variations in the South Shetland Lands,” published in *Antarctic Journal of the U.S.* in 1972. This significant work is often cited and commonly known as the **Orheim-Bull-Schytt** effect, surely not an accidental grouping of authors.

Another achievement worth mentioning is that Colin was the force behind the acceptance by the U.S. Antarctic Program and U.S. Navy of an all-female expedition, in this case to the Dry Valleys in the 1969-70 austral summer, led by Dr. Lois Jones, paving the way to overcome the roadblock for women in the U.S. program thereafter.

More anecdotes? I like the idea that Colin never minded when students and anyone else referred to him as **CB-cubed** (for Colin **B**ruce **B**radley **B**ull). One of his favorite stories was about a seismic field team in a company of Germans that was about to set off an explosive charge. As the shooter (probably Colin) in charge of the instrument to set off the charge was not proficient in German, he looked at the instruction manual at hand, and when the charge was ready, the next step was to alert anyone within hearing that the proper word to yell was **Schiessen** (for **Shoot** in English). He was close, but yelled **Scheissen**, and if you know enough German, you will

understand why the entire team broke up in laughter. One of Colin's favorite stories. Survivors include his wife, Gillian, and their three grown children, Nicky, Rebecca, and Andrew.

ANTARCTIC AUCTION. An auction sales representative has announced an auction on November 19, 2010, of Antarctic material from the estate of Richard R. Conger, Chief Photographer's Mate with Operation Windmill (1947-48). The items in the estate will soon be listed in a catalog, but a summary can be found at www.oldtownauctions.com.

Examples include a large collection of Antarctic books, photos, images, a camera and other miscellanea. The auction will be held in Boonsboro, Maryland. Questions can be directed to Laura Gast, sales agent, at tel (410) 458 – 5768; email sales@oldtownauctions.com, or zummy_6@yahoo.com.

THE LONGEST WINTER: SCOTT'S OTHER HEROES, by Meredith Hooper. London: John Murray, 2010, 358 pages, \$26.95. Review by Charles Lagerbom. We all know Scott's last expedition. Beaten to the pole by Amundsen, Scott and his four companions struggled back along a thin trail of scattered depots only to fall short by 11 miles of provisions and help at One Ton Depot. We have also heard of Lt. Victor Campbell's ordeal, the struggles of his —Northern Party” forced to winter in an ice cave with scant provisions and clothing. What has been neglected or not yet fully examined is their relation to each other and their place in the larger context of the same expedition. This has been masterfully redressed in Meredith Hooper's *The Longest Winter: Scott's Other Heroes*.

In January 1911, Robert Falcon Scott said goodbye to Lt. Campbell and the Lieutenant's five companions. Scott was hurriedly preparing his fall depot journey which resulted in establishing One Ton Depot miles short of its intended position. Campbell and his men, considered the other main thrust of the *TERRA NOVA* expedition in addition to Scott's polar attempt, were headed to King

Edward VII land to explore that largely unknown land to the east of Ross Ice Shelf. At least that was the plan.

Campbell's party, called the Eastern Party, chose not to land on King Edward VII land (due to the unexpected presence of Amundsen's winter quarters at the Bay of Whales) but instead wintered at Cape Adare, a mountainous and glacier-locked area at the northern end of Victoria Land already visited and investigated by an earlier expedition. It was an incredible letdown for Campbell and his team. But they resigned themselves to making the best of it, with the hope of later exploring west of Cape North. Hooper fleshes out these changes of plans and how they affected Campbell and his men. Using their own words from diaries and journals and correspondence, she examines the implications both physically and psychologically as well as how this affected Scott's overall plans for his expedition.

After their winter at Cape Adare and their failure to get beyond Cape North, Campbell convinced the *TERRA NOVA* to drop them off at Evans Cove to the south for two months exploring. They expected to be picked up before winter but the *TERRA NOVA* failed to reach them. Forced to excavate an ice cave on a nearby island they later appropriately named Inexpressible, the men suffered dreadfully and survived mainly by their ingenuity and hardiness. Hooper writes of their feelings of being abandoned, their not knowing why or how it happened. More interestingly, she examines the other people involved whether aboard *TERRA NOVA* or back in England who stated (perhaps too quickly or cavalierly) that Campbell and his men would be fine.

They were not fine and the ordeal they endured makes a gripping read. Hooper tells their story in the timeframe it happened, not bringing in later or contemporaneous events of which they had no knowledge. Not only does this make their ordeal all the more grueling, it also puts the reader right in the ice cave with them whether choking on the blubber smoke (they

called "mitch") or feeling the pains of hunger over their poor diet and physical results from it. She also brings all six members fully into the narrative, the officers Campbell, Levick and Priestley but also the seamen Abbott, Browning and Dickason, a long overdue redress in polar chronicles. It is also interesting that Campbell and his men expected or hoped for some sort of relief party to reach them and tortured themselves with "what if" scenarios as to why no one appeared. Almost fittingly, they had to extricate themselves from their ice cave winter quarters and sledge hundreds of miles back to Cape Evans, all on their own power, initiative and resources.

This ordeal would no doubt have dominated the expedition's main narrative, but for the news of the polar party's death, especially just a few miles from relief. According to Hooper, that tragedy reset the entire expedition. Almost without missing a beat, Campbell and his men were renamed the "Northern Party" and their ordeal, while horrible and grueling, relegated to the status of addendum to Scott and the fate of the polar party. This occurred whether in news coverage of the time or with publication of Scott's Last Expedition, where the "Northern Party" story was added almost as a sidebar in the second volume. This diminution of their struggles and achievements took hold even with Priestley's published account and even later publication of Campbell's abbreviated journals. Meredith Hooper has done us a great service in bringing Scott's other heroes their proper due.

DEEP FREEZE!, A Photographer's Antarctic Odyssey in the Year 1959, by Robert A. McCabe. International Photography Publishers, ISBN 978-0-9843364-0-1, 2010, 147 p. (Reviewed by Paul Dalrymple.) What is my primary responsibility as a book reviewer for the Antarctic Society's NEWSLETTER? Probably two-fold, to use whatever Antarctic knowledge I may or may not have to either recommend or to warn our members about a book. When I first saw this book, I wasn't enthusiastic about reviewing it, but knowing myself as an honest man, I said

—“Why not me?” After all I was probably better qualified than any other member of our Society to review something that occurred in 1959, as I was at McMurdo in January 1957, in November and December 1957, in November and December 1958.

When I saw this book, I wondered why the author waited some 50 years after his experience to finally publish. It would seem to me if he felt like he had a winner, he would have wanted to get it out on the streets while it was still hot news. After all, there was really only one photographic coffee table book published by 1960, the all-encompassing *ANTARCTICA* by the fine Swiss photographer, Emil Schulthess. You might call McCabe’s book a coffee table book, as the author, a photo-journalist, has 68 pages of superb black and white photographs, and an additional nine center-fold type, back-to-back pages. This book is actually his photographic diary. The only difference in what he did and what you and I did when we came back home and showed our own pictures to our families is that this fellow had great cameras and shot beautiful pictures.

How long was McCabe at McMurdo, it does not say, but presumably he was only there for a limited time? I judge this by the fact that he evidently never was taken to the spectacular Dry Valleys, never was taken on a flight that landed at the South Pole or to Byrd station. And my memories seem to recall that the press was taken everywhere of note. He did go to Cape Evans and to Cape Royds, but he certainly did not maximize those visits. Both visits were covered in one short paragraph, totaling only seven sentences. He has more pictures of the shadow of planes on the snow surface than he does of those two historic huts.

This book is about snow and ice and planes and mammals, not about people, not about events. There are a couple of pictures of Walt Seelig, but even though this well known Antarctic is shown, his name is misspelled! A lot of candid shots were taken of Navy personnel, but names were never shown with

the sole exception of Admiral David Tyree’s and several of his self-portraits.

He was there in an interesting period, but most were ignored in his diary’s comments. The International Geophysical Year had come to a conclusion at the end of 1958, and the following year saw those sciences left out of the IGY, such as geology, botany, and biology, all standing by to come to the ice. The United States had turned Wilkes station over to the Aussies, Ellsworth station to the Argentines, and was in the throes of closing up Little America V. The Antarctic Treaty was being enacted in Washington, and the National Science Foundation was gearing up to become the scientific arm in the USA for Antarctica. So there were many things happening of importance, but where this was a personal diary, none got mentioned.

McCabe did make a Globemaster C-124 air drop flight to the Pole, but they never buzzed the camp after their final drop. It used to be a common practice for the Globemasters to buzz the station if they had a photographer, such as Tom Abercrombie, aboard, but McCabe missed out. It was too bad that he never flew to the Pole on an R4D or a P2V as then he could have gotten some spectacular low altitude photos of the Beardmore.

There are plenty of beautiful coffee-table books of Antarctica, but McCabe’s is only for those who must have all of them. There is one on the market for \$4,000, but you can get a dozen excellent books of this type for a legitimate price. A more recent one, published in 2002 is *ANTARCTICA, A Year at the Bottom of the World*, by Jim Mastro. Great book, truly a great coffee table book. But if you are a lover of splendid black and white photography, on the finest stock, look at McCabe’s book, as it may be just the one you are looking for.

DOG-AND-PONY SHOW FROM CHRISTCHURCH TO MCMURDO.

(Modified from article in *The New York Times*, September 27, 2010, by John Wilford.)

Beginning in October, aircraft resume supply runs from Christchurch to McMurdo as they have for many years, but for the first time, their flight maps will show navigation waypoints honoring the names of dogs and ponies from the expeditions of Amundsen and Scott in 1911-12. Several of the animals' names have been modified to conform to the standard five-letter format for the waypoints, where at intervals of a few hundred miles pilots must report by radio to air traffic controllers their time of arrival, position, and weather conditions. For example, *Uroa*, one of Amundsen's Greenlandic dogs, becomes *Urroa*, and *Jimmy Pigg*, one of Scott's ponies, becomes *Jipig*. The 12 waypoints are the initiative of Col. Ronald J. Smith, a U.S. Air Force navigator and former commander of Operation Deep Freeze, who wanted to honor the animals for their roles in the expeditions as part of the upcoming centennial celebration. Names of animals are no longer allowed for geographic features on the continent itself, although known exceptions from earlier days include the names for lakes in the Dry Valleys -- Vida and Vashka, dogs from the British Antarctic Expedition, 1910-13, approved in 1962 and 1964, respectively—and Vanda, named by Colin Bull in his 1958-59 VUW Antarctic Expedition for one of his dogs in the British North Greenland Expedition, 1952-54, approved in 1962.

EREBUS TRAGEDY REVISITED (from Margaret Lanyon, *Christchurch Press*, 1 Oct. 2010.) Eighty people who lost family members in the 1979 Erebus tragedy will travel to Antarctica on a remembrance flight as a result of their names drawn in a ballot. A Royal New Zealand Air Force 757 will fly to McMurdo in February 2011, and the family representatives will spend a few hours at Scott Base, where they will take part in a memorial service. Last year, Air New Zealand took six family members of victims on a flight to mark the 30th anniversary of the disaster, which occurred on November 28, 1979, when an Air New Zealand DC-10 crashed on the side of Mt. Erebus, with a loss of all 257 on board. The crash site was designated a tomb to be left in

peace', since not all bodies could be recovered. (Adopted at the ATCM XI, Buenos Aires, 1981.)

ADÉLIE PENGUIN WINTER MIGRATION – WHO WOULD HAVE GUESSED? By John Spletstoesser and Antarctic Sun. A recent article by Grant Ballard and David Ainley in the journal *Ecology* revealed some surprising information about where Adélie penguins migrate in winter. Over a period of years of attaching geolocation sensors to Adélie penguins at the Cape Royds colony (about 2,500 breeding pairs; the southernmost colony of penguins in the world) and at Cape Crozier (about 150,000 breeding pairs), both on Ross Island, it was found that the penguins migrate north to within 500 km of the northern edge of the ice and open ocean, amounting to some 17,600 km of migration when including motion of the ice and currents in gyres. Two requirements are necessary for their migration --- light for navigation, and fishing for food. Even the twilight in winter is sufficient for their migration, for it is assumed that they rely on the sun in order to return to their same nesting sites each breeding summer. Considering changes in ice conditions through time, as well as perturbations in their breeding habitats, such as recent icebergs blocking access routes to and from colony sites, they are very adaptable, as one would expect after many centuries of doing what they do. Ice conditions due to global warming and other factors can induce major challenges in their annual survival, and it is possible that those colonies might become extinct, but it is also possible they would simply move farther north, such as they probably did when the Ross Sea was ice-choked in earlier times. Cape Adare would provide a natural haven for them in such a case.

MCMURDO SOUND ECOLOGY might sound pretty benign, but through the past 40 years, biologist Paul Dayton from Scripps Institution of Oceanography is revisiting the sea bottom that he studied when he was a student and conducting experiments that he

will see once again as a diver. Paul wintered at McMurdo in 1963, and through a series of dives in the 1960s he and fellow divers placed numerous cages or floats on the sea floor in McMurdo Sound. The objective was to examine the benthic organisms through time to see how they interacted and colonized. Cages were designed to keep out sea stars, a voracious predator of sponges, for example, as part of the long-term experiments. Dayton's last trip to McMurdo was in 1989. The current plan uses a robotic device that is lowered into the Sound to locate the earlier cages and examine changes in the ecology. Some 500 dives and numerous scientific papers resulted from the 4 decades of study of the bottom organisms, a lengthy baseline of data existing nowhere else in such detail.

As an aside to the story above excerpted from *The Antarctic Sun*, many Society members will recall the "McMurdo Dump," the ever-growing pile of rubbish at the side of the station facing Winter Quarters Bay* and Scott's 1901-04 Discovery Hut. Until 1981, rubbish from the U.S. station was dumped in that location and much of it went out to sea on sea ice and when the ice melted the payload of rubbish sank to the bottom. A survey in 2001 of what was visible on the seabed included 15 vehicles, 26 shipping containers, 603 fuel drums, and some 1,000 miscellaneous items spread over about 50 acres. Toxic materials such as PCBs, metals, and hydrocarbon fuels were discovered in bottom sediments, a feature of common disposal procedures formerly practiced by Antarctic stations with rubbish disposed of on site, rather than removed from the Treaty area under today's requirements. (*From Wikipedia.)

CENTURIES-OLD SCOTCH AT CAPE ROYDS. By John Spletstoesser. When Ernest Shackleton attempted to reach the South Pole in his 1907 *Nimrod* expedition, he planned ahead and made sure that there would be some spirits to celebrate the event on his return. He didn't quite get to the Pole, coming within 97 nautical miles of it before turning back, realizing that he did not have enough

provisions to make it back safely if he went all the way to 90 degrees South. To make a long story short, perhaps he did celebrate to some extent anyway, but also left behind some spirits under the floorboards of his hut at Cape Royds, Ross Island. Crates of scotch and brandy were discovered there a few years ago, encased in ice but apparently in good condition. They were dug out with great care with all intact -- eleven bottles of scotch in two crates, plus two crates of brandy. The scotch was from the Mackinlay's distillery (now Whyte and Mackay), and although no bottles were opened after the discovery, samples will be taken by syringe through the cork to send to the distiller in an attempt to reproduce the recipe. The scotch vintage is from 1896 and 1897, and is presently 'aged' beyond expectation. The crates will be returned to Cape Royds, even though Shackleton will not return. The next time you visit the hut, and tour vessels often do, keep in mind that 'The Boss' planned well in all his expeditions. Have a drink in his honor (but not from the 1896-97 vintages).

Speaking of that ritual, the first time I visited Grytviken, South Georgia (it was New Years Eve, 1983), and the cemetery where Shackleton is buried, I was a lecturer on a tour vessel, the first time I had been on that ship and with those staff. At the grave site, one of the staff gave a brief speech about Shackleton, the *Endurance*, Cape Wild, *James Caird*, etc., enough to create anxiety (and thirst) in anyone, and then all the Zodiac drivers brought out a hip flask of spirits and had a toast to 'The Boss.' Each of them then sprinkled a bit of the contents on the grave, and it was then that I became aware that Shackleton didn't mind a drink or two at the proper time, and these men honored that tradition in a way that 'The Boss' would have appreciated. Most of those staff have since retired or are on other ships, the ship sank in 2007, but the tradition at the cemetery lives on..... as I have experienced at the cemetery many times since.



The Antarctic Society

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BRASH ICE. The last couple of months have been devoted to producing and marketing a South Pole Centennial Medallion honoring the 100th anniversary this coming Antarctic austral summer of the arrival of both Amundsen and Scott parties at the South Pole. (See last page.) Each of our Society members were sent a flyer with an explanation of what we were doing and showing an image of the final product. Basically it was a three-pronged effort between a noted artist-sculptor, Jack Chase, Tony Gow, a distinguished glaciologist in our Society, and me, Paul Dalrymple. Jack and I had been friends for many years, and it was my intent that the medallion should be centered around Amundsen's tent at the South Pole. But this was not practical from Jack's point-of-view, and he opted for a replica of a snowflake. It seemed that Wilson Bentley, whose farm was nearby Jack's home, was world famous for microphotographing snowflakes. It did not take Jack very long to convince Tony and me that this would be a good way to go, and soon Tony had selected one of Bentley's microphotographs for our centerpiece. Then Jack superimposed Amundsen's tent and some intrepid Polies into the heart of the medallion. So we all ended up happy and when we showed it to some of our ex-presidents, they approved. The first mailings of the medallion were in early February, and the next was in mid-March. I think it has met with high approval by those of you who have received them. Our Honorary President has e-mailed us that he will wear it proudly at all Antarctic functions in the UK this year that will be celebrating the centennial. Even back here in CONUS, our president, Chips Lagerbom, said that as soon as his arrived, his wife pilfered his the next morning so she could wear it to her duties as a pharmacist at her place of employment. By some act of fate, the medallion made the Iditarod race in Alaska this year. Bob Henrici, a Society member and close friend of Norman Vaughan, attended the race and showed the medallion to a former winner who happened to be of Norwegian descent. The former sledger thought that if he wore the medallion on the race it would bring him success similar to Amundsen's achievement of the Pole, but alas, it did not work for the dogs, although they did finish in the money.

If you have not ordered yours, now is the time. For Society members, it is \$30.00. Be sure to state whether you want it as a necklace or a pin. But where they are being produced in groups of fifty, we will not have them for distribution until we have orders for fifty. So it may be several months before you get yours. Make your checks payable to the Antarctic Society and send to our Society, Box 325, Port Clyde, ME 04855. The price must be in U.S. dollars, and includes shipping and handling.

Our honorary president, Charles Swithinbank spent ten days in the Heritage Range at the invitation of *Antarctic Logistics and Expeditions*, a Salt Lake City-based company that operates one of the two commercial airlines flying to and within Antarctica (<http://www.antarctic-logistics.com/>). ALE carries cargo and passengers from Punta Arenas, Chile, in a chartered Ilyushin-76TD, landing on a blue ice runway on Union Glacier. A camp for visitors and staff is maintained beside a skiway 8km from the ice runway. ALE operates one ski/wheel Basler BT-67 and also a ski/wheel DHC-6 Twin Otter. The BT-67 is a turbine-powered version of the US Navy R4D well-known to USARPS of the IGY period. Charles was a passenger in the Basler on a flight to the Lake Ellsworth site to recover a Chilean geophysical group at the end of their work.

As a fully-certified runway for intercontinental jets, Union Glacier hosts aircraft from the US, British Antarctic Survey and other nationalities. A visiting US Air Force LC-130 operating on behalf of NSF landed (wheels-down) on the ice runway in December to deliver participants in *Polenet*, the International Polar Observing Network.

Charles visited South Pole station on 20 December in ALE's Twin Otter after re-fueling from an ALE cache near the Thiel Mountains. He was welcomed at Pole Station by Dr Vladimir Papitashvili, Senior NSF representative. He reports that The Ruth J.Siple Memorial Library occupies an honored place in the main building.

Tragedy recently struck most unexpectedly on January 21, 2011, to a relatively young and athletic staff member of the Office of Polar Programs. William Colston, age 40, was the Division Director for Antarctic Infrastructure and Logistics. He was an avid outdoorsman, and last year completed the Ironman St. George triathlon in Utah. He also was a youth hockey and soccer coach in Arlington, Virginia, certainly a confirmation of the saying, "the good die young." His position has been filled by the appointment of Brian Stone.

The founding director of the School of Marine Sciences at the University of Maine -- Orono, Bruce Sidell, found out that an Antarctic feature had been named for him just a short time before his death in February, 2011. As we understand it, this feature, Sidell Spur, proposed by both the U.S. Geological Survey and the National Science Foundation, was rushed through so that he could have his picture taken with it prior to his death. Bruce is being sadly missed by not only his family, but his ever faithful canine companion BARNUM.

The IGY ranks continue to thin, as we heard recently that Stephen Barnes, station leader at Byrd Station in 1958, passed away in Boulder at the age of 95.

A recent new member of our Society is Ken Behannon, who was an aerographer mate on the *Edisto* PRIOR to the IGY, in 1956-57. We don't get old guys like Ken joining very often, so he will be among the most unique, such as Charles Swithinbank, Bill Sladen, Bob Dodson, James Holly-Tierney, and Charlie Bevilacqua, who were all pre-IGYers. Incidentally, Ken's post-Antarctic career showed that he went on to get his PhD in meteorology. Speaking of "CB", Bevilacqua has been fighting poor health of late. When they demolished the first research station at the South Pole, they also tore the very heart out of poor old Charlie, although he still has his beloved husky GINGER at his side.

Polly Penhale, a major source of input for the Newsletter, advised that Dr. Roberta Marinelli has announced that she is leaving NSF, and will be the new Director of the Wrigley Institute for Environmental Sciences at USC. Whether that means complimentary gum as one of the University benefits is unknown.

Dr. Kelly Falkner has recently been appointed Deputy Director of OPP. She comes from Oregon State University, is an accomplished chemical oceanographer who has done much work in the Arctic. She had been the inaugural program director for the Antarctic Integrated System Science program several years ago as a rotator, but left NSF two years ago.

Master (of) photography, Stuart Klipper, Society member and known for exquisite photography and recipient of many NSF/OPP awards in the Artists and Writers Program, has an exhibit of some of his work called THE WATERY PART OF THE WORLD -- 36

photos of open sea, including some Antarctic coastal waters. The show is at the Minnesota Marine Art Museum, Winona, Minnesota, on the shore of the Mississippi River, on display until May 15, with Stuart giving a gallery talk at 1:30 p.m. on May 30, including a book signing event. Don't miss it!!

The National Maritime Museum in Falmouth, Cornwall, UK, is the site of a polar exhibition "On Thin Ice: Pioneers of Polar Exploration," which as suspected will include content on Shackleton, among others. The exhibition is scheduled to open April 8 and will close on October 9, 2011.

Ed Stump told us recently, "Since the last Newsletter, my book on the exploration of the Transantarctic Mountains has gotten an official title and has moved into production. It will be called: "***The Roof at the Bottom of the World: Discovering the Transantarctic Mountains.***" I have seen the galley proofs, and Yale University Press has done a great job with the layout, which includes more than 140 images, most in full color, of original maps from the early explorers, topographic maps from the USGS showing the explorers' actual traverse routes, as well as a comprehensive set of photos from Cape North to the Ohio Range. The price will be \$39.95. The official print date is November 29, 2011, but I am told that it will be in print and in the warehouse by late September, so ready with time to spare for holiday gift giving and the centennial of the Scott/Amundsen race to the Pole."

Head's Up. If you need a long lead time, here's one. The South Pole Builder of Recent Vintage, Jerry Marty, is going to be the speaker in Washington, DC on December 2nd

of this year. The Explorer's Club, the Women's Geographers, and our Society will be co-jointly sponsoring a dinner lecture at the Cosmos Club that evening. Mark your calendar, now.

MEMBERSHIP. Our membership is roughly 350, although a dozen or so are gifted members getting free passage. As we go to press, eighty of you are still delinquent. Get with it, please, and soon. But what helps us immensely is having those of you who send in for multiple years. Remember this is not a fully staffed office, as basically it is a one-person operation when it comes to members, sales, running off newsletters, and getting them in the mail. We want to thank those of you who have renewed for multiple years, over 75% of those who have sent in checks have done so for multiple years. Ironically people who I know personally tend to renew only for the current year, those unknown to me renew for many years. God bless them! There has been one blessing this year in the renewals, many (Pete Anderson, Billy-Ace Baker, Bob Benson, Marty Belsky, Scott Borg, Nick Clinch, Bob Dale, Jane Siple DeWitt, Steve Dibbern, Ed Fremouw, Tony Gow, Robert Grass, Art Jorgensen, Katherine Green-Hammond, Bob Long, Lorne Matheson, Ken Moulton, Ann Peoples Karen Phaup, Ron Podmilsak, Sy Roman, Gerry Schatz, Ron Sefton, and Don Wiesnet) have all included a donation for the Ruth J. Siple Memorial Library at the South Pole for purchases of books. To date this year their donations have totalled over \$500, which will buy many good books for the Polies.

There has been a steady increase in the number of you folks opting for electronic

Newsletters, particularly with new members who have found us through our web site. About eighty members now get electronic copies, which not only saves you membership dollars but helps our treasury too, while saving us time. Your electronic copies come through the courtesy of our webmaster, Tom Henderson.

CHRISTCHURCH EARTHQUAKE - UPDATE FROM MARGARET - MARCH 03.

The lovely city of Christchurch is not so lovely any more. It can now be regarded as the city that suffered two of the worst earthquakes on record in New Zealand. The aftershock clusters, numbering about 12 per day, are continuous. The last 6.3 magnitude earthquake which occurred at 12.51 p.m. on Tuesday February 22 claimed 161 lives and it is anticipated this figure could rise to 240 as recovery work in the inner city continues on a 24 hour basis. Ten days on, the entire central business district is still cordoned off and guarded by army and police.

Thousands of people, particularly in the eastern suburbs are still without power, water or access to toilets. Many streets are like a ghost town where people have been evacuated or forced to leave. Waterways are contaminated of course, and the black silt resulting from liquefaction which rose out of the ground at the time of the earthquake is being removed by hundreds of volunteers using simple shovels and wheelbarrows. To date, 218,000 tons of silt have been trucked out of the city. Facemasks are a common sight as high winds dry out the silt and turn the city into a choking dustbowl. Access to some roads is made difficult or impossible due to severe

buckling. Yet, a lot of the city is still intact and eventually some of the cordoned off area may be accessible and some day soon, business might be revived. Damage to infrastructure in northern parts of the city is relatively small. Damage to properties and contents is another matter. As one taxi driver said, "In Afghanistan we have had 35 years of war. You have more damage in one day"

In spite of their sadness, the citizens of Christchurch have shown such courage and fortitude. There is a resilience and strong emotional attachment to our city which will enable us to survive. You can see the determination in everyone's eyes. Hundreds of people from all around New Zealand and the world have looked after our injured and dying, risked their own safety and provided us with extraordinary support and love. To know there are people from all parts of the world who care, who want to help us, is heartwarming. We thank you for that.

CHRISTCHURCH EARTHQUAKE - PART 2 FROM MARGARET LANYON – MARCH 27

Things change from day to day of course in a situation such as ours. After a month-long wait, most of the urban areas now have power and water although the systems are fragile. It's still necessary to boil drinking water. The waste water system is seriously damaged on the eastern side of the city. There are lots of jokes going round about portaloos.

Traffic is gridlocked at peak times and while some roadwork repairs are ongoing, it's a painfully slow business. Most schools are now operating; quite a few 'double-shifting' to

accommodate pupils from closed schools. University lectures are taking place in tents on campus grounds.

Christchurch is a city of ruined churches surrounded by hurricane fencing - a familiar sight around the city. Driving around one sees faceless houses and piles of rubble everywhere. Very old buildings and brick constructions have suffered the most. Hundreds of people have been forced to leave homes that have been condemned. Our poor, hurt city!

Most of the black silt resulting from liquefaction has now been cleared away. About 5000-6000 cars stranded in central business district (CBD) parking buildings are gradually being returned to owners by police and SAR folk who are the only ones permitted to enter those areas still cordoned off. Under strict supervision, small groups of business owners are allowed to enter certain CBD buildings for a period of about 3 hours to collect their office records. Some businesses have relocated. It's a bit soon to know for sure, but figures of between 15 to 20 billion dollars [NZ] are being estimated for the Christchurch rebuild.

We are still aftershocks which have almost become a way of life. There have been over 5,000 since 4 September. People are coping very well and we'll get through this.

OUR PRESIDENT SPEAKS. As I write this, daylight hours are getting longer, day temps are climbing, and spring is coming back to mid-coast Maine. With the return of spring, there is more activity and not just yard work. In April, there will be a graduate exposition of

research at the University of Maine, appropriately entitled Grad/Expo 2011. It offers me with an opportunity to present a poster of my PhD research about Maine connections with the polar world.

I am currently compiling information regarding the NSF Research Vessel **HERO** built in South Bristol in 1968. She made many trips to Palmer Station on the Antarctic Peninsula and conducted lots of science in her twenty-year career. She currently rests on the west coast in Oregon. If any of you have information, photos or material about her, I would greatly enjoy hearing from you. I can be reached at either of the following email addresses: clagerbom@rsu20.org or icechip@bluestreakme.com.

In June I will be travelling to Plymouth, England to give a talk about one of Captain Scott's men, Henry "Birdie" Bowers, the subject of a polar biography I published. I intend to proudly wear our new society snowflake medallion celebrating the centennial of the conquest of the South Pole. Plymouth and Devon are chock-full of Antarctic connections and I am looking forward to poking around the area and perhaps indulge my passion for polar books among the numerous used book stores. I am also hoping to visit our society's honorary president and tour beautiful Cambridge.

In the meantime, I can report on the Antarctic Society's slide-scanning service that is entering its third year of existence. At this point, we have worked with twenty different collections and scanned almost ten thousand individual images at a high resolution of 4000dpi. Slide collection sizes

have ranged from over 3000 slides to just under 40. They include science, aviation, military, scenic, ships, ice, everyday life and wildlife. Some are official Deep Freeze images, others are personal shots from all manner of Antarcticans. Some collections span several years, others are one season, visit or experience. Some of the participants have included other items such as photos, letters, documents, journals and so on. We have digitized those items as well. All material has been returned to the owners and duplicates forwarded to our webmaster, Tom Henderson for our website. This program has been very successful in getting many images and materials digitized and preserved into a more modern format. The amount of material saved has dramatically grown and will become a great treasury of information for generations to come. I am happy the society has embarked on such a mission of preservation and proud to have played a part. If you have some slides, photos or other polar memorabilia and are interested in this service please contact us.

WEBSITE UPDATE (by Tom Henderson)

The main thing to report regarding the website is the development of a more automated way of updating the geographic names in Time Trek. The original data for the names was obtained from the Scientific Committee on Antarctic Research (SCAR) geographic names repository in Italy. It was a very laborious task to import and modify the data so that it could be presented in Time Trek, so much so that the data has not been updated in Time Trek since 2008. The SCAR repository has been transferred to Australia in the interim and the data is now available in a more convenient form. Amos Alubala is writing an application that will ingest the data from Australia,

reformat it, populate the Time Trek database, and generate the KML display file that Time Trek uses. This means that updates to geographic names in Time Trek should be loaded soon after the quarterly updates are generated by the Aussies. This should be in place by summer.

I have obviously failed to meet my goal of posting 30 new images to Time Trek each month. I can only say that things should improve in this regard in the latter part of the year. There will be plenty of good material for you to see once I get a significant block of time to dedicate to it. Don't give up hope!

POLLY PENHALE RECEIVES FINN RONNE MEMORIAL AWARD. For twenty-five years, Polly Penhale has helped shape the way science is conducted in the Polar regions. She has been at the crossroads of research, education, conservation and advocacy, working both nationally and internationally to preserve the Arctic and Antarctic ecosystems while facilitating valuable scientific research.

Penhale began her career as a marine biologist, earning an M.S. and Ph.D. at North Carolina State University. She spent the next ten years doing research in a number of oceans and coastal regions, including coastal Alaska, the Caribbean, Florida, and the Chesapeake Bay. In 1986, she moved to the National Science Foundation, where she became the program manager for Polar Biology and Medicine.

Penhale has been involved in U.S. polar research ever since. As program manager, with responsibility for reviewing Antarctic research proposals and making final funding decisions,

she has been one of the most important influences on American Antarctic research. Her workshops and meetings have encouraged scientists to brainstorm innovative ways to conduct science on the continent. In 1990, she was instrumental in establishing the Long Term Ecological Research (LTER) program at Palmer Station, bringing a program dedicated to conservation and the preservation of biodiversity to the Antarctic.

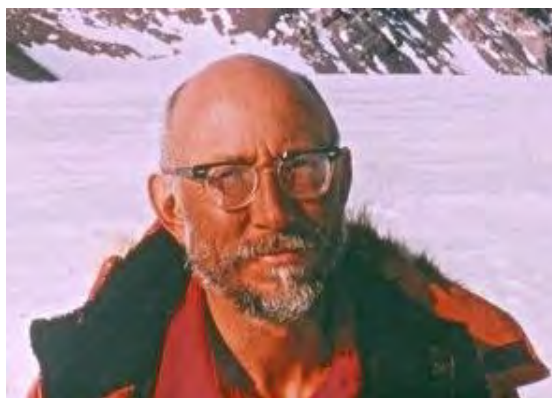
Dr. Penhale is currently Acting Head, Office of Polar Environment, Health and Safety. She has been the U.S. Representative to the Committee for Environmental Protection, Antarctic Treaty, and a member of the U.S. Delegation to the Convention for the Conservation of Antarctic Marine Living Resources (CCAMLR).

And here are the remarks that Polly made when she received the award: "Receiving the Finn Ronne Memorial award is a great honor. Early in my academic research career, I found that the greatest contribution I could make to the field of science and exploration was at the National Science Foundation. Working in the U.S. Antarctic Program, I was able to facilitate the very best scientists in their quests to gain knowledge in Polar Regions. I hope that my work on protection of the Antarctic environment through the Antarctic Treaty System contributes to ensuring that future generations are able to continue their work in a near pristine continent. I was privileged to know Finn Ronne's late wife, Jackie Ronne, and their daughter Karen, here in the audience. I'd like to thank the Explorers Club for considering me worthy of this award. And to all whom I've worked with over the years, thank you. Karen Ronne Tupek was on stage

with me when the President of the Explorers Club, Lorie Karnath, presented the award to me. It was a great honor, and I was quite surprised to receive the award.”

WILLIS H. (WILLIE) NELSON (1920-2010) Art Ford Willie Nelson, of Los Altos, California, a geologist, Antarctic explorer, and long-time member of the Society, passed away August 26, 2010, age 89, from complications following surgery. Willie was born December 2, 1920 in Three Forks, Montana. After obtaining a BS degree (Mechanical Engineering, Montana State College, Bozeman), he joined the U.S. Army in June, 1944 for service in the Pacific sector of WW-II (Company D, 165th Infantry), rising to rank of sergeant, and was awarded the Purple Heart for injuries sustained in an invasion under fire to establish a beachhead on the island of Okinawa.

Willie loved mountains, and so he studied them in graduate work in geology (Univ. of Washington, Seattle), after which he joined the U.S. Geological Survey for a long career (1951-1985) that took him to mountains of Appalachia, the Rockies, North Cascades (Wash. state), Indonesia, and the places he loved most — remote regions of Alaska and Antarctica. The tougher the terrain the better. He spent the austral summers of 1962-63 and 1965-66 in geological mapping of the Pensacola Mountains near the Weddell Sea; 1966-67 in studies of the layered igneous complex of the Dufek Massif and Forrestal Range; and 1970-71 in studies of the Lassiter Coast, central Antarctic Peninsula.



He was among the first explorers of those regions, as commemorated in the name Nelson Peak (Neptune Range, Pensacola Mountains). Many Society members are similarly honored in Fred Alberts’ 1995 “Geographic Names of the Antarctic,” but Willie hit the jackpot in also being namesake of a formally named geological formation — the Nelson Limestone, an ca. 525 million-yr-old (Middle Cambrian, geologic age name) unit of rock named for its type section on Nelson Peak. Even better, that formation was found to contain previously unknown Cambrian trilobite fossils, now known as *Nelsonia schesis*. (New species are not that uncommon, but a new genus is a rare find.)

Willie co-authored two 1:250,000-scale geologic quadrangle maps of the Pensacola Mountains (USGS maps A-8 and A-9). Results of his many research contributions are published in USGS reports and maps as well as in scientific journals. He would introduce himself to others as “The original Willie Nelson.” A valued companion and trail-mate in Antarctica, he is remembered by one as having “...almost saint-like patience and kindness that affected everyone around him.” His mechanical skills were always depended upon to repair broken ski-doo — tracks or engines, or anything. Willie is survived by his

wife, Evelyn, two sons, a daughter, two grandchildren and one great grandchild.

MOUNTAINEERING IN ANTARCTICA, Climbing in the Frozen South, by Damien Gildea, Editions Nevicata, Brussels, 191p, 2010 (reviewed by Paul Dalrymple). This book could just as well be named *The Complete Encyclopedia of Antarctic Mountains* as it covers nearly everything that you would want to know about mountaineers conquering Antarctic mountains. It was written and put together by Damien Gildea, an Australian mountain climber who has led seven successful expeditions to the high mountains of Antarctica since 2001. He also led a skiing expedition to the South Pole. He writes about many of his peers, including Naomi Uemura, Mike Libecki, Wally Herbert, Ed Stump, Skip Novak, and Lionel Daudet, while mentioning guys like Ed Hillary, Nick Clinch, Norman Vaughan, and many others. So it is not just a book about himself and what he has accomplished, it is about the cadre of mountaineers who preceded or followed him. But before we go any further, if you are looking for a book full of majestic pictures of Antarctic mountains, this is NOT the book for you, as the pictures for the most part do not rival those of Ed Stump or Colin Monteath. It is more a Working Man's book of Antarctic Mountaineering.

What I liked most about the book was reading about many of our Society's members who have mountains named after them. Nick Clinch who led an American expedition to Mount Vinson in 1966 has Clinch Peak named for him, 4841 meters high. No other living American has a higher peak in Antarctica. The third highest peak in Antarctica is named

after our good friend Gus Shinn, at 4660 meters. You sort of get the idea from Gildea's book that a mountain is not really a mountain until it is higher than 4,000 meters. Among our members, living and deceased, who have been honored with 4,000 foot namings are Bob Rutford (4477m), Cam Craddock (4368m), Vernon Anderson (4144m), Charlie Bentley (4137m), Ned Ostenso (4085), Jim Shear (4050), and Harry Wexler (4025m). My old South Pole roomie, Mario Giovinetto, and an IGY pilot Harvey Gardner, killed in a plane crash on Marble Point, also have 4000 meter peaks named for them. Charlie Bentley is sort of the God Father of many of the highest peaks in Antarctica, especially those in the Sentinels. The highest mountain in Antarctica Mt. Vinson, at 4892 meters, was named after a Georgian senator who may have never been south of Peach Street in Atlanta, Carl Vinson. But he had been a strong supporter in Congress of US operations in Antarctica and it was provisionally named after him long before Charlie Bentley was in the neighborhood. There is very little about Ed Hillary in this book, but Gildea mentions that Ed Hillary and his New Zealand team thought that it would be a major breakthrough in mountaineering if they could climb an Antarctic peak in sub-zero temperatures, and they chose the majestic Mount Herschel in the Admiralty Mountains, adjacent to the base at Cape Hallett. But they found that the east face of Herschel to be "a vast face of bullet-proof green ice" and had to settle for sending two rope teams to the summit by the north ridge. U.S. and New Zealand authorities foresaw an unmanageable and potentially unsafe climb, and to this day the east face of Herschel has never been climbed.

Some things are not mentioned, although I may have overlooked them. One is the purging by one of our past presidents of this Society (name withheld as his widow is still with us!) of the first names of many wives of Antarcticans whose husbands had named peaks after them. So Mt Ruth Siple became Mt. Siple, Mt. Jane Wade became Mt. Wade, and so on. Mt. Wade had twin peaks, and if you ever knew Jane, the mountain was very appropriately named the first time. Wes LeMasurier told me that he was on a Coast Guard ice breaker out of McMurdo that was supposedly doing research along the coast, and that they stopped near enough to Mt. Siple to put him ashore. He picked up a specimen from the mountain and later sent it to Ruth, who treasured it dearly. Wes told me that the captain of the ice breaker got squeamish about taking the cutter where the scientists wanted to go, and probably the only thing worthwhile which they picked up on the whole cruise was Ruth's specimen, making it one of the most costly specimens ever procured in Antarctica.

Every one of us loves maps, right? Right. And in this book are many maps of some of the mountainous areas of Antarctica (Sentinel Range, the high Sentinels, Vinson routes, Heritage Range, Antarctic Peninsula, Gerlache Strait, Royal Society Range, Queen Maud Mountains, Queen Alexandra Range, Admiralty Mountains, and several of islands like South Georgia, Kerguelen, and Heard. These maps are just wonderful, a treasury. There is only one centerfold type picture which occupies two pages, side by side. It's a wonderful panorama taken by Skip Novak from the top of Mount Paget in South Georgia looking across to the Salvesen Range. Is that really Heaven, as one most famous person

projected? I think he may have been right. Grace Ostenso would probably revel in seeing "the stunning unclimbed face of Mount Ostenso."

My prize for the most handsome photograph goes to one of the east face of Mt. Williams at the southern end of Anvers Island. God, is it beautiful! My biggest disappointment is his lack of a good photo of the northern end of the Lemaire Channel, namely Cape Renaud, which the Brits officially recognized a few years ago by certifying it as Una Peaks.

And the picture of Mt. Scott basked in sunlight does not do true justice to this beautiful mountain. One of the most astonishing things about this book with hundreds of pictures of Antarctic mountains is that there is only one photo of Mount Erebus, and that one is nondescript.

I would certainly recommend you all buying this book, but at the same time I would make darn sure that you are leaving enough greenbacks in your wallet to buy Ed Stump's new book on the Transantarctic Mountains which will be available early this fall. Ed's fine book will be reviewed in the next Newsletter.

ORDER FORM

YES! I want the medallion with the **pin**. (\$30 each)

YES! I want the medallion with the **necklace**. (\$30 each)

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The Antarctic Society

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BRASH ICE. Normally we do not start off Brash Ice with comments about the passing of one of our members, But in this case, Dr. Ed Williams of Roanoke, Virginia, retired surgeon, latter day videographer, had done so much for not only our Society but for many of its individual members that he merits upfront coverage.

Gracie and I were on our way to Spitsbergen when Dr. Ed checked out, although we were well aware that he was on his death bed at the time. His family requested that our own Dr. Edwin Robinson play the bagpipes at his service, which he did as a special favor for his friend. Within one year cancer claimed the lives of the love of his life, his wife Jean, and that of his devoted black coon dog, Willie Earl. Being a deeply religious man, I am sure Dr. Ed is now rejoicing in being back together with them.

Most of you will recognize Dr. Ed for producing our Society's Golden Anniversary Album, ANTARCTICA CALLING, a three-disc DVD in which he captured thirty of our most prominent Antarctic scientists. Truly a wealth of Antarctic archival history, all supplemented with the artistry of Lucia deLeiris and the beautiful photography of Ann Hawthorne. One prominent member of our Society, Guy Guthridge, said that this splendid album gave his immediate family the first real understanding of what he did in real life when he walked out of their front door and went to work each morning.

At the time of his death this past spring he was collaborating with Ed Robinson, geophysicist, on another Antarctic DVD, this one on the Ross Ice Shelf Traverse of 1957-58. Dr. Ed's grandson, Leon Davis, will be working this fall with Ed on its completion. Another DVD by Dr Ed, with which our Ed Robinson collaborated, in on our web- site: the first US traverse from McMurdo to the South Pole in 1960-61.

Dr. Ed has produced many other DVDs of the Antarctic, all produced for his family and friends. They included a two part series ANTARCTICA 1995: WILD, WET, AND WONDERFUL 2002; PATAGONIA TO 80 SOUTH, 1999; the SEVENTH EMPEROR, 2001; PATAGONIA SUR, 2004; The SUBANTARCTIC ISLANDS OF NEW ZEALAND AND AUSTRALIA, 2004. He also collaborated with John Spletstoeser on EXPEDITION TO ELLSWORTH MOUNTAINS ANTARCTICA 1961-62, and did a special DVD for Hugh Bennett on his involvement on Antarctic traverses.

For any of you who for one reason or another did not avail yourself of the opportunity to buy the three pronged ANTARCTIC CALLING, Leon Davis has assured us that a limited number will be available to Society members. If interested in this limited edition, please let us know at the Society's address and we will let you know when they are available. Price, \$35, includes shipping.

Another one of our very best friends, Bess Urbahn, died this past summer at the age of 90. She was the widow of perhaps the best-known polar pilot of all time, Bernt Balchen, the very first pilot to ever fly over the South Pole. She herself never went to Antarctica until she was 76. Bess was born and grew up in Oslo, Norway, but her final years were spent in Maine near her son Lauritz Balchen. It was indeed both a privilege and an honor to have known this lovely Norwegian lady in the twilight years of her life. If you go to our Society's website, you will find a very personal write-up she did on her husband's polar flying career. Wouldn't it be just great if some knowledgeable aviation historian would write a book evaluating the flying careers of pilots like Bernt, Giles Kershaw, Gus Shinn, and others.

Rob Flint recently visited with Alex Zaitsev, who wintered over at the South Pole in 1977, who he had met during the 1976-77 season. Previously Rob had been to his place in suburban Moscow a couple of times, but this was the first time he had visited him at his summer home (dacha) about an hour outside of Moscow, where Alex has a beautiful garden. It seems they live outdoors during the summer – in fact there is no sink in the house- dishes are washed in the yard! It was a rainy day, but they still managed to barbecue in the garden and ate sitting on his bed! One of Alex's neighbors is a Russian orthodox priest and a nuclear physicist!

Frank Wild, is going to become a neighbor of Ernest Shackleton at the Grytviken cemetery on South Georgia. Frank was one of the most experienced polar explorers of the heroic age, taking part in five major Antarctic expeditions. He was second-in-command on the ENDURANCE expedition when he was left in charge of the shipwrecked men at Elephant Island, and led the Quest expedition after Shackleton died aboard the vessel in King Edward Cove. An author, Angie Butler, researching a book on Wild, discovered that his ashes had been left in a chapel near Johannesburg in South Africa. It seems that Frank had once expressed a desire to be buried at Grytviken, so on November 20th of this year Frank will go on his last journey, at long last reunited with the Boss.

Tom Henderson, our illustrious and devoted web master has partially retired. In late August he said good bye to his paying job, grabbed the hands of his wife and daughter, and took off on a non-polar cruise to the Baltic. By the time you get this, he will be back working for you and me as our over-achieving web master. He will remain an active baseball player in a senior baseball league in Albany where he had a great season. No doubt he will be voted The Comeback Player of the Year.

Dr. Will Silva writes: "Retired from the Ice, true; but with the economy in the cellar and me having exchanged my dirtball mountaineer persona for that of an airplane motor-head, I'm still working to support my habit. I'm presently in Ketchikan, AK (~55N, 132W; very south end of the southeast Alaskan panhandle, couple hundred KM northwest of Prince Rupert, BC) where I work for about a month approximately quarterly. Just finished my week on the inpatient service. The rest is outpatient clinic and night & weekend hospital call.

Next adventure will be getting my right shoulder fixed. Guess I wore it out... and hurt it a couple times over the years... Got a rotator cuff tear and the damned thing wakes me up at night. As you well know, getting old sucks but it beats the hell out of the alternative. Or, it does so to a point, at least."

This is a Head's Up on our joint meeting with the Explorer's Club- Washington Group who graciously allows us, the Antarctic Society, and the Society of Woman Geographers to meet with them in early December. This year's program will be of particular interest to our membership as the speaker will be The Builder of the Elevated Station at the South Pole, Jerry Marty. As we go to press, his topic has not been announced, neither has the date of the joint meeting, but we do want you to know that Jerry has been confirmed as the speaker. Our next Newsletter will give you all the details which we do not have at this time.

CENTENNIAL MEDALLION HONORING AMUNDSEN AND SCOTT. We are still offering the 100th Anniversary Medallion of Roald Amundsen and Robert Scott arriving at the South Pole a century ago. The cost to our members is only \$30.00 including shipping. The last Newsletter,

plus a special mailing, showed the design featuring Amundsen's tent in the central core of a stainless steel snow flake. We think it is attractive, and have had good comments from over a hundred of you who have already bought. If interested, order now before the anniversary, and state whether you want the medallion with a pin or a necklace. Place order to the Society at P.O. Box 325, Port Clyde, ME 04855

CALENDARS. By the time you receive this NEWSLETTER, we hope to have in hand enough of the New Zealand Hedgehog Antarctic calendars for 2012 to satisfy all buyers. In our opinion, this is by far the greatest calendar that Hedgehog has produced in the last twenty years. Beautiful pictures, stunning ones. The price will be \$16.00. Send your check to the Antarctic Society, Box 325, Port Clyde, ME 04855

WEBSITE UPDATE (Tom Henderson). By the time you get this, the website will be adding a considerable amount of new material. The expansion will start with films, followed by additional events and photos in Time Trek. As I have mentioned before, the backlog of material is considerable. This summer I attended an Operation Deep Freeze Association reunion where I met Dave Grisez, the Association's archivist. Through Dave's generosity 60 CDs and DVDs chocked full of historical movies, photos and documents. Some of this material will eventually be posted on our website, with the permission of Dave Grisez and the Operation Deep Freeze Association, and credited to the authors. As with much of what we have posted now, a great deal of the new postings will be found no other place on the web.

Woven in with films and photos will be new documents as well. This will include a roster of science participants in the IGY. The "yearbook" published by Paul Siple from the first winterover at Pole, the first "welcome" manual from McMurdo Station, created by the 1956-57 construction and winterover crew for the crew replacing them, and more.

There might even be a few "musical selections" from slightly more modern times.

So visit frequently: I am sure you won't be disappointed

PRESIDENTIAL MESSAGE (Charles Lagerbom). Well, spring and summer seem to have flown by and I can feel the twinge in the air indicating that the season has turned. But it has been a busy and productive year thus far. In June, I had the opportunity to give a presentation about Henry "Birdie" Bowers, the fifth man taken to the South Pole by Captain Robert F. Scott in 1911-1912. The talk was part of Scott 100, the centennial celebration of reaching the south pole. It was held at Plymouth, England the first week in June. While in the British Isles, I also had the opportunity to meet up with our society's Honorary President Charles Swithinbank. We received a five-star tour of the college of Cambridge and the Scott Polar Research Institute. I was especially moved after visiting the World War II U.S. military cemetery just outside Cambridge. Plymouth was delightful, with its history such as the Mayflower steps and prominent lighthouse, and the presentations went well. Another bonus was the numerous direct descendants of Scott and his expedition available to meet. Several people commented favorably on our society's centennial medallion which I proudly wore during the conference.

This summer, the slide-scanning project completed cataloging and scanning its twenty-fifth collection. We are closing in on 20,000 slides/images that have found their way to the society. Thank you to everyone who has participated. If you would like to have your images and other materials digitized and preserved for future generations, please contact me.

Finally, it is exciting to announce that the Antarctic Society has joined ranks with the Explorers Club and the American Polar Society to help host the APS 75th Anniversary Meeting and Symposium on: "The Polar Regions in the 21st Century: Globalization, Climate Change, and Geopolitics." It is scheduled to take place at The Union Club and the Explorers Club in New York City 2-4 May 2012 and will bring together top authorities in the world, both as speakers and symposium participants, to discuss the geopolitical, environmental and scientific future of the Arctic and Antarctic. A top-notch list of speakers has been

assembled, with some of our own society members included such as Paul Mayewski of the University of Maine Climate Change Institute. It should be a great time and we hope many Antarctic Society members will attend. Check out more upcoming information about it at the APS website at: (<http://www.americanpolar.org/>).

UPDATE ON THE ANTARCTIC SUPPORT CONTRACT (Katy Jensen).

In his report to the National Science Board on July 28th, Dr. Erb confirmed that NSF is on track to award the Antarctic Support Contract (ASC) in November.

Last summer NSF down-selected the competitors from seven teams to three: CH2M Hill, KBR, and Lockheed Martin. These three teams are expecting final instructions from NSF later this month, with responses due in September, followed by contract award no later than mid-November. Transition from Raytheon Polar Services Company to the new contractor will take place between award and April 1, 2012, when the new contract officially begins.

For the longer view, NSF and the Office of Science and Technology Policy (OSTP) have enlisted two committees to review the Antarctic program for potential improvements. Phase One, which is currently underway, involves a National Research Council team who is charged with identifying "blue sky" science drivers for the next 10-20 years of the USAP. During Phase Two, a blue ribbon panel chaired by Norman Augustine will investigate USAP logistics and infrastructure requirements to support the science drivers.

LETTER FROM CHRISTCHURCH (Margaret Lanyon). A week ago, life throughout much of the country came to a standstill following a second polar blast bringing snow, hail, rain, thunder and lightning pretty much at the same time. To remind us that we're still a seismic city, Mother Nature continued with her aftershock games. For the past few weeks, these have subsided a little which is a vast relief. We have accepted that the 'shakes' will continue for quite some time yet.

There are some really sad stories regarding suburban homes; however, today we'll talk about the central

business district (cbd), since most of you know the area.

Proposed Plan for Central City

As we all know, four significant earthquakes plus thousands of aftershocks have hit our city during the past 10 months. As a result, 181 lives were lost, buildings were destroyed or badly damaged and many job losses resulted in the forced closure of businesses. Fifty percent of the central city buildings need to be demolished along with much of our heritage.

The Christchurch City Council has come up with a draft Central City Plan to be used as a guideline for redevelopment purposes. The general concept is a cosmopolitan community which "cherishes the past and embraces the future"; a city within a garden, with a distinct, modern urban identity.

The Avon River will be widened, complete with broadwalks, pedestrian and cycle friendly areas. Shops and offices will be encouraged to relocate in a smaller, more concentrated area. A light rail system is planned, a new metro sports hub and a new central library, a world class convention center, Hospital redevelopment and a network of parks and gardens spread throughout the central city are some of the proposals. Lower rise buildings will be encouraged.

Cathedral Square will continue to be the civic heart of the city, but greener. Implementation for the work involved will be a 10 - 20 year program.

Christ Church Cathedral

Plans for a 'cardboard' cathedral have been revealed. World renowned Japanese architect, Shigeru Ban has designed a "temporary" cathedral for Christchurch. The structure will be built with locally produced cardboard tubes in a "A" shape, with shipping containers used as foundations. The building will cost NZ\$4 million, take three months to build and could seat 700 people. The cardboard cathedral could be relocated and used for other purposes once a new permanent cathedral is constructed in the center of the city.

Christchurch International Airport Terminal

Over the past year, good progress has been made on terminal redevelopment work. Stage 1 (check-in hall, first floor retail precinct and construction of the regional lounge) has been completed.

Approximately 70% of Stage 2 is complete with a finishing date of September 2012. In an integrated approach, the new airport terminal shares facilities between domestic and international travellers, offering efficiencies. There are 58 check-in counters plus numerous self-service kiosks. There's also a state-of-the-art 750 meter long single baggage handling system and lots of space for retail and food outlets. There are plans to build a backpacker hostel at the airport in the future.

JAPAN TSUNAMI BATTERED ICE SHELF IN ANTARCTIC (Paul Rincon, BBC News Website).

The tsunami caused by the 11 March Tohoku earthquake in Japan crossed the Pacific and broke off large chunks of ice from Antarctica, a study has shown. Satellite photos show huge icebergs were created when the tsunami hit West Antarctica's Sulzberger Ice Shelf. This caused 125 sq km of ice to break off - or calve - from a shelf front that has remained stable for the past 46 years.

The work, by a US team, is published in the *Journal of Glaciology*. The waves generated by the 9.0 Magnitude earthquake in Japan travelled about 13,000 km across the Pacific Ocean before reaching the Sulzenberger Ice Shelf, causing ice to break off and float into the sea. The largest of the icebergs measured 6.5km by 9.5km, (almost the size of Manhattan) and 80m in thickness.

The swell was estimated to have been just 30 cm high when it reached the Sulzberger shelf. But the researchers say that over a period of hours to days, the dispersed waves caused repeated flexing of the ice, "fatiguing" the shelf and causing it to fracture.

Kelly Brunt from NASA's Goddard Space Flight Center in Maryland, US, and colleagues studied a series of synthetic aperture radar images from the European Space Agency's Envisat satellite taken between 11 and the 13 March. This allowed the team to constrain the calving event to a period consistent

with the arrival of the tsunami. "The impact of the tsunami and its train of following dispersed waves... in combination with the ice-shelf and sea-ice conditions provided the fracture mechanism needed to trigger the first calving event from the ice shelf in 46 years," they write in the *Journal of Glaciology*.

ANTARCTIC SUPPLIES ASSURED (Paul Gorman, *Christchurch Press*).

A deal between the United States and Russia will ensure vital supplies can reach Antarctic bases this summer and keep research programs running. The US National Science Foundation (NSF) announced it had resolved its protracted search for an icebreaker to carve through the sea ice of McMurdo Sound.

The Murmansk Shipping Company in Russia has signed a one-year contract with the foundation to provide the icebreaker Vladimir Ignatyuk, with an option for additional years of work. The unavailability this summer of the Swedish icebreaker *Oden* cast a doubt on the ability of three Antarctic bases to continue as normal. Unless a vessel could be found to clear a channel, fuel that was essential to power generation and water plants at Scott Base, McMurdo Station and the Amundsen-Scott South Pole Station could have run out, affecting flights, field camps and support of international research programs.

An NSF spokeswoman said close to 20 million liters of fuel needed to be delivered to the ice every year to keep the US Antarctic Program running. Foundation staff had worked with officials in the White House's office of science and technology policy, the State Department and the US Coast Guard to fund a solution, she said. Antarctica New Zealand chief executive Lou Sanson hailed the announcement but said there was still a need to conserve fuel.

"Antarctica NZ is extremely pleased with this decision, fully recognizing the difficulty of operating in the southernmost frozen sea in the world," he said.

"We are still working with the National Science Foundation on further contingency plans to conserve fuel at McMurdo-Scott Base this season and hope to be able to communicate with all our New Zealand science events over the next two weeks as to the

final shape of this season's New Zealand Antarctic program."

The US Antarctic Program icebreaker support is a critical part of the shared US-NZ logistics system which we are entirely dependent on for annual ship resupply to Ross Island." The Vladimir Ignatyuk is also used by the Indian Antarctic Program. The US Coast Guard's icebreaker Polar Star is undergoing a refit and will not be back in active service until 2014.

A PERSPECTIVE, by Liesl Schernthanner and Michael D Powell (FYI Liesl worked for USAP 1995-present, intermittently and the UKAHT 2010-11; Michael worked for BAS 1986-2002, the NZ AHT 2004, USAP 2005-6, UK AHT 2010-present).

In recent months, Antarctic history has focused much on the upcoming 100th anniversary of Amundsen and Scott getting to the geographic South Pole. In previous years, one could easily argue that Shackleton has been the poster child of the Antarctic as his story has gained much attention and admiration amongst both the actual and armchair adventurers of the southern continent. *March of the Penguins* and *Happy Feet*, too, have garnered much attention, and it is difficult for anyone who has been to the Antarctic to not give credit to its fantastic wildlife, in particular penguins, which grace the continent.

Antarctica, while an amazing and pristine environment for discovery, science, and enjoyment, would not be what it is today without the dedicated and passionate individuals during the last century who established early outposts and science bases. These early pioneers continued to build on the Heroic Age groundwork towards cooperative and peaceful management and exploration of the continent as well as set precedence for high-caliber scientific studies in multiple disciplines. On a global timeline, Antarctica's history is relatively brief. However, if efforts are not made today to preserve such history, it will be lost forever. Hence the Antarctic Heritage Trust (AHT) exists to conserve evidence of Antarctica's history now and for the future. Sister organizations based in New Zealand and the United Kingdom share the mission of

preserving Antarctic history (see www.heritage-antarctica.org).

Husband and wife team, Michael Powell (British) and Liesl Schernthanner (American), spent the last austral summer doing maintenance and repairs for the UK AHT on historic huts located on the peninsula at Port Lockroy, Damoy Refuge on Wiencke Island, Wordie House in the Argentine Islands, and Detaille Island. They also did a brief survey of the historic sites at Horseshoe and Stonington Islands. At the latter site, the British Stonington base sits on the southern side of the island, while just 500 yards away, East Base holds the American first permanent foothold on the continent (1939-41). The first two women to winter-over in Antarctica, Edith "Jackie" Ronne and Jennie Darlington, spent their seasons here in 1947-48, apparently not talking to each other because their husbands did not get along. Sadly, the buildings of East Base are well deteriorated and falling into dereliction with much debris and some artifacts spread around.

Coming from Science-support backgrounds, both Powell and Schernthanner, with a combined total of over 154 months on ice, were awestruck by the volume of tourism and attention to these historic areas on the peninsula. It is a whole different world above the circle! Almost daily, ships stopped at Port Lockroy where the UK AHT manages a living museum, post office and shop. Through proceeds and donations collected at the site, the not-for-profit Trust gains funding for future projects. In 2010-11 austral summer alone, Port Lockroy entertained some 13,700 individuals from all around the world. For the most part, these visitors were respectful of the environment and wildlife, knowledgeable about the Antarctic Treaty, eager to learn about the continent and work that goes on there, curious about living conditions, and hugely interested in both history and science. These people may potentially donate funding, influence politicians, educate a new generation, or otherwise affect the future of Antarctica.

While there is no question that Antarctica is the largest scientific laboratory in the world, tourism/adventure tourism brings more people to the continent. Treating visitors to the Antarctic as

ambassadors of the continent and focusing on educational outreach may do more for preservation of the continent and potentially bolster science more than any single government organization can do, particularly in the current financial climate of the world. Powell and Scherthanner have come to think that it is a mistake for our Scientific Bases to quasi “turn a blind eye” to this new era of Antarctic interest. They are well impressed by efforts of the Antarctic Heritage Trust and the International Association of Antarctic Tour Operators (IAATO) to incorporate this new resource into Life on the Ice.

AN EMPIRE OF ICE: SCOTT, SHACKLETON, AND THE HEROIC AGE OF ANTARCTIC SCIENCE, by Edward J. Larson, Yale University Press, xiv + 326 p., 2011. (Guy Guthridge, NSF Emeritus).

The disclaimer right off is this: I selected Ed Larson for support from among the year-2002 applicants to the National Science Foundation’s Antarctic Artists and Writers Program, which I then ran. And in the preface Ed thanks me “above all” for advice or information he obtained from polar administrators, educators, and scientists. You’re entitled to decide that anything good I have to say is suspect.

That behind us, this is a great and a needed book, highly worth reading whether your Antarctic focus is history or science. History because Ed’s perspective on the Heroic Age is fresh and insightful. Science because he convincingly – and I mean he nails it – shows that the drivers for Scott’s two expeditions and Shackleton’s one during the period 1901-1912 were scientific and geographic discovery – with specific objectives defined before the expeditions left England.

“In the era before World War I, when Antarctic exploration was largely a British project,” Larson writes, “that project was largely concerned with science.” Immediately following news of Scott’s death, the wide recognition was that the major goal of that expedition *was* science. Amundsen saw Scott’s last expedition as “designed entirely for scientific research.” The Queen Mother wrote that the expedition’s “purpose has been achieved.” The 35 pounds of geologic specimens found with Scott’s party became arguably Antarctica’s most famous cargo manifest. Only with broad access to Scott’s

stirring deathbed Message to the Public and a looming World War I amid fears of imperial decline was Scott’s persona made mainly heroic.

Larson acknowledges, however, that expedition planners “found the public wanting records most of all.” Bagging the South Pole was a meal ticket, the key to support that would make an expedition possible financially. It’s easy to be cynical, to see the British empire as a clique of white men on the make (to quote a 3 September 2011 review in *The Economist* of another new book, *Ghosts of Empire: Britain’s Legacies in the Modern World*, by Kwasi Kwarteng).

But as I read it the British cultural legacy of exploration wasn’t that at all. Recall the purposeful and carefully documented round-the-world expeditions of James Cook begun in 1768 aboard *Endeavour* and Charles Darwin’s voyage to the Galapagos Islands aboard *Beagle*, begun in 1831. This is the time author Richard Holmes calls the Age of Wonder, and, Holmes writes, “with any luck we have not yet quite outgrown it.” But research and mapping served the goals of empire, too. Recall that 18th Century Spanish expeditions to California failed to sustain claims because the discovered places weren’t mapped.

If you have a scientist’s perspective, I think that by the time you reach the end of this rich and readable book you will agree with Ed Larson that, “All three expeditions conducted significant research that, in fields ranging from climate change and paleontology to marine biology and glaciology, helped to shape the twentieth-century view of Antarctica and its place in the global system of nature. . . . Although the focus on heroic but hapless man-hauling turned Scott into a Victorian stereotype, giving due recognition to research, the British expeditions of the Edwardian age should represent precursors of the current era in Antarctic science.”

Other reviewers like this book, too. It is “enlightening and entertaining,” writes Robert J. Mayhew in *Times Higher Education* [UK], 23 June 2011. Ed Larson “rescues the exploits of Edwardian derring-do from the condescension of posterity” by showing their Antarctic exploration “was tied to key debates in the development of a range of scientific disciplines from terrestrial magnetism and geology,

to evolution and global oceanography. . . . Again and again, Larson shows how the feats of endurance that have become enshrined in the lore of polar exploration were driven by scientific goals.”

These expeditions weren't easy to get going. “Geography was a cut-throat enterprise in late Victorian Britain,” Larson writes. His descriptions of the political maneuvering, bullying, and – I'll say it – heroic achievements in the parlors and institutions of London *preceding* expeditions make modern-day NSF peer review of research proposals tame by comparison.

Ed Larson is a professor of history at Pepperdine University and has a chair in law there. He earned the history of science PhD from the University of Wisconsin Madison and holds a juris doctor degree from Harvard Law School. Jennifer A. Kingson, *New York Times Book Review* (3 June 2011), says Larson “is a brilliant researcher” who dug well beyond the standard sources. She writes that “even devotees of polar literature will learn things.” “What takes the book beyond the standard narrative is Larson's presentation of the British expeditions against the backdrop of the imperial politics of the age, which makes science an integral part of Antarctic exploration,” writes Vassiliki Betty Smocovitis in the 3 June 2011 *Science*. She says the book is “sure to force a rethinking of the Scott-Amundsen race as well as reconsiderations that will include science as a driving force in Antarctic and indeed polar exploration.”

We groused a lot, during my thirty-six years in the polar office at the National Science Foundation, that the public's interests skip over the amazing scientific findings in the Antarctic and instead focus on topics like penguins and the early explorers. Maybe Ed Larson will help turn the tide.

And that point leads me to my one – probably unfair – lament about Ed's excellent book. Why does this gifted writer reach back a whole century when ninety-five percent of the Antarctic research literature has been written since the 1950s? After all, it's modern Antarctic science that delivered most of the wonders – solving the ozone hole, explaining the ice sheet's melt back into the sea, figuring out why fishes don't freeze.

Take *Glossopteris*, the fossil Permian flora found on all the southern continents before anyone got to Antarctica. Darwin had hypothesized that *Glossopteris* evolved on a south polar landmass somehow connected to the other southern continents. All three Heroic Age British Antarctic expeditions looked for it: they were tasked to in their expedition orders. Finally, the 35-pound scientific payload with Scott's dead party contained a sample, collected from Mount Buckley, settling the question. But *Glossopteris* was only the first of the great fossil finds in Antarctica. David Elliot found *Lystrosaurus* at Coalsack Bluff in 1969, Mike Woodburne and Bill Zinsmeister found a fossil marsupial on Seymour Island in 1981, and Bill Hammer discovered the spectacular *Cryolophosaurus* dinosaur on Mount Kirkpatrick in 1991. Each find is a story in itself with important research consequences regarding Antarctica's past, but of course Larson's book covers only *Glossopteris*. I know any number of Society members would be itching to read the rest of the story in the engaging way Larson has of writing.

But that's a quibble, or maybe Ed Larson's next book.

SOUTH POLE STATISTICAL BLURB.

In 2007, Robert Schwarz alone held the record for six winters. But he wasn't back until this season, so Johan Booth, Barry Horbal and Steffen Richter caught up with him in 2008, and Johan and Steff since passed him up. Now there are two folks with six winters--Dana Hrubes and Barry Horbal. Four people are behind them with five winters: Tommy Barker, Heidi Lim, Rod Jensen, and Jake Speed (Joseph Gibbons). Jake was the first to reach this milestone; he also holds the all-time record (5) for the most consecutive winters in 2000, 2001, 2002, 2003 and 2004 (he was back at Pole for awhile in the 2007-08 and 2008-09 summers, but he'd been spending some of the "off seasons" at Summit and/or with wife Kath) and of course is now still recovering from losing some limbs at Summit in 2009. Tommy and Rod did much of their time back in the days when "winter" commonly meant 13 months on site with a brief R&R.

**PERSONALIZED BOB HELLIWELL
TRIBUTE** (Lou Lanzerotti).

In the early 1970s my small group at AT&T Bell Laboratories was involved with establishing a string of four ground-based magnetometer stations spaced in latitude from New England into Quebec. The purpose was to remotely sense from the ground those space processes that could affect the operations of communications satellites. During our planning and early execution we learned of the plans of Bob Helliwell's group at Stanford to establish Siple Station in the Antarctic in order to transmit VLF signals into Earth's magnetosphere. Since the planned location of Siple was at the "end" of a magnetic field line that could be traced from near where our magnetometer array was planned (a so-called conjugate location), we contacted Helliwell about the possibility of placing one of our Bell Labs magnetometers at Siple. He enthusiastically encouraged us to propose to the NSF for the logistics to support our instrument. We did propose, and we were selected by the Antarctic upper atmosphere program manager, Ray Heer, to proceed to Siple. Joining the Siple contingent at the same time was Professor Ted Rosenberg of the University of Maryland, who was interested in launching balloon-flown instruments from Siple (and the northern conjugate area) to detect any radiation belt particles that would be lost into the ionosphere by their interactions with the transmitted VLF waves.

Bell Labs personnel in the person of Hans Lie accompanied Stanford engineers on two of the initial austral summer field trips to the Siple location. Living out of Jamesways, these couple of initial excursions laid the ground work for the building of Siple, its Stanford VLF transmitter and antenna, and the installation of other instruments, such as the Bell Labs magnetometer and a riometer from Rosenberg. The four feet of snowfall each year over Siple meant that the station and externally-deployed instruments and VLF antenna had to be re-positioned every few years. I recall with fond memory the many meetings and discussions over the years for logistics and science planning with Bob and his group.

During the 1970s Bob was active in the National Research Council's Polar Research Board. He chaired several studies on the future of upper atmosphere and space research in the Antarctic. I

was privileged to serve on Bob's committees and always admired his leadership in looking to the future, both for the science and for the research infrastructure that would be required to be developed.

Our Bell Labs magnetometer at the new Siple Station (established through the insights of Helliwell) proved critical for expanding significantly the science results from our northern hemisphere magnetometer array. Further, the collaboration with the Stanford group proved very fruitful in many ways in achieving better understanding of Earth's space environment. A number of scientific papers were written in collaboration with Helliwell and Stanford colleagues. A book (published by the American Geophysical Union) on Upper Atmosphere Research in the Antarctic was edited by Dr. C. G. Park (at that time a research scientist in the Helliwell group) and me. Bob Helliwell was a strong supporter of this book initiative. The volume contained papers by Bob and his Stanford group on their VLF research in the Antarctic and on their VLF transmitter research at Siple Station.

Following the Siple Station collaboration, Helliwell's group was one of the founding institutional members of the six station Automatic Geophysical Observatory (AGO) network that was established in Antarctica in the late 1980s to early 1990s to further studies of upper atmosphere and space processes. This collaboration continues to exist to the present, with younger persons now taking leadership roles. Many organizational and science meetings were held at Stanford with Bob and his group as hosts. Bob Helliwell was always instrumental in guiding and fostering the frontier research facilitated by this network.

I AM LOST (Jerry Marty). The Society asked me the question - why is retirement a challenge for me? One would think the question would be an easy one to answer, but it wasn't for me. I struggled with the self examination and what is making me feel a void in my life. Elena hasn't thrown me out of the house (yet), son and daughter are married (living within driving distance from us), we have 3 terrific grandkids, and we have moved to a beach community that we love - so what is it? The answer for me is within the framework of

USARP/USAP! After 40 years in the workforce (the majority associated with Antarctica) the missing piece is not working with and not being around the USARP/USAP elite group of people who exude the characteristics of camaraderie, esprit de corps, work ethic, and passion for their work. For me this group was comprised of DOD, Antarctic Support Contractor, the PhD Science community, and NSF/OPP team members. I have been very fortunate to have experienced these characteristics while working with individuals who were part of this elite group and I miss it! AndI haven't been able to find it again, as I pursue my current desire to re-enter the work force.

PolarTREC AWARD WINNER (Lesley Urasky). As we were about to walk out the door and take the Newsletter to the printers, we received a

new membership form and a valid check from a school teacher in Sinclair, Wyoming by the name of Lesley Urasky. She indicated that she had recently been to the Antarctic under the NSF sponsored PolarTREC program. Not knowing what TREC stood for, we called Lesley and found out that it stood for Teachers and Researchers Exploring and Collaborating program. It seems that Lesley was one of the recent award winners and had the opportunity to go to several sites on the Beardmore Glacier, citing The Cloudmaker, Mt. Kyffin, and Mt. Hope. Lesley is a grade school science teacher, and worked on a team while on the ice collecting geological specimen. We hope to have more from Lesley in a future Newsletter. She sounds like a real live wire pistol, full of enthusiasm, and a strong desire to learn more about Antarctica. Welcome aboard Lesley.



The Antarctic Society

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NO. 2

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CELEBRATION. Hear yea, hear yea, the University of Maine's Gala 100th Anniversary of famed Norwegian polar explorer, Roald Amundsen, reaching the South Pole, Collins Center for the Arts, Orono, Maine on November 21, 2011. Dr. Olav Orheim, Executive Secretary of the Norwegian International Polar Year Secretariat and Chair of the Polarship Fram Museum in Oslo will give the keynote presentation on:

NEW KNOWLEDGE ON THE ATTAINMENT OF THE SOUTH POLE 100 YEARS AGO, WITH REFLECTIONS ON THE PERSONALITIES OF ROALD AMUNDSEN, ROBERT FALCON SCOTT, AND ERNEST SHACKLETON

Dr. Orheim is a distinguished glaciologist, climatologist and polar expert who spent more than thirty years studying the effects of global warming in the polar regions. He was managing Director of the Norwegian Polar Institute from 1993 to 2005, and Professor of the University of Bergen's Department of Geology from 1989 to 2005, teaching glaciology from 2005. From 2005 he has been managing polar research at the Research Council of Norway. He is Chair of the Board of the Fram Museum in Oslo, which houses the ship that carried Roald Amundsen to the Antarctic in 1911/12.

Dr. Orheim was hand selected by the Norwegian Embassy to come to Orono to give this wonderful Centennial Presentation, and they generously provided the funding so that he could come before us on November 21st. If you can possibly make it, by all means come to hear this celebrated polar scientist honor Amundsen during his Centennial Anniversary. Dr. Paul A. Mayewski, Director of the University of Maine's Climate Change Institute, and Dr. Harold W. Borns, Professor Emeritus, Climate Change Institute, are co-hosting the celebration, Exhibits and displays featuring Climate Change Institute projects will be available for public viewing in the foyer of the Collins Center for the Arts.

If you are planning on attending, please contact Betty Lee at the Univ. of Maine at (207) 581-3406 or e-mail her at bliqcs@maine.edu. She, in turn, will have your name tag ready for you to wear when you arrive at the Collins Center. She also would like information on your ice participation so that you can be recognized from the chair that evening. I am looking forward to seeing many of you on the 21th of November in Orono.

HEADS UP. A Coming Attraction in Washington, D.C. The Explorers Club Washington Group will host a joint dinner meeting with the Antarctic Society and the Society of Woman Geographers on Saturday evening, December 3rd at the Cosmos Club in Washington, D.C. It is considered a “black tie” affair, as the explorers have a yearning to dress formally, wearing their colorful medals and decorations. So it is an occasion where you can’t overdress!

The speaker that evening will be one of our very own, Jerry Marty and he will talk on his home away from home, “SOUTH POLE ANTARCTICA, From Early Exploration to the 21st Century Scientific Research Facility.” After Jerry saw to it that the new elevated station at the South Pole was completed to everyone’s satisfaction, he leaped forward into retirement. But it turned out that he wasn’t really cut out for retirement, so he is now back at the National Science Foundation and is as happy as a clam at high tide. Hopefully he will not talk endlessly that evening, but what you will be hearing will be coming directly from the horse’s mouth, the pure, unadulterated truth about the true South Pole. It has all the markings of a fun evening. Will we see you there? Hope so!

Reservations can be made through Bill Runyon, 1812 19th St., NW, Washington, DC 20009. Be sure to enclose a check for each dinner, \$70.00 each, made out to the ECWG. If you require a vegetarian meal, be sure to specify it.

BRASH ICE. This is sort of a Pre-Centennial Celebration Newsletter, announcing a couple of upcoming lectures for which we thought some of you might want to make advanced reservations. We also want to tell you again that we have a few 2012 Antarctic Hedgehog calendars for sale. There will be no recognition of orders placed after December 1st, so if you want one get your order in NOW. And that includes you, Jeff Rubin, our perpetual late orderer. Sixteen dollars per. I might say that there’s a difference of opinions. I think the calendars are the best offered in many, many years. Bill Sladen doesn’t care for this year’s calendar. One of us is right, one of us is off base. I hope you believe me!

We are proud of our Centennial Medal honoring Amundsen’s and Scott’s arrival at the South Pole a hundred years ago this austral summer. We have sold over a hundred to you members, Liesl Scherthanner took an additional twenty-five with her to the South Pole, and the ship’s store at Port Lockroy asked for and were given 250 for sales to deep pocketed tourists visiting their base this coming season. If any of you Antarticans want one of our Centennial Medals honoring Amundsen and Scott, please let us know here at our base of operations in Port Clyde, Maine. Each medallion is selling for \$30.00 each, which includes handling and shipping.

AT LONG LAST, ED STUMP’S MAGNIFICENT PRODUCTION ON ONE OF THE WORLD’S NEAR PERFECT PHOTOGRAPHIC WONDERS HAS BEEN PUBLISHED. Hurray, hurray, hurray!!! Yale University Press, “THE ROOF AT THE BOTTOM OF THE WORLD, Discovering the Transantarctic Mountains” by Edmund Stump is now on the streets, coming out in mid-October of this year. Not only is this the Perfect Centennial Book covering the routes of Amundsen and Scott to the South Pole a hundred years ago, but it takes the readers all the way across Antarctica through its most scenic beauties. What a wonderful Christmas present, and the price is

phenomenal, \$29.95. However, Amazon is selling the same brand new book for only \$19.97. At that price, buy one for each of the grandchildren, plus one for your mother-in-law.

It was over twenty-five years ago when I was blessed to attend an Antarctic Society meeting in Washington, D.C. when Ed Stump gave a presentation on the Transantarctic Mountains. I was captivated by the beauty of his photography, and started to bug him immediately to publish. After some forty years of researching the mountains, after some 8000 pictures, we are now rewarded with the finished product, the very best of the best on 254 pages. It is not just another picture book, as Ed walks you across the Transantarctic Mountains. Some of you will find yourself in stories dear to Ed's memories. And it is not a book confined just to Ed's life period, as he goes back to the first Byrd Antarctic expedition and includes Larry Gould's traverse in support of the first-ever flight to the South Pole. It was well worth waiting for, although I thought that both of us might die before it ever saw print. Thank God it is finally published, what a great asset and contribution to Antarctic literature. Buy, you will be delighted and absorbed page-by-page.

SOUTH POLE DOME. (Jerry Marty)

The South Pole Station Dome has been successfully deconstructed, the structural materials returned to US soil, and a portion reassembled for display at the USN Seabee Museum – Port Hueneme, CA.

Of interest may be - how did this effort progress from the January 9, 1975 Dome station dedication (and occupancy by Dick Wolak and the DF75 winter-over crew) to the Dome display in the USN Seabee Museum as part of the official dedication and ribbon cutting ceremony on July 22, 2011? The following is a bullet timeline summary of the events, agreements, and actions that bring us to July 22, 2011:

I. Reasons for removal

- The Dome had met and exceeded its design life. The cost effectiveness to meet

current code compliance and the integration of 21st century technology upgrades was determined to be prohibitive (to include usage options for any type of storage).

- The yearly snow maintenance & removal costs from drifting created O&M budget challenges; equipment hours, equipment fuel costs, and labor. These resources were in competition with other new station and science construction project planning and prioritization.
- The new South Pole Station Environmental Impact Statement (EIS) and Antarctic Treaty requirements required the removal of the Dome and Skylab. Replaced facilities are required to be removed and not left on the surface.
- All the Dome and Skylab functions had been transferred to the new South Pole Station Elevated Structure during the FY06 summer season.
- The basis of design included the concept of the Elevated Structure replacing the Dome as the USAP South Pole Station 21st Century icon.

II. Disposition options

- The removal of the Dome and Skylab was a specific line item within the approved new South Pole Station master construction project budget. It represented the last phase of the New South Pole Station project and was part of final site remediation.
- Various concepts were discussed with the focus being on safety, cost, and schedule. The concepts also looked for options which required minimal labor and equipment in support not only the actual Dome removal, but also shipping the material back to the USA as scrap. The concepts included demolition using some aspect of an implosion technique, disassembly using metal cutting saws,

disassembly piece by piece, shredding the material (aluminum) on site, and various combinations thereof.

- It was determined that removal of the Dome and Skylab would occur during the FY10 summer season. Deconstruction with the intent to use the material for reassembly was not to be the primary focus. The tasking was to remove (deconstruct) the structures using a safe method and maintain the budget and schedule.

III. Display options

- Concurrent with the ongoing demolition for scrap analyses, the USN voiced an interest (to NSF) for acquiring the total Dome as part of (at that time) their design of the new USN Seabee Museum. This concept was for a total re-assembly which would provide a walk through venue and would be located adjacent to the Seabee Museum. Other discussions with the Navy included options for sections of the Dome being displayed at various Navy museums and bases. These discussions continued over the course of a few years and even included an option in which the Navy would partner with NSF by providing active duty Seabees augmenting the NSF support contractor during deconstruct the Dome for reassembly. In 2009 the Navy advised NSF that they, due to Seabee commitments in Iraq and Afghanistan, were no longer in a position to address the Dome disposition. The Museum display topic then became an issue for the USN Historical Foundation as the Seabee Museum was now under their authority and control.
- As the Seabee Museum, Port Hueneme, CA design progressed; the US Navy Seabee Foundation determined in 2010 that some portion of the Dome should be displayed within the Museum to represent the Seabee Antarctic involvement and contributions. They suggested that the Top section of the Dome would be

appropriate. NSF agreed to provide the museum with as much salvageable material from rings 1 through 4 (the Dome has a total of 12 rings plus the foundation plate) as possible and a function of the on-site deconstruction methods.

IV. Dome deconstruction and USN Seabee Museum display

- As the USAP Support Contractor began the on-site FY10 Dome deconstruction efforts, their planning for the removal of rings 1 through 4 in support of the Seabee Museum assembly agreement brought forth questions regarding the original construction techniques and Basis of Design. With concurrence from NSF the following individuals volunteered to participate in conference calls with the South Pole construction crew and provided information (their role was that of consultants and not providing any direction): Jerry Marty, NSF Representative South Pole and NSF Construction Project Manager – New Elevated Station (retired); John E. Perry, Jr., CDR, CEC, USN, (retired), W/O PWO McMurdo, DF68, OIC CBU201, 1969-1971, South Pole Station (Dome), Project Officer, 1971-1973; Lee Mattis, PE Civil Engineer, TEMCOR Technical Representative for the 1971-1973 Dome Construction.
- During the course of the conference calls and on-site planning, it was determined that the most effective way of deconstruction the dome was to remove large sections and then disassemble them on the surface. This technique allowed for safety and efficiency, which achieved not only the goal of salvaging rings 1 through 4, but all 12 rings. As the result, the project was completed on schedule and within budget. NSF recognized this effort with the presentation of a Dome Deconstruction Award to the RPSC construction crew. This award included the key team member who guided the efforts to the successful completion: Steve

Bruce RPSC Construction Project manager
Dome Deconstruction, Pole summer
seasons 90^c, 92^c, 95^c 96^c 97^c 10^c Pole
Winter 93^c.

- All the deconstructed Dome materials were shipped back to Port Hueneme and placed in the USAP warehouse building #471. The materials comprising rings 1 through 4 were identified and placed in separate boxes and pallets.
- During the final display planning it was determined that the configuration of the intended room and ceiling support structure would only allow for the assembly and suspension of ring 1. Ring 1 is about 13 feet in diameter and weighs 550 pounds. The Seabee Museum contacted Jerry, John, and Lee to assist in re-assembly. All three traveled to Port Hueneme and for two days, June 13 and 14 and (with the help of 3 active duty and 1 retired Seabees) reassembled the Dome ring 1, the top section of the Dome. This section has the four vent holes. A US Flag that was flown at the geographic South Pole will be placed on top to recreate the original view from the underside. The official Museum ribbon cutting and opening was June 22, 2011.

V. Future for rings 2 – 12

- Disposition of rings 2 through 12 is pending further review of options. Some of the locations and agencies that may be interested in segments of the rings 2 through 12 are:
 - US Navy Museum, Washington Navy Yard, Washington DC – Polar Section has a permanent exhibit about Admiral Richard Byrd which covers South Pole and has display about the Dome at South Pole.
 - NSF Headquarters (wall display)

- Christchurch Canterbury Museum – Polar Section
- International Antarctic Center, Christchurch New Zealand
- Byrd Polar Institute
- Ohio State University – polar collection
- JTF-Support Forces Antarctica, Hickam AFB, HI
- 109th Airlift Wing, Stratton ANGB, Scotia NY
- Empire State Aerosciences Museum, Scotia, NY
- California State Space Authority, Vandenberg AF Base
- Smithsonian
- TEMCOR
- HUCK
- Other USN museums, Naval History & Heritage Command

- Are there any other thoughts from the reader?

RETURNING TO POLE. (Liesl Schernthanner) *“You’re going back to Pole?”* I must have heard that question with an air of incredulity over 50 times in the last few weeks. Why it seems so unfathomably strange to return to 90 South is a mystery to me. Quite frankly, I love the place, the journey, the work, the weather, and the experience. I do remember, however, a conversation I had with a fellow FNG (____ New Guy) in McMurdo in 1995 when I started working in the US Antarctic Program. The discussion followed from reading a story of someone at the continent’s most southern outpost; when asked what it was the protagonist liked about the South Pole, the retorts seemed to come easily, and among the good attributes of the place it was stated that the beauty of Pole was spectacular and a person need just step outside to see how the sastrugi had changed in order to appreciate it. Now sitting as we were in McMurdo with comfortable housing, plenty of scenic beauty, and opportunity for hiking, skiing, running, dancing, socializing, even playing baseball or rugby, my friend and I simply didn’t

appreciate the simple pleasure that might avail itself by watching a snowdrift change. I believe our very unsympathetic comment was: “Loser!” It wasn’t until the following Christmas Season that I, along with several other lucky souls, had the good fortune to visit Pole on a rare “Sleigh Ride” for a quick visit whilst the herc unloaded some precious fuel into the nearly empty bladders that then occupied the Fuel Arch. In that wonderful hour I ran around the world, listened to the dry squeaking of snow underfoot, marveled at the great expanse of white horizon, got a cold nose, ate cookies in the old Dome Galley, took the requisite “hero shots” at the South Pole marker, learned that Scientists often look up into the sky there instead of looking down into the earth, snow, or water, marveled at some of the seemingly impossible sastrugi formations, and I started to glimpse what Polies already knew: the place is amazing. It was then that I knew I wanted to work there. As a Fuelie and later in other operational roles including Winter Site Manager, I did get to experience working at the South Pole many times.

I believe there is a myth about working in the Antarctic that requires debunking. It varies, but the gist of the theory is that people go to Antarctica for the first time for adventure, they return because they need a job, and they keep going back because they no longer fit in anywhere else. While there may be bits of truth in some of that, I champion those individuals who keep returning because they truly like it, and believe in the Antarctic Program and efforts to manage a corner of this Earth peacefully and with good purpose. I find it difficult to overstate the value of returning individuals with their knowledge of projects, systems, operations, logistics, management, and of course science. It can bring a certain continuity to the program and ensure that the wheel not be invented over and over again. To return year after year, a person generally must have an excellent work ethic and phenomenal tenacity whilst mastering the task of taking the good with the bad and learning to appreciate small things, including the enchanting subtleties of human behavior, nature, and

program change. I enjoy working with those folks!

If I really think about it, I, too, will admit that I am a bit surprised to be returning to Pole some 16 years after I took a sabbatical from my job doing applied research in Socioeconomics to work as a laborer in Antarctica. I never went back to my “real job.” In addition to working seasonally at Pole and often during the planning season in Denver, I have performed other jobs in other parts of the world, taken breaks, traveled, gotten married, worked elsewhere in Antarctica, etc., etc. The last time I was at Amundsen Scott South Pole Station was in 2008, and after a few seasons away, and a few more experiences under my belt, I am eager to see how the landscape has changed. There is much to see: Elevated Station construction is completed, the Dome is gone, Old Pole has been collapsed, Ice Cube has finished drilling, telescopes are changing, new Science has been initiated, markers have moved, new energetic souls are coming to appreciate being at the bottom of the world for the first time, familiar faces are returning to work at the place they enjoy, and as is apparent each spring in particular, the snow drifts (and sastrugi) are always interesting, to say the least.

In addition to all there is to see, it is a special year at the South Pole, a Centenary. I find in humbling that it has been 100 years since the first heroic explorers managed to pitch their tents at 90 South. Where else in such a short time, other than outer space perhaps, has there been such a dynamic change in experience of a locale. For my trip to Pole, I simply have to pass my physical, receive my ticket, pack and go. It makes me ponder the luxury of the awaiting dinner and ice cream. How privileged any person is to have been to the South Pole. I feel particularly fortunate to be returning once again.

MISSION TO DRILL LAKE ELLSWORTH.

(Published October 11, 2011 by

TechMediaNetwork) A team of British engineers is set to begin a journey to a lake hidden beneath nearly 2 miles of Antarctic ice. The explorers depart next week for Antarctica on the first stage of an ambitious scientific mission to collect water and sediment samples from a lake buried beneath 1.8 miles (3 kilometers) of solid ice. This mission will hopefully yield new knowledge about the evolution of life on Earth and other planets, and will provide vital clues about the Earth's past climate.

Transporting nearly 80 tons of equipment, the "advance party" will make a journey almost 10,000 miles (16,000 km) from the United Kingdom to the subglacial Lake Ellsworth on the West Antarctic Ice Sheet. It is one of the most remote and hostile environments on Earth, with temperatures that hover at minus 13 degrees Fahrenheit (minus 25 degrees Celsius). Their task is to prepare the way for the "deep-field" research mission that will take place next year, when the team of scientists and engineers will live in tents, spending around three months working above the lake.

In October 2012, a team of 10 scientists and engineers will use state of the art hot-water drilling technology to make a borehole through the ice to the lake below. They will then lower a titanium probe to measure and sample the water followed by a corer to extract sediment from the lake. Lake Ellsworth is likely to be the first of Antarctica's subglacial lakes to be measured and sampled directly through the design and manufacture of space-industry standard "clean technology," the team noted. Antarctica is home to 387 known subglacial lakes, some of the most pristine environments on Earth. Lake Vostok in East Antarctica is the most well known of these lakes. A Russian team has been trying to drill and collect samples from Vostok, but was unable to do so before winter set in this year.

For years, scientists have speculated that new and unique forms of microbial life could have evolved in the cold, pitch-black and isolated environment of these subglacial lakes. Sediments on the lakebed are likely to reveal vital clues about the history of life in the lake

and the ancient history of the West Antarctic Ice Sheet, including past collapse.

"For almost 15 years, we've been planning to explore this hidden world," said mission leader Martin Siegert from the University of Edinburgh. "It's only now that we have the expertise and technology to drill through Antarctica's thickest ice and collect samples without contaminating this untouched and pristine environment."

David Pearce, science coordinator at the British Antarctic Survey and part of the team leading the search for life in the lake water, said the mission will be a success no matter what is found. "Finding life in a lake that could have been isolated from the rest of the biosphere for up to half a million years will tell us so much about the potential origin of and constraints for life on Earth, and may provide clues to the evolution of life on other extraterrestrial environments,"

Pearce said in a statement. "If we find nothing, this will be even more significant because it will define limits at which life can no longer exist on the planet."

The unique 16-foot-long (5 meters) water-sampling probe will collect 24 water samples at different lake depths. It will also capture the top layer of sediments where the lake-floor meets the water. The sediment corer can extract a core up to 10 feet (3 m) long. The corer is strong enough to penetrate even the most compacted glacial sediments to extract a core sample.

LATE FLASH. A celebration of Bess Balchen Urbahn's life at the Owl's Head Lighthouse, Owls Head, Maine on October 22nd, 11:30am.

ANTARCTICAN SOCIETY CENTENNIAL MEDALLION

Hear Ye, Hear Ye, Hear Ye. Another year, and a very special one - the centennial year from when Amundsen and Scott conquered the South Pole! We must recognize their glorious accomplishments, and have had a very distinguished sculptor design a lovely snowflake medallion honoring the arrival of both Roald Amundsen's and Robert Falcon Scott's parties at the South Pole on December 14, 1911 and January 17, 1912, respectively. The centerpiece for the medallion is a replica of a snowflake picked out by our own snowflake, Tony Gow, a recent Seligman Crystal winner of the International Glaciological Society. And the core of the centerpiece is a famous scene from the South Pole a hundred years ago, Amundsen's tent at the South Pole, made by Martin Ronne, a direct descendant of one of our Society's current members, Karen Tupek, with four infamous Polies standing by.



Enlarged-(Actual width 1.75 inches)

- YES! I want the medallion with the **pin.** (\$30 each for members, \$35 each for non-members)
- YES! I want the medallion with the **necklace.** (\$30 each for members, \$35 each for non-members)

Checks to: ANTARCTICAN SOCIETY, Box 325 Port Clyde, ME 04855

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The Antarctic Society

VOLUME 11-12

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FAREWELL TO RAYTHEON - FAREWELL TO KARL

BRASH ICE. Frustration, Frustration, Frustration. This NEWSLETTER has been on the front burner for two months with several headline features, but things seem to change whenever we think we are ready to start our engines. The one constant the past two months has been the centennial celebrations of the arrival of Amundsen and Scott at the South Pole. And then just when I figured out what the new South Pole marker was like, I found out that it was a lot more complicated than I thought. And when it looked like the new contractor for Antarctica had been selected and would commence on April 1st, things weren't exactly as they seemed. In the interim, the Russians were drilling away at Lake Vostok as their summer was ending. The question was whether there was enough time before the onslaught of winter for them to reach the lake. On Sunday, February 5th, three days after Ground Hog Day, it all became a mute question, as the Russians actually pulled off their miracle, reaching Lake Vostok. Then we heard that Karl Erb was finally going to retire after Lord knows how many years as head of the Office of Polar Programs at NSF. Now we must go to print.

Probably the most astute of all of the most learned of all Antarcticans, Lou Lanzerotti, has received a high honor from the American Geophysical Union, the Bowie Medal, which is given in honor of William Bowie whose spirit of helpfulness and friendliness in unselfish cooperative research made him a scientific icon. It is awarded to an individual for outstanding contributions to fundamental geophysics and for unselfish cooperation in research. Lou is currently a distinguished member of the National Science Board, as well as a staff member of the New Jersey Institute of Technology. His Antarctic credentials include upper atmospheric research at both Siple Station and the South Pole. P.S.: Lou also happens to be a very nice guy.

We once had an Antarctic Hungarian as a Society member. His name was Bela Csejtey, and he died last month in the Stanford University Hospital. Art Ford recalls how he met him in Vermin Villa, a McMurdo Jamesway in 1962. Bela had escaped Soviet tanks entering Budapest in 1956, and came to the States where he got his Ph.D. in geology at Princeton. In 1962 he worked on a Rutgers project on the origin of soils in the Dry Valleys. Later he joined the U.S. Geological Survey and spent a career escaping brown bears in Alaska. Art worked with him on the Denali Fault. Even though he was successful in escaping the Soviet tanks and the brown bears of Alaska, he was not successful in escaping the cancerous ravages of lymphoma.

We are now 325 in number, down slightly from where we were a year ago. Not surprising, as many of our members joined up soon after the International Geophysical Year, and are either dying off or are now using their dollars for fun and games. Over 30 percent of our members are now receiving the Newsletters via electronic means, which helps us out in the Head Shed. On our Membership Form, we beg you people to renew for multiple years, as this is a sole person endeavor, and everyone we can get to renew for two or more years is a load off of this person's (mine) back. Some of you people have pointed out that our book-keeping leaves something to be desired. Sorry there folks, we will try and do better. But we are also going to play harder ball, not keeping delinquents on our rosters beyond 18 months.

Are we financially stable? Yes, we are, in fact very much so. And we intend to remain this way. We are very happy with those of you who contributed to the Ruth J. Siple Fund for books for the library named in her honor at the Amundsen-Scott South Pole Station. In the last few months contributions have come in from Billy-Ace Baker, Kenneth Behannon, Rodger Brown, Dick Chappell, Winston Cope, Guy Guthridge, Charlie Greene, Peter Harrison, Marie Hurtig, Ann Johnson, Ken Moulton., and John Schullinger. Ann, incidentally, is the oldest daughter of Ruth and Paul Siple. We still have 90 delinquents for this calendar year.

How come the Society is located in a small lobster town, population less than 600, in mid-coastal Maine? Well, why not Port Clyde, it has to be somewhere where there is a post office and someone who regularly picks up the mail. That someone is me, Paul Dalrymple, and I am the treasurer and sees to it that the Newsletter is written occasionally and mailed off to you folks. The web-site is located in Slingerlands, New York, a suburb of Albany, New York where Tom Henderson is our most able webmaster and keeps it up-to-date time-wise. Our president is Charles Lagerbom, school teacher in Belfast, Maine, who resides

with family on the top of a hill in Northport, Maine over-looking beautiful Penobscot Bay. It is here where Charles, alias Chips, does all of his scanning of your pictures, at NO CHARGE. Chips, Tom, and I all serve you at no charge, as Antarctica was, is, and ere shall be our home away from home, our beloved would-be-permanent home.

Anybody for the North Pole? Art Mortvedt, veteran Alaskan bush pilot with over 5,000 hours flight experience, who has been on twenty, yes, twenty expedition to the Antarctic as a pilot, including flying to the South Pole. Is now offering flights to the North Pole in his Cessna 185. Art lives in Manley Hot Springs, Alaska, tel/fax 1-907-672-3206. His web site is www.polarflight90.com. Also mortvedt@alaskawilderness.net. And he is ready to leave this April. How about you?

Karl Erb sent the following e-mail announcing his retirement on March 31st to his NSF colleagues in the Office of Polar Programs on 5 February 2012
“Anticipating the coming of spring, the blooming of daffodils, the opening of the fishing season and many other good things I have decided to retire from government service in April. It has been a great privilege to work with every one of you for these good years, the absolute highlight of my working life, Thank you all. With best regards, Karl”

Here's some of the climate data from the South Pole for 2011. The big news is the highest temperature ever recorded at the South Pole, 9.9 degrees F on Christmas Day. The all-time highest wind speed ever measured at the South Pole was recorded on September 27th, 58mph,

Climate Summary for the Calendar Year 2011
Average temperature.....-56.3F
Maximum temperature..... 9.9F
Minimum temperature..... -103.4F

Average wind speed.....11.9MPH
Maximum wind speed.....58 mph

Average hours sunshine per day.....	15.3
Percent of possible sunshine	64%
Snowfall, net change at stakes	8.9 inches
Clear days	126
Cloudy days	91
Partly Cloudy	148

LOCKHEED TAKES OVER THE U.S. GOVERNMENT'S ANTARCTIC OPERATIONS, KEEPS STAFF IN

DENVER *Denver Westword*, Dec. 28, 2011
 More than two years past its original deadline, the **National Science Foundation** has finally awarded a contract to Lockheed Martin to handle the U.S. government's vast operations in Antarctica. The thirteen-year, \$1.9 billion contract begins April 1 and its headquarters will continue to be based in Centennial. Lockheed Martin takes over from Raytheon Polar Services, which has run the program since 1999. Although Raytheon bid on the contract again, it faced stiff competition from Lockheed and several other companies and didn't make the final cut.

LOCKHEED MARTIN WINS CONTRACT WORTH UP TO \$2BN

Financial Times, Dec. 28, 2011
 Lockheed Martin, the world's biggest defense company by revenues, has won a multi-year contract from the **National Science Foundation** that could be worth up to \$2bn to support the extensive US research presence in Antarctica. As part of the contract Lockheed will transport US scientists and goods to and from Antarctica, support efforts to upgrade local infrastructure and manage bases in the region that provide a staging post for expeditions and research.

At McMurdo Station, the main hub, Lockheed will effectively run a small town with an airport, a pier, a hospital and a hotel as well as a laboratory complete with an aquarium. Linda Gooden, head of Lockheed's Information Systems & Global Solutions business, said that the company was delighted with the award and noted Lockheed's

"longstanding history of supporting customers in remote locations". Environments do not come more remote than Antarctica. The continent is one of the coldest, driest and windiest places on earth, where the lowest recorded temperature is -90C.

In his 2007 film, *Encounters at the End of the World*, Werner Herzog, the award-winning documentary filmmaker, presented McMurdo Station as an other-worldly environment, inhabited by an engrossing assortment of oddball characters.

The NSF, independent federal agency that supports science in the US, has maintained a US presence in the region since the 1950s. About 3,000 Americans, from agencies such as NASA and the defense department take part in NSF research and logistics activities each year. Research projects include efforts to better understand climate change, particularly the relationship between Antarctica, its ice sheet and the Southern Ocean, and also biological experiments that take advantage of the area's remoteness and extreme climate.

Lockheed beat out incumbent provider Raytheon, to win the initial four and a half year contract. Follow-on options could extend the contract to 13 years, and if Lockheed wins those the total contract value could reach \$2bn.

CENTENNIAL NOTES FROM LIESL SCHERNTHANNER AT THE SOUTH POLE December 12

Happy South Pole Anniversary! We're having a good time here at Pole with an excellent group of Norwegians, several aircraft-loads of visitors, a few Arctic Trucks, and other fun. The Prime Minister of Norway and his staff are delightful to work with and have as guests. They went cross country skiing the first day they arrived! We had a nice picture with good station turnout at the Pole last night, and then the Norwegians served the whole community "glug" (hot-spiced wine) and cardamom cookies. Tomorrow we have a few speeches, the revealing of an ice bust of Amundsen, and special dinners for our guests. With the visitors that come from Union Glacier (ALE) and Novo (TAC) we have a new set up with a very nice visitor center and

store out by the ceremonial pole. It reduces the congestion inside the station and seems a nice meeting place for folks. All in all, it is shaping up to be a good Anniversary Celebration and a great season.

December 16. Most of the big wheels are gone. The Prime Minister and his entourage left the day after the Centenary-- they thanked the community profusely and are taking away good memories of their visit. The elite list of visitors are also trickling out of here via Basler and twin otter towards Union Glacier. We had quite a collection of polar adventurers (93 people were at the ALE camp). It is rather fun to see those who return several times throughout the years. They're familiar faces and while we're not "friends" who keep in touch, we are all happy to exchange hugs and greetings, thanks to the happy familiarity and success of reconnection at such a nice place.

January 5. The remote and inhospitable South Pole remained largely unchanged prior to the IGY starting a new phase of plateau occupation and research. In recent years, the transformations at South Pole are visible and significant in new buildings and science platforms; thinking back 100 years, the changes are staggering. Celebrations at 90South on December 14th, a memorable day in Antarctic and Polar History, brought together, crisp air, sunshine, ice crystals, Polies, Expeditioners, Support Staff, Camera Crews, Distinguished Visitors, and a world of observers to reflect and acknowledge the impressive accomplishment of Roald Amundsen, Olav Bjaaland, Oskar Wisting, Sverre Hassel, Helmer Hanssen.

Much has been made of “the Race to Pole.” Despite methodology or degrees of success, one cannot help but simply admire the grand accomplishment of attaining the South Pole by fortitude, time-limited equipment, and some good fortune – although many, including Amundsen, would profess that luck is a matter of preparation. During Centenary events, Norwegian Prime Minister Jens Stoltenberg emphasized the “Courage, determination and

endurance, and readiness to meet new challenges” that brought the first humans to Pole. Accomplished adventurers such as Borge Ousland talked about the perpetuating inspiration instilled by the last heroic age explorers. Amundsen’s carpenter’s grandson, Jan Stubberud (78, skied in the last degree with Amundsen’s watch), iterated character traits that have been appreciated and emulated for the following generations. Visitors read expedition journals, transporting witnesses to Amundsen’s camp where one could appreciate hardship, splendor, and achievement rolled together. The proud Norwegians were well represented in the majority of the 93 visitors at the ALE Camp near pole, and the Norwegian Head of State and his entourage. The 235 Polies on station were out in force representing a modern Antarctica paying homage to the deserving. Components of the event were broadcast live to Norway, and there were “tweets” and “blogs” and digital photographs galore. Strangely, this celebration connected South Pole to the world more than any previous event as communications and mindsets allowed people to simultaneously focus on this small spot at the bottom of the earth, whereas it took months for the news that Amundsen had made it to the South Pole to reach the outside world.

Despite modernity, the raw emotion of knowing that such impressive men stood where we now stand, a century ago, is humbling. There was silence at the Pole on December 14th, and a shared moment of awe. To those who came before us: thank you for forging the way.

For additional information regarding the South Pole Centenary and some pictures of recent events, you are encouraged to visit our local “on line”

newspaper:<http://antarcticsun.usap.gov/features/>

December 24. Pole is strangely warm (see attached). We held the Race Around the World yesterday despite windy and foggy conditions, but over 75 people turned out and

had fun. We also had a great dinner served by our amazing galley staff. It has been very quiet around here this morning -- much fun was had last night. Today we'll be caroling over HF, enjoying another great brunch, and doing some catch up. I love Christmas at the Pole: no commercialism, just good company, a great meal, and a bit of rest. I think I've spent 15 Christmases on the ice and I've enjoyed every one of them. It is nice to think about family, too, however. My best Christmas on the ice was when I had two sisters here at the the Pole with me!

January 15. We're looking forward to marking the centenary of Robert Falcon Scott's party arriving at the South Pole on Tuesday. Unlike the Amundsen Centennial there are no official state events or TV broadcasts planned, but we will recognize the occasion with a simple ceremony scheduled for 6PM 17 January at the Ceremonial South Pole. 6PM is, apparently, the time that coincides with the Scott's arrival at the South Pole in 1912. We are coordinating a ceremony with the managers of the Visitors Camp near the station (ALE). I should explain that ALE stands for Antarctic Logistics and Expeditions (a subsidiary of Adventure Network International, ANI), the primary tour operator in the region – they work out of Union Glacier/Punta Arenas/Salt Lake City. The other big operator is The Antarctic Company/Antarctic Logistic Centre International (TAC/ALCI), out of Novo (via South Africa) – there are several “Arctic Truck” groups that are coming out of this location, driving to pole in as little as 8 days! We expect over 30 people to ski in from the last degree (89 south) and about 13 long-distance expeditioners to arrive at Pole between the 16th and 18th of January. Soon after that, more adventurers arrive: seven last degree skiers and 40-some others from around the continent, including 5 groups of 2-3 skiers with Extreme World Races supported by 6 Arctic Trucks out of the TAC/ALCI camp 22 km short of the Pole (they like camping in the flat and white better than the busy pole!).

There are a few kites and even a bicycler coming in too!

In total, the ALE group intends to have about 70 clients and staff here for the Scott Centennial. A team from the British Antarctic Survey will also be in town with their Twin Otter to service an experiment they maintain from Pole each year. This adds festive acknowledgment to the important Centennial event. The occasion will be simpler and lower key than was the Amundsen event. The fact that Scott's party perished on their return trip adds somberness to this event.

Also going on this week: Lt. Col. Henry Worsley of the Royal British Legion will share some British Antarctic history and some of his own expedition experiences with the community on Monday evening our Galley. He may even show off a highly significant artifact (he carried Oates' polar medal with him to Pole). Henry is a distant relative of the Endurance Captain, Commander Frank Worsley of Shackleton's Imperial Trans-Antarctic Expedition of 1914–1916. He was also the leader of the 2008-2009 Shackleton Centenary Expedition that recreated Shackleton's Nimrod Expedition that reached the furthest south until Amundsen's expedition at a latitude of 88° 23' S, just 112.2 miles from South Pole. He recently skied to Pole following Amundsen's route, in a race with another British Military team following Scott's route (the latter are about 100 miles behind, but will hopefully be here by Tuesday).

RUSSIAN SCIENTISTS REACH LAKE UNDER ICE IN ANTARCTICA. *AP Science Writer Seth Borenstein* Opening a scientific frontier miles under the Antarctic ice, Russian experts drilled down and finally reached the surface of a gigantic freshwater lake, on February 5th.

Touching the surface of the lake, the largest of nearly 400 subglacial lakes in Antarctica, came after more than two decades of drilling. It was

a major achievement avidly anticipated by scientists around the world.

The Russian team made contact with the lake water Sunday at a depth of 12,366 feet (3,769 meters), about 800 miles (1,300 kilometers) east of the South Pole in the central part of the continent.

Scientists hope the lake might allow a glimpse into microbial life forms that existed before the Ice Age and are not visible to the naked eye. Scientists believe that microbial life may exist in the dark depths of the lake despite its high pressure and constant cold — conditions similar to those believed to be found under the ice crust on Mars, Jupiter's moon Europa and Saturn's moon Enceladus.

Valery Lukin, the head of Russia's Arctic and Antarctic Research Institute, said reaching the lake was akin to the Americans winning the space race in 1969. "I think it's fair to compare this project to flying to the moon," said Lukin, who oversaw the mission and announced its success. American and British teams are drilling to reach their own subglacial Antarctic lakes, but Columbia University glaciologist Robin Bell said those are smaller and younger than Vostok, which is the big scientific prize. "It's like exploring another planet, except this one is ours," she said.

At 160 miles (250 kilometers) long and 30 miles (50 kilometers) wide, Lake Vostok is similar in size to Lake Ontario. It is kept from freezing into a solid block by the more than two-mile-thick crust of ice across it that acts like a blanket, keeping in heat generated by geothermal energy underneath. Lukin said he expects the lake to contain chemotroph bacteria that feed on chemical reactions in pitch darkness, probably similar to those existing deep on the ocean floor but dating back millions of years. "They followed different laws of evolution that are yet unknown to us," he said.

Studying Lake Vostok will also yield insights about the origins of Antarctica, which is

believed by many to have been part of a broader continent in the distant past. And the project has allowed the testing of technologies that could be used in exploring other icy worlds. "Conditions in subglacial lakes in Antarctica are the closest we can get to those where scientists expect to find extraterrestrial life," Lukin said.

Drilling through the ice crust in the world's coldest environment brought major technological challenges. Temperatures on the Vostok Station on the surface above the lake have registered the coldest ever recorded on Earth, reaching minus 128 degrees Fahrenheit (minus 89 degrees Celsius). Conditions were made even tougher by its high elevation, more than 11,000 feet (3,300 meters) above sea level.

The effort has drawn fears that the more than 60 tons of lubricants and antifreeze used in the drilling may contaminate the lake's pristine waters. Bell said the Russian team was doing its best "to do it right" and avoid contamination, but others were nervous.

"Lake Vostok is the crown jewel of lakes there," said University of Colorado geological sciences professor James White. "These are the last frontiers on the planet we are exploring. We really ought to be very careful."

Lukin said Russia had waited several years for international approval of its drilling technology before proceeding. He said that, as anticipated, lake water under pressure rushed up the bore hole, pushing the drilling fluid up and away, then froze, forming a protective plug that will prevent contamination of the lake.

Russian scientists will remove the frozen sample for analysis in December when the next Antarctic summer season comes. They reached the lake just before they had to leave at the end of the Antarctic summer, when plunging temperatures halt all travel to the region.

Lukin, who made numerous trips to Antarctica, said the physiological challenges of extreme cold and thin oxygen were aggravated by isolation. *"If something happens to you or your colleague, there is no one to help,"* he said. *"It's actually easier to help an astronaut in space."*

Martin Siegert, a leading scientist with the British Antarctic Survey, hailed reaching Lake Vostok as *"an important milestone ... and a major achievement for the Russians."*

The British are trying to reach another subglacial lake, Lake Ellsworth. *"The Russian team share our mission to understand subglacial lake environments and we look forward to developing collaborations with their scientists and also those from the U.S. and other nations, as we all embark on a quest to comprehend these pristine, extreme environments,"* Siegert said in an email.

American scientists are drilling at Lake Whillans, west of the South Pole. Some voiced hope that studies of Lake Vostok and other subglacial lakes will advance knowledge of Earth's own climate and help predict its changes. *"The clues to how Earth may respond to the continuing impact of humans, particularly fossil fuel emissions and related climate change, are housed in the records of past climate change in Antarctica,"* said Mahlon

Kennicutt II, Texas A&M University professor of oceanography, who leads several Antarctic science groups. *"A view of the past gives us a window on our planet's future,"* he said.

Russian researchers plan to continue exploring with robotic equipment that will collect water samples and sediments from the bottom of the lake, a project still awaiting the approval of the Antarctic Treaty organization. The prospect of lakes hidden under Antarctic ice was first put forward at the end of the 19th century by Russian scientist and anarchist, Prince Pyotr Kropotkin. Russian geographer Andrei Kapitsa noted the likely location of the lake and named it, following Soviet Antarctic missions in the 1950s and 1960s, but it wasn't until 1994 that its existence was proven by Russian and British scientists.

Drilling in the area began in 1989 and dragged on slowly due to funding shortages, equipment breakdowns, environmental concerns, and severe cold. The lake's crystal-clear water may make entrepreneurs sweat just thinking of its commercial potential, but Lukin shot that idea down. He said his team had no intention of selling any Vostok water samples, but would eventually share the results of their work with scientists from other nations.



Russian researchers at the Vostok station in Antarctica pose for a picture after reaching sub-glacial Lake Vostok. Scientists hold the sign reading "05.02.12, Vostok station, boreshaft 5gr, lake at depth 3769.3 meters."

The new Geographic Pole Marker was put in place at 90 south on January 1.

Each year there is a winter over contest to design a new marker and in 2011, the machinist, Steele Diggles, won the contest and subsequently produced the marker out of brass on station.





The Antarctic Society

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NO. 1

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BRASH ICE. This Newsletter is long overdue. I could cite innumerable reasons why I am so late, but rather than take up space, just let me say "I'm Guilty". Be sure to read the lead article by Guy Guthridge on three very important reports.

But before we get going, let us present a sales pitch for the 2013 Hedgehog Antarctic calendars, which we feel is one of the best ones that they have published in many moons. We are actually begging you on bended knees to buy one or more, as we have a bunch on stock. We have been snake bit on these calendars. For the second year in a row, something has happened to shipments from Christchurch. Last year, a parcel of 25 were intercepted, never got here. This year a shipment of 50 was opened en route, with fifteen taken out. In defense of Hedgehog, they more than compensated for our losses by shipping more. However, one of our regular Society big-time buyers has accepted his delivered order, but has refused to pay a special sweetheart cost offered to him. As we go to press he has refused to pay the special deal we offered him, so we are out \$420. It is the first bad debt that our Society has suffered in our fifty odd years of existence. Even at the price we sell them to Society members, \$15.00 each, we are only making pennies on each, mailing them cost us over \$2.00 each. We do this as a personal favor to our members who want an Antarctic calendar. If you ordered directly from Hedgehog, you would be paying \$23.00 each, but where we buy in bulk and more or less know the people on the other end, we do get a discount. Besides, some that are mailed never get received, so we have to send out additional ones to them. Is this agony for us worth it? NO, definitely not. But to get rid of our current supply on hand, will you order today, buy as many as you can use, and let's get this all behind us.

It seems that nothing is forever in Antarctica, and that pertains today. There has been a recent reorganization in our National Science Foundation which has resulted in at least a cosmetic change in polar nomenclature. Scott Borg writes us that the NSF realignment is on their web site. The Director has stated in several venues that there is no intent to diminish NSF's commitment to polar science and that they will continue as in the past. The Transition has already started, but there are lots of little details to be attended to before they change their business cards. Scott writes that no one "expects earthshaking changes – we are and will be a proposal-driven science program."

In the meantime, there has been some rattling of the chains in the UK. We will quote later on in this Newsletter from an article by Tony Juniper in The Observer of 29 September relative to "Axing of the British Antarctic Survey". But, as we are bent to do when we seek knowledge, we emailed the erudite Charles Swithinbank in Cambridge. This is what he came back with on October 7th: "It is a battle being fiercely fought. As it stands, BAS is unlikely to move from Cambridge. But funding will be cut."

CALENDARS. We have a limited supply of the 2013 Hedgehog Antarctic calendars, which are excellent this year. Where this will be our only notice of their availability, will those of you who want them, PLEASE order NOW. Same price as last year, \$15.00 each, checks made payable to the Antarctic Society, Box 325, Port Clyde, ME 04855

THREE NEW REPORTS FORESEE U.S. ANTARCTIC FUTURE (by Guy G. Guthridge, Warren M. Zapol, and Louis J. Lanzerotti) Introduction. Since the 19th century or earlier – perhaps because sending out a polar expedition is expensive – high-level studies and reports often have preceded, and significantly influenced, what people then went on to do in the Antarctic.

For example, the 1895 International Geographical Congress said “the exploration of the Antarctic region is the greatest piece of geographical exploration still to be conducted.” Just 16 years later, heroic expeditions had pushed back the unknown and attained the South Pole. In *Problems of Polar Research* (1928, American Geographical Society), 31 papers by scientists and explorers helped to set the basis for Richard E. Byrd’s expeditions in the 1920s and 1930s. The National Academy of Sciences’ 1949 *Antarctic Research: Elements of a Coordinated Program* was an early but comprehensive blueprint for the Antarctic part of the 1957-1958 International Geophysical Year. And in 1996 and 1997 reports by the President’s science advisory office and a National Science Foundation external panel explained why America needed to build a replacement research station at the South Pole and continue its leadership role in the Antarctic.

So – back to the future! – at the Garage Theater the authors of this note discussed three new reports describing what could come to pass over the next decade or two in the U.S. Antarctic Program. The reports, like the examples above, have no budget or decision authority. They are ideas, intended to be

seminal in the long slog toward implementation.

But the ideas are presented with care. Norman Augustine, who chaired the group that wrote the third report discussed below, said to his committee at its first meeting, “We’re taking on a dangerous assignment. Somebody might actually do what we recommend.”

Here are the three reports Guy, Warren, and Lou talked about.

Lessons and Legacies of International Polar Year 2007-2008 (National Research Council, 2012). This report highlights IPY outcomes from a U.S. perspective and evaluates lessons learned. Julie Brigham-Grette (University of Massachusetts) and Robert Bindshadler (NASA) cochaired the committee of 12 that wrote the report. One participant – Mary Albert (Dartmouth) – is an Antarctic Society member, but Mary couldn’t attend the 2012 Antarctic Gathering at Port Clyde so Guy (National Science Foundation, retired) stood in.

IPY was big: some 50,000 participants from 60 nations. With some of the science not even published yet, talking about legacy may seem premature. Remember, though, that the previous polar year – the IGY half a century ago – brought Antarctica into the modern age almost before it was over when all 12 participating nations established continuing programs of research and signed the Antarctic Treaty as the basis for international collaboration.

The new IPY report points to changes in public attitudes toward the polar regions. These shifts could become as dramatic, in a different way, as what IGY brought about. Before IPY, people tended to think about the Antarctic as just frozen and icy; now they recognize the region’s melting episodes. Before, folks considered the polar pace to be static or slow, but now they appreciate that changes in sea ice cover and rapid collapse of ice shelves can be dynamic and fast. Before IPY they may have

thought of polar regions as pristine, but now realize that with the ozone hole and airborne industrial pollutants the Arctic and Antarctic atmospheres and ice sheets aren't so much intimidating as they are vulnerable.

In the research community, IPY highlighted that reality is challenging models formerly seen as worst case, with sea ice and glacier mass loss exceeding projections. Before IPY, expeditions and multiyear initiatives were the norm; since then long-term, in situ observations and monitoring have become more recognized as not only essential but also feasible because of new technologies. Basic research was the norm before IPY, but now research increasingly will be driven by problem solving and applications.

Something that stayed the same before and after IPY is the awe of new findings. A project mapped, in detail, the under-ice Gamburtsev Mountains, big as the Alps, and showed hundreds of meters of ice accumulation *at the bottom* of the East Antarctic Ice Sheet not to mention basal water flowing uphill. The NRC report also points to an IPY legacy as old as civilization: renewed appreciation of the human spirit of discovery.

Future Science Opportunities in Antarctica and the Southern Ocean (National Research Council, 2011). Warren M. Zapol (Harvard Medical School) chaired the 17-member committee that produced this report, and Warren described it for the Garage Theater audience.

The President's Office of Management and Budget and Office of Science and Technology Policy had requested the effort as the first of a two-part evaluation of (a) needed research and (b) how to support it operationally. Warren's group summarized science conducted on Antarctica and the surrounding Southern Ocean that will demand attention over the next two decades. They looked at opportunities for more international collaborations and examined promising new technologies.

The report does not set research priorities or discuss budgets, but it does point to two major themes having emerged from IPY and other prior research. For the theme of global change, the report lists four overarching research questions: How will the Antarctic contribute to changes in global sea level, what is its role in the global climate system, what is the response of its biota and ecosystems, and what role has Antarctica played in changing the planet in the past? The second theme, discovery, also has four questions. What can records preserved in Antarctica and the Southern Ocean reveal about past and future climates, how has life adapted to the Antarctic and Southern Ocean environments, what can the Antarctic platform reveal about interactions between Earth and space, and how did the Universe begin, what is it made of, and what determines its evolution? Mindful of the separate part-2 group's task, Warren's group comments broadly in the report on the logistics capabilities and technologies that, from a science delivery perspective, need to be improved or changed.

The report makes six recommendations, stating the United States should lead the development of a large-scale, interdisciplinary observing network and support a new generation of robust Earth system models, support basic research to yield new discoveries, improve international collaboration, exploit emerging technologies (including cyberinfrastructure and novel and robust sensors), coordinate an integrated polar educational program, and continue strong logistics and support.

The report states that, despite challenges of the harsh conditions, the region offers insight into the changing planet and is invaluable for new discoveries. It says preserving the environment for observations and experimental science requires a commitment to stewardship. Through use of international and multidisciplinary collaboration, emerging technologies and sensors, and educational opportunities, the report argues that the next 20 years of Antarctic research can advance understanding of the planet and beyond. But a

robust and efficient U.S. Antarctic Program is needed to realize this potential.

More and Better Science in Antarctica Through Increased Logistical Effectiveness

(U.S. Antarctic Program Blue Ribbon Panel, 2012). Louis J. Lanzerotti (Center for Solar-Terrestrial Research, New Jersey Institute of Technology) was a member of the 12-person panel that developed this report. Lou faced this challenge at the Garage Theater: he talked about the report on Saturday, 21 July, but the report was embargoed until Monday, July 23. He focused, therefore, on how the report was prepared and what it was intended to cover.

The 232-page document now is in print and on the web. And an hour-long video of the rollout by the panel's chair, Norman Augustine, and others is online via NSF's Press Release 12-141 (http://www.nsf.gov/news/news_summ.jsp?cntn_id=124939).

This summary focuses on the report itself (http://www.nsf.gov/od/opp/usap_special_review/usap_brp/rpt/index.jsp), which tackles the challenges of how to support operationally the science envisioned in the *Future Science Opportunities . . .* report.

The Introduction notes that “the substantive research itself is only the visible part of the iceberg. The logistics effort supporting that science is the vast base of the iceberg.” The report states, “U.S. activities in Antarctica are very well managed but suffer from an aging infrastructure. . . . The status quo is simply not an option.”

Current practice, says the report, is that when NSF and its contractors must choose between repairing a roof or conducting science, “science usually prevails. Only when the science is seriously disrupted because the roof begins to collapse will it be replaced. . . . In the longer term, increased logistical efficiency could yield savings that would substantially increase the amount of research supported by NSF.”

The report identifies eight major issues, several single-point failure modes, and ten top recommendations. It also discusses “implementing and ancillary actions” of which some are essential for safety and health, some readily implementable, and others need significant investment but would yield large payoff.

Of the major issues, capital budgeting for the program is at the top; lack of it has led to deteriorated and inefficient infrastructure. Second is McMurdo, which is critical to most of the program but depends utterly on icebreakers; “no reasonable alternative to McMurdo was found,” the report concludes. Lack of U.S. icebreakers is third, and the issue “transcends NSF’s responsibility and resources.” Other issues include transportation on the continent, the desirability of a hard-surface ice runway at South Pole Station, energy efficiency and alternative energy, limited communications within Antarctica and with the rest of the world, and safety and health needs.

The top single-point failure mode is, interestingly, potential circumvention of the Antarctic Treaty. Others are U.S. icebreaking capability, broadband communications for South Pole, the Palmer Station pier, the Christchurch, New Zealand, hub post-earthquake, Pegasus runway, fire suppression, research ship replacement, and the single automated dishwasher at McMurdo.

Here are the panel’s top ten recommendations, in priority order.

1. Continue McMurdo, Pole, and Palmer as the primary science and logistics hubs.
2. Restore the U.S. polar ocean fleet, both icebreakers and research vessels.
3. Use state-of-the-art logistics to reduce costs and expand science opportunities.
4. Upgrade or replace facilities at McMurdo and Palmer.

5. Set up a long-term facilities capital plan and budget.
6. Strengthen consideration of support costs during review and selection of science projects.
7. Modernize communications to increase science output and reduce operational footprint.
8. Increase energy efficiency.
9. Increase international cooperation in logistics and science.
10. Revise as needed existing U.S. government Antarctic policy documents.

“Simply working harder doing the same things that have been done in the past,” the report concludes, “will not produce efficiencies of the magnitude needed in the future. . . . In spite of the above challenges, USAP science and science support could be vastly enhanced within about five years.”

We – Lou, Warren, and Guy – think all three reports deserve your attention. All are on line (the first two at the National Academy of Sciences web site). For printed versions you may have to buy those first two, but the third one is available free from NSF as explained on the above web site.

POSSIBLE 'AXING THE BRITISH ANTARCTIC SURVEY WOULD MEAN THE END OF SCOTT'S LEGACY

Considering the importance of polar research in understanding global change, it is alarming that the Natural Environment Research Council (NERC), a [research funding](#) body reporting to Vince Cable's Department for Business, Innovation and Skills, has published proposals to close the BAS headquarters in Cambridge, doing away with its name, and thereby making it politically easier to make deep cuts in Antarctic bases, ships and aircraft later on.

The extent of the seismic shifts about to take place are underlined by the recent departure of senior staff. The director, deputy director and a board member have all left BAS over the past

six months, and disillusioned with current events, senior scientists are contemplating moving to other institutions. BAS is vulnerable and the Whitehall axe could soon strike with devastating effects.

NERC and ministers are making reassuring noises as to their commitment to polar research, and to retaining a strong British presence in Antarctica, but senior figures at BAS fear the loss of the name and shift of headquarters is the first step toward bigger changes that will endanger the British capability to continue with properly supported scientific research on the southern continent.

In the wake of shocking changes taking place in the Arctic, including record sea ice melting, it is surely wise to retain Arctic and Antarctic research as an unambiguous national priority. The Polar Regions may be far away, but they have the potential to directly affect us in the UK. A study published earlier this year suggested that the cold winters we have seen recently in the UK and elsewhere may be directly linked to the melting of Arctic sea ice.

More worrying is the west Antarctic ice sheet, which is suspected to be dangerously unstable and which could lead to more than three meters of sea level rise (at an unknown rate) if it collapsed

It is sobering to note that the Thames barrier is built to cope with just a 16cm rise in sea level over the next 20 years. The research at Lake Ellsworth will help us assess the risk, and given the stakes retaining a world-respected, world-renowned and high-profile organization is surely a huge asset.

Ministers and NERC need to stand back, take the longer view and do what is obviously the right thing: keep the British Antarctic Survey intact, keep it properly funded, and keep it in Cambridge.

OZONE THREAT AVERTED BUT.....CHRISTCHURCH PRESS. SEPT. 11, 2012 (Forward by Margaret Lanyon)

The ozone hole affecting Antarctica and New Zealand is slowly healing. The University of Canterbury Antarctic expert Adrian McDonald

said the recovery followed a reduction in chlorofluorocarbon substances that destroyed ozone which had been largely banned worldwide. He said it was unclear when the ozone would return to natural levels, but it was expected to be after 2050. Ironically, ozone depletion might have protected Antarctica from the worst of greenhouse gas-related global warming, he said. "With the ozone recovery, the future of the Antarctic climate is less certain, though the complex interactions in the atmosphere associated with climate change makes this region particularly hard to predict," McDonald said.

"The future recovery of the Antarctic ozone hole and increases in greenhouse gases are expected to have opposite effects on the winds and circulation in the southern hemisphere. "The increasing ozone hole has until now acted to change the circulation of the southern hemisphere so that the strong winds linked to the jet streams have moved towards the pole." He said ozone recovery should act to move the winds back towards the equator. The jet-stream positions were one of the main things that helped control the width of tropical and polar weather belts, McDonald said.

DR. SCOTT PARAZYNSKI, NSF CHIEF MEDICAL OFFICER Dr. Scott Parazynski has an intimidating resume. A former NASA astronaut who served on the Space Shuttle, Parazynski now oversees medical operations for the National Science Foundation's (NSF) United States Antarctic Program's bases and outposts on the polar continent. He's also a former Olympic luge coach and an accomplished mountaineer who successfully climbed Mount Everest in 2009. At his current position, Parazynski is responsible for hiring doctors and medical support staff for multiple Antarctic bases and on-ice care for all United States Antarctic Program participants.

Scott is chief medical officer of the Center for Polar Medical Operations, which is in support of the National Science Foundation's United

States Antarctic Program, so we oversee all of the medical screening, the provisioning of the major stations on the Antarctic continent, and real-time medical support. This includes providing health care providers as well as telemedical support here from Galveston, Texas and everything in between. So it's a very exciting mission and obviously very challenging. I liken work on Antarctica to being in a station on the back side of the moon...or even what living on Mars would be like. It requires a lot of forethought, a lot of good screening, and then some real MacGyver-type medicine on occasion to handle all the unanticipated things.

There are three main stations dispersed around the Antarctic continent. Each of them has the equivalent of what I would consider to be an urgent care center. They have ultrasounds, X-rays, enhanced cardiac life support, but it's not an intensive care clinic and it's not an operating room. If you're really sick, we'll do everything we can to treat you in place and we'll try to medivac you during the Austral Summer. However, there are certain cases where we have to make the best of what we have on the scene and get you off as soon as conditions allow--and that's where the MacGyver medicine comes in.

We make clinical treatments and medical plans without all the bells and whistles taken for granted in the United States.

TERRA NOVA FOUND OFF GREENLAND. (By Paul Rincon, BBC News)The SS TERRA NOVA was found by a team from a US research company. Scott and his party set off from Cardiff aboard the Terra Nova in 1910 with the aim of becoming the first expedition to reach the South Pole.

It had been on a journey to deliver supplies to base stations in the Arctic when it was damaged by ice. The Terra Nova's crew was saved by the US Coast Guard cutter Southwind. On arriving at the geographical South Pole in January 1912, Scott and his

party discovered they had been beaten to it by a Norwegian team led by Roald Amundsen. One of the scientists noticed an unidentified feature during sonar mapping of the sea bed. Team members then noted that the 57m length of the feature matched the reported length of the Terra Nova. Technicians dropped a camera package called Shrimp to just above the presumed wreck to film it. Camera tows across the top of the target showed the remains of a wooden wreck lying on the seabed. Footage from the Shrimp also identified a funnel lying next to the ship. Taken together, the features of the wreck closely matched historical photos of the Terra Nova, leading to the identification. Brian Kelly, an education officer from the Discovery Point museum in Dundee, where the ship was built, told the Daily Record newspaper: "The Terra Nova has such a story.

"She went through a lot in her lengthy history and really was the pinnacle of Scottish wooden shipbuilding.

"It is incredible that one of the most famous ships in history has been found 100 years after the race for the pole and in the year commemorating the event."

SECRETS OF THE ICE: ANTARCTICA'S CLUES TO CLIMATE, THE UNIVERSE, AND THE LIMITS OF LIFE, by Veronika Meduna, Yale University Press 2012 - Ed Stump

This beautifully rendered book showcases research in Antarctica, with a focus on the Ross Sea region and New Zealand accomplishments. The style is one of science reporting, clearly stated, making it an easy read. The author's approach is to introduce and profile specific scientists, and to describe the research that they have done. Most of the scientists are New Zealanders, but in a few cases Meduna profiles Americans such as Art deVries (Dr. Toothfish), John Prisco (Dr. LTER-DVs), and Susan Solomon (Dr. Ozone), plus a few Brits as well. Meduna is adept at explaining in simple terms the concepts that drive the science, and the science that she describes is right up to date. (There is a photo

from the 2010-11 CTAM field camp.) However, because many of the researchers have been working in Antarctica for a decade or two, or longer in some cases, the book also gives a perspective on the development of specific research projects over time. I liked the book very much, and recommend it highly.

The choice of science subjects is wide ranging, but not comprehensive. The emphasis is on ecosystems, and organisms that populate them, whether on the ice, in the ice, under water, or on land. Penguins and seals take brief bows, whereas microbes, lichens, and mosses are center stage - not the usual biology covered in an Antarctic book. Bedrock geology is hardly mentioned, nor is the field of ice dynamics (which is dominated by Americans.) However, coring in McMurdo Sound and ice coring elsewhere are given ample coverage, along with their importance in the area of climate change. And in a coda at the end, brief mention is made of the astrophysics research being conducted at South Pole station.

What makes this book unique is the range of science topics that are covered. A similar approach was taken in the book: *Antarctic Science* by David Walton, ed., Cambridge University Press, 1987, which was basically a status report of Antarctic science at the time, with an emphasis on British contributions. (The ozone hole and the British discovery of it were among the topics covered.)

The book is done in full color. Photo images come from a variety of sources, and many are spectacular. The set in the introduction, which shows most of the vistas and spots in the McMurdo area familiar to us all, is really exceptional. I'm a sucker for pattern pictures, and the collages of starfish and lichens spoke to me. Photos of researchers on the job are more of a mixed bag, but they serve to put faces on this exceptional group of scientists. It was fun for me to see pictures of old colleagues whom I have known for decades, and thought that it will be interesting for those younger faces to check in 20 or 30 years from now to see how they've aged.

With its publication of *Secrets of the Ice*, Yale University Press expands its portfolio of Antarctic offerings, which include Susan Solomon's *The Coldest March*, Edward Larsen's *An Empire of Ice*, and my own *The Roof at the Bottom of the World*.

FUR SEALS, WHALES, AND TOURISTS. A COMMERCIAL HISTORY OF DECEPTION ISLAND, ANTARCTICA. By J. Stephen Dibbern. The Antarctic Society, Port Clyde Maine, 2012. Reviewed by Joan N. Boothe

The title page of this book states that it was originally published in the *Polar Record* in 2010. It is, however, is far more than that — a major expansion of the original article that includes not only important added text, but also, most significantly, more than 100 additional photographs, many of them in color.

Fur Seals, Whalers, and Tourists opens with a reprint of the text of the original *Polar Record* article of the same name. This is a fascinating article, an excellent discussion of economic activity at Deception Island since 1820, when fur sealers first arrived, and this book provides a real service in making it available to those who do not have access to the *Polar Record*. The sections on fur sealing are, appropriately, relatively brief since there was little actual sealing at Deception Island. The heart of the article's text concerns the Deception Island based whalers, who arrived in the first decade of the twentieth century and quickly found a home at a place they named Whalers Bay, inside Deception Island's splendidly sheltered Port Foster. Mr. Dibbern vividly describes how — and why — Whalers Bay was the center of Antarctic whaling in the Antarctic Peninsula region south of 60° S from 1906 until 1931. A brief discussion of events at Deception Island during and post-World War II follows. The article ends with a summary description of the beginnings of Antarctic tourism that introduces a splendid concluding section — a descriptive tour of Deception Island today highlighting the historic artifacts that can still be seen by a modern visitor.

These final, evocative, paragraphs would be a marvelous guide for any visitor to Port Foster.

The *Polar Record* article takes up only the first ten pages of this 82-page book. The balance consists of five new brief text sections plus 112 photographs, many of them full page and in color, with extensive, rich captions. The added text expands this account of human activity at Deception Island well beyond the commercial. Mr. Dibbern tells us of early science and exploration, war and politics as it played out here, aviation including the earliest flights in the Antarctic, research bases, and about the dramatic, disastrous volcanic eruptions in the late 1960s.

But it is the marvelous photos that illustrate this book that are really its heart. Some of them are very rare, historic ones of whale ships and whalers at work in first years of their tenure at Whalers Bay in Port Foster. Others illuminate the story of human activity in the years following the whaling period. The captions are rich, with the result that a casual reader can ignore any or all of the text, focus on the illustrations, and still thoroughly enjoy this work. It should be noted that due to the historic focus of this book, the vast majority of the photos are of activity at locales within Port Foster. The final section, "A Deception Island Tour," expands this a bit, including a few photos from the outside coastal sections of the island, but even here, most pictures are from within Port Foster. Thus readers looking for a full guide to Deception Island may be a bit disappointed. But for those who are interested in the dramatic human story of this genuinely unique place, this book is a marvelous resource, indeed, a must read.

P.S. If you want to buy directly from the author, U.S. buyers should send a personal check for \$25.00 to: J. Stephen Dibbern, 5996 Via Lane, Crozet, VA 22932

ROBERT A. WHARTON - PRESIDENT OF SOUTH DAKOTA SCHOOL OF MINES DIES September 19, 2012

Robert Wharton, the president of the South Dakota School of Mines and Technology in Rapid City has died, the school and South Dakota Board of Regents announced Wednesday. Wharton, 60, was diagnosed with neck cancer late last year. He went through seven weeks of radiation and chemotherapy treatments at a Rapid City cancer center. He issued a statement last April saying the treatments succeeded and he was cancer-free. Christy Horn, vice president of university relations, told the Rapid City Journal newspaper that Wharton was cancer free at the time of his death but died from complications the early 2012 treatments.

Wharton came from Idaho State to become Mines' 18th president in July 2008. He received his doctorate in botany from Virginia Polytechnic Institute and his bachelor's in botany and masters in biology from Humboldt State University in California. Wharton served as executive officer for the National Science Foundation's office of polar programs, participating in 11 expeditions to the Antarctic. He also was a visiting senior scientist at NASA headquarters in Washington, D.C. In April, Wharton was selected to serve on the board of the South Dakota Science and Technology Authority, which oversees the operation of the Sanford Underground Research Facility at Homestake in Lead. Daugaard at the time said Wharton was a strong advocate for the underground lab and research by scientists from South Dakota. Robert A. Wharton, Jr. 1951-2012
Survivors include his wife, Dr. Carolyn Fassi Wharton, Rapid City; son, Matt Wharton, Loveland, Colo.; two grandchildren; a brother; and a sister.

In 1966 Bob was awarded the rank of Eagle in the Boy Scouts. He was also inducted into Order of the Arrow. Bob kept a gold paperweight on his desk that says, "Once an Eagle, always an Eagle and he served as a local leader for the National Eagle Scout

Association. Bob was a recipient of the Eagle of Merit Award for Career Excellence and the National Distinguished Eagle Scout Award.

Bob was a 1969 graduate of Birmingham High School in Van Nuys, CA; He attended Los Angeles Pierce College from September 1969 to June 1971 and went on to study at California State University, Northridge. He received his B.A. (Botany) and M.A. (Biology) from Humboldt State University and his Ph.D. (1982) in Botany at Va Tech under Bruce Parker (also working under the guidance of limnologist George M. Simmons (Doc) at the time too). Bob was named as one of the California Community Colleges League Distinguished Alumni for 2004.

During our work in the McMurdo Dry Valleys, Bob invited Eagle Scouts Louis Sugarman (1986) and Toby Everett (1992) to join us for some fun at our camp at Lake Hoare. It was nice having other Eagle Scouts with us, we both thoroughly enjoyed the time. In 1986 when Louis Sugarman was with us we were filming what would later become the PBS program **Life on Ice, Antarctica and Mars**, and in 1992 Galen Rowell was staying with us when we had the pleasure of having Toby in the camp. That year Bob and I had worked with folks at NASA HQ and we set in motion the requirement to get enough bandwidth into MCM for video broadcasts and out to the camp at Lake Hoare for basic e-mail. We had a 300 baud connection between Lake Hoare and MCM and we were delighted that Toby did not mind downloading long files for us at the time!

In 1980, Margulis established a Planetary Biology Internship (PBI) program, which the Exobiology/Astrobiology program has supported since its inception - as I recall Bob and Chris McKay both took part in the first set of interns.

Bob's thesis, titled "**Ecology of algal mats and their role in the formation of stromatolites in Antarctic dry valley lakes**" which he completed in 1982 set the stage for a very productive body of work that continued with

investigations of the perennially ice-covered lakes in the McMurdo Dry Valleys, lakes of the Canadian High Arctic and the search for life on Mars. His research areas included polar ecology, microbiology of extreme environments, cold deserts, space exploration, the Arctic, Antarctica, Mars, and Europa. His work on the physical/chemical and biological aspects of the lakes of the McMurdo Dry Valleys was extensive, with many 'firsts' documenting discoveries made, and he led the successful effort to start a Long Term Ecological Research (LTER) project in the Dry Valleys and was the Lead PI for the project from 1993-1999....The MCM LTER is still operating today. Bob got together with Chris McKay at NASA Ames Research Center in the early '80's and they began trading ideas about the possibility of ice-covered lakes on the planet Mars as refugia for life as that planet slid into a 3 billion plus year winter, and the McMurdo DV lakes being great analogs for those early martian lakes.

Bob was quoted extensively in an article about work in the Dry Valleys in the October 1998 issue of National Geographic. While a research professor and vice president for research at the Desert Research Institute, Bob was appointed to the National Research Council's Polar Research Board. Bob was an avid athlete: black belt in karate, scuba diver, an avid mountaineer and rock climber - climbing/mountaineering was his passion.

Bob was a fellow of the American Association for the Advancement of Science, the Royal Geographical Society, the Explorers Club, American Alpine Club, and a member of Sigma Xi. He joined the Senior Executive Service as the Executive Officer for the National Science Foundation's Officer of Polar Programs.

Bob will be remembered as much for his contributions to science as for the wonderful person he was. I had the privilege of spending a great deal of time with Bob in Antarctica, the Canadian High Arctic, at NASA HQ, a lot of time on travel together in Soviet Russia,

Europe, many mountain peaks in the Sierra Nevada mts., underwater in the Florida Keys, and we had a lot of fun kicking around at VaTech as students in the late 70's and early 80's.

Places Bob worked and studied over the years: Va Tech, NASA Ames Research Center, Desert Research Institute, NASA Headquarters (2 yrs within the Life Sciences Division working with Exobiology), Closed Environmental Life Support Systems (CELSS) and the Biospheric programs, Desert Research Institute, NSF/OPP, Idaho State University South Dakota School of Mines and Technology

RECLINING SCOTT BACK ON DISPLAY - Rachel Young (Christchurch Press)

One of the Christchurch statues damaged in the 2011 earthquake is back on display, albeit horizontally. At 12.51pm on February 22, 2011, the Captain Robert Falcon Scott statue, at Scott Reserve on Oxford Terrace near Worcester Street, was thrown off its pedestal, where it had been since 1917, by the magnitude 6.3 earthquake. The marble figure chipped in several places and broke across the ankles, but no other cracks or fractures were found. It lay in the red zone until it was taken into storage where a team of people, including an engineer, a conservator, and a stonemason, worked to repair and strengthen it.

Parker said Scott's wife Kathleen, was commissioned by the Christchurch City Council in 1913 to make a sculpture of her husband. In 1917, the statue was unveiled in Scott Reserve. Parker said since then it had represented the city's links with Antarctica.

"We're going to put him back in his rightful place, but in the meantime we wanted to bring him out of storage in a safe way." The statue will be on display in Hagley Park during the New Zealand Icefest for the next month. Leighs Construction have designed a wooden enclosure to keep the display airtight and moisture-free.

P.S.

Happy 86th Birthday to Charles Swithinbank!



The Antarctic Society

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FEBRUARY

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BRASH ICE. It has been a time of trial and tribulation, not only here in CONUS with the likes of Sandy, but also on the ice with a terrible air tragedy claiming three lives in late January. However, there was one cause of celebration when our Honorary President, Charles Winthrop Molesworth Swithinbank was one of the Queen's highly honored New Year Day's acclamations. Charles was made a MBE "for services to exploration and research in the Antarctic." It did not surprise any true Antarctic who knows Charles, although many of us wondered what took the Queen all these years to honor someone who has performed at the very highest levels in Antarctica for seven decades.

The British Antarctic Survey (BAS) has been saved from being dismantled after a "climbdow" from the universities and science minister, David Willetts, and the National Environment Research Council (NERC). Willetts said to parliament "BAS is a national and international asset that delivers world-class environmental science, and this country's strategic presence in Antarctica and the South Atlantic." NERC agreed that it would not proceed with the proposal for merger. "I am delighted that the right decision has been made" said John Dudeney, BAS deputy director. He continued by saying that the BAS is outstanding and always has been, noting that it was about to embark on a landmark experiment to drill into a lake hidden deep under the Antarctic ice, a feat he compared to landing a spacecraft on Mars.

More good news from the U.K. Three bottles of rare, 19th century Scotch found beneath the floor boards of Ernest Shackleton's abandoned expedition base were returned to Antarctica after a distiller from Scotland, Whyte & Mckay, recreated the long-lost recipe producing a limited edition of 50,000 bottles. A sample was drawn with a syringe through the cork of one of the bottles. It was said that the whisky had "a pleasant aroma." Each bottle was priced at \$175.00, with five per cent of the proceeds going to the Antarctic Heritage Fund. The whisky is to be transferred to Shackleton's hut at Cape Royds and replaced beneath the restored hut as part of a program to protect the legacy of the so-called heroic era of Antarctic exploration from 1898 to 1915. One amazing thing is that when it was found, some 102 years later, the whisky was still sloshing around. Banana Belt Whisky, shall we say?

There is something new in the modus operandi of our treasury; we now are accepting PayPal as a convenient way for many of you, particularly those on the ice, to pay your membership. We hope that this may result in us getting new memberships from those who no longer do business the old fashioned way, by checks. Be sure to read the article that follows in this Newsletter.

There seems to be a proliferation of new books coming out on Antarctica. One of our members, Jason Anthony, has come up with a very interesting book on Antarctic food, HOOSH, which is reviewed later in this newsletter. Jason has gotten great publicity for his book, with the New York Times Book Review for December 2nd giving him very high honors. He is also working both sides of the streets appearing on radio talk shows, speaking at book reviews in public libraries' et cetera We went to one of his presentations where he brought some of his own home-made cookies from a recipe of Amundsen's. The book is much, much better than Amundsen's cookies, believe you me. Another book came out recently, although we have not seen or read it, it's Gabrielle Walker's "ANTARCTICA: AN INTIMATE PORTRAIT OF A MYSTERIOUS CONTINENT" by Houghton Mifflin Harcourt.

The American Polar Society is hosting a Symposium on The Polar Regions in the 21th Century: Globalization, Climate Change and Geopolitics, to be held 15-18 April, 2013 at the Marine Biological Laboratory at Woods Hole, Massachusetts. The keynote speakers are going to be the distinguished National Medal of Science honoree, Lonnie Thompson of The Ohio State University, and Paul Mayewski, director of the Climate Change Institute at the University of Maine. Those who are interested in details should go to the APS website (americanpolar.org), where they can link up with the MBL website to find out about pricing, travel, housing, and eating. Or if you have a specific question, call (508) 289-7214.

MISTER WAKIMOTO GOES TO.....ARLINGTON. There is a new man on the streets in Ballston who will have as his responsibilities a directorate which includes polar sciences. His name is Roger Wakimoto, and he is coming to NSF from the National Center of Atmospheric Research (NCAR) where he has served as its director. He is leaving NCAR's beautiful bucolic hillside campus in Boulder where deer graze at will for a subway existence in a heavily populated

crowded major intersection of Arlington where screeching sirens of police cruisers, fire engines, ambulances and wreckers mingle with rear-end-collisions and bumper-to bumper traffic. We hope that Roger knows what he is getting into. He is going to serve as assistant director for the Directorate for Geosciences (GEO) where an annual budget of approximately one billion dollars supports core research in the polar, atmospheric, earth and ocean sciences. GEO manages facilities and an academic research fleet, including the newly launched R/V SIKULIAQ and the NCAR-Wyoming Supercomputing Center which was recently dedicated. His background includes a professorship in the Department of Atmospheric Science at UCLA, where he chaired the department. Good luck, Roger, and enjoy the commuting.

PRESIDENT'S LETTER

(Charles Lagerbom)

With 2013 off like a rocket, I would like take this opportunity to thank you for the support you have given me as your president for the past four years. As the final year of my term begins, I would like to update you on some of the exciting things going on with the Antarctic Society.

The society website is ever-expanding and our webmaster constantly adding new content. Please check it out at (<http://www.antarctican.org/>). It is truly becoming the crown jewel of the Society. The slide scanning project has also grown by leaps and bounds since we started it nearly six years ago. The Society has undertaken this job to help preserve the Antarctic images from our members' time down south. And we have been gratified by the response. We have cataloged and scanned over thirty collections totalling nearly twenty-five thousand images. Saved for posterity, these images have been converted into a more modern digitized format with the original slide and digital copies being returned to the owner. As the overall collection grows, many are appearing on our society webpage and more will be forthcoming. The Society has also become home to some of our members'

complete polar collection of books, slides, photos, correspondence, maps, flags, clothing and other memorabilia. When a member no longer is interested, able and/or willing to hold on to their polar collections, they have turned to the Society. We have provided a secure, environmental-friendly repository for those items. When they arrive, the collections are cataloged, preserved (if necessary) and then stored in archive-safe files, folders, binders and bins. If anyone is interested in taking advantage of the slide scanning project and/or the collection repository, please contact me.

Another bit of Society news is that the Antarctic research vessel HERO has been featured in the November issue of Portland Magazine. You can download a PDF of the article at: (<http://www.portlandmonthly.com/pdf/Working-Class%20Hero.pdf>). She is currently in pretty sad shape, sitting in the mud at Bay Center, Washington. I was contacted about it by Portland Magazine and we discussed the possibility and potential if the vessel could be purchased and returned home to Maine for preservation and display. Some contacts have since been initiated, people approached and interest expressed in this project. If you too are interested in the HERO and these developments, please send me your contact information and I will keep you in the loop.

WEBSITE UPDATE (Tom Henderson)
Our website continues to post unique material that is often not available anywhere else. Examples include Bert Crary's status reports from the IGY (contributed by Guy Guthridge) and Patrick "Rediron" McCormick's memoir of his experience building McMurdo and South Pole Stations as a Navy Seabee. The latter is the most viewed document on the website over the past six months.

Another recent post is an excellent two-part article on the contribution of the reliable Ferguson farm tractor to Antarctic exploration. It was originally published earlier this year in "Ferguson Furrows," the magazine of the Ferguson Enthusiasts of North America

(FENA) organization. FENA has graciously allowed our Society to make the article publicly available on our website. It is a detailed and lavishly illustrated story of Ed Hillary's use of Fergusons in his historic traverse to the South Pole as part of the Commonwealth Trans-Antarctic Expedition, 1955-58. Don't miss it.

We have posted Bob Benson's personally narrated film based on footage that he shot during the first winter at Amundsen-Scott South Pole Station in 1957-58. The film includes excellent shots of the famous incident where a caterpillar tractor was dropped from the air at Pole but the parachutes failed to open. What an impact!

We have also posted original film footage from the 1939-41 United States Antarctic Service Expedition (USASE) recorded by expedition member J.F. Ruttle. His grandson, Matt Oppliger, graciously made this film available to the Society. A portion of it was used in the official USASE film, but the majority has never been publicly viewed – until it was posted on our website. The most recent addition has been Dr. Ed Robinson's personally narrated film on the 1957-58 Ross Ice Shelf Traverse which includes Ed's own motion picture footage. This film appears nowhere else.

Finally, if you haven't visited the Time Trek application on our website recently, take a look. In the past six weeks, 532 events have been added dating from 1958-84 and 142 historical stations and bases have been added. There is much left to do, but this is a big step toward making Time Trek an invaluable resource for Antarctic history. So visit the website often. You never know what will appear there!

PAY BY CREDIT CARD!

Antarctican Society members can now pay for their annual memberships by credit card through our website, www.antarctican.org! Simply go to the About Us page where you will

find a PayPal option. Here is the procedure for using the option:

1. On the About Us page of the website, under “Membership,” you will see a PayPal “Add to Cart” button with a drop-down window. Click the down arrow on the right of the window to see the options for membership. Click on the option that fits your circumstance so that it now appears in the window.
2. Click the “Add to Cart” button, which will take you to the PayPal website page for the Antarctic Society. You will see your membership purchase item with the amount to be billed shown. If the information is correct, click “Check Out.” If the information is not correct, click the “Remove” shown beside the item and then click “continue shopping” when it appears, which will take you back to the Antarctic Society website to make another selection.
3. If you have clicked “Check Out,” it brings you to a new page. If you have a PayPal account, you can enter your password on this page and continue to pay through that account. If you wish to pay directly by credit card, click “Don’t have a PayPal account?” (lower right).
4. If you are paying by credit card, you will now see a new page where you will enter your credit card information. Fill this out and then click on the “Review and Continue” button at the bottom of the form.
5. Review the summary of your purchase on the new page and then click the “Pay Now” button on that page to finalize the charge to your card.

You may still pay by check if this is your preference. The credit card option is for the convenience of those who feel comfortable in paying online or who may not have a checking account.

A SUBMERSIBLE NAMED DALE ANDERSEN. Once upon a time a diver in the US Navy had a son, and he named him Dale.

A typical military brat, he was brought up in many foreign countries, lived in many states. He was a perfect offspring for a career which was to take him to the Antarctic, as well as the Arctic. As a Hokie from Virginia Tech, he came under the influence of George Simmons, and he worked with him in the Dry Valleys, first in 1978. He recently just came back from his fourth consecutive season at the Russian station Novolazarevskaya where he worked at Lake Untersee, the largest (11.4 square kilometers) and deepest (over 170 meters) freshwater lake in East Antarctica. He leads a team of scientists conducting a series of studies aimed at describing the physical, chemical and biological aspects of the lake, and to sample the microbial life found in the lake’s water column and bottom sediments. As far as Dale knows, this is the only location on Earth where, in a modern ecosystem, large conical stromatolites are formed as they did billion of years ago on early Earth. This whole study program is most unique in another aspect, it is all PRIVATELY funded, and Dale has to go out and beat the bushes between seasons so that he can continue this very interesting and important research. The good part is that the money can be uncovered for the logistics, the bad news is that he himself is not getting wealthy. But he appears to be as happy as a clam at high tide, particularly being able to go back to the Arctic in our summertime, where he has also worked for the past 17 years. Even though he is now 57 years old, he doesn’t appear to be slowing down or even thinking about retirement.

Dale had an eventful return from Lake Untersee, evidently riding shot gun on Santa’s sleigh, landing late Christmas Eve at his home in Lake Placid, where his Russian wife Sasha and daughter Masha, plus Siberian pup Nikita awaited him. But shortly thereafter bad things started to happen. Nikita, who was born in Inukjuak, just off Northern Hudson Bay, came down with a very aggressive form of acute lymphoblastic leukemia, and Dale lost his wonderful companion of nine years. Shortly thereafter Dale awoke early in the morning with abdominal pains, he had developed acute

appendicitis, four weeks after leaving Lake Untersee . Incidentally, Dale met Sasha on the FEDEROV back in 1990 when he was on his way to work at Bunger Hills. Could it have been part of a cultural East-West Exchange Program , sure sounds like it?

SCIENTIFIC BREAKTHROUGH ON WHILLANS ICE STREAM (NSF) In late January 2013, scientists and drillers with the interdisciplinary Whillans Ice Stream Subglacial Access Drilling Project (WISSARD) announced that they had successfully drilled through 800 meters (2,600 feet) of Antarctic ice to reach a sub-glacial lake and retrieved water and sediment samples that have been isolated from direct contact with the atmosphere for many thousands of years. The samples may contain microscopic life that has evolved uniquely to survive in conditions of extreme cold and lack of light and nutrients. To obtain the samples, they had used a customized hot-water drill.

WISSARD targeted a small lake (1.2 square miles in area) where several lakes appear linked to each other and may drain to the ocean, as the first project to obtain clean, intact samples of water and sediments from a sub-glacial lake. The achievement is the culmination of more than a decade of international and national planning. There are 13 WISSARD principal investigators representing eight different U.S. institutions. The interdisciplinary research team includes groups of experts in the following areas of science: life in icy environments, led by John Prisco, of Montana State University; glacial geology, led by Ross Powell, of Northern Illinois University; and glacial hydrology, led by Slawek Tulaczyk, of the University of California, Santa Cruz.

The WISSARD team will now process the water and sediment samples in hopes of answering seminal questions related to the structure and function of sub-glacial microbial life, climate history and contemporary ice-sheet dynamics. Video surveys of the lake floor and measurements of selected physical

and chemical properties of the water and sediments will allow the team to further characterize the lake and its environs.

A team of engineers and technicians directed by Frank Rack of the University of Nebraska-Lincoln, designed, developed and fabricated the specialized hot-water drill that was fitted with a filtration and germicidal UV system to prevent contamination of the sub-glacial environment and to recover clean samples for microbial analyses. The numerous customized scientific samplers and instruments were carefully cleaned before being lowered into the borehole through the ice and into the lake.

TWIN OTTER CRASHES ON MT.

ELIZABETH. (Extracted from several issues of the Christchurch Press, forwarded by Margaret Lanyon) As this terrible tragedy has been given wide-spread publicity, probably all of you are very much aware of how one of Kenn Borek's planes, a Twin Otter, flew into Mt. Elizabeth, about half-way from the South Pole to McMurdo Sound, on January 23rd. A former general manager of the airline was monitoring the plane's flight on a computer, "detected it flying at just under 4000m, dropped to 2700m, then climb back to its former height travelling at 140 knots, before suddenly recording zero speed." He, Steve Pennikett, said that it was his candid opinion that the aircraft flew into the rocks.

Two rescue helicopters reached the site three days later, but a landing was not possible. The wreckage was spotted lodged in the side of a cliff on the mountain. Field teams were able to land close to the crash site on the fourth day, and they recovered some equipment from the plane's tail, including the cockpit voice recorder. However "it was too treacherous for the field teams to access more of the wreckage which was largely embedded in snow and ice on a steep mountain slope".. Poor weather forced the search to be called off until next season, sometime in October. The three men on board, all Canadians, were undoubtedly killed in the crash, and it was not possible to extract their bodies at this time. The pilot of

the plane was Bob Heath who has been flying in the polar regions for Kenn Borak Air since 1991. As we go to press, we have not heard anything relative to the contents of the cockpit voice recorder, which should provide crucial insight into the moments leading up to the crash.

HOOSH: A Review by Charles H. Lagerbom
Jason Anthony's *Hoosh: Roast Penguin, Scurvy Day, and Other Stories of Antarctic Cuisine* University of Nebraska Press, 2012, 288 pages. Jason Anthony's new book, *Hoosh* is a wonderful journey through the history of Antarctic exploration uniquely viewed through the lens of food, cooks, provisions, preparation, nutrition, privation and even starvation.

In the early 1990s, I spent a field season high in the cirques of the Asgaard Mountains overlooking the Labyrinth of Upper Wright Valley. A team of three, we kept a pot of food going for over two weeks. We jokingly called it "who-hash" since who knew what was in it, as we ate from the pot at mealtime and then kept the leftovers to be used as a base from which to add other ingredients for the next meal. We added meat, noodles, rice, sauces, powdered juices etc depending on its consistency, too stiff or too liquidy. Pretty much anything went. We reasoned it was easy to reheat, as filling/tasty as we wanted it to be and did not need to be cleaned while in use. Little did I know that our culinary experiment would be yet one more of many stories, illustrative of Anthony's larger narrative of the cuisine history of the continent. He weaves our who-hash into a larger statement about the importance of food, its novelty, its creativity, its necessity and its variations throughout the history of Antarctica. 'Local' cuisine is exhaustively covered such as meals consisting of penguins, whales, seabirds, seals and so on, especially in the early 'heroic' days. Anthony adroitly covers such topics as scurvy, starvation and other nutritional deficiencies while highlighting cooking successes, tragedies, trials and triumphs many of which rendered the cook, chef or messmate involved either heroic or sometimes even villainous.

While the stories of the early days were well described and interesting, I found even more fascinating the modern era when food became not so much just a survival necessity but in addition one of the rather limited ways to make the entire Antarctic experience manageable, enjoyable and memorable. In fact, the author weaves the culinary history of the continent into the larger idea of what Antarctica means to those who have experienced it. He identifies that Antarctica itself is the great white menu that feeds those who go there, yet he also suggests that that contact only makes us hungrier for its beauty after we have left. I think most of us would agree.

The striking cover photo of two men about to butcher a seal sets the tone for this enjoyable read that is well worth your time. The many illustrations lend credence to the centrality or importance of food to all the Antarctic expeditions and visiting personnel. Fifteen pages of notes as well as a lengthy list of selected resources help for further information. One appendix highlights a *Hoosh* timeline/ expedition chronology while another offers some selected creative recipes of the 'local' cuisine. For a fresh perspective through a unique prism, Jason Anthony's *Hoosh* has successfully captured the 'flavor' of Antarctica.

ORDEAL BY ICE – SHIPS OF THE ANTARCTIC by Rorke Bryan, Sheridan House, New York, 2011, Reviewed by Steve Dibbern

Rorke Bryan has done a great service for all of us who are interested in Antarctic history. He has taken the sometimes minimal information out of the addenda of explorers' books and brought it forward to present a thorough history of the ships that allowed those explorers to accomplish (sometimes) their projects. Some were famous such as the *Endurance*, *Terra Nova* and *Discovery*, but many remained as anonymous footnotes in history books.

He starts with the earliest approaches to the continent including some expeditions I had no idea about, for example; Zheng He's early 1400 voyages. Bryan goes on through virtually all of the early probes toward Antarctica and supplies detail about the construction, physical statistics, and operational capabilities of each ship.

This attention to detail is followed through the historic periods, whaling, science support, ice breaking and into tourist ships. Indeed it is the chapters that cover the twentieth century that really excited me. Some of the ships discussed had no business near ice much less **in** it! Many expeditions could not afford the luxury of either purpose built ships or even used polar ships. Byrd's *Eleanor Bolling* and *Jacob Ruppert* land in this category. It is obvious from the text though that he has respect and affection for his subjects. Reading between the lines (and the back flap Bio) the reader becomes aware that Mr. Bryan has spent time on some of the later ships. He is a British Antarctic Survey veteran.

Ordeal By Ice is also a very attractive book as it is lavishly illustrated containing diagrams of hull cross sections, fine maps and lots of color pictures. There is an extensive bibliography and it is well indexed. All of this means that it is an attractive treasure trove for the Antarctic history buff. It is also attractive enough that it will hopefully pull in a few Antarctic neophytes and give them the bug. A great book to either read from cover to cover (as I did) or use as a reference (which I do).

UNSUNG KIWI ANTARCTICAN HEROINE RECOGNIZED. A young New Zealand lassie returned to her homeland in 1963 after a tour of duty in Canada, and she immediately applied for a position in the Antarctic office at Harewood. Although the position was only a summer support position, it seemed that it had potential for growth and longevity. She, Margaret Lanyon, ended up as an assistant to Walt Seelig in his role as the NSF Representative in New Zealand, and they made a truly great team beloved by all

personnel going through Christchurch to McMurdo. She even outlasted Walt, and continued onward in her position until her retirement in March 1999. Looking back on those days, Margaret says that they were "great years, great challenges."

But whenever olden Antarcticans gathered to relive their glory days on the ice, invariably they reminisce about what great times they had going through New Zealand and often they would recall what a great person Margaret was, how she greased their wheels to make their Antarctic transition one of less strain and pleasant memories. So much so that a bunch of us ancients and hopefully honorables decided that we should invite her to an Antarctic gathering here in the States. The site was picked, my hideaway on mid-coastal Maine, and invitations went out to many who had enjoyed the hospitality of Kiwis and still had a love for seeing Margaret at least one more time. Margaret was thrilled that so many who knew her in yesteryear still had a desire to see her again, and seriously considered coming to Maine. But her wish was tempered by her relatives and friends who thought that the trip might be too much of a physical strain on her, and in the end they prevailed upon her to send her regrets.

However, once you have the people, once you have made plans, we went ahead and had a party anyway. We had over a hundred people. The likes of Charles Swithinbank from Cambridge, England, the likes of Michele Raney from Balboa Island, California, the likes of Bob Dodson who is one of the few living survivors of the Ronne Antarctic Research Expedition, the likes of Polly Penhale who has occupied about every chair in the Office of Polar Programs at NSF, the likes of Tony Gow, honored recipient of the Seligman Crystal for his outstanding research on ice cores, the likes of George Denton who has followed his ice axe to most glaciated regions of the world, the likes of anaesthesiologist Warren Zapol who knows all about the behaviour of diving mammals, the likes of Charlie Bentley who occupies the Bert Cray

Chair at the University of Wisconsin, and even scientific giants like Lou Lanzerotti from Byrd and Siple stations who now serves his term as a presidential appointee to our most prestigious National Science Board. And the list goes on even to include such prominent youngsters as Liesl Schernthanner who has spent over a dozen seasons at the South Pole.

The Gathering honoring Margaret started off with Kiwi-born Tony Gow reading some words from Margaret to the audience in a converted garage theatre. In the beginning she directed the people “during the next few days you will be given the opportunity of sharing many of your memories and experiences in an atmosphere of warm friendship and learning “ Then she ended her words to the audience “For my part, I’ve always felt it was a privilege to earn a living doing something I enjoyed. The very special group of men and women with whom I worked over many years of involvement with the Antarctic program made that possible.” The rest of the day honoring Margaret was spent with many from the audience talking about their experiences and memories as Margaret had suggested. The first speaker was Karen Ronne Tupek who spoke about four generations of the Ronne family going to the ice. Probably the highlight of all the presentations was from Dale Andersen who had recently returned from still another season at the Russian base of Novolazareyskaya.

The following day, there were more exchanges of memories, mostly on a one on one basis. And we ate, and how we ate. The first evening we had haddock chowder by the best seafood chef in town. The next day we consumed both crabmeat and lobsters rolls, while Dick Cameron, David Marchant, and Charles Lagerbom manned the grill for those meat eaters. And the grill was still fired up the next day, although the main meal featured hot boiled local lobsters. Then it became time to take the bottles and cans to the redemption center, and to clean up the place.

In the ensuing weeks, various people sent in their pictures. One, Rob Flint, sent in a wonderful photo-book of his artistry with the camera. Before he left Port Clyde, Eagle Scout Mark Leinmiller uploaded all of his pictures onto our computer. And it did not take long for us to realize that we could put together a special photo book for Margaret. So much of the fall was spent collecting photos from others, including some from an old friend of Margaret’s, Chris Shepherd, who was not at the Gathering. Then the very best were pulled aside for the making of this special photo book, and we ended up with a volume of 100 pictures, plus an Antarctic map showing Lanyon Peaks (thanks to Pete Bermel) and a recently written Antarctic poem, BACK HOME, by the versatile Dick Cameron. Charles Lagerbom rushed over here one evening, and we put it all together sending it off so that it would reach Margaret before Christmas. It arrived there two days before!

However, we weren’t very proud of our hurried first edition, so we came up with a new version. Margaret received this one on January 26th and emailed back “The pearlised effect on the cover is stunning and it is certainly a handsome looking book. You’ve all worked tremendously hard to ensure the success of the publication, clearly driven by so much affection, combined with many fond memories. I am truly honoured to be part of it. What else can I say but thank you and warm regards to you and all my good friends.”

This picture book is named “Margaret Lanyon, An Appreciation.” It is eight inches by eight inches, some forty-one pages. There are a hundred pictures, seven of which include Margaret. Several of our friends, twenty-six to date, have said that they want copies. Even though the book is a tribute to Margaret, the rest of the photo-book is of her friends, people like you and me. If you are possibly interested, just let us know

WE ALL SURVIVED THE BLIZZARD OF 2013! HURRAY FOR US!



The Antarctic Society

VOLUME 12-13

MAY

NO. 3

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WEBSITE UPDATE (Tom Henderson) The biggest news pertaining to the website is that Society members can now pay dues and purchase Society items directly on the website using PayPal. PayPal is one of the leading online payment handling companies. The Society pays PayPal a small fee per transaction, but we feel it is worthwhile to offer this as a convenience to our members.

Dues may now be paid on either the About Us page or on the Membership Renewal page under the Membership tab. The new Society Store page under Members offers the Newsletter Archive CD and the Antarctica Calling 3-DVD set for purchase by credit or debit card. More items will be added to the Society Store in the future.

Look for two new films under Pack Ice within the next couple of months. Both were sponsored by NSF in the 1970's and 1980's to highlight scientific activity in Antarctica during that period. You might recognize a few science veterans such as George Denton and Art Devries in the early stages of their careers. These are professionally made films, and are well worth a look

As always, I welcome any comments or suggestions pertaining to the website.

MEMBERSHIP. We now have a total of 332 members, 116 of whom now get their Newsletters via electronic means. Recruiting members is one tough job, most of whom come by word of mouth from you members. So if you enjoy the Newsletters and being a member of our Society, please spread the word among your Antarctic friends. In the last eight months, we have only picked up nine new members.

The Ruth Siple Book Fund has remained a popular charity, and we have picked up over \$300 in the past four months. We have sold four of the Amundsen-Scott Medallions, three have bought Dr. Ed's ANTARCTICA CALLING, and two have bought Tom's CDs of Newsletters. Those of you who renew for multiple years sure help us who do the bookkeeping. Roughly 50% have paid through next year. Right now we have fifty-five delinquent members who have not paid for the current year. If you are one of them – a notice will be included with this issue- please pay up. We DO NOT have a staff, this being primarily a one person operation.

Our treasury is quite healthy, so we don't beg for money, just ask you folks to pay your annual membership fees. And when we sell anything, such as the calendars, there is hardly any mark up at all. But recently we got stuck for several hundred dollars by one of our older members who refused to pay for thirty calendars which he had ordered from us. So all is not always roses.

BRASH ICE. On 20 March, George Lowe, world famous mountaineer, who led Ed Hillary and Tensing Norgay to the final footsteps of Mt. Everest, succumbed as the last surviving member of that most iconic expedition. Travel writer Jan Morris described George as “a gentleman in the old sense –very kind, very forceful, thoughtful, and also a true adventurer, an unusual combination.” But I want to hark back to January 19th, 1958, when George dropped in at the South Pole with Bunny Fuchs and his Commonwealth Trans-Antarctic Expedition. It was my most exciting day ever in Antarctica, so allow me to repeat some of the images which I was privileged to witness and live when the Crossing Party was at our station. My memories of today of what happened fifty-five years ago are as clear as if they had happened yesterday.

Early on the morning of the 19th, Ed Hillary and I climbed up the ladder into the aurora dome to see if we could see Fuchs’ party coming into camp. Note that Sir Edmund had been long enough in camp to be recognized as just plain Ed. And it was Ed’s first ascent of the day, a few feet above 9,000’! Soon we saw images on the horizon, images which kept disappearing, only to reappear. Hitherto I thought the surface at the South Pole was perfectly flat, but it turned out there was a series of valleys and hills!

The camp turned out en masse to go outside of the station to meet Fuchs’ party. There was a galaxy of press there awaiting their arrival, and there was the American admiral on the ice who most of us could not tolerate. So they came, one by one, and among the leaders was George Lowe in Wrack and Ruin, a weasel with Donald Duck on its radiator capsule. And who is driving with a big grin on his face but George, wearing a large white Panama-style hat which he had bought in Madera. Wrack and Ruin was George’s code name, as each member of the expedition had a code name in case the press pirated any outgoing messages. Besides George’s weasel, there were four Tucker snow cats and two dog teams. Ken Blaiklock, who had logged more miles behind

dogs than any Antarctic in history, surrendered his team to one of our meteorologists, Art Jorjensen, who then drove his team on into camp. Everyone was trying to get a picture of Fuchs and Hillary together, as after all, this was the first EVER meeting of the two Crossing Party leaders at the South Pole. Somewhere up above, the Boss had to be eating his heart out. Once in camp, it was finally time for Fuchs’ party to have a home cooked meal. Our Navy chef had prepared a large special arrival cake honoring the Trans-Antarctic Expedition, but, alas, the final product showed Antarctica spelled incorrectly!

I was most anxious to talk to all members of Fuchs’ party, as once upon a time I was married to a British subject. As I had a tape recorder, I more or less interviewed all members of the expeditions, in a format of “Letters to Gina.” [Note: these interviews are on our website]. Although never a mountaineer, I had once worked at the Mt. Washington, N.H. Meteorological Observatory, and I had seen back in the States at the Exeter Theatre in Boston (a block from the 2013 disastrous Marathon bombing) the great documentary THE CONQUEST OF EVEREST shot by George Lowe. When Hillary and Lowe got back to London from the Everest Expedition, they went to J. Arthur Rank to see what they would pay them for their film footage. The answer was a thousand pounds, which, they naturally rejected, deciding to produce their own film, which as nearly all of you know won out that year as the Best Documentary Film. And it had real stiff competition from The Crowning of the Queen and a Walt Disney film, The Living Desert. George told me that they used about one in seven feet shot on the expedition, although about 99% on that shot on Everest. George told me that he had never used a camera before, and said that all he did was set the camera on his ice axe and shoot!

Their last evening in camp, we played some auction bridge. George was my partner, and our opponents were Ralph Lenton and Ken Blaiklock. Ralph had already wintered over

eight times, the most of any person at the time, and Ken held the record at the time for most miles driving dog teams, 5000 miles. Lowe and I were thoroughly trounced in three rubbers in what I still think were major upsets. It was not the last I saw of these folks, as later on I was best man when Ralph Lenton got married to a Canadian lady in NYC. Then when Ralph died a fortnight ago, I got a call from his widow Helen asking if I could find out if Ralph could be buried at the South Pole. I told her that Peter Wilkniss was a friend of mine, that I would see what could be done. Well Peter said "Sure." And it turned out that Anthony Lenton, one of their sons, working for the Antarctic contractor, took his father's ashes back to the South Pole. Did I ever see Lowe gain? As a matter of fact, I did, when George and Mary were going to Berwick, Nova Scotia, to visit Helen Lenton several years ago, they stopped here at my home in Port Clyde to visit with me. And as for Blaiklock, he is still alive and evidently doing very well. Until very recent years, Ken has been continuing to go back to the ice with the British Antarctic Survey.

Gone are the days. GOD BLESS 'EM

NSF RESPONDS TO THE 2012 REVIEW OF FUTURE WORK IN ANTARCTICA (Guy G. Guthridge) The Society's November, 2013 newsletter summarizes a report titled *More and Better Science in Antarctica Through Increased Logistical Effectiveness* that a blue ribbon panel headed by Norm Augustine issued last July. In March, 2013 the National Science Foundation put out a response to the report's recommendations. See <http://www.nsf.gov/dir/index.jsp?org=OPP> for both the response and the original report. Here's a rundown of the NSF response.

1. Stations. NSF agrees that the three year-round U.S. Antarctic stations – McMurdo, South Pole, and Palmer – should continue and that no alternative exists to McMurdo as an operational hub for much of the U.S. Antarctic Program.

2. Polar ocean fleet. NSF is working with other agencies to figure out the government-wide need for icebreaking. The Coast Guard has asked Congress for first funding of a new polar class of icebreakers, and it is repairing the icebreaker *Polar Star* (built in the 1970s) to cut the annual McMurdo channel this coming season and for the next 7 to 10 years. A 2012 science-needs assessment has led to a lease-buy analysis now being done regarding a research icebreaker. A "roadmap" for international sharing of resupply in the Antarctic Peninsula area is to come later this year.
3. Logistics and transportation. NSF will add robotic technology to the McMurdo-Pole resupply traverses, and it hopes to up the number from two to four per season by fiscal 2016, saving \$2-million a year. The improvement also should benefit traverse-based research. With DoD, NSF is studying the panel's recommendation to reduce the operational LC-130 fleet from 10 to 6 and to compact a snow runway at South Pole so wheeled airplanes can land there. A complication is that higher surface air temperatures at McMurdo's Pegasus wheeled runway have limited operations in December and January in the last three seasons; wheeled flights between New Zealand and Pole would require Pegasus as a waypoint.
4. McMurdo and Palmer facilities. Facilities at both stations are aging, and the panel states that upgrades would reduce costs and increase effectiveness. NSF is finishing a master plan for McMurdo that addresses most of the recommended large investments. Fire suppression at all stations will be studied in fiscal 2014. A Palmer systems study was released in 2010; NSF has improved boating facilities there and will replace the pier when it gets the money.

5. USAP capital budget. The panel says NSF should set up a capital plan and budget to handle the cost of big repairs and replacements. NSF agrees and now has a long-range investment plan to give a view of outlays and inflows over a rolling 5-year period.
 6. Science support costs. The panel wants NSF to strengthen review (before authorizing specific Antarctic research) of all the costs of supporting research instruments, observing systems, and projects. NSF agrees. With the Antarctic support contractor and an expert, it is developing a model to better predict cost impacts. It will expand pre-deployment testing of new technologies. It has rewritten proposal instructions to require best practices in project management and simplicity and reliability of instruments. And a new employee, the Antarctic Research and Logistics Integration Program Manager, will make sure plans are in place before an award is approved. Starting in fiscal 2014, NSF will spend \$4-million a year on science instruments that reduce the human footprint in the Antarctic.
 7. Communications. In another way to get better science with reduced footprint, the panel wants NSF to modernize communications in Antarctica and the Southern Ocean. NSF now can provide high bandwidth to all field sites, although not continuously. Filtering and compression are used for the data-intensive projects. NSF finds that, for the foreseeable future, cost-effective solutions will use satellites retired from other uses.
 8. Energy efficiency. The panel points out that energy efficiencies and renewable energy technologies will reduce costs. NSF notes significant strides. It used 30 percent less fuel at South Pole during the 2012-2013 season. On Ross Island, NSF and Antarctica New Zealand hope modernized infrastructure will reduce demand enough that the existing 1-megawatt wind turbine system will be enough to power most of McMurdo and Scott Base. This year the Antarctic support contractor expects to finish a study of using U.S. Antarctic Program wastes to heat station buildings.
 9. International cooperation. The panel wants more international cooperation in both logistics and science. NSF already engages extensively with other national programs, and it is looking to expand arrangements in the Ross Sea and Antarctic Peninsula areas. It also will continue to work with international partners for data sharing to facilitate more efficient science.
 10. Antarctic policy. The panel recommends that existing documents and mechanisms governing Antarctic policy be reviewed and revised as appropriate. NSF notes that current directives – Presidential Memorandum 6646 and Presidential Decision Directive NSF-26 – provide the appropriate level of authority and guidance, and it says the Department of State at present sees no need to revise them.
- An NSF “Tiger Team” – senior leaders of the agency – developed these responses, and the National Science Board endorsed them. Of course, some of the panel’s suggestions will take money, and NSF will have to make its case to the White House and the Congress. Nevertheless, the NSF Director wrote that the panel’s report “could not have been more timely” and that it makes very clear the need for near- and long-term improvements.

The Committee on “Future Science Opportunities in Antarctica and the Southern Ocean” members included:
 Warren M. Zapol, (Chair), Harvard Medical School and Massachusetts General Hospital, Boston, Massachusetts

Robin E. Bell, Lamont Doherty Earth Observatory, Palisades, New York
David H. Bromwich, Ohio State University, Columbus, Ohio
Thomas F. Budinger, University of California, Berkeley, California
John E. Carlstrom, University of Chicago, Chicago, Illinois
Rita R. Colwell, University of Maryland, College Park, Maryland
Sarah B. Das, Woods Hole Oceanographic Institution, Woods Hole, Massachusetts
Hugh W. Ducklow, Marine Biological Laboratory, Woods Hole, Massachusetts
Peter Huybers, Harvard University, Cambridge, Massachusetts
John Leslie King, University of Michigan, Ann Arbor, Michigan
Ramon E. Lopez, University of Texas, Arlington, Texas
Olav Orheim, Research Council of Norway, Oslo, Norway
Stanley B. Prusiner, University of California, San Francisco, California
Marilyn Raphael, University of California, Los Angeles, California
Peter Schlosser, Columbia University, Palisades, New York
Lynne D. Talley, Scripps Institution of Oceanography, La Jolla, California
Diana H. Wall, Colorado State University, Fort Collins, Colorado

PENN STATE CELEBRATES ITS NEW POLAR CENTER. One is always looking for a lead subject to jump start Brash Ice, and I think we have a most viable subject in the Penn State University and the Penn State Institutes of Energy and the Environment announcing the establishment of the Polar Center at Penn State. The Polar Center will foster creative, groundbreaking, and synergistic collaboration by catalyzing exchange among members with a unique breadth of expertise at Penn State representing the life, physical, and social sciences.

The Director of the Polar Center is Eric Post, Professor of Biology, whose expertise lies in the ecology of climate change in the arctic.

Well known to most of us is the Evan Pugh Professor of Geosciences, Richard Alley, whose accomplishments in glaciology, paleoclimatology, climate change, and glacial geology have made him an Antarctic scientist of international renown. Of particular interest to me is geographer Andrew Carleton, who is well versed in Antarctic meteorology and climatology, polar lows, sea ice, and southern ocean atmosphere circulation. The Polar Center has a professional staff of twenty-nine, with twelve men and women graduate students. Good bye Paterno!

The Polar Center was launched on the 6th of April, 2013 with a series of public lectures, beginning with a talk by Ian Sterling of the University of Alberta on polar bear and climate change. He was followed by poet and arctic traveler Elizabeth Bradfield. Then there was a demonstration of a submersible remotely operated vehicle used in sub-ice research and exploration by pilot Buzz Scott of Oceanswide.

Penn State is not exactly a newcomer to the Antarctic scene, as they have a rather long and distinguished record on the ice. The first was probably Bruce Lieske, meteorologist at Weather Central, Little America V, 1957. It was my pleasure to have wintered over with Bruce that year, although my presence may in part have led him to change professions, as he later became a man of the cloth. But one Penn State meteorologist, J. Murray Mitchell Jr. went on to become a most famous polar climatologist. I have known many, many wonderful persons in my life, but never have I known a nicer, kinder, more wonderful guy than Murray. He was a member of the Polar Research Board of the National Academy of Sciences from 1978-1982 and was a member of the Committee on Polar Region Climate Change from 1979 to 1984. He very well might have been the first Nittany Lion to ever set foot on the South Pole, as NSF sent him there as an early-on VIP.

**COLORADO STATE UNIVERSITY
ANTARCTIC RESEARCHER AWARDED
PRESTIGIOUS TYLER PRIZE FOR THE
ENVIRONMENT.**

Diana Wall, a Colorado State University Distinguished Professor and pioneer in scientific understanding of the role of soil biodiversity in climate change, has been honored with The Tyler Prize for Environmental Achievement on the 40th anniversary of the award. The Tyler Prize is the premier international award for environmental science, environmental health and energy conferring great benefit upon mankind. Previous winners of the prize have included Jane Goodall, Thomas Lovejoy and Edward O. Wilson. Wall was nominated by Daniel Bush, a professor in the Department of Biology and vice provost for Faculty Affairs at CSU. As the winner of the Tyler Prize, Wall will receive a \$200,000 cash prize and a gold medal. The prize honors exceptional foresight and dedication in the environmental sciences – qualities that mirror the prescience of the prize’s founders, John and Alice Tyler, who established it while the environmental discussion was still in its infancy.

Wall, who is an influential figure among environmental scientific policymakers, actually studies some of the globe’s tiniest animals called nematodes, microscopic worms vital to soil nutrition and biodiversity. She has spent 24 seasons in Antarctica where the worms can be studied unhindered by plants and animal life. In 2005, Wall Valley in Antarctica was named for her achievements. Last summer, she and her colleagues wrote a Policy Forum article for Science outlining their concerns that Antarctica is experiencing dynamic human disturbances that have serious implications for the future health of this important ecosystem.

Wall served as a member of a working group of the President’s Council of Advisors on Science and Technology because her studies impact policies responding to threats to the nation’s ecosystems. She was one of only 12 people – and only four scientists – serving on the U.S. Antarctic Blue Ribbon Panel, which

was led by Norm Augustine, retired chairman and chief executive officer of Lockheed Martin Corp. In February 2012, Wall and other members of the team visited the Antarctic’s Palmer Station to help the panel evaluate the future of U.S. research in Antarctica. “I was face-to-face with climate change,” Wall said at the time. “We went to one island where there had been 15,000 pairs of Adelie penguins 30 years ago, and there are only 3,000 pairs now. It’s not only the adult penguins declining, but there are not as many chicks surviving.” “She was an invaluable contributor to the panel’s work because of her strong knowledge of the relevant science, hands-on experience, and real-world understanding of the art of the possible in policy circles...truly a rare and highly valuable combination,” Augustine said. “Our effort would have been much less effective without her input.”

“Diana’s research into the importance of soils and their nutrients is critical to our understanding of climate change, but equally as important is that students are learning from one of the top scientists in the world,” said Jan Neger, dean of the College of Natural Sciences. “She is highly deserving of this very prestigious honor.”

She is one of only 15 University Distinguished Professors at Colorado State, a designation reserved for faculty members who have changed the world around them with their accomplishments.

About the Tyler Prize

The Tyler Prize is awarded by the international Tyler Prize Executive Committee with the administrative support of the University of Southern California. It is one of the first international premier awards for environmental science, environmental health and energy. It was established by the late John and Alice Tyler in 1973 and has been awarded to 66 individuals and four organizations associated with world-class environmental accomplishments. Recipients encompass the spectrum of environmental concerns including environmental policy, health, air and water pollution, ecosystem disruption and loss of

biodiversity, and energy resources. For more information about the Tyler Prize, go to <http://www.usc.edu/dept/LAS/tylerprize/>.

ROSS SEA SET TO BECOME WORLD'S BIGGEST SANCTUARY (Michael Field)

The United States and New Zealand have announced they are planning to create the world's largest marine protected area. The 4.9-million-square-kilometer Ross Sea MPA in Antarctica would be nine times the size of New Zealand. The plan has been announced in Washington by US Secretary of State John Kerry and the New Zealand ambassador to Washington, Mike Moore.

Kerry urged global safeguards. "When it comes to the Ross Sea and Antarctica, we're not going to wait for a crisis to take action" he said. Preserving the world's oceans "is not just an environmental issue, it's a security issue." The US, European Union and 23 other countries including New Zealand will decide in July whether to approve permanent protections for the Ross Sea and for a second area in East Antarctica, or to let large-scale industrial fishing continue. New Zealand is one of the main exploiters of the Ross Sea, taking about \$18 million a year in toothfish. Under the proposal, the toothfish fishery would continue in areas outside the MPA.

ICE MELT AT HIGHEST IN 1000 YEARS

(Christchurch Press, 15 April 2013 forwarded by Margaret Lanyon)The melting of ice on the Antarctic Peninsula during the summer months is now at its highest level for 1000 years, according to research. Scientists have for the first time been able to demonstrate that increasing temperatures since the 1960s have caused 10 times more ice to melt than in medieval times. The finding is one of the most significant indications of the impact of climate change. The Antarctic Peninsula is a 1288-kilometre promontory that extends well north of the Antarctic Circle, from the continental land mass towards the tip of South America. Since the 1860s it has seen the most extreme global warming on Earth, with temperatures rising by about 2.5 degrees Celsius (five times

the global average) and the break-up of several large ice shelves that fringe the peninsula. While temperatures have been rising there since the 1400s, the new findings reveal that the levels of ice melt in that region have been "particularly sensitive" to warmer climates since the 1960s, with summer temperatures now reaching the critical 0C mark at times.

"What that means is that the Antarctic Peninsula has warmed to a level where even small increases in temperature can now lead to a big increase in summer ice melt," said Nerilie Abram, who led the joint research by the Australian National University and the British Antarctic Survey. Abram warned that the increased ice melts will further destabilize ice shelves and glaciers in the area and impact on rising sea levels. Seven ice shelves, floating masses of ice attached to the Antarctic coast, have broken away from the peninsula during the past 50 years because of higher temperatures. "Climate change in the Antarctic Peninsula is worrying because it seems to be happening quite quickly," Abram said. "How much melt is happening will affect how quickly sea levels will rise and that's why it's important for us to understand how much melt is happening, how unusual it is and how in the past the melt has changed when temperatures have changed."

In 2007, the United Nations intergovernmental panel on climate change (IPCC) projected that the global average sea level would rise by 28-43 centimeters by the end of the century. It later acknowledged that this might have been an underestimate. The latest research builds on an experiment conducted by British and French scientists in 2008 when they drilled a 364m-long ice core from James Ross Island near the northern tip of the peninsula. Visible layers in the ice core indicate periods when the summer snow melted and then refroze. By measuring the thickness of these layers and studying the atmospheric gases entombed in the ice, researchers were able to reconstruct the changes in temperature and the amount of ice melt going back 1000 years.

Last September, satellites saw more floating ice surrounding the continent than at any time in history. Two things appear to be causing this. First, warmer temperatures mean more snow falling on the sea (as warm air carries more moisture) and this in turn creates a stable layer of brackish water that freezes more easily. Second, the increased melting of land-based ice pours yet more cold fresh water into the upper layers of the ocean, making it more likely to freeze. Climate scientists say a key to understanding the future lies in getting an accurate record of what has happened in the past.

EXCESS OF ICE MAY NOT BE SO NICE (Paul Gorman) The ozone hole over the Antarctic could be to blame for changes in the breeding patterns of Ross Sea Adele penguins. United States ecologist David Ainley and Landcare Research, Lincoln ecologist Phil Lyver have been on the ice this summer studying the Ross Sea's smallest and most abundant penguins. Ainley, of HT Harvey and Associates in San Francisco, is the driving force behind efforts to make the Ross Sea a marine-protected area. In Christchurch yesterday, on his way home from the Antarctic, he said Adelie penguins were breeding later in their lives than in the past. Comprehensive surveying of the birds at three Ross Sea sites - Cape Royds, Cape Bird and Cape Crozier - over 16 summers had shown some of their vital dates were changing.

The first study of Adelie penguin demographics was in early 1959. "The average age of first breeding has increased from around 4 to 5 years old to 6 to 7 years. It's very interesting. My hypothesis is that it has to do with increasing amounts of sea ice in the Ross Sea region, which has been under way for the last 20 years or so because of the ozone hole."

More ice meant the penguins ended up drifting further away from their traditional breeding grounds, Ainley said. "During the winter, the birds are finding themselves further and further north, so in spring they have to get back south. "There's more ice, and ice is not

smooth, and penguins are hesitant to cross cracks or jump from one ice floe to the next, because of fear of leopard seals. So they can end up being delayed long enough that they miss out on that breeding season."

Despite that, the later first breeding did not seem to be having an impact on penguin numbers. "The Antarctic toothfish industry is removing a major competitor of the penguins - both feed mostly on the Antarctic silverfish - so it's getting easier to successfully raise chicks to a larger size. Ten years ago it had been incorrectly assumed that the Adelie penguin population would decline as the ice grew, Ainley said.

WINDOW OF DAYLIGHT AIDS POLAR MEDICAL LIFT (Deidre Mussen) A mercy mission to Antarctica has successfully evacuated an ill American to Christchurch despite flights stopping six weeks earlier for winter. The person became sick at the United States' McMurdo Station on Ross Island, a few kilometers from New Zealand's Scott Base. Last Saturday, a US Air Force C-17 Globemaster jet flew from a military base in Washington to Christchurch International Airport and headed south the next day to airlift the patient, returning to Christchurch last Monday night. It had a military medical team on board.

A spokesman for the National Science Foundation (NSF), which manages the US Antarctic Program, declined to comment on whether the patient was treated in Christchurch or returned to the United States. According to the US Antarctic Program's website, 143 staff were spending this winter at McMurdo Station. Normally, flights closed in early March. However, the spokesman said a brief window of daylight at McMurdo Station made the flight possible.

BOOK REVIEW: ANTARCTICA, Global Science from a Frozen Continent, edited by David W. H. Walton, published by the Cambridge University Press, 2013, ISBN 978-1-107-00392-7 (Hardback). From Amazon,

\$55.00. This book, authored by fourteen internationally renowned Antarctic scientists, is a must for all people who call themselves Antarcticans. It combines the best of science with chapters on the human aspects of living in Antarctica. Never has a book been published on Antarctica with such a complete coverage of colored photography.

The fourteen authors are the editor David Walton of the British Antarctic Survey who represented the international scientific Antarctic community at Antarctic Treaty Meetings for 14 years and was awarded the first SCAR medal for International Scientific Coordination ; Angelika Brandt of the University of Hamburg, a driving force in the International Census of Marine Life; John Cassano, University of Colorado, who uses autonomous observing system and computer models of the atmosphere to study the weather and climate of the polar regions; Peter Convey of the British Antarctic Survey, a terrestrial ecologist for the past 24 years; Eberhard Fahrback a physicist and physical oceanographer at Kiel University; Lou Lanzerotti, Distinguished Research Professor of Physics, New Jersey Institute of Technology, who has had extensive research experience in Antarctica and with spacecraft instruments, all concerned with studies of the Earth's space environment; Valere Masson-Delmotte, head of a research group at Laboratoire des Sciences du Climat et L'Environnement in France, analyzing ice cores , and has published over 120 papers and books on climate change; Stephen Nicol of the Australian Antarctic Division, a krill expert who became a Program Leader for Southern Ocean Ecosystem Studies; Olav Orheim, glaciologist who was Head of Antarctic Research at the Norwegian Polar Institute and is now Chair of the Board of several Norwegian institutions; Alan Rodger, an electronic engineer with the British Antarctic Survey who leads the interdisciplinary research program at BAS and provides advice to the government on climate change in the polar regions; Lou Sanson, Chief Executive of Antarctica New Zealand, who has been in

environmental management, with oversight of the New Zealand Subantarctic World Heritage Area; Brian Story, formerly of the British Antarctic Survey who is now at the University of Canterbury, developed research programmes on the geological evolution of Gondwana; Colin Summerhayes, Emeritus Associate at the Scott Polar Research Institute at Cambridge University who has lived in the UK, New Zealand, the USA, South Africa and worked in academia, government, and industry; Allan Weatherwax, Professor of Physics and Dean of the School of Science at Siena college in Loudonville, New York, directed ground based experiments in Antarctica, Canada, and Greenland that explores the Earth's upper atmosphere .

Don't let the above litany of the score card of the authors intimidate you, as actually when you get into reading the book it all comes out as not only reasonable but interesting. If I were to have only one book in my house on Antarctica, it would be this up-to-date compendium about the history, geology, biology, climate, human physiology, oceanography, and the space science. As Alan Cooper of Stanford wrote, "This is an excellent review of key multidisciplinary collaborative research and geopolitics in Antarctica involving more than 30 countries addressing global issues." Enough said. If wealthy, BUY.

AUSTIN HOGAN CHECKS OUT. Austin Hogan. A PhD Antarctic via Hokkaido University, worked extensively in Antarctica at the South Pole. He had a varied professional career although was best known as an engineer and geophysicist at the Cold Regions Research and Engineering Lab at Hanover, N.H. Once an editor of Atmospheric Research, he was a Fellow of the American Meteorological Society. Tony Gow remembers him as a person with a very keen sense of judgment in things scientific and that in retirement came back to CRREL at least once a week to learn of new research results of projects in which they were engaged.



The Antarctic Society

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BRASH ICE. We are way behind in getting this Newsletter out to you, as first we waited on what was cooking in Washington, DC with the government, not knowing whether our U.S. stations were going to be put in cold storage sitting out a year of research. Then when they finally decided to bite the bullet and put government people back to work, we sort of sat on our hands awaiting some clever words out of Ballston as to the game plan for the ensuing austral season and wintering-over for 2014. Finally on October 28th there came a press release from NSF on the restoration of the Antarctic research season, which will be our lead story after Brash Ice.

CALENDARS. We are sitting here with a stack of Hedgehog 2014 Antarctic calendars, and need to sell them. These are of the finest kind, featuring the photographic genius of Kiwi Colin Monteath. Wait until you see the spectacular shot on the Wiencke Island peaks near Port Lockroy for January. Fantastic. Actually better than fantastic. February has a real close up of a bunch of emperor penguins, with one chick helping himself at the store. Truly great. And each month's picture has its own beauty. You will probably find your favorite Antarctic site, as I did in June, where the last rays of evening light captures the tips - yes, tips - of Cape Renard. You can have all the calendars you want for \$17.00 each as long as they are shipped within the U.S. For foreign shipped orders, they are \$23.00 Checks should be made out to the Antarctic Society (Box 325, Port Clyde, ME 04855). Please buy, as it is our only sales item for the year, and where we are late into the holiday season, this will be our only sales pitch. Our mark-up is small. If you bought directly from Hedgehog, you would be paying \$23.00, so our price of \$17.00 is quite reasonable.

NOMINATIONS. Forthcoming changing of the guard. Next year we have many officers and board members leaving with new replacements taking over. It is going to be pretty much of a clean sweep, and we already have found a most capable replacement in putting the newsletter together. So we have to have a new president, vice-president, secretary, and Board. If any of you want to be an officer or on the Board, please let us know. Or if you want to nominate anyone, again please let us know. I am assuming that I will stay on as the treasurer, that Tom Henderson will stay on as our webmaster, and that Charles Lagerbom will continue his polar scanning.

Right now Tony Gow is our Vice President and he needs an auxiliary to his life beside Civil War battlefields. Besides he has recently lost his most beloved dog, McFee (although six year old Lily has recently moved in with the Gows.) Tony seems a most logical choice to move into the presidential shoes for the next five years, but the position is open. I am always in favor of those who work for our society inheriting positions of leadership.

I know Art Ford has always been a source of help in keeping us up to date with news items. I have long been championing new young blood, and there is no one finer than Liesl Scherthanner, who somehow must be brought into our society in a prominent position. We trust that our foreign correspondent from Christchurch, Margaret Lanyon, will continue to be our eyes and ears in New Zealand. And we need the continued support of Polly Penhale, Jerry Marty, Lou Lanzerotti, Scott Borg, Billy-Ace Baker and others who help us materially.

MEMBERSHIP. We total around 330 members, which is where we have been for the past five or six years. Our main problem, which other organizations (such as ours) share, is how to recruit the new crowd now in Antarctica. We have tried various new methods to get them interested, but have not really had any great success. Maybe we aren't using the right kind of bait. But it could be that the cadre of Antarcticans today are not as much interested in the continent itself as they are in it being their work place. If anyone has any ideas about how we can get the current people interested in us, please let us know. We may be facing a dilemma in another decade when the crowd which joined us after the IGY and Deep Freeze start dropping dead. Right now our salvation appears to be our website. Our webmaster is top drawer, keeping it up-to-date on a weekly basis, and it does bring in some new members. But we need more. **HELP.**

TREASURY: Our society has been stable ever since Carl Eklund put out an elephant heel

to collect door fees for those attending our baptism meetings in our early beginning. We have never had to go begging for operating funds, and our modus operandi should mean that we will continue to operate for ever more on what has gotten us this far. There are no plans on raising our dues in the foreseeable future, as right now we are breaking even while paying the minimal costs of the website, the raw costs of the scanning equipment, and the continuation of our charity, the Ruth J. Siple Library at the Amundsen Scott South Pole Station.

We are not very tolerant of delinquent members, and if one does not pay up in a current year, after getting several notices, we open the door and push the person out. And it does not matter who the person is, as our policy is to keep the society for only those who cough up our minimal dues. However, we do ask, actually beg, you all at membership time – January- to renew for multiple years. We don't have a staff, it is more like a one-person deal, and believe me, it helps a lot to that person - me - if you do renew for over a year. Right now over half of our members have already paid for next year. Thanks.

In the past year, your treasury sent a four digit check to the Christchurch Red Cross Earthquake Fund

RUTH J. SIPLE MEMORIAL LIBRARY

We weren't certain just how it would all work when we started up this charity. In the beginning we thought that our society might have to bankroll its continuation, and we set it up so that we could support it if needed. But I am most happy to say that the many Ruth lovers and old Polies in our membership have supported it so handsomely that it is self-supporting. As I write this, our president, Chip Lagerbom, and I are heading to a commercial mailing establishment this weekend to send off forty books to the South Pole. We are indebted to both Chips and Ken Moulton for sending many books from their own personal libraries to the South Pole. Each book has a label inside showing its donation from the

society. According to Liesl, veteran of thirteen summers at the Pole, the books are being used. As we write, Jerry Marty is en route to the South Pole, and hopefully when he comes back he can tell us if many of the books have walked out. Those which we call classics, are under lock and key. Please continue to support our charity when you get your membership notice.

ANTARCTIC MUSIC. SINFONIA

ANTARCTICA/Scott of the Antarctic. , ISBN 978-1-9906310-18-9. Polar music by Ralph Vaughan Williams together with rare archive audio from the heroic age of British Antarctic exploration, including two recordings by Sir Ernest Shackleton and two songs in tribute to Captain Robert Scott. Features the voice of Sir John Gielgud, The booklet includes detailed recording notes and archive images. The six pieces include Stanley Kirby's TIS A STORY SHALL LIVE FOR EVER, 3.30 minutes; Ralph Vaughan Williams's SINFONIA ANTARCTICA, 44.42 minutes; Sir Ernest Shackleton's THE DASH FOR THE SOUTH POLE, 3.46 minutes; Sir Ernest Shackleton's MY SOUTH POLE EXPEDITION, 3.40 minutes. Ralph Vaughan Williams's SOUTH OF THE ANTARCTIC, 88.24 minutes; Robert Carr's TIS A STORY THAT SHALL LIVE FOREVER, 3.10 minutes

PENGUINS, *The Animal Answer Guide.*

There is something entirely new and different in a book published by the Johns Hopkins University Press , PENGUINS, the Animal Answer Guide by Gerald Koosman and Wayne Lynch. The format is questions, a hundred of them, that's it, a hundred questions on penguins. I could live without it, but on the other hand it is so darn unique that it is interesting. Lynch is a Canadian nature photographer, and there are hundreds of black and white pictures of black and white flightless birds and also some with color. But you would not buy the book for its pictures as there are tens of books out with much more outstanding penguin pictures. The book recognizes seventeen species, but says the number could increase to about 20 with

“splitting.” The bibliography shows 185 references. One of the most amazing things about this bibliography is that not one of Bill Sladen's writings are shown, and Bill was a John Hopkins scientist professor specializing on penguins. What goes here? Paperback editions sell for \$26.95, as does their e-book version. The hardcover sells for the astronomical price of \$50.00 – yikes.

RESTORATION OF ANTARCTIC

RESEARCH SEASON (NSF Press Release, 28 October 2013) In mid-October, after a Continuing Resolution was approved to keep the government running until mid-January, NSF and its U.S. Antarctic Program partners began examining the planned research schedule to see how much could still be accomplished by the end of the field season, in February of 2014, while simultaneously ramping back up the complex logistical framework needed to support the science.

The 16-day interruption caused some early-season research in the vicinity of McMurdo Station to be deferred--either because of the complexity of the logistics needed to support the science or because the research itself was planned for a short and specific duration--and also delayed preparations for research scheduled to take place later in the season. Research that was deferred this season, but that will be supported next year, will displace new starts from the proposals currently in review.

Despite the setbacks, a cooperative effort among NSF; the agency's operations and research support contractor, Lockheed Martin; the Department of Defense, which provides critical airlift and other support to the program; and other U.S. agencies has allowed NSF to develop a schedule for deploying researchers to recover the tempo of research to the extent possible.

The process of recovery from the shutdown is ongoing and schedules still evolving, but as of Oct. 24, 2013, some 49 of the 77 scheduled projects in the McMurdo area will deploy this season, with some of those 49 deploying with

reductions or modifications in scope, but in a way that allow them to meet the principal science goals for the season. Projects may include one or more investigators supported by separate grants. Also as of Oct. 24, a total of 13 planned deployments in the McMurdo vicinity have been deferred for various reasons. A further 15 projects remain to be evaluated.

The unusual circumstances, unique in the Antarctic Program's more than 50-year history, have caused the cancellation of some large-scale research for the season, including most of the support for NASA's Long-Duration Balloon facility; a camp on Mt. Erebus, atop the world's southernmost active volcano; a field camp for the West Antarctic Ice Sheet (WAIS) Divide project; and an over-ice traverse to support portions of the Whillans Ice Stream Subglacial Access Research Drilling (WISSARD) Project. Principal investigators on deferred projects have been alerted to their status.

NSF's decisions about which projects it is able to support were based upon a range of factors, including: a need to insure the continuity of long-term data sets/time-criticality of observations or studies/potential effects on young or early-career investigators, and/international or interagency partnerships.

The effects of the shutdown were felt most among projects based from McMurdo Station, on Ross Island. Although some effects will be felt at South Pole, the station opens later in the research season than McMurdo and the effects are anticipated to be primarily related to potential delays of the delivery of science cargo or movement of people. Palmer, on the Antarctic Peninsula near South America, is the smallest of the three stations and is supported by a different logistical stream than the other two stations. Research at Palmer Station and on the USAP research vessels *Nathaniel B. Palmer* and the *Laurence M. Gould* is expected to proceed largely as planned. Collectively, the science at these stations represent approximately 100 additional projects.

BEST METEORITES ARE FOUND IN ANTARCTICA (By Meenakshi Wadhwa)

Meteorites fall everywhere on Earth with equal probability, but there are places where they are more easily found because the geology and the environmental conditions allow these fallen rocks to be preserved for up to millions of years. In fact, some of the best meteorite-hunting grounds are in the cold deserts of Antarctica. The cold and dry conditions keep these rocks from space from being weathered and eroded away. Other factors unique to Antarctica are in play, too, and they serve to actively concentrate meteorites in certain areas called “stranding surfaces.” These surfaces are typically found in ice fields near the Transantarctic Mountains. Here, the movement of the ice sheets toward the Antarctic coastlines pushes them up against the mountains. At the same time, the high-speed, gravitationally-driven Katabatic winds ablate away the surface of this ice to expose meteorites that had previously fallen on the ice sheets and been carried along with them. What results is a treasure trove of meteorites: Often dozens or even hundreds can be found in an area the size of a football field. There are no other places on Earth where such concentrations of relatively well-preserved meteorites have been found. We have discovered that the southernmost continent is a uniquely excellent place to hunt for space rocks. And this discovery was made rather serendipitously.

In 1973, William Cassidy, a professor of geology and planetary science at the University of Pittsburgh, was attending a conference and happened to hear a talk about meteorites that a team of Japanese glaciologists had found in the Antarctic during a field trip in 1969. The scientists had apparently uncovered nine meteorites in a relatively small area—50 square kilometers. This would not have been terribly surprising if all these rocks had been of the same kind, which would have suggested that they came from a single meteorite fall. However, these

nine meteorites represented five different types.

Something clicked for Cassidy. This meant that there was some sort of meteorite concentration mechanism operating in such areas in Antarctica. It then took him a few years to convince the National Science Foundation that it was worth funding an expedition to the white continent to hunt and collect meteorites, but he eventually managed to do it. This is how the U.S. Antarctic Search for Meteorites, or ANSMET, program came into being in 1976, and it has since been hugely successful. In the last 37 years, more than 20,000 meteorite specimens have been collected in Antarctica by the ANSMET program. This represents many more meteorites than were ever recovered throughout the world in the 500 years prior. Parallel collection efforts by the Japanese and Europeans inspired by ANSMET have similarly resulted in the recovery of thousands more meteorites. The amazing thing is that total cost of this entire enterprise of collecting meteorites in Antarctica, by the combined efforts of the Americans, Japanese and Europeans for well over three decades, has been less than the cost of a NASA Discovery mission—a class of mission described by former NASA Administrator Daniel Goldin as a “faster, better, cheaper” way of exploring the solar system.

One of the most significant developments enabled by the Antarctic meteorite collection effort has been the recognition that although the majority of meteorites originated on asteroids, a small fraction have originated on Mars and the moon, thus providing us with the ability to study the origin and evolution of these planetary bodies. The first meteorites for which Martian and lunar origins were established beyond reasonable doubt (named EETA 79001 and ALHA 81005, respectively) were recovered in Antarctica within the first five years of the ANSMET program. Given that it could be many years before we are able to return to the moon or to get a sample back from Mars, the Antarctic has taken on a special

significance as the potential source of new and interesting planetary materials for scientific investigations.

ALL AMERICAN AT THE SOUTH POLE.

It's football season in the USA as ALL ANTARCTICANS return to the ice. But back in 1944, a freshman lineman for Harvard University by the name of Chester Pierce made All-American. Later he was to go on to even greater stardom as a medical doctor. Early on in his medical career, in 1963, he visited Antarctic bases on what Chester now refers to as a “feasibility visit”, to see what psychiatric research could be done and at what stations.. In the summer of 1966 he went with a team to the South Pole station and other bases. Jay Shurley of Oklahoma was the senior scientist, and Chester was a co-investigator on a NSF grant. They studied the general physiological adjustment (on subjects they had done baseline studies in Rhode Island) and physiology during sleep and dreams. And thus became the first, and maybe the last, All-American football player to work as a scientist in Antarctica.

Incidentally Chester downplays his being named All-American, as he said it was in a war year when all the big boys were off in the trenches playing realistic war games. He played tackle back in the days of one-platoon football.

Before we go on to record some additional facts about his illustrious medical career, he is widely known as the first ever black to integrate south of the Mason-Dixon Line as a collegian football player. Chester belittles the fact that this ever happened, but it did on October 11, 1947 in Charlottesville, Virginia, home of the University of Virginia Cavaliers. The University of Virginia employed all kinds of tactics in trying to keep Harvard from bringing him to Charlottesville, but Harvard stood firm in their conviction that as a member of their team, all standing together as one, that he must be allowed to play. And so he played, was, in fact, very well accepted by the Virginia team and most of the crowd which

packed the stadium. What's the saying, what comes around, goes around, and sixty years later, the University of Virginia awarded Chester the Vivian Pinn Distinguished Lecturer's Award, which honors lifetime achievement in the field of health disparities.

Chester, who reluctantly is aging, while fighting cancer, is 86 years of humbleness. Probably no one in our society has a more distinguished vita. He is, among other things, Professor Emeritus of Psychiatry at Harvard Medical School and Professor Emeritus of Education at Harvard. He has served on the faculty of Harvard School of Public Health. He is Senior Psychiatrist at Massachusetts General Hospital, where he has spent much of his career. He was also a psychiatrist at the Massachusetts General Hospital for almost 25 years.

He is a Past President of the American Board of Psychiatry and Neurology and the American Orthopsychiatric Association. He was on the Carter Center Mental Health Task Force from 2001 to 2004 and the founding president of the Black Psychiatrists of America and National Development Associate Consortium.

He has published more than 180 books, articles and reviews. He has been invited to lecture on all seven continents and has spoken at more than a hundred colleges and universities in the United States. I must add here that he gave a lecture to the Antarctic Society in Washington, D.C. in 1978 and I was there! He is a member of both the Institute of Medicine at the National Academy of Science and the American Academy of Arts and Sciences. His vision for an international psychiatry effort at Mass General Hospital was realized in 2003 with the founding of the MGH Division of International Psychiatry. And in 2002 Chester organized a groundbreaking "African Diaspora" international conference that brought together psychiatrists of African descent from all over the globe to discuss common issues and challenges.

So you can see from the above that this All-American football player turned out to be a true All American in all walks of life. If you ever happen to be in the Patuxent Range of the Pensacola Mountains in Antarctica, you can climb Pierce Peak at 84 52 S, 63 09 W, but chances are that he won't be in residence there as in real life he lives outside of Boston in Jamaica Plains. I am very proud to say that Chester gives both Gracie and me opportunities to talk with him occasionally. ONE REALLY NICE GUY.

PINE ISLAND GLACIER (NPR) Scientists watching Antarctica's Pine Island Glacier from space have noticed with some alarm that it has been surging toward the sea. If it were to melt entirely, global sea levels would rise by several feet.

The glacier is really, really remote. It's 1,800 miles from McMurdo, the U.S. base station in Antarctica, so just getting there is a challenge. Scientists have rarely been able to get out to the glacier to make direct measurements. "This was a granddaddy of a problem," says Tim Stanton, oceanography research professor at the Naval Postgraduate School in Monterey, Calif. Stanton not only wanted to get to it, he wanted to get to it with 20,000 pounds of gear, so they could drill into it.

Stanton and about a dozen colleagues spent several years on this mission, which involved multiple aircraft and remote support camps. In fact, they took four trips to Antarctica before they finally succeeded. It wasn't just getting there that was hard. Bill Shaw, a colleague of Stanton's, says Antarctica has its own way of serving up trouble.

"You're in your tent sleeping, and you start to hear things flapping and then you wake up to find that all your neatly piled batches of gear are now covered in several feet of snow," Shaw says. "You're going to spend the next several days digging it out and getting going again." That happened more than once during their seven weeks out on this remote piece of ice. They chose this spot because the glacier

here is actually being undercut by ocean water, which flows below it.

The team's challenge was to drill down through the ice sheet, which is twice as thick as the Golden Gate Bridge is tall. Melting those holes involved heating up a metal rod and circulating hot fluid through hoses to the rod, as it gradually ate its way down through the ice. "Everybody was schlepping hose," Stanton says. "They needed lots of support, so that's what we did during the drilling phase. As soon as the hole was through, we immediately started deploying instruments."

In particular, Stanton wanted to measure the currents flowing right under the ice sheet. He wanted to test how salty the water was, and to find out how quickly the ice was being eaten away by the comparatively warm seawater. They also grabbed a sample of the mud from the seafloor below. "To see what's down there is quite remarkable, because I can assure you, nobody else on this planet's ever touched the mud before us, underneath an ice shelf like that," he says.

Their instruments showed that meltwater from the glacier was flowing rapidly toward the open ocean, and cutting into the ice above as it went. "I was surprised by how much like a river this was. It's a river, but instead of eroding a channel, it's melting a channel," Shaw says. And it turns out that channel is melting very fast. As they report in *Science Magazine*, the ice in that channel was disappearing at the rate of 2 inches a day. Stanton said their measurement is consistent with what scientists had inferred from satellite measurements.

"Don't forget, this happens day in and day out," he says. "We saw no changes over the 35 days that we were reporting on in this paper. It's a phenomenally high melt rate compared to what we observe in the Arctic, for example." At the moment, it's contributing a tiny amount to rising sea levels. But the melting has been accelerating in recent years, and if it keeps accelerating, in the very long run, the Pine

Island Glacier could add several feet to global sea levels.

The results are sobering, but Stanton says when the drilling system finally punched through the ice and he was able to position his instruments, he felt he'd conquered this grand daddy of a problem. "That was remarkably satisfying," he says. "It really had been a long, long road." With luck, those instruments will continue to run for another two or three years — and send their data back via satellite to Stanton and his colleagues, in the cozy confines of their labs.

ROSS SEA PRESERVE (Portland Press Herald, 2 November 2013) The nations that make decisions about Antarctic fishing failed on November 1st for a third time to agree on a plan that would create the world's largest marine sanctuary. The U.S. and New Zealand had proposed creating a reserve in the pristine Ross Sea. At 517,000 square miles, the sanctuary would have been twice the size of Texas. The proposal, a decade in the making, had been scaled back from earlier plans. Many countries hoped that would be enough to entice previous objectors Russia and Ukraine to agree. Those countries are among several that have fishing interests in the region.

But the 24 nations and the European Union failed to reach a required consensus as time ran out on a ten day gathering of national delegations in Hobart, Australia. The countries also failed to agree on a second proposal to create smaller reserves in East Antarctica. The Pew Charitable Trusts said Russia and Ukraine essentially ran down the clock filibuster-style after earlier expressing positive sentiments about the proposal. "This is a bad day for Antarctica and for the world's oceans that desperately need protection," said Andrea Kavanagh, director of Pew's Southern Ocean Sanctuaries Project.

The Ross Sea is home to the Antarctic toothfish, a lucrative specie often marketed in North America as Chilean sea bass.

A HISTORY OF ANTARCTICA, by Stephen Martin; 2013, Australia, Rosenberg Publishing Ltd., 280 p. \$47.45 (Amazon). (Review by Art Ford.)

Martin begins with the Polynesian navigator Ui-te-Rangiora's possible 7th-century first sighting of Antarctica and continues through nine chapters of exploration adventures and polar politics of the late 18th-20th centuries to today's continent of science and tourism under the 1961 Antarctic Treaty (plus added protocols) — Chapters 1: *In a beautiful frozen world*; 2: *Early images and contacts*; 3: *Exploration and exploitation: 1775-1893*; 4: *The first continental explorations: 1898-1918*; 5: *Claimed, exploited and occupied: 1920-1945*; 6: *The evolution of the Antarctic Treaty: 1940-1960*; 7: *From Antarctic Treaty to Madrid Protocol: 1960-1990*; 8: *After the Madrid Protocol: 1991*; and 9: *Free of all loneliness*.

Martin's is not the comprehensive historical coverage of exploration and human history of Joan Boothe's 2011 *Storied Ice*, with its numerous route maps and listings, or especially Bob Headland's encyclopedic 2010 *Chronological List of Antarctic Expeditions*. This, however, is a very nicely illustrated, easily readable work and at times even poetic: "People emerge (in springtime) from what seems an unnatural period of isolation, enlivened, intoxicated by the light;" and "It (the story of human settlement) embodies a history of discovery, explanation and exploitation in a land of fantastic sights and lonely, and inhospitable conditions." Reminiscent of Stephen Pyne's poetic 1986 *The Ice: A Journey to Antarctica*, Martin continues: "Antarctic experience takes on a deeply personal, spiritual tone: icecaps become metaphors, birds such as snow petrels become symbols of hope and contact, the trip becomes a metaphysical journey and profound experiences emerge in the stories and narratives." "Artists use Antarctica as a catalyst for their individual visions," he writes, "moving and changing our perceptions in concert with the new understandings" (of

Antarctica *enriched* by findings of scientists there).

Martin notes "Published accounts often tend to gloss over the intensity of the relationships" and goes on to relate tales such as Frank Wild's about heated squabbles between men in tight shipboard quarters in the Polar night and the *Discovery's* deranged "man overboard" rescued with a crowbar in hand ready to conk his rescuer.

Historians' emphasis, it seems, vary with nationalities. An Aussie, Martin, with such giants of history as countrymen Douglas Mawson, Edgworth David, Griffith Taylor, Sir Hubert Wilkins and Frank Hurley, brings in places greater emphasis to a different area than others, in particularly nice coverage such as Mawson's 1911-14 Australasian Antarctic Expedition, well illustrated with wonderful photos of the old Commonwealth Bay hut. Mawson's 1929-31 BANZARE (British, Australian, New Zealand Antarctic Research Expedition) is likewise well covered. Events interestingly are put into world context: "In 1905 Norway had achieved independence from Sweden and its people were looking for new, home-grown heroes" (Amundsen's Pole "race").

Martin covers WWII events adequately but if you want to learn about Operation Tabarin (1943-45) check out something written by a Brit, and Boothe for the 1947-48 American RARE (Ronne Antarctic Research Expedition). For coverage of post-WWII's (1947) vast American Wilkes Land naval operations in Australia's sector and how that quickly spurred the Aussies into research under ANARE (Australian National Antarctic Research Expedition), with establishment of a territorial claim and permanent base, it's Martin. The well-covered 1961 Treaty is followed by an interesting potpourri under topic heads of *Conservation* as well as *Greenpeace's World Park Base, Whaling, Women in the South, Saving historic huts, India enters Treaty, Private expeditions, Tourism and Research under the Treaty*. We

are brought to modern times with sections on solving the ozone hole near-calamity and even one on how new electronics technology via the web and e-mail (along with women on the Ice) have changed Wally Herbert's 1968 *World of Men* (book title). Martin nicely covers the later political and science development of the continent as the 1961 Antarctic Treaty germinated, mutated, evolved and gentrified (Chapters 6-8). Martin well deserves space on any Antarcticans' bookshelf.

ANTARCTICA – AN INTIMATE PORTRAIT OF A MYSTERIOUS CONTINENT.

By Gabrielle Walker, Houghton, Mifflin and Harcourt 2013. (Reviewed by Al Fowler). Gabrielle Walker's is my choice for the best available book about contemporary international science in Antarctica. She has strong scientific, academic and literary credentials and holds the readers interest with her well written and fascinating stories taken from her five lengthy stays down on the ice over the period of some ten or twenty years as a guest of the French, Italian, British and New Zealand, as well as the U.S. expeditions.

In this book we read about how the author, knowing about the most interesting research projects, made it her goal to procure the time to visit the field locations and to meet, live and work with the leading scientists and their work crews. She successfully used her personality, persuasion, patience and intrepidity, in order to occupy precious space in the available transport and life support. As a result, she became a part of the team at many different field research sites, and thus provided the reader with eyewitness accounts of the living conditions as well as a lucid and learned explanation of the science.

Walker's book of stories about her times on the ice starts with East Antarctica and its coastal areas and then on to the high plateau. In the 70 pages of chapter 4 about the South Pole we learn about the special astronomy and astrophysics projects including muon and neutrino detection and the search for the afterglow of the Big Bang. The author lived there long enough to be accepted among the

"polies" and to learn about their adjustments to the harsh and isolated environment. Moving on to West Antarctica, Walker reveals some of the amazing work underway there. Portions of the West Antarctic ice sheet are seen to be unstable and sliding on water. Then we are told about evidence of the existence of 400 underice lakes, including Lake Vostok, the size of Lake Ontario but twice as deep and the seventh largest freshwater lake in the world. The book is 350 pages plus index, notes and glossary. It has a few maps and no other illustrations. There is an interesting time line showing what happened to and in Antarctica from 100 million years ago until 2011. I highly recommend it. It is a good read and tells how man's activities are a large part of the cause of current global warming.

'RISKY' RECOVERY RULED OUT Anna Pearson, Christchurch Press 9 October 2013(forwarded by Margaret Lanyon)

Three Canadian men whose Twin Otter plane crashed into the side of a mountain in Antarctica in January may be forever embraced in ice. A spokesman for the Ministry of Foreign Affairs and Trade (MFAT) told the Press that there were no plans to launch a further effort to recover the bodies.

The employees of Canadian company Kenn Borek Air were killed when their aircraft hit the side of Mt Elizabeth at nearly 4000 metres above sea level. A cockpit voice recorder was recovered during a mission coordinated by the Rescue Coordination Centre New Zealand (RCCNZ) in January. However, search and rescue personnel were unable to reach the bodies.

Poor weather forced recovery efforts to be called off until this Antarctic season, which is under way, but MFAT has deemed further efforts too risky. Judge Neil MacLean, the Chief Coroner of New Zealand, headed an inquest into the men's deaths in June, and ruled the three men - Bob Heath, 55, Perry Anderson, 36 and Mike Denton, 25 - must have died in the crash.

**COLD, SALTY AND PROMISCUOUS:
GENE-SHUFFLING MICROBES
DOMINATE ANTARCTICA'S DEEP
LAKE**

Sep. 30, 2013 — Sequestered in Antarctica's Vestfold Hills, Deep Lake became isolated from the ocean 3,500 years ago by the Antarctic continent rising, resulting in a saltwater ecosystem that remains liquid in extreme cold, and providing researchers a unique niche for studying the evolution of the microbes that now thrive under such conditions. Deep Lake's microscopic inhabitants are dominated by haloarchaea, microbes that require high salt concentrations to grow and are naturally adapted to conditions -- at minus 20°C -- that would prove lethally cold to other organisms. In a detailed analysis published online the week of September 30, 2013 in the journal *Proceedings of the National Academy of Sciences (PNAS)*, researchers have, for the first time, been able to get a complete ecological picture of the Deep Lake microbial community.

A team led by Rick Cavicchioli of the University of New South Wales, Australia partnered with the U.S. Department of Energy Joint Genome Institute (DOE JGI) to generate sequence data from DNA isolated from individual microbes and compared them with metagenomic (microbial community) information sampled at various depths of Deep Lake.

"Understanding how haloarchaea can thrive in Deep Lake could be used to develop engineering concepts for reducing energy costs in a variety of situations, such as for cleaning up contaminated sites in permanently or seasonally cold regions," Cavicchioli said. Owing to the ability of salt-loving enzymes to function under extremes, he suggests they could also be used as catalysts for peptide synthesis and enhanced oil recovery, and can function in water-organic solvent mixtures. "These enzymes will be especially useful for transforming contaminated sites with particularly high levels of petroleum-based products," he added.

Deep Lake's extremes have rendered the microbial neighborhood rather homogeneous. Four isolates in the study represented about 72 percent of the cells in the community. Though gene exchange across species boundaries is considered infrequent, the researchers observed that haloarchaea living in the Lake's hypersaline environment practice it comparatively often, like neighbors "chewing the fat" in a small-town coffee klatch. "It's intriguing that while gene exchange is rampant, species lineages appear to be maintained by virtue of each species having a high level of specialization, enabling niche partitioning and peaceful coexistence," said Cavicchioli of their findings. "Haloarchaea are known for being 'promiscuous,' that is, prone to exchange DNA between themselves. Our study demonstrated that this exchange occurs at a much higher level than has previously been documented in nature. They communicate, share, specialize, and coexist." What distinguishes this "conversation" is that the haloarchaea of Deep Lake exchange the information of DNA not just between species but among distinct genera, and moreover in huge tranches, some 35,000 letters of code, with not a letter out of place. While it may be slow, that give-and-take is chock full of essential information and the word gets around the community. "The long stretches of highly identical shared sequence between the different lake organisms spurred a strong suspicion of potential cross-contamination at first," said Tanja Woyke, Microbial Program Lead at the DOE JGI and co-author of the study. "By painstaking validation of the manually finished and curated genomes, however, we were able to exclude any process-introduced artifacts and confirm that this is true inter-genera gene exchange."

P.S. Larry Gould's Memorial Lecture of 1979. "My Fifty Years of Antarctic Exploration and Research" has been posted on our web-site in the Audio area under Pack Ice. If you weren't there, now is the perfect time to hear the words from our greatest silver tongued orator.



The Antarctic Society

VOLUME 13-14

FEBRUARY

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BRASH ICE. As we enter into 2014, may I say up front that this is going to be a big transitional year for the Antarctic Society. There are going to be many changes, hopefully all for the better. Starting with myself, who now finds said self in his nineties. I am hanging up most of my efforts in behalf of the Society. The Newsletter will be taken over in the near future by a professional editor who should take it to new, unknown zeniths. I have been at this for over thirty-five years, nearly all of which have been labors of love, some 185 Newsletters, some 1820 pages of diatribe. I should have quit long ago, but my ego would not let me. But lately it has become much more difficult to get input from my sources, and when it becomes more work than fun, then it is time to hang it all up.

My farewell as I go out the door is to write this coming spring a composite of what I feel are the most interesting Newsletters of the past thirty-five years. Through my long and close friendship with our second Honorary President, Ruth J. Siple, I developed a very close personal relationship with many of the men who went south with Admiral Byrd, particularly with Henry Harrison, Bud Waite, Al Lindsay, Charlie Murphy, Dick Black, Steve Corey, and Larry Gould. How they all have enriched my life! Thank God I knew these people when communication was by mail, not by e-mail, as I am sitting on a treasure of letters, many of which are now on the Society's web site. And to have wintered over with Bert Crary, what an experience, non pareil. Plus being at the Pole when first Ed Hillary and then Bunny Fuchs arrived there as part of the British Commonwealth Transantarctic Expedition!! But I also had a life outside of Antarctica, on the North Atlantic Weather Project for three stormy years, on the airborne phase of the International Indian Ocean Expedition flying out of Bombay and Aden, on Project TREND on the Khorat Plateau of Thailand, at Dye 2 on the Greenland Ice Cap, on the top of Mt Washington, N.H, at the National Defense University at Ft. McNair, and, yes, even in the Pentagon! And how fortunate I was to work alongside the very first man to ever fly in Antarctica, to be the first ever to take a submarine below the polar ice, Sir Hubert Wilkins. I have seen a lot, experienced much, met the nicest people, and now is the time to sit back and reflect on my past, and enjoy my many wonderful memories.

ANTARCTIC GATHERING AT PORT CLYDE, MAINE, JULY 17-20, 2014

In recent summers I have hosted mid-summer gatherings of many of my Antarctic friends at my retreat on mid-coastal Maine. I have decided, for better or worse, to have one more gathering, but this one will be a bit different, open to all members of our great Society who just might want to venture by and take part in the festivities. It will be a three-day affair, July 18th thru the 20th. The locale is on Marshall Point, Port Clyde, a small fishing village at the southern end of Penobscot Bay, half-way between Portland, Maine and Acadia National Park at Bar Harbor, Maine. Nearest major airport is in Portland, Maine, ninety miles away; nearest local airport is Rockland, Maine, fifteen miles away. The 18th will feature a series of talks by prominent members of our Society who will talk about some interesting phases of their Antarctic careers. The second day will be at one of my nearby neighbors, a nationally known artist by the name of Greg Mort, who with his wife Nadine, will host an all-day Antarctic Artists and Writers Tribute under the guise of Guy Guthridge, chaired by Barry Lopez. The third day will, shall we say, be spent partying under a tent back at my place, a lobster feast being put on by a local lobster man. If interested in taking in the events, in hearing more about the affair, please let me know, and I will keep you informed as things develop.

In a nutshell we have no set charges, but we will be putting out collection containers for donations to help defray our considerable expenses. The Antarctic Society will pay for the tents, port-a-toilets, tables, chairs, and basic hardware costs. We do not have any travel funds for anyone, and people are expected to find their own lodgings, although we encourage those who like tenting to go native. Hotels/inns, and B&Bs are at a premium, and as we go to press the only one within 20 miles with rooms is the Cragnair Inn (207- 594-7644) But, mind you, Maine can be pricey in the summertime, as the state motto is to make it all in the summertime! The people who are going to show are like a Who's

Who in Antarctic Research, led by our Honorary President, Charles Swithinbank, OBE, from the UK. Then there will be Mister IGY, Charlie Bentley of the University of Wisconsin with a bunch of his traverse followers; Paul Mayewski, head of the Climate Change Institute at the University of Maine will lead a delegation of Antarctic-rich scientists from their university; Lou Lanzerotti of the National Science Board and Warren Zapol of Harvard and Massachusetts General Hospital; Polly Penhale of the National Science Foundation; Michele Raney who was first woman to ever winter-over at the South Pole; and even Rev. Bruce Lieske, who gave up polar meteorology to become a Man of the Cloth.

THE ART OF STEWARDSHIP OF THE ANTARCTIC SEMINAR AND EXHIBITION(Nadine Mort)

Shows visual and literary submissions from a select group of well-known Antarctic artists and writers. The goal of the Seminar and Exhibition is to celebrate the important contributions of arts and letters to environmental stewardship of Antarctica and the Southern Ocean. The theme of these original literary and visual works of art must reflect and build environmental consciousness of this fragile region of the Earth.

The Art of Stewardship of the Antarctic Seminar and Exhibition is sponsored by The Art of Stewardship and The Antarctic Society. The Art of Stewardship (also known as TAOS) encourages stewardship of the Earth and environmental awareness through the arts. It facilitates exhibitions and forums for artists, environmental and educational organizations to explore creative ideas, alliances and partnerships for interaction and dialogue offering resources and opportunities to artists in their role as Stewards of our Earth. The Art of Stewardship is a 501(c)(3) organization founded by Nadine and Greg Mort.
TheArtofStewardship@gregmort.com

A RATIONALE FOR THE ART OF STEWARDSHIP OF THE ANTARCTIC SEMINAR AND EXHIBITION by Guy G. Guthridge, National Science Foundation (retired)

Antarctica has the world's attention at several levels. Perhaps most broadly, scientists have learned that the Antarctic is responding to global change in unusual and amplified ways. Freon, for example, which escaped from sources worldwide into the global stratosphere, in most places increases only slightly the amount of the Sun's ultraviolet radiation reaching the planet's surface. In Antarctica, though, it causes the ozone hole, letting enough UV through to wipe out more biomass every year (mainly oceanic plankton) than the whalers removed during their peak harvests in the 1930s.

Warming of the ocean is having an unexpected effect. The warmth is worldwide, expanding the water and thus raising sea level a bit. In the Antarctic, the new warmth is rubbing against ice shelves, causing them to melt into the ocean and raise sea level that much more.

Both phenomena surprised scientists. The oceanic warming one was published only in 2013.

The Antarctic, too, is a history book that exists uniquely there. Its atmosphere is farthest from pollution sources, so the air is the cleanest on Earth. So the Antarctic record of increases in atmospheric constituents is a measure of how we humans have affected the whole planet. Lead from leaded gasoline, transported to the Antarctic in the atmosphere, is recorded backwards in time, year by year, in layers of snow and ice cored from the immense ice sheet. The cores also document our success in reducing atmospheric lead when we stopped putting lead in gasoline.

But why pay attention to these things?

"Only when we know something of these places can we begin to appreciate their interconnectedness with each other and the rest of the world," photographer Galen Rowell writes in *Poles Apart: Parallel Visions of the*

Arctic and Antarctic. "My hope is that with understanding, the reader will feel a sense of responsibility for the future condition of these most pristine areas of the Earth at the very time when they have become most vulnerable to change from without." Artists and writers joining scientists in the Antarctic have, "to a great degree, shaped the public's vision and provided the only counterbalance to scientific and governmental publications that tend to favor facts without emotional interpretation."

"The humanities and social sciences," argues the American Academy of Arts and Sciences in a 2013 report on achieving a vibrant, competitive, and secure nation, "are the heart of the matter." Literature, the arts, and other humanities "help us understand what it means to be human and connect us with our global community." The report says scientific advances have been critical, but "all disciplines are essential for the inventiveness, competitiveness, security, and personal fulfillment of the American public."

The Art of Stewardship project is a private foundation that encourages stewardship and environmental awareness through the arts. It organizes and provides forums for interaction and dialogue, and it offers resources and opportunities to artists in their role as stewards of our Earth. Its *Art of Stewardship of the Antarctic Seminar and Exhibition* furthers these aims and brings attention to the special role of the Antarctic in global environmental awareness.

In her 2012 *Antarctica: An Intimate Portrait of the World's Most Mysterious Continent* (Bloomsbury, 388 p.) Gabrielle Walker writes, "there is also a deeper message, for which Antarctica is the living metaphor. The most experienced Antarcticans talk not about conquering the continent but about surrendering to it. No matter how powerful you believe yourself to be – how good your technology, how rich your invention – Antarctica is always bigger. And if we humans look honestly into this ice mirror, and see how small we are, we may learn a humility that is the first step toward wisdom."

She concludes that Antarctica “will yield warnings if we seek them. We can avert human catastrophe if we act on them. But Antarctica itself is under no threat. Antarctica is bigger than all of us, bigger than our technologies, our human strengths and weaknesses, our eagerness to build and our capacity to destroy. Enough ice could slide into the sea to turn West Antarctica into an island archipelago, and to raise the sea to heights that would swamp coastal cities, without causing so much as a flutter in the continent’s cool white heart.”

William L. Fox, who studies how the human mind transforms space into place, or land into landscapes, notes that deserts are among the emptiest spaces on land encountered by humans, and the Antarctic is the largest and most extreme desert on Earth. We should be interested in cognition and extreme landscapes, he writes, because “At the beginning of the twenty-first century, approximately one-fifth of the world’s population lives in the deserts of the world or is dependent on their resources in some way, a figure that may rise to as high as fifty percent within decades.” In his 2005 *Terra Antarctica: Looking into the Emptiest Continent* (Trinity University Press, 312 p.) he states, “The Antarctic is a relatively decipherable slate on which to examine these issues, issues that are presented in the vocabularies of both art and science, twin modes of intellectual inquiry possessed by humans.”

Stephen J. Pyne’s 1986 *The Ice: A Journey to Antarctica* (University of Iowa Press, 428 p.) suggests that Antarctica takes on the proportion of an Earth emblem, a symbol of our modern age of isolation and the strength of the natural world. Chapter 4, “Heart of Whiteness: The Literature and Art of Antarctica,” is a 58-page essay on what he calls “the most intellectual landscape on Earth.” For artists, Pyne writes, Antarctica presents special problems. “It is already abstracted, minimalist, conceptual. Here is not another case of information overload but of underload. The Ice has already filtered and

reduced the landscape to the simplest environment on Earth.”

Pyne writes that artistic success nevertheless has been achieved. Eliot Porter – considered America’s first fine arts photographer to use color – “is perhaps truer [compared with earlier Antarctic photographers] to the esthetic power of Antarctica: its role as reducer, abstractor, and mirror. . . . The result [*Antarctica*, photographs and text by Eliot Porter, 168 p., E.P. Dutton, 1978] is a portfolio of some of the most haunting of all Antarctic photos.” Walter Sullivan’s foreword calls the photographs “new, glittering perspectives on the continent at the bottom of the world at a time, as he [Porter] points out, when critical decisions that will determine its future must be made.”

Stuart Klipper, who has photographed many parts of the planet and whose Antarctic photographs are in his *The Antarctic: From the Circle to the Pole* (Chronicle Books, 175 p., 2008), calls the Antarctic “a world fraught with awe and immanence. It harbors glories known nowhere else.”

Barry Lopez addresses the theme of reflection in “The gift of good land” (*Antarctic Journal of the United States*, XXVII (2): p. 1-4, June 1992). The agrarian virtue of his title applies “to this oddly out-of-time, obviously remote, autistic fastness that we call Antarctica. . . . Now, more and more often, Antarctica is seen as a place from which to take the measure of the planet, or the space in which the planet turns. . . . Whatever it is that occupies the majority of our time, whatever it is that we are specifically interested in, we are also, many of us, trying to understand the way in which Antarctica is different from what we already know. . . . Antarctica, if we lift our eyes from the paperwork and the sorting trays, the computer screens and the microscopes, is a place of such compelling presence, is so terrifyingly abiotic, that it urges us to consider the accident of our biology, and our responsibilities toward each other because of that.”

Legacy. Americans have had a leadership role in Antarctic affairs almost since the birth of the Nation. Following an episodic expeditionary period lasting until the 1950s, the United States hosted signing of the 1959 Antarctic Treaty in Washington, D.C., and since then has continued without interruption as a preeminent participant in Antarctic research and its operational support. A 2012 letter from the Under Secretary for Economic Growth, Energy, and the Environment, Department of State, to a U.S. Antarctic Program Blue Ribbon Panel considering the Nation's future in the South Polar region states, "The United States has critical National security, foreign policy, and scientific interest in Antarctica. . . . Hence, we must continue to send a strong signal of U.S. interest and involvement in Antarctica through our active and influential presence."

An Art of Stewardship program regarding the Antarctic thus would be consistent with America's present and future role in the region.

Resources. The United States' Antarctic Artists and Writers Program, National Science Foundation, is a principal means for U.S. scholars in the humanities to perform field expeditions to the Antarctic. NSF has sponsored artists' and writers' participation in the U.S. Antarctic Program since 1958. As of the end of the 2009-2010 Antarctic season, it had supported 98 artist and writers projects in the Antarctic. The web site includes lists of former participants, many of whom could participate in the Art of Stewardship plan.

A more extensive Antarctic Image Chronology, dating to the pre-Christian era, has been compiled by NSF Antarctic Artists and Writers Program participant William L. Fox.

The existence of NSF's program has led other national Antarctic offices to emulate it. The Antarctic Treaty, at its consultative meeting in 1996, adopted Resolution XX-2, which recommends promotion of understanding the scientific, aesthetic, and wilderness values of Antarctica through the contribution of writers,

artists, and musicians. Treaty member nations – the British Antarctic Survey, Antarctica New Zealand, and others – have established artist and writer programs based on the NSF model.

Not all U.S. Antarctic arts and letters have resulted from the NSF Antarctic Artists and Writers Program. Examples include a book and a film by James Balog, a book by scientist William Green, and a book by National Medal of Science winner Susan Solomon.

Conclusion. Art and letters from the Antarctic have much to say to those who have never been there and will never go. The U.S. tradition of leadership in the region will be complemented by an Art of Stewardship exhibition.

PRESIDENT'S LETTER (by Charles Lagerbom)

Hello from Northport. This past winter, the Antarctic Society received several boxes containing some of the personal polar collection of the late John H. Roscoe. He served as geographic, air reconnaissance and photogrammetric officer to Admiral Byrd on two Antarctic expeditions and served as Byrd's scientific advisor until the admiral's death. He was also quite active in the Arctic. The collection contains many maps, reports, papers, correspondence, images and other materials that are currently being cataloged and placed in archival-appropriate storage. The society would like to thank one of our members, Art Ford, in helping make this particular preservation effort a success.

We are approaching nearly thirty different collections of digitized images in the Antarctic Society polar image database. These collections total nearly thirty thousand individual digitized slides and photographs, all on a key-word searchable Excel spreadsheet catalog system. Many have started to appear on our website. The Society has since expanded its preservation efforts to include reel film, 16mm as well as 8mm both homemade and professionally produced. We have worked with records and other audio

materials including reel-to-reel and audiocassette tapes. If there is a way to digitize your polar memorabilia and put it into a more modern format, we will. Please contact us if you have any questions.

As my time as Society President enters its final months, I would like to thank everyone who has helped the Society during my tenure. I am proud of the fact that this society has become dedicated to historic preservation of the polar memorabilia of our members. We have also acted as a repository for collections and materials that people have decided to give us. Rest assured, these materials will be handled, housed and treated with the respect they deserve because these are the primary sources and personal connections with the Antarctic and its history. I am humbled to have worked on so many great links with the history of the continent through these polar materials and collections.

WEBSITE UPDATE (by Tom Henderson)
I have long felt that the most valuable purpose for our website is to preserve the experiences of those who have been privileged to explore or work in Antarctica. We do this through posting their stories, documents, memoirs, photos, films, and memorabilia. Contributions come primarily from our members, but other notable contributions have been submitted by Antarcticans or relatives of Antarcticans who have simply found our website and volunteered their materials.

A couple of recent examples relate to the United States Antarctic Service Expedition (USASE) of 1939-41. I was contacted last year by Matt Oppliger, grandson of Jack Ruttle who was the second officer aboard the USASE cargo ship, *North Star*. Matt graciously offered his grandfather's personal 16 mm film that he shot during his two voyages on the expedition. It turned out that some of the Ruttle's film was used for the official record of the expedition, but about 80% of it had been seen only by family and friends since 1942! Tuttle was an excellent photographer and he used color film. Some of his scenic sequences are absolutely

stunning. His entire archive was converted to digital format at Society expense and is now available for the world to see only on our website. I highly recommend that you view it; just go to the Videos page under Pack Ice. More recently, the daughter of Joseph Daigle, Janice Walz, contacted me about her father's book. Daigle, who was the radioman for Admiral Byrd on the *USS Bear*, had published his small memoir, "Little America III," in his later years but it had limited distribution. The Society scanned the memoir, with his daughter's permission, and it now appears on the Memoirs and Diaries page under Pack Ice. Like all such memoirs, it is a unique glimpse of the experience through the eyes of a first-hand participant.

These items are not the only materials on our website that are to be found nowhere else on the web. As such, they uniquely preserve aspects of Antarctic history. I encourage you to explore the website to see all of these "nuggets." And if you have your own "nugget" to contribute - or know someone who does - we encourage all such contributions.

VOSTOK REMAINS COLD CHAMPION.

In mid-winter the newscasters went into great details about how NASA's Landsat 8 had collected new all-time low temperatures at two locations in East Antarctica. It seems that chillier spots were found which lay along the gentle slopes of a ridge at an elevation of 4,000 meters. On clear winter nights, air on the ridge loses heat to space; dense cold air sinks to the ground and slides down the ridge, where it puddles in flat basins. While the pooled air rests on the ice, even more heat escapes and the ice surface cools down further. On July 31st, 2013, temperature sensors aboard Landsat 8 measured temperature of -93 C. But a still lower temperature was measured elsewhere in East Antarctica on August 10, 2010, one of -93.2C. While newscasters were celebrating the detection of new all-time world minimum temperatures, meteorologists with the World Meteorological Organization were saying that those temperatures were unofficial, that the only temperatures that they recognize

are those measured at two meters above the surface. So Vostok's temperature of July 31, 1983, one of -89.2 C remains the world's official lowest temperature ever recorded. Meanwhile back in the States, some residents of Minneapolis are considering submitting their record low for this winter to the WMO in Geneva.

JASON ANTHONY'S JACKPOT.

Once upon a time there was a true Antarctic who kept going back to the ice, time after time, in fact, for eight austral summers. And what did he do? Well he did about everything which needed to be done. He was sometimes a fuel operator, sometimes a cargo handler, sometimes a landing strip groomer, sometimes a camp supervisor, and sometimes a willing man of unlimited talents standing by for any and all calls. You may have known him or at least heard of him, his name, Jason Anthony, and now he is a school teacher who lives in the small mid-coastal town of Bristol, Maine. Jason came into fame in the past two years with his book HOOSH; a culinary treatise of the artistry of Antarctic cooks, featuring such off-handed products as roast penguins. The NEW YORK TIMES gave the book a great review, and it was his springboard into the literary world, one that was to take him this past summer to the United Kingdom. And now the Maine Arts Commission has selected Jason as the state's Literary Fellow for 2014. Along with the fellowship came a check for \$13,000, which he says will buy him and his family creative latitude while he pursues his next writing project.

BERNIE LETTAU DIES. The former program manager for polar ocean and climate systems in the Office of Polar Programs at the National Science Foundation died on December 14th at age 75 from sepsis and cancer of the appendix. He retired from the government in 2007, after some thirty-one years of work at the NSF. He was sort of an unusual program manager in that he was a man of few words, and it was said by some of his principal investigators that visiting with Bernie in his office was something comparable to

talking to a blackboard. Lou Lanzerotti, who had several contracts through Bernie's office, said that Bernie was a good man. This writer also knew some of his students from a bygone position he held as an assistant professor of atmospheric science at the State University of New York at Albany.

But it was my association with his most distinguished father, the world's foremost micrometeorologist, Heinz Lettau, which brought me into contact with Bernie. I hired several of Bernie's classmates in graduate school at the University of Wisconsin, and several of them even went to Antarctica, including Marty Sponholz and Tom Frostman, and another, Walt Dabbert got his PhD on wind spirals in the Antarctic. Another associate of Bernie, Joe Zabransky, became my project meteorologist on a large interdisciplinary research project (TREND) in Thailand. So in all honesty, one could say that I knew many in the overall Lettau family, but did not really know Bernie at his professional level.

Bernie's father Heinz was one of Hitler's top meteorologists, and along with many other professional meteorologists of note in Germany came to this country shortly after the end of World War II. It actually wasn't Heinz's first trip to our country, as he ended up the war as a POW in Louisiana. There was sort of a strange liaison between the two of us, although we never talked about it, but at the same time he was a POW in my country, I was a POW in his country!

Heinz played sort of a spectator role in what was to become my gateway to the Antarctic. To the best of my knowledge, for the first time, MIT offered a summer course in micrometeorological instrumentation. Heinz had recently come to this country, and even though he was not involved in the actual teaching of this course, he attended all of the outside laboratories instrumentation sessions. Always standing on the outside fringe, watching, saying nothing, while slowly drawing on his pipe. Little did I realize how

close I was to come to this giant of a micrometeorologist.

When the IGY came along, Heinz recommended to Harry Wexler, the USA's Chief Scientist for Antarctica for the IGY, that micrometeorology could not be done in Antarctica, but, fortunately for me, no one listened to Heinz at this time. Following my two years on the ice, I came back on home to Massachusetts to find a message from Harry saying that I must go to Madison to work up my data under the watchful eye of Bernie's father, Heinz. I had a few choice words for Harry, saying roughly that after leaving a wife and a young daughter in a crib for two years, that I was now home, not about to move to Madison. However, we worked out an agreement where Heinz was hired as an expert (higher category than as a consultant), and the analyses were completed under Heinz' direction.

But this was not the ending of my connection with the Lettau family. I was involved as the program manager for a large interdisciplinary

environmental program in Southeast Asia. We hired one of Heinz's graduate students to be our resident micrometeorologist in Thailand. And both Heinz and his wife, also a professional meteorologist of note, visited our research site on the Khorat Plateau. We had two instrumented micrometeorological towers 150 feet high in the dry dipterocarp forest. When I started to climb one of the masts, my legs turned to rubber. But Bernie's mother climbed all the way to the top with no problems, often taking a magazine or a book to read once she got to the top! One day after a long time in the field, we decided to forgo eating at our Thai dining hall to go to a nearby US military base and get a good American meal. Following the dinner we stayed on for a short while to watch a film being shown, *The Ten Commandments*. In the middle of the first reel, a GI yelled out "Mable, Budweiser." Instantly Heinz said loud enough for all to hear "11th commandment." I think it was the only time in my long association with Bernie's father that I ever heard him say anything funny.



The Antarctic Society

VOLUME 13-14

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NO. 3

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BRASH ICE. This is not really a Newsletter, but more of a late, very late, information bulletin on the Antarctic Society's mid-summer Gathering in Port Clyde, Maine on July 17th, 18th, 19th, and 20th, one whose highlight will be a one-day devotion to Antarctic writers and artists.

This Gathering will be without our ever-popular Honorary President, as we lost Charles Swithinbank in mid-May. Not only has Charles' death been a blow to all of us, we also have lost in recent weeks Jerry Huffman, Wild Bill Cromie, and Phil "Crevasse" Smith. The Old Guard is getting decimated faster than we can possibly think. Imagine how this writer feels, being in his nineties and still prevailing. Goes to prove that time honored adage that the good die young, the rest of us living onward for whatever fate that may be dealt to us.

If you are an Antarctic with a bent towards the days of Operation Deep Freeze, the International Geophysical Year, the Antarctic Treaty, this July's Gathering might be one which you might want to attend, as it will feature many of the good old folks who are still alive like Tony Gow, Art Ford, Charlie Bentley, Steve DenHartog, John Behrendt, Dick Chappell, Dick Cameron, Ralph Glasgal, Rob Flint, Johnny Dawson, Liesl Schernthanner, Chet Langway, Ed Robinson, Jack Long, Bob Dale, Peter Wasilewski, John Clough, Tom Laudon, Hal Borns, Michele Raney, Scott Borg, Art Jorgensen, Lou Lanzerotti, Bob Rutford, and many others. You won't find another gathering where so many of the good old boys and gals will appear, so if you can possibly make this Last-Ever Assembly, make plans to visit Port Clyde in mid-July.

Where is Port Clyde? Well it's halfway up the coast of Maine, halfway between Portland and Bar Harbor, at the entrance to Penobscot Bay. The nearest airport is Rockland (Owl's Head), some 20 miles from Port Clyde, although many prefer to fly into Portland (90 miles south) and rent a car there. Port Clyde is a picturesque fishing village of several hundred people, a haven for artists such as the Wyeths, a town that gets overloaded with tourists in summer. It's a jumping off place for people who want to go Monhegan Island, twelve miles offshore, which has fantastic cliffs rising out of the ocean.

But there is a price, finding places to stay, places to eat. However, if you like tenting or camp grounds, you might find this a bit of Heaven. Regulars have already filled up most of the hotel rooms, but one still might find a bed at the Caignair Inn (207) 594-7644, about 12 miles from Port Clyde. There is a small city about 20 miles away, Rockland, which might have some rooms. If push comes to shove, you might call us at (207) 372-8469 and tell us your requirements, although we have no special hideaways that I am aware of at this time. However, be aware of the fact that there are no bargains in Maine during the summer, where the locals make sure that all from out-of-state leave with an empty wallet.

But once you get here and have a reservation, we try to make our Gathering as painless as possible. We have a set charge for the Welcoming Fish Chowder Dinner on Thursday evening, \$20.00 per head. But it will be the best fish chowder served on the whole coast of Maine. Then we provide mid-day refreshments each day. The Antarctic Society only provides a tent, table, chairs and portable johns. However, in an effort to help defray the costs of foodstuffs and goodies, we do put out collection bins each day for you to put in whatever you can afford. We HOPE to come close to breaking even, although we seldom do!

We run a grill on many days, we also will have one day with lobster or crabmeat rolls, and our grand finale is a lobster feast on the last day. There is an added attraction on Saturday night, as there will be a spectacular fireworks display at sundown on Saturday evening as the local town people celebrate St. George Days in Tenants Harbor, five miles away. One

should not miss it as fireworks over the harbor filled with lobster boats and yachts can be thrilling. Back at my place, we will have water and beer on ice, but if you only drink wine, you had better bring your own vintage, as we don't provide wine.

We are expecting somewhere around 140 people, twenty or more will be Antarctic writers and artists. In an earlier Newsletter we wrote that Barry Lopez would be the chief honcho at the Writers and Artists Day at the Greg Mort's. Unfortunately, he has had some medical problems of late, and his doctor has suggested for his own good living that he not come across country from Oregon to join us. We regret that Barry cannot be with us, but Guy Guthridge and Nadine Mort have set up a strong and most inviting program. We are enclosing herein what they have sent out to the writers and artists. **Be sure to read it, as it is really the reason that we decided to have the whole Gathering. Don't hold us to the program shown for the Garage Theatre on Friday the 18th, although nearly all have committed as shown.**

If you are coming, please let us know, so that we can make a nametag for you. And show us how you wish your name to be shown. Also let us know if you will be here for the Thursday evening fish chowder, ditto for the Sunday lobster feast. If you will be at the Mort's on Saturday, please let us know whether you want a lobster roll or a crabmeat roll, so we can order appropriately.

July 17th, Thursday

Kickoff Dinner

Location: Residence of Paul Dalrymple*

Time: 5:30 PM

Open to all registered participants

Menu: Finest Kind Haddock Chowder dinner on the coast of Maine: Fixed price \$20.00

July 18th, Friday

Antarctican Society Garage Theater Presentations

Location: Residence of Paul Dalrymple*

Time: 9:00 AM

Open to all registered participants

Menu: Antarctic Society grill offerings midday+

Ceremonial Opening Remarks

Presentations (tentative)

1. Ron Thoreson: Introduction and Tribute "A TRIBUTE TO CHARLES SWITHINBANK"
2. Jean Portell, daughter of Ambassador Paul C. Daniels will reminisce about her late Dad and the Antarctic Treaty
3. Liesl Scherthanner and her Welsh husband will give a talk about their participation in the preservation of the various Heritage Trust stations such as Scott's Cape Evans, Shackleton's Cape Royds, Port Lockroy and other stations where they have worked.
4. Lisa Crockett will talk about her Dad being with the Byrd 1928-'30 expeditions, plus her own continuing involvement in Antarctica as a scientist
5. Robert Rutford (or replacement-Dave Bresnhan) will make a tribute to recently deceased Phil Smith
6. Rev Bruce Lieske will made a short tribute on the artistic career of Alice Chappell, wife of Eagle Scout Dick Chappell
7. Hal Borns will present an historical recollection of Univ of Maine in Antarctica
8. Dale Andersen will cover sub-glacial lakes of Antarctica, including his most recent season at a Russian lake
9. Jason Anthony will discuss HOOSH, his bestselling book
10. Scott Borg will review on-going research at the South Pole Station
11. Polly Penhale will make a presentation on the illustrious career of Mary Alice McWhinnie
12. David Marchant will review his Antarctic career
13. Joan Boothe will give an historian's perspective of Antarctica

14. Lou Lanzerotti will offer predictions on the Future of Research in Antarctica

Dinner on your own.

July 19th, Saturday

The Art of Stewardship of the Antarctic Exhibition and Seminar

Location: Fieldstone Castle – Barn **

Time: 9:30 AM

Open to all registered participants

Part I:

Welcome:

Guy Guthridge, former director, National Science Foundation Antarctic Artists and Writers Program

Introduction:

Nadine and Greg Mort: The Genesis of The Art of Stewardship (TAOS)

Overview:

Peter West, current Director, NSF Antarctic Artists and Writers Program

Part II:

Artist, Writer, and Scientist Presentations

Time: 10:00 AM

Six artists, writers, and scientists each will give a talk about how their visual, literary, and scientific explorations have been influenced by and reflect Antarctic environmental concerns.

Lobster Roll Picnic Lunch

Location: Fieldstone Castle – Upper Field**

Time: 11:00 AM

Open to all registered participants – pick up nametag at Welcome Table

Menu: Port Clyde local fare+

Part III:

Environmental Organizations Panel Discussion

Time: 1:00 PM

Representatives of six environmental organizations will discuss successful artist/writer/scientist partnerships that further environmental stewardship.

Break- 2:30 PM

Part IV:

The Art of Stewardship Antarctic Films Program

Location: Fieldstone Castle – Barn**

Time: 2:45 PM

Open to all registered participants

Part V:

Individual Artist, Writer, and Scientist Presentations

Time: 4:00 PM

Display/Sharing of images (via slide show, Youtube) and readings by participants.

Presenters must sign up and submit copies of their readings or images by July 1st for inclusion in

TAOS Archive: TheArtofStewardship@GregMort.com

Part VI:

Digital Exhibition: The Art of Stewardship of the Antarctic Exhibition

Time: 5:00 PM

Cocktails, music, and mixing

Sharing/display table for books, images, and materials

Dinner on your own at local restaurants, etc.

Excellent St George Fireworks at over the water in Tenants Harbor

July 20th, Sunday

Antarctican Society Board of Directors Meeting (Board members only)

Location: Residence of Paul Dalrymple*

Time: 9:30 AM

Social Gathering

Location: Residence of Paul Dalrymple*

Time: 10:00 AM

Lobster Feast Farewell Luncheon

Location: Residence of Paul Dalrymple*

Time: 12:00 Noon

Menu: Local Lobsters, clams, etc.+

Luncheon Program

Changing of the Guard as we bid thanks and farewell to Chips Lagerbom and introduce our new president, Tony Gow

Gathering ends

+ Participants are invited to donate funds to help defray the cost of the meals. Soft drinks, water and beer will be on ice each day,

*155 Marshall Point Road – 207-372- 6523 or 207-372-8469

**129 Marshall Point Road – 207-372-8658



The Antarctic Society

VOLUME 14-15

OCTOBER

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"BY AND FOR ALL ANTARCTICANS"

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BRASH ICE

I wrote in the February *Brash Ice* that 2014 would be transitional.

An Antarctic Gathering in July, in Port Clyde, helped to give truth to those words. It set attendance records for these biennial events, it was open for the first time to all members of the Antarctic Society, it had a day of presentations – the Garage Theater – about Antarctic field events and historical figures, and it initiated a partnership with The Art of Stewardship Project featuring a day of presentations by some of the most recognized names in Antarctic arts and letters.

The Society's own web site continued to grow its digitized records and slides, material contributed by members that now is uniquely and openly available to the community because of the Society's efforts.

These initiatives are the result of a lot of work by a lot of Society members. Over the years we have assembled a team of officers, directors, and other achievers who would be valued members of any organization. But they chose to be Antarcticans.

The Society is not the largest polar organization; it is old enough and small enough that every member is valued and needed. The spirit is palpable, and younger members especially are moved by their association with colleagues who have decades of experience on the Ice or in other matters Antarctic.

Consider joining the Antarctic Society to receive four issues of the newsletter per year and full access to the web site. Annual dues: \$20 (\$25 outside the U.S.) for newsletters by post, \$13 electronically. Fill out the application (see "About us" on the web site) and send it with a check to Dr. Paul C. Dalrymple (address at left). Or pay online under "About us" on the web site. Either way, email webmaster Thomas Henderson a username and password for the web site.

2015 Antarctic calendars

Hedgehog's terrific 2015 Antarctic calendars are here! We want to unload them now so we won't have to beg you to buy in December. They are a bargain at \$17. Make out a check to the Antarctican Society, and mail your order now to the Antarctican Society, P.O. Box 325, Port Clyde, Maine 04855. Great holiday gifts. Eidie Taylor, buy now, not in mid-December!

Antarcticans, artists, and writers gather in record numbers at Port Clyde

by Paul Dalrymple

In the last decade, more and more of my Antarctic friends appeared at my retirement door in Port Clyde, Maine. It appeared we would have enough good old boys to have what I have referred to as a Gathering. Gracie Machemer and I kept every other year free to travel, then opened our facilities for an Antarctic Gathering the intervening years. Charles Swithinbank was a drawing card who attracted all Antarcticans to his feet. An IGY colleague of mine, Charlie Bentley, was likewise a Pied Piper. Before we knew it, a horde of geophysicists was coming here to see Charlie and sing "On Wisconsin."

Something new

These Gatherings were private until word was spread, falsely, that they were an Antarctican Society function. True, most of our invitees were Antarctican Society members. But, not all. We were more or less coerced into opening the 2014 Gathering, which took place in Port Clyde, Maine, 17-20 July, to all members of the Antarctican Society, hoping that only the real die-hard Antarcticans would show up.

We also tried something new: connecting with one of my neighbors, nationally celebrated artist Greg Mort, in honoring Antarctic artists and writers--a one-day celebration in his elegant barn. We had the perfect man in former NSFer Guy Guthridge to work with the Morts, especially Greg's wife Nadine, in a collaborative program. Our fear of hundreds showing up did not materialize, although a count did reveal that 177 were here. That's a lot of people to bring into a fishing village of 600 year-round residents with only a handful of beds for rent. Tenting became popular. Gatherings originally had been predominantly male, but our group was evenly divided between males and females!

Most of the stalwarts were from the 1960 decade and were field scientists. People who kept coming back each time were the likes of Charlie Bentley, John Clough, Steve DenHartog, Art Ford, Ed Robinson, John Behrendt, Dick Cameron, Andy Cameron, Walter Boyd, Jerry Marty, John Rand, Polly Penhale, Ann Hawthorne, Lucia deLeiris, Michele Raney, Mary Albert, Lou Lanzerotti, Bob Dodson, Bob Dale, George Denton, Warren Zapol, Hugh Bennett, Bill Meserve, Bob Rowland, Hal Borns, Tony Gow, Dale Andersen, John Spletstoesser, and Charles Swithinbank. And a close knit group (Tom Laudon, Peter Wasilewski, Larry Lackey, and Peter Otway) who first went to the Ellsworth Mountains, and who have met regularly ever since, blessed us with their attendance this year.

Garage Theater

A highlight for the Old Guard this July (as in past Gatherings) was the Garage Theater. All day on Friday, 18 July, a dozen presenters regaled us with words of wisdom.

The solemn, touching start honored the recent passing of our Honorary President, Charles Swithinbank. Ron Thoreson of Montrose, Colorado, who once

was a member of the elite Honor Guard at Fort Myer, Arlington, Virginia, conducted the ceremony. While with the Honor Guard, Ron never once dropped a tossed fixed-bayonet rifle. Accompanying Ron in a short parade to the garage was Ed Robinson, in kilt, playing bagpipe. Al French spoke of his attendance at Charles's service in Cambridge, England. Richie Williams of the U.S. Geological Survey talked about his close professional association with Charles over 50 years. The dedication ended with Ed, a good friend of Charles, marching into the woods, playing his bagpipe, as the music faded. I am sure Charles would have been pleased to have been so honored in front of his Antarctic friends.

The Garage Theater presentations began with Jean Daniels Portell, daughter of Ambassador Paul C. Daniels. Jean spoke about her father's role in formulating the 1959 Antarctic Treaty, which still serves for all nations in governing activities on the Ice. Jean was followed by Liesl Scherthanner, of Ketchum, Idaho, veteran of 13 seasons working at the South Pole, and her Welsh husband, Michael Powell, both speaking about their involvement in trusts maintaining historic Antarctic stations.

Lisa Crockett, daughter of Freddie Crockett of the 1928-30 Byrd Antarctic Expedition and an Antarctic scientist in her own right, talked about her father and about her work. Several family generations have been to Antarctica, but none I know of with such a continual, near-century record.

While Freddie Crockett – who was on Larry Gould's sledge party in support of the first (1929) flight to the South Pole – was one of the earliest U.S. Antarctic dog team drivers, speaker Dr. Jerry Vanek, veterinarian, had a connection to the very last one. In 1993 Jerry was en route with dogs to Antarctica to enable a climb of Mount Vaughan (named for Norman Vaughan) when the airplane crashed on approaching the blue ice runway at Patriots Hills. Jerry came to several days later in the

hospital in Punta Arenas; he may be the only person who ever flew in and out of Antarctica without having stepped on snow or ice or land. His account had the garage audience in near constant laughter.

Shake any tree

If there were a Cooperstown with Hall of Fame Antarcticans, a good number of those who come to our Gatherings would be in that Hall. They come to eat boiled lobsters, scallops, lobster rolls, and crabmeat rolls in this small town on Penobscot Bay where July temperatures rarely reach 80. No earthquakes, no floods, no fires, no summertime hurricanes. Offshore 10 miles is the picturesque Monhegan Island. Port Clyde is an artist colony: shake any tree, and an artist will fall out. Going to the local post office, you might see Andrew Wyeth's famous nude model Helga. Go to an island in Port Clyde harbor, and who might be there but the Chief Justice of our Supreme Court. We are small, but we have been discovered – despite one of our famous artists/illustrators, N.C. Wyeth, once saying, "I never put the name of Port Clyde onto any of my paintings as I don't want to draw attention to this lovely town which might help attract tourists."

An archival accomplishment of our six Gatherings is the three-DVD set *Antarctica Calling*, filmed and produced by the late Dr. Ed Williams of Roanoke, Virginia. Dr Ed came to several Gatherings and captured 30 of our most prominent attendees, nearly all of whom still come to the functions.

A current project could rival Dr. Ed's accomplishment, as Bill and Larry Baker attended the 2014 Gathering and shot at will. Bill, former president and CEO of Thirteen (WNET, the New York City PBS station), and his cameraman brother Larry have come up with a short spiel for [PBS Newshour](http://www.pbs.org/newshour) about our Port Clyde gathering that was put online October 11. □

The Core

by Ensign Erica Leinmiller, U.S. Navy

Ice. Diameter: 3 inches.

An ideal core, steadfast over the years
not shifting, nor scored deeply by winds,
nor made stagnant in runoff.

Honest.

Dark summers mark its length,
the irregularity of time measured in winters
and waters.

After thin first years, rich winters extend
this core's length.

With only slight reprieve, they pile onto one
another,

winter on summer on thick winter.

Tales the core holds can be guessed,
measured in clean labs by minute
concentrations:

atmosphere between the crystals, dust.

They can be known by living
through perpetual dark or unending light.

Let us take the sample of what we knew by
heart,

then archive the core.

It will remain, unchanged, a history of the
earth

to which we may return

seeking answers for new questions.

for Sir Charles Swinburn

The Art of Stewardship of the Antarctic

by Guy Guthridge

The second day – Saturday, 19 July –
of the Antarctic Gathering in Port Clyde
centered on the point that, along with

exploration and science, we use stories,
maps, pictures, music, sculpture, poetry,
performances, and other art to deepen our
relationship to a locale.

Further, artists and writers see
Antarctica as a place from which to take the
measure of the planet. “Antarctica,” writes
fine-arts photographer Neelon Crawford,
“provides us an alternative perspective from
which to examine our behavior and
priorities.”

Over a long day, 22 artists, writers,
scientists, and conservationists discussed
before a full house how their works increase
such understanding.

After an introduction by me, Nadine
and Greg Mort explained their project – [The
Art of Stewardship](#) – using the arts and
particularly the power of imagery to infuse
others with the notion of earth conservation
and stewardship. The Morts’ elegant barn
was our meeting place.

Scott Kelley, a painter and naturalist,
led off the presentations. Scott, who lives
on an island off the coast of Maine, worked
along the Antarctic Peninsula in 2003. In
addition to paintings and exhibitions, his
coming book will help children prepare to
do Antarctic art and environmental work.

Judit Hersko collaborates with
scientists to visualize climate change science
through art. Her “performance lecture” was
a fictional story about a woman who joins an
Antarctic expedition before 1960.

Lisa E. Bloom, UCLA, has a
forthcoming book that focuses on three
artists, one being Judit Hersko. The book
foregrounds early polar exploration as a
frame for understanding contemporary
Antarctica.

Doug Quin, a composer and sound
artist, recorded Antarctic soundscapes and
made them available on CDs. He has been
interviewed on NPR, composed a *Polar
Suite*, and created the sound for the 2007
feature film *Encounters at the End of the
World*. Doug argues music helps us come to
an intellectual reckoning with climate

change.

Anne Noble, photographer, said Antarctica extends her interest in how perception contributes to a sense of place. Early Antarctic photographs reflect man's dominion, she notes, but her photographs place humans in a collaborative role.

Neelon Crawford, mentioned above, made five trips to the Antarctic. He talked about the function of art and showed his pictures. Good art is undeniable, he stated. And it takes the viewer straight to a truth about the place or event depicted.

After lunch a panel presented perceptions based on their work. Bill Baker, president emeritus of WNET, the New York PBS station, discussed the coming newscast Paul refers to in his article above. Elena Glasberg, an interdisciplinary humanist, talked about principles explained in her 2007 book *Antarctica as Cultural Critique*. Author Meredith Hooper described her work with, and 2007 book about, ornithologist Bill Fraser at Palmer Station. Andrea Kavanagh, Pew Charitable Trust, talked about Southern Ocean sanctuaries. Claire Parkinson, a NASA climate scientist, talked about the 2007 illustrated book *Our Changing Planet—The View From Space*, which she and others edited.

Film program

Six video segments, totaling less than an hour, were shown next. A short by musician and diver Henry Kaiser and Doug Quin presented a Weddell seal pup learning to swim underwater with his mom. A clip from Anne Aghion's movie *Ice People* showed field work in the McMurdo Dry Valleys. Underwater footage by Norbert Wu showed killer whales in McMurdo Sound. A segment from Anthony Powell's *Antarctica—A Year on The Ice* depicted the human dimension of wintering and other topics. Visual and audio aspects of the structure of ice were the subject of a collaboration by Cheryl Leonard

and Oona Stern. Lisa K. Blatt presented a conceptual clip depicting slow action on the Mount Erebus volcano.

Toward the end of the afternoon, Norbert Wu gave a presentation on his underwater photographs and 1-hour PBS video *Under Antarctic Ice*.

Nine surprises

We opened the floor. Nine surprises followed – each so pleasant that at cocktail time the audience (still a full house) elected to keep listening rather than drink:

NASA scientist Peter Wasilewski described how he paints with light on a canvas of ice: thin layers of water are frozen, manipulated, and viewed through polarized light; he calls it Frizion.

Jim Mastro described writing his 2002 book *Antarctica: a Year at the Bottom of the World*.

Kathleen Heideman read her Antarctic poems “Human Considering the Polar Plateau” and “Considering Specimen ALH 87-7292.”

Mike Parfit, author of the 1987 book *South Light: A Journey to the Last Continent*, thanked scientists in the room for their assistance in his past work and talked about his current project: a book about leadership.

Lucia deLeiris, a painter, showed images from her Antarctic work and described her collaboration with authors to produce books about the Antarctic environment.

Scott Sternbach showed his large-format film camera photographs of people and other subjects at Palmer Station. Scott is director of photography at CUNY, Laguardia. His project *Polar Souls* visits the coldest places to document the human presence.

The Reverend Bruce J. Lieske wintered with Paul Dalrymple during the IGY and has written a book, *Frozen Memories* (2014), which he described.

Charles Bevilacqua described his first (1955) trip to McMurdo and Pole, the beginning of permanent human occupation. He was with fellow Seabee Richard T. Williams, an early casualty when a tractor broke through the sea ice. Charles raised the money for the memorial to Williams that stands at McMurdo today.

John Behrendt, who wintered during IGY by the Weddell Sea, discussed his experiences and his book that resulted, *Innocents on the Ice*.

The artists and writers day at Port Clyde took place because of the vision, drive, and resources of Paul Dalrymple. It embraced the experiences of artists, writers, and those in many other occupations – from early days of Antarctic exploration and science to current appreciation of the region’s visual and conceptual relevance.

Findings and news

contributed by Art Ford

[Japan must stop whaling](#) in the Antarctic. The International Court of Justice has backed Australia’s landmark case and demanded Japan stop its Antarctic whaling “with immediate effect.”

[Record Antarctic sea ice](#). The maximum area since 1979 (when satellite observations began) was recorded 12 September, and coverage was to peak in early October. [An online climate-change skeptic asks, “Does this mean that it eventually will get so hot that all the oceans will freeze?”] Westerly winds are thought to have caused the decades-long increase; the 2009 SCAR report on Antarctic climate change blames the ozone hole for the winds. SCAR though, looking ahead, sees a one-third decrease in Antarctic sea ice by the end of the century.

A reason for the SCAR prediction is that the **ozone hole**, which on 2 October was near its deepest and largest for 2014 and

similar in size to those of 2013 and 2012, is smaller this year than the decadal mean. NASA says it will recover by around 2070.

Surface warming caused Larsen-B to collapse. New geophysical and other data showing the recessional character of the Larsen-B Ice Shelf grounding lines before its 2002 catastrophic collapse have led to the conclusion that surface warming rather than grounding zone instabilities was the cause. M. Rebesco et al. in *Science* (12 Sept. 2014) note that the shelf and its grounding line were stable through the Holocene, so the 2002 collapse “suggests strong sensitivity to surface warming.” More work on grounding zone systems is critical, they write, despite “difficulty in access, logistical risk, and competing resources.”

West Antarctic Ice Sheet heads for the beach

by Guy Guthridge

It’s taken the world a while to catch up with Syukuro Manabe and Richard T. Wetherald. In a 1975 *Journal of Atmospheric Sciences* they wrote that, with doubling CO₂, “the increase of surface temperature in higher latitudes is magnified.”

Well, yes. Historian Naomi Oreskes (then at UCSD, now Harvard) at the 2010 American Geophysical Union meeting asked, “If the predictions of climate models have come true, then why don’t people believe them?” And Suki Manabe, also there, received the William Bowie Medal for his work on, of course, the response of climate to increasing carbon dioxide. That 1975 paper, 35 years earlier, was the first to predict we’d see amplified warming near the poles.

Jump to the front page of the *New York Times* on 13 May 2014: “Global warming fuels loss of ice sheet in West

Antarctic.” Or the 17 May *Economist*: “The West Antarctic Ice Sheet looks doomed—eventually.”

“Today we present observational evidence that a large section of the West Antarctic Ice Sheet has gone into irreversible retreat,” said Eric Rignot, lead author of a 27 May paper in *Geophysical Research Letters*. “It has passed the point of no return.” Four feet of ocean rise will be the likely outcome over the next couple of centuries. But that’s from just the six outlet glaciers Rignot and his team examined directly. The disappearance of those six will destabilize other sectors, and “the ultimate rise could be triple that.”

Ian Joughin in *Science* came to similar conclusions about Thwaites Glacier.

What did these researchers have that Manabe and Wetherald didn’t? Data. “We use InSAR data from the European Earth Remote Sensing radar satellite collected in 1992 and 1994, ERS-1 and ERS-2 tandem data from 1996 and 2000, and ERS-2 from 2011. We employ a quadruple differential InSAR technique where interferograms spanning the same time interval and corrected for surface topography are differenced to measure the short-term, meter-scale vertical motion of the ice forced by changes in oceanic tides. BEDMAP-2’s topography uses ice thickness data from the 2002 NASA/CECS, the 2004 BBAS/AGASEA, and the 2009-2010-2011 NASA’s Operation IceBridge surveys.”

Data that Larry Gould could only dream of. Data that, back in 1975, might have made Manabe weep. Data – dry, voluminous, consistent, repeatable – forcing us to foresee a future that, unchecked, will be pretty darn different from today and, maybe, not as pleasant as we’d like. And these scientists – these few heroes – have put the better part of their lives into showing us where we’re headed.

James Quincy Tierney-Holly

by Steve Dibbern

James Quincy Tierney-Holly, “JQ” or Jay to his friends, 89, died in Sykesville, Maryland, on 18 August 2014.

JQ was born in Los Angeles and got a BSc. and did graduate work at the University of Miami. Although accepted to medical school at Tulane he decided to pursue his love of marine biology and oceanography and took a job with the U.S. Navy.

Before and during the International Geophysical Year he served on most of the U.S. Navy and Coast Guard icebreakers in the Antarctic. He started on the *Atka* in the Ross Sea during the pre-IGY reconnaissance to select sites for the McMurdo air base and Little America V. He went on to work for years as an oceanographer in both the Arctic and the Antarctic. Much of his biological work is now housed at the Smithsonian’s Museum of Natural History.

As an oceanographer for the U.S. Navy, JQ was also later involved in intelligence and undersea warfare work. His work in this field has been recognized by the Secretary of the Navy and the U.S. Arms Control Agency. He was involved with but not onboard the USS *Pueblo* when the North Koreans took it. He said that several of his friends whom he had sent on the ship “bore him no ill will” after they were repatriated!

On one of his Antarctic cruises the ship he was on was badly damaged in the ice, requiring dry-docking in Wellington, New Zealand. There he met and later married Beverley Toon, his wife for 42 years until her death in 2002. They lived near Washington except for a few years after retirement when they returned to New Zealand. Finding New Zealand “too insular,” they returned to the States and retired in rural Maryland.

JQ held the U.S. Antarctica Service Medal and was a member of the Antarctican Society. He was a Fellow of the Explorers Club with more than half a century of membership. One of his publications, published in NSF's *Antarctic Journal of the United States* in 1969, summarizes the U.S. Navy's contributions to Antarctic oceanography, which reach back to Matthew Fontaine Maury's 1861 proposal for an international investigation of the Antarctic region. The Tierney Peninsula on what is now Thurston Island (then the Thurston Peninsula) was named for JQ as a member of the 1960 *Burton Island* icebreaker cruise to the area.

Six priorities for Antarctic science

[from Mahlon C. Kennicutt II et al.]*

*Mahlon C. Kennicutt II is professor emeritus of oceanography at Texas A&M University, College Station, Texas, USA, and former president of the Scientific Committee on Antarctic Research. Steven L. Chown is professor of biological sciences at Monash University, Victoria, Australia. John J. Cassano, Daniela Liggett, Rob Massom, Lloyd S. Peck, Steve R. Rintoul, John W. V. Storey, David G. Vaughan, Terry J. Wilson, William J. Sutherland. e-mail: mckennicutt@gmail.com

In a 3-page article in the Comment section of the 7 August 2014 *Nature*, the authors outline the most pressing questions in southern polar research and call for greater collaboration and environmental protection in the region. We've listed all the authors here because they are some of the most recognized names in modern Antarctic science.

The *Nature* article derives from a 20-23 April 2014 gathering in Queenstown,

New Zealand, under the auspices of SCAR during which 75 scientists and policy-makers from 22 countries agreed on Antarctic research priorities for the next two decades and beyond. The article states the gathering was the first time the community has formulated a collective vision through discussions, debate, and voting.

The group identified 80 research questions that fall into six themes: Define the global reach of the Antarctic atmosphere and the Southern Ocean. Understand how, where, and why ice sheets lose mass. Reveal Antarctica's history. Learn how Antarctic life evolved and survived. Observe space and the Universe. Recognize and mitigate human influences.

A short concluding section includes these words:

"It is time for nations involved in southern polar research to embrace a renewed spirit of cooperation as espoused by the founders of the Antarctic Treaty — in actions not just words. Wider international partnerships, more coordination of science and infrastructure funding, and expanded knowledge sharing are essential.

"Communicating the global importance of Antarctica to the public is a priority. Narratives must better explain how the region affects and is influenced by our daily lives. Antarctic success stories, such as signs of ozone recovery, engender confidence in the power of changes in behavior.

"Antarctic science is globally important. The southern polar community must act together if it is to address some of the most pressing issues facing society."

Two-in-one book review

by Paul Dalrymple

Two relatively old, retired members of our Society wrote books in the last year. One, a retired military officer, Captain

Alfred Fowler, USN, covers his whole career – including his high school sweetheart, the perpetual love of his lifetime. The other, Rev. Bruce Lieske, a man of the cloth still deeply involved in religion, writes of only one year, 1957, when he was a meteorologist in Weather Central at Little America V during the International Geophysical Year.

The books are *Hurricanes to Antarctica, Tales of a Naval Aviator* by Capt. Alfred N. Fowler, USN (ret.) and *Frozen Memories, An Old Man Recaptures His Youthful Adventure in Antarctica* by Bruce J. Lieske. These reviews no doubt are prejudiced, as I know both writers. Both are clean-cut, nice guys, and you cannot help but enjoy and appreciate such people. The title of Al's book may seem at first misleading, but the heart of his military career was spent as a pilot in hurricane hunting squadrons. This reviewer may have flown a mission with him, as I fast-talked an all-day flight out of Bermuda when I was on the North Atlantic Weather Project.

Al's book is a love story, and a more suitable title might be, "Katie, The Love of My Life." Hardly a page does not have her name, and every other page seems to announce another pregnancy. A companion book comes with *Hurricanes*: "A Poem from Punk," love poems Al wrote to Katie during their courtship. Don't let the sidekick volume scare you out of *Hurricanes*, as it is a good read on his military aviation career, followed by his leadership roles in the Office of Polar Programs at the National Science Foundation.

Bruce Lieske's book is a great read on what happened the first year of Weather Central in Antarctica. Where Al's book is void of most colleagues' names, Bruce tells all about his associates at Little America V in 1957. The head of Weather Central was handpicked by Harry Wexler, the U.S. chief scientist for Antarctica, a poor selection who ran the office in a Stateside fashion. It did

not always meet with the approval of the Russian or Argentine meteorologists, or for that matter with the two U.S. meteorology students. Having wintered myself at Little America V in 1957, having a desk 40 feet from Weather Central, I more or less was privy to what was going on in the building.

One happening Bruce writes about in his *Memories* entails the German scientist disguised at the station as a glaciologist. An unknown message from a Jim Jones Publishing House came to the German offering him a stipend for an account of his year at Little America V. The German believed this false sitrep and ran all over camp collecting data and information. After several days the German got suspicious and tried every typewriter at the station to see if he could ascertain on which the message was typed. Nothing was proved. Bruce wrote that the culprit who masterminded the prank was "Paul or physiologist Fred Milan." I knew Fred (Mukluk) well; it was neither of us. I accused the Austrian glacial meteorologist Herfried Hoinkes of it. His reply was, "I only wish I had the brain to have thought it up." This incident was a highlight of our year.

Bruce's *Memories* is a great factual account of what happened at Little America V in 1957. It contains a ton of information I never knew happened. For someone who has never wintered in Antarctica and wants to know what can happen, read this book. You will enjoy it.

Society's new management

The front office of the Antarctic Society has a new regime. Time has run out on our officers and board of directors.

Glaciologist Tony Gow, who was born and brought up in New Zealand, is now happily entrenched in Lebanon, New Hampshire, where he lives with his wife

Marge, an excellent chef, and their new West Highland Terrier, 8-year old Miss Lilly. Tony is our new President.

Our new Vice President is Leisl Schernthanner of Ketchum, Idaho, veteran of 13 seasons at the South Pole. She lives with her personable Welsh husband, Michael Powell, and several horses.

Our new Secretary is an Antarctic historian, Joan Boothe, who lives on a hill of San Francisco overlooking Fisherman's Wharf. Joan is a sports buff – field and track plus Stanford women basketball – whose solid reputation with the Explorers Club preceded her into our position as Secretary.

Our Treasurer is an ancient retread, Paul Dalrymple of the lobster fishing village of Port Clyde, Maine. Paul has been involved in the financial records of our Society for 37 years. His license plate (TSW 406) tells a lot about him, a celebration of an hour interview with the most famous batter in the history of baseball.

Another veteran is our incumbent webmaster, Tom Henderson, the Society's Most Valuable Player, who hails out of Slingerlands, New York, where he plays senior baseball, first base, while rooting vehemently for his beloved St. Louis Cardinals.

The Board of Directors comprises the officers plus a cross-section of Antarcticans, starting with a survivor of Ellsworth Station in 1957, John Behrendt of Boulder, Colorado. John has remained a true Antarctic ever since and is the author of two books on his illustrious career, including the popular *Innocents on the Ice*.

Ron Thoreson came on the scene as head of the biolab at McMurdo. Earlier he was in the elite Honor Guard at Fort Myer in

Arlington, Virginia, and thereafter head ranger at National Parks.

Lou Lanzerotti is distinguished research professor of physics at the New Jersey Institute of Technology. His extensive Antarctic experience includes solar terrestrial research at Byrd, Siple, and Eights stations. Lou was a member of the National Science Board, 2004-2010.

Steve Dibbern, a polar transportation expert for the U.S. Army, came onto the scene promoting use of hovercrafts over snow and ice, where he fought a losing battle. However, he discovered a new love, Deception Island. Buy his book!

Mark Leinmiller was the first Eagle Scout selected to go to Antarctica after Dick Chappell went there during the IGY. Mark, who set high standards for achievements at Philmont, has continued his Antarctic interests throughout his career.

Dale T. Andersen, a limnologist and astrobiologist (also an Eagle Scout), has continued his research diving in Antarctic lakes, including those in the McMurdo Dry Valleys and the Bunge Hills.

Jerry Marty, then of NSF, was chief builder of the elevated South Pole station completed in 2009. He tried retirement, only to heed again the Calling of Antarctica. He recently retired again to keep an eye on his Antarctic wife-artist-traveler.

To our north, Canadian Valmar Kuroi, head of the Montreal Antarctic Society, was showing interest in the music of Antarctica. Through Valmar, our Society has sent Antarctic musical CDs to Pole and Palmer stations.

Recently, school teacher Lesley Urasky became involved in Antarctic research and now is on our board. This dynamo from Sinclair, Wyoming, will be a jumper.



The Antarctic Society

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BRASH ICE

When I joined the National Science Foundation's polar office in 1970, my starting task was to edit *Antarctic Journal of the United States*. NSF had begun the periodical in 1966 to raise the visibility of science coming out of its still new U.S. Antarctic Program. Incredible as it may seem, back then the three program managers – Ray Heer (upper atmosphere physics), George Llano (biology), and Mort Turner (geology) – spent much of their time trying to convince scientists to consider working in Antarctica, rather than spending a comparable amount of time turning down worthy proposals, an unfortunate chore of their modern counterparts who these days are besieged by requests.

By 2004 the *Antarctic Journal* had worked itself out of a job, and NSF stopped publishing it. The early low visibility of Antarctic research had been replaced by excellent representation in the mainstream journals, minimizing the need for a special vehicle to insure the reception of Antarctic science in the broader community.

This newsletter has not earned such irrelevance. While we do write the occasional research summary (see "Southern Ocean brings it all back"), the main intent is to turn your attention to some of the people who are, or have been, the backbone of Antarctic research, its support, and related endeavors. Several articles below do that. We want your suggestions for more.

Consider joining the Antarctic Society, if you haven't. You'll receive four issues of the newsletter per year and full access to the web site (see "Society's website update," below). Annual dues are \$20 (\$25 outside the U.S.) for newsletters by post, \$13 electronically. Fill out the application (see "About us" on the web site) and send it with a check to Dr. Paul C. Dalrymple (address at left). Or pay online under "About us" on the web site.

Guy Guthridge

Our Treasurer delivers treasures in a Port Clyde barn

by Jim Mastro

One has to wonder where Paul Dalrymple gets his energy.

During the International Geophysical Year (1957-58), [Dalrymple](#) was the micrometeorologist at Little America V, at Kainan Bay on the eastern Ross Ice Shelf, and later at South Pole Station.

Ever since then he's had boundless energy for all things Antarctic. Nearly every July for the past couple of decades, he has hosted an Antarctic gathering at his home in Port Clyde, Maine, an undertaking of no small consequence. Now at the tender age of 91, one would think he has every right to pass the torch to someone else. But that's not Paul. The most recent shindig, open to all members of the Antarctic Society for the first time, was probably his most ambitious yet.

[Port Clyde](#), however, is not a place one would immediately associate with meetings of great import. The town is exactly what you would expect of a Maine coastal village, in a rocky-shoreline, famous-old-lighthouse, and picturesque-harbor kind of way. Dalrymple's comfortable house sits very near that [famous lighthouse](#), at the end of a narrow road, which is itself at the end of another narrow road. Easy to get to, it is not. All the more remarkable, then, that upward of 175 people made the pilgrimage this year. But then, as I have noted, this was no ordinary meeting of the Antarctic Society, which was founded in 1960 as a not-for-profit educational society.

First, though, allow me to scroll back a couple of decades. In May 1993, 20 of the 24 then-living alumni of the [National Science Foundation's Antarctic Artists and Writers Program](#) met in Boulder, Colorado for a two-day workshop. The meeting was

the brainchild of Guy Guthridge, who was then manager of the NSF's Polar Information and Coordination department. Guthridge wanted to see if the artists and writers could "...increase their effectiveness by collaborating to create a message ..." His hope was that the workshop would "...yield a vision, collaboratively expressed by these fiercely independent individuals, of America's role in Antarctica."

"Fiercely independent," of course, is the operative phrase. Of the many benefits yielded by the workshop, a collaboratively expressed vision of America's role on the seventh continent was not one of them. However, one thing became very clear as the meeting progressed. At one time or another, nearly every participant expressed a strong desire to see Antarctica's pristine condition preserved. Though it was never the intent of the workshop, a message of environmental stewardship was essentially its result.

That brings us back to 2014 and the meeting at hand. As you drive through Port Clyde's quiet, winding streets, you are tempted to label it a sleepy fishing village. But looks are deceptive. "Shake any tree," Dalrymple says, and "an artist will fall out." One of those arboreal individuals is [Greg Mort](#).

A [world-renowned artist](#) whose paintings have been displayed in the White House and U.S. embassies, as well as in prestigious galleries, Mort is well aware of the power of imagery. Early in his career, he realized that that power could be directed toward environmental protection. To that end, he and his wife Nadine established a nonprofit charitable foundation they call [The Art of Stewardship](#). The idea is twofold: to inspire other artists to use their talents to promote an environmental message, and to use art, and some of the funds collected from the sale of art, to support environmental causes.

The Morts also happen to be Dalrymple's neighbors, so they knew of the Society. Paul had even tried to convince

Greg Mort to apply for the NSF's Antarctic Artists and Writers program, but to no avail. Still, his efforts did not go to waste. In 2012, in neighborly conversation, Greg Mort suggested a joint Antarctic Society/Artists and Writers meeting, in combination with his nonprofit. They would call it [The Art of Stewardship of the Antarctic](#).

When Paul Dalrymple contacted Guy Guthridge with the idea, Guy embraced it eagerly. Now retired from the NSF, Guthridge had always wanted to have another artist and writer workshop, and the Morts' backing made it all that much more exciting. Working together, Guthridge and Nadine Mort contacted 40 Antarctic artists and writers and, with Dalrymple's help, began to organize the complex logistics of the meeting.

So it was that I found myself this past July, as the sun shone hot and bright on a rocky North Atlantic shoreline, rubbing elbows with such luminaries as artist [Lucia deLeiris](#), photographers [Joan Myers](#) and [Norbert Wu](#), authors [Meredith Hooper](#) and [Michael Parfit](#), and of course Greg and Nadine Mort, among many others. Over the throaty growl of lobster boats motoring by, I listened to a parade of distinguished artists and writers discuss, as the program said, "how their visual and literary explorations have been influenced by and reflect Antarctic environmental concerns."

Dalrymple, of course, was a constant presence. He introduced the speakers at the Society forum, and he worked the crowd at the Art of Stewardship symposium. Whatever people were discussing, they wanted his input. It is no surprise. Not only has Paul been the face of the Antarctic Society for as long as most of us can remember, but he has long been a vocal advocate of bringing artists to Antarctica. The inclusion of the Morts seems a fitting culmination of that advocacy. "It was the perfect fit," Greg says.

As was the venue. The Art of Stewardship of the Antarctic symposium

took place in Fieldstone Castle, a meeting hall and studio originally built in 1913 as a guesthouse and observatory by the Arctic artist and telescope maker Russell W. Porter. Porter had accompanied Frederick Cook (1893) and Robert Peary (1896) on their Arctic expeditions, so the castle seemed a fitting place to be discussing polar matters.

As I spoke to people, listened to the presentations, and sat in on panels and brainstorming sessions, one thing struck me. What had been only implicit in the previous artists and writers workshop was now explicitly front and center. Participants actively discussed how and why art – and why sending artists to the Ice – is important to the cause of environmental preservation, and by extension to the U.S. Antarctic Program. The Antarctic program is well known for the science it supports but, as Greg Mort says, "There is an enduring connection between art and science. Leonardo da Vinci, one of the world's greatest scientists and artists, said, 'Art is the true daughter of science.'"

The Art of Stewardship of the Antarctic, then, is all about finding ways to use art to further a shared goal of protecting the Antarctica that we love. "Artistic works reach a lot of people," Lucia deLeiris says, "and art creates emotion." Emotion is what motivates people to action, so the feeling that we were on to something good seemed to be universal. However, not everyone had a sanguine view about the chances for success.

"Art in itself won't save anything or any place," says Jason Anthony, author of [Hoosh: Roast Penguin, Scurvy Day, and other stories of Antarctic Cuisine](#), "but someone held rapt by an Antarctic documentary film, for example, may well be brought into the fold of the environmental movement trying to protect parts of the southern continent. The hard part is matching up Antarctic art to Antarctic action, as it were, since there are few concrete ways in which someone can feel

like they are helping to ‘protect’ Antarctica.”

Still, he is clear about one thing. “Antarctic art and its artists serve as media for a place few have the privilege of seeing for themselves, and in doing so hopefully convey a sense of wonder about, and the importance of, this remote, strange place.”

And that, I thought, really goes to the heart of the matter. The work done by scientists in Antarctica is incredibly important, but the general public doesn’t get to see most of it. This isn’t on purpose. Scientists publish their work in scientific journals, which are read mostly by other scientists. These journals are the place for facts, not for poetic interpretations. That is the job of artists and writers, who by the very nature of their work must bring their message to the general public.

It comes down to this: scientists deliver the facts, but artists and writers deliver the magic. It is really through their eyes and ears, through their words and images, that we truly come to understand Antarctica.

I’m sure Paul Dalrymple would agree.

Shackleton commemorative voyage ends early

by Guy Guthridge

A dragging anchor and a diesel engine that failed to start brought the voyage of privately owned sailing vessel *Polonus* to a bad end on 23 December 2014 at Lions Rump, a point of land on King George Island that is Antarctic Specially Protected Area No. 151 and a research site of Polish scientists from nearby Arctowski Station.

The voyage had started in Poland on 7 July. It included a stop at Plymouth, England, where Alexandra Shackleton, granddaughter of the celebrated Antarctic explorer Ernest Shackleton, during

centenary celebrations of the *Endurance* expedition, sanctioned the Polish journey. The intention was to visit South Georgia’s port Grytviken on 5 January 2015, the 93rd anniversary of Shackleton’s death, and pay respects at his grave there.

After a stop at the Falkland Islands, the *Polonus* route toward South Georgia included the Antarctic Peninsula station Arctowski. The vessel arrived there on 22 December. The crew befriended station personnel and agreed to transport researchers the 12 nautical miles to their project at Lions Rump.

After the 44-foot ketch anchored, a sudden squall drove the boat onto the rocks ashore.

The Argentine Navy ship *Suboficial Castillo* diverted to the scene, arriving on 23 December, to evacuate stranded crew and scientists back to Arctowski. Later, on 31 December, Argentine personnel expertly removed fuel, lubricants, and food to prevent their entering and compromising the environment. Then they towed the leaking but still afloat sailboat back to Arctowski, where station members managed to get it ashore and secure it for storage of unknown duration.

Enter the 781-foot Holland America Lines cruise ship *Zaandam*, on which I was aboard as an Antarctic lecturer. In the early morning hours of 4 January, fog and ice had forced us to give up visiting Hope Bay, 90 miles east of Arctowski across Bransfield Strait. We headed for our next scheduled stop of Admiralty Bay, with splendid vistas, abundant wildlife, and research facilities operated by Brazil, Ecuador, Peru, and the United States in addition to Poland.

After *Zaandam* finished its tour of Admiralty Bay, Zodiacs from Arctowski delivered *Polonus*’s seven weary men and their possessions to our liner. For all seven, it was their first time ever aboard a cruise ship. Next morning in the ship’s theater, as we crossed Drake Passage in a calm sea, Martin, the ship’s shore excursions manager,

who is Polish, provided a spirited summary (in English) of the voyage with the aid of photographs the sailors had salvaged. In an hour's frank and open exchange, Martin served as interpreter for questions posed by a packed house of curious passengers.

Why did the engine fail? We don't know. What kind of anchor? Plow. How much chain was out? Thirty-five meters. What kind of boat? A steel ketch (Bruce 44) built in 1991 with fin keel, 80 square meters of sail, VHF radio, and Iridium satellite phone. How badly damaged? Cracks in the hull and a loose keel. What did you do with the salvaged food and fuel? Our Christmas present to Arctowski. What about the wives left at home for such a long time? Please ask the next question.

Did you have permission from Poland for this trip? Yes, we did all the paperwork – a lot of paperwork – with the foreign affairs ministry. Was the boat insured? Yes, and this is our first mishap in 10 years of sailing the boat. Will you write a book about this adventure? No, we do not write books. What was the best part of the trip? Two: when Alexandra Shackleton came aboard and when we crossed Drake Passage in sleet and 45 knots of wind.

The sailors, all in good health, left our big blue and white ship when it docked in Buenos Aires on 11 January. There, they started arranging a way back to Poland and thinking about how to pick up their lives after a disappointing end to their Shackleton centennial commemorative voyage. See <http://shackleton2014.com/>.

Pole to pole and everywhere in between

by Kip Rithner

From Nathaniel B. Palmer's profitable sealing expeditions in the 1820s to

modern science projects and innovative field operations, time spent in the Antarctic has launched or enhanced many a successful career. Polar Field Services (PFS) is an entire company born of that tradition.

In 1999, owner Jill Ferris with six friends and colleagues answered the U.S. National Science Foundation's call for proposals to provide research support and logistics services in the Arctic.

NSF's Arctic Program was about to change in response to both new research needs and a just-completed logistics study. "The PFS team had experience supporting remote Antarctic field research as well as rapport with the Antarctic research community from years working in the U.S. Antarctic Program," Ferris recalls.

Bothering the locals

The first years after PFS won the contract were hectic. "No one lives in Antarctica permanently, so in the USAP we didn't have to worry about bothering the locals," Jay Burnside, a founding PFS member, notes. "In the Arctic, we were always working in someone's backyard. We had to learn the regions and the customs of those who lived there; we had to establish business contacts, processes, and inventory."

Greenland science support resembled the USAP model, with most field teams – NSF grantees, mainly – entering the country via the Air National Guard flying LC-130 airplanes to a logistics hub in Kangerlussuaq. Summit Station, a small research facility at the apex of the ice sheet, was an analog to South Pole Station.

Alaska was a different story. The state has many points of entry, and researchers were accustomed to arranging their own field logistics. To some, PFS assistance seemed like a waste of money. "It took a few years to show that our logistics experience and economies of scale added value," notes founding PFS member Tom

Quinn. “In the second year we saw a leap in the number of projects requesting support, and in the third year, we had more clients than we could handle with such a small staff.”

Antarctic beginnings

Over 15 years, with growing interest in the Arctic and more-complex field projects, PFS has become a staff of nearly 50 full time and 50 seasonal employees. The company supports some 150 research teams per year in Alaska, Greenland, Canada, Iceland, Russia, Norway, and the Arctic Ocean and seas.

A number of staff are proudly “bi-polar,” like the founders. A common characteristic is they like to solve problems.

In the last year we have had another infusion of Antarctic energy: Martin Lewis (a 20-year USAP operations and maintenance manager) oversees Greenland facilities efforts; Kevin Pettway (former USAP safety, environment, and health leader and Icestock mainstay) heads environmental compliance and stewardship; and Jessy Jenkins (former McMurdo Station Berg Field Center manager) leads our Greenland science project managers.

“It’s our job to worry,” says Marin Kuizenga, manager of Alaska science support. “We work to think of the best way to get scientists out in the field to do the work they’ve been funded for. We want them to succeed.”

PFS now has customers outside the original suite of NSF-funded scientists who need logistics and field services in remote work locations around the world. The Antarctic beginnings have worked for us; they’ve taken the woman-owned company a long way.

L.G. Blanchard, an incomplete obituary

by Guy Guthridge

Lloyd Gordon Blanchard, 64, died 10 February 2014 near his home in San Miguel de Allende, Mexico.

L.G. is what we called him at the National Science Foundation when he was there in the mid-1970s as assistant editor and then editor of *Antarctic Journal of the United States*. He was a young man on the rise, with writing skills, organizational savvy, and a maturity that made him effective in interactions with scientists and officials who were greatly his senior.

NSF colleagues and I found in L.G. a deep friend who melded personal and professional skills to show us the breadth and importance of our own projects, our goals, and ourselves.

Graduating from Oberlin College in 1971 with a bachelor's degree in English literature, he brought style and authority to the *Antarctic Journal*, then moved on to write speeches for officials of Exxon Corporation. Later, he was a public relations executive for medical faculties of the universities of Washington, Oregon, and finally Alabama. In this work he interviewed world leaders, Nobel laureates, medical research innovators, and more than one Antarctic scientist. He retired to San Miguel in 2009.

After he left the Science Foundation in the ‘70s, L.G. and I corresponded but never saw each other again.

Charming, funny, smart – and one complicated man. That’s how a University of Washington colleague describes L.G. in a condolence accompanying an obituary in the 15 February 2014 *Concord Monitor*. The comment is a slim clue towards knowing L.G. as he progressed through his life.

In 2009 L.G. asked me to second an application to Lindblad Expeditions to become a lecturer on a cruise ship going to the Antarctic, which I did. “Things have changed since we last corresponded,” he wrote. “The University of Alabama at Birmingham laid me off with no warning. Judy and I were divorced. I entered bankruptcy and lost everything. I worked as a counselor for a cemetery, helping families on the worst day of their lives. A beautiful 29-year-old R.N. and I were married. Her addiction to pain drugs relapsed, she got fired, and she is in a half-way house. I am in Boston with my mother, working as a grocery clerk in a supermarket near here for \$10 an hour and grateful for it.”

“My days at NSF were the best in my life,” he continued. “You and Phil Smith were a huge and positive influence. We kinda started out this life together. It is such a shame that things have turned out for me the way they are. To ‘advance’ financially, and to no avail, I went from one university or corporation to another, year by year.”

I last wrote L.G. in March 2014 and of course never heard back. Blanchard Nunataks, marking the south end of the Gutenko Mountains in central Palmer Land, commemorate his contributions to the Antarctic knowledge base and mark the memory of a friend.

The Southern Ocean brings it all back to the top

from Adele K. Morrison, Thomas L. Frölicher, and Jorge L. Sarmiento

Dense, cold water exists worldwide at the bottom of the sea. The sources of this heavy water – more of it is forming all the time – are the North Atlantic and the Antarctic. How do these enormous masses of deep water escape back to the surface? The primary exit strategy turns out to be the

Southern Ocean, say more and more oceanographers.

Three nimble writers defend the idea in their illustrated six-page article in the January 2015 issue of *Physics Today*. Adele Morrison is a postdoctoral research associate at Princeton, Thomas Frölicher is a research fellow in oceanography at ETH Zürich, and Jorge Sarmiento is the George J. Magee Professor of Geoscience and Geological Engineering at Princeton.

Oceanographers used to think the deep ocean “drained” back to the surface primarily by vertical mixing of density layers throughout the global ocean. The alternative theory – and it has gained wide acceptance in the last two decades – is that the primary return pathway is the Southern Ocean. Westerly winds in the Southern Hemisphere drive a strongly divergent surface flow that draws water from below in a wide ring circling the Antarctic continent.

“Observations indicate that as much as 80 percent of deep water resurfaces in the Southern Ocean,” state the authors.

The upwelling is good for us. It exerts a huge influence on Earth’s atmosphere and climate. The newly exposed water is cold, so it absorbs heat from the air. Thanks to the decomposition of organic matter that rains continually into the oceans, it delivers nutrients that stimulate most biotic production in the global ocean. And because the upwelled water continually replaces surface water, it absorbs excess carbon from the atmosphere.

Volume conservation explains why the upwelling occurs, they write. The strength of the westerly winds, and therefore the Ekman transport, varies with latitude—the maximum northward surface transport occurs at about 50° S and decreases south of that. (Ekman transport, in the Southern Hemisphere, is northward flow at the ocean’s surface caused by westerly winds combined with the Coriolis force.) Water must be drawn up from below to balance the difference between the larger northward

transport at 50° S, say, compared with the smaller northward transport at 60° S. The broad ring of upwelling starts close to the Antarctic continent and extends all the way to 50° S.

As is true of so much these days, the authors' confidence to make these assertions is – more data. “In one of the most impressive oceanographic achievements of the past decade, physical oceanographers have developed autonomous, free-drifting Argo floats equipped with sensors for temperature, salinity, and pressure.” More than 3,500 Argo floats throughout the upper 2 km of the global ocean provide insights into heat storage and circulation.

Southern Ocean measurements of carbon uptake and nutrient resupply are still summer-biased and ship-based. In 2014, however, ten new Argo floats with sensors to measure pH, nutrients, and chlorophyll were put in, and 200 more are planned for the Southern Ocean with support from NOAA, NASA, and NSF's Division of Polar Programs.

Scott Borg of NSF in the spotlight

The Washington Post and the Partnership for Public Service, a group seeking to enhance the performance of the federal government, have singled out Society member Scott Borg as an exemplary employee of the U.S. Government.

“A large and prestigious NSF research program in Antarctica has uncovered important scientific discoveries about climate change, the origins of the universe, previously unknown sea life, and two new dinosaur species,” begins an article in the newspaper's 21 October 2014 edition.

“Leading this ambitious effort is Scott Gerald Borg, a scientist who coordinates the direction of and funding for the program's entire portfolio, which includes tens of millions of dollars in awards

each year to researchers at institutions throughout the country who are involved in cutting-edge science.”

Kelly Falkner, who heads the Division, told the *Post*, “Scott is masterful at keeping the program at the forefront of science. He takes risks, puts his neck out, and tries things that have not been done before.”

Scott said this: “If you limit yourself to what is convenient or easy to do, you cut out a whole class of activity and universe of discovery that is not possible if you are not willing to stretch.”

Cora Marrett was the Foundation's deputy director at the time. She said Scott is central to the success of the Antarctic program. “He is a jewel for the foundation and a model for others to see what can be done through federal service.”

Society's website update

by Tom Henderson

It has been a while since the last update, but that doesn't mean the Antarctic Society website (www.antarctican.org) has been dormant. We continue to post unique material that is often not available anywhere else, much of it from our members. In the past year, we have added Joseph Daigle's memoir of his experiences on the 1939-41 United States Antarctic Service Expedition, a self-narrated video account by Dr. Charles Swithinbank of his experiences as an exchange scientist at the Soviet Novolazarevskaya base, a video account of the IGY Discovery Deep Traverse by Dr. Ed Robinson, and several remembrances of Operation Deep Freeze Navy veterans.

Our Time Trek application has undergone significant improvement. A new video User Guide was added that allows new users to learn how to navigate Time Trek step-by-step and returning users to

brush up on any individual function of the application. A “Tips and Fixes” reference was added to address common problems encountered in using Time Trek and how to resolve them. The remaining 800-plus events from Robert Headland’s ‘A Chronology of Antarctic Exploration’ were added to the Events section, bringing the total documented events to over 1,500. Finally, the links between all events in Time Trek and any associated stations were completed. The result: when an event is selected, the associated stations are listed under the “Stations” tab, and when a station is selected the associated events are listed under the “Events” tab. If you haven’t visited Time Trek recently, take a look. The improvements will keep coming.

Usage of our website has been steady over the last year. Statistics below are for 1 January through 5 December 2014:

- 20,486 unique visitors (60 per day)
- 8,825 new visitors (26 per day)
- 40,962 page views (120 per day)
- Top pages: Home Page (19,840, Members Info (1,536), Time Trek Browse (1,207), Time Trek Stations (1,094)
- Top visitor countries: USA (47%), China (13%), Japan (10%), Ukraine (10%), Russia (3%)
- Top visitor states: Vermont (27%), New York (9%), Massachusetts (9%), New Jersey (6%), California (5%), Florida (4%)
- Top browsers used: Internet Explorer (49%), Firefox (15%), Google Chrome (13%), Safari (8%)

The visits from China, Ukraine, and Russia are most likely largely hackers looking for vulnerable websites (our host for the website maintains a very secure environment for its clients). The heavy usage from Vermont and New York is largely because that is where the website’s webmaster has been living in the past year while maintaining the website.

Our website continues to grow in historical content, and it supports a steady

base of users. To comment or make suggestions, email Tom Henderson at webmaster@antarctican.org.

Bernard Stonehouse, 1926-2014

by Guy Guthridge

Bernard Stonehouse, Antarctic ornithologist, editor, and educator, died 12 November 2014 at the age of 88. The two important factors in his life were working in polar regions and communicating with the public on issues of biology, the environment, and conservation.

The story of Bernard Stonehouse is told well in a 13-page *Polar Record* article (38/205: 157-169, 2002) by Liz Cruwys and Beau Riffenburgh. Here is an event from early in his career.

Just after World War II, Stonehouse joined the Falkland Islands Dependencies Survey (precursor to the British Antarctic Survey) to be mainly a meteorologist and a pilot. He worked out of Base E on Stonington Island (the U.S. Ronne Antarctic Research Expedition also was stationed on the island for part of this time). Stonehouse was on what he thought would be a 2-year tour, but in early 1949 Marguerite Bay’s pack ice stayed solid, and the ship could not relieve the base. Stonehouse and two colleagues became the first to spend three consecutive winters south of the Antarctic Circle. He was in no doubt where to spend the third winter—on the Dion Islands, 80 miles across Marguerite Bay from the base, studying breeding of emperor penguins at a colony he had discovered earlier. He and his two companions thus made the first study of breeding in winter and were the first to monitor the entire breeding cycle of emperor penguins.

Living in a small, crowded tent, and working in a makeshift igloo, he collected and preserved several early embryos,

providing material that enhanced the study begun four decades earlier during the 'worst journey in the world,' when Apsley Cherry-Garrard, Edward Wilson, and 'Birdie' Bowers of Scott's *Terra Nova* expedition had been able to spend only hours at Cape Crozier.

The enforced third winter turned Stonehouse into a biologist.

Much later in his life Stonehouse joined the Scott Polar Research Institute as editor of *Polar Record*, and he headed a long-term study on the ecological impact of polar tourism. He concluded that Antarctic tourism was positive if properly managed and that it encourages public interest in polar conservation. He lectured on tourist ships for more than 20 years.

Stonehouse was a seminal part of the bridge between the Heroic Age and the modern period of continuous research in the Antarctic by national programs.

Cruwys and Riffenburgh, authors of the *Polar Record* article noted above, argue that that period, lasting a decade after World War II, was a time of change when the men (they were men only, then) who went south had the courage, ability, and tenacity of the great explorers, but the intellect, imagination, and focus of a modern scientist. When a party went into the field it was more or less on its own, but science came to the front, and many concepts of the new era were conceived and refined.

2014 discovery of the year: ice loss from West Antarctica

by Guy Guthridge

In 2014 the rate of loss of ice from West Antarctica received attention in several published reports. We covered some of the story in the October issue, but more was to come. The findings taken together make West Antarctic ice loss the Antarctic science

story of the year, in this writer's humble opinion.

We reported in the last issue that Eric Rignot and collaborators have "observational evidence that a large section of the West Antarctic Ice Sheet has gone into irreversible retreat." Four feet of ocean rise will be the likely outcome over the next couple of centuries from the six outlet glaciers they examined. Disappearance of those six will destabilize other sectors, and the ultimate rise could be triple that. Ian Joughin came to similar conclusions about Thwaites Glacier.

Here is the update, which, like the earlier news, made headlines like this one on the front page of the 5 December *Washington Post*: "Pace of Antarctic melt sets off alarm; research suggests potential for a drastic acceleration of seas' rise":

S. Schmitdtko *et al.* in the 5 December *Science* evaluate hydrographic ocean data since 1975 to show that Circumpolar Deep Water – a source of heat – has warmed at all longitudes around Antarctica.

In coastal regions that are warming, such as by the Amundsen Sea, Circumpolar Deep Water slopes upward to the shelf break, possibly as a response to strong winds from the west that would induce upwelling. In regions without shelf warming, including the Ross and Weddell Seas, Circumpolar Deep Water slopes downward to the shelf break, consistent with winds from the east that limit onshore flow. Local winds play a key role in bringing water onto the Antarctic Shelf.

The work highlights the critical role of wind forcing. Winds north of the shelf break determine the properties of water that in turn influence basal melting of ice shelves.

Both greenhouse warming and ozone depletion can intensify the Southern Hemisphere westerly winds and displace them southward, so the worst may yet lie before us.



The Antarctic Society

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ANCHORS AWAY

"Just look at the data." Researchers sticking resolutely to that point have (a) developed insights and (b) stayed out of trouble.

Not that that's the only way. The 6 March 2015 *Science* cover story, "General relativity turns 100," celebrates Albert Einstein's eureka moment a century ago that underpins current physics. An Antarctic eureka moment was an early University of Maine model that collapses West Antarctic ice into Pine Island Bay, "weak underbelly" of the West Antarctic Ice Sheet. While weak underbelly became a selling point for more glaciology, only in the last few years have data become available to buttress the argument. Our January issue highlights the point, and new data comprise strong evidence that part of East Antarctica is losing ice mass by the same basic process.

"Just look at the data" also is the principle behind a story examining the sometimes-heard argument that Antarctic Treaty nations have garnered the ice continent to themselves. During my tenure at the National Science Foundation I dug up statistics to refute the assertion. Brought up to date, a summary of the idea is in pages that follow.

Statistics, though, don't tell why a nation got going in the Antarctic. A sidebar breathes life into some recent countries. For more awareness of the Ice's most international region, Steve Dibbern reviews a book-length history of Antarctic Peninsula explorations that our very own Secretary has written.

Whales have an outsize role in the Antarctic. An eye-witness account of a whale-on-whale encounter appears below, and a new study provides statistics on whaling throughout the 20th Century.

Art Ford is editor at large for stories about scientific advances. His ideas and searches are behind several articles you'll find below.

Guy Guthridge

Antarctic Treaty nations aren't all big and rich

by Guy Guthridge

Despite its success in peace, conservation, science, and international cooperation, the Antarctic Treaty has been called an exclusive club of big, rich, greedy nations. In 2014 Vaughan Winterbottom, University of Oxford, said scholars in China have referred to the Antarctic Treaty as a “collective hegemony.” Anne-Marie Brady, University of Canterbury, wrote in 2012 that economic limitations “effectively exclude most of the developing world and many middle-income countries from developing Antarctic science programs.”

The accusations seem harsh. During my four decades at the National Science Foundation, I watched a variety of nations accede to the treaty. Many became consultative parties, which means they achieved a legal footing equal to that of the dozen original 1959 signatories. They did this by meeting the Antarctic Treaty requirement of “conducting substantial scientific research activity there, such as the establishment of a scientific station or the despatch of a scientific expedition.”

Today, beyond those first dozen signatories, 52 countries are members, of which 29 (including the original 12) are consultative.

Using the *World Factbook*, which the CIA updates annually with statistics about nations, I assembled information about how Antarctic Treaty parties compare to the other nations. The exercise showed that big nations and small ones, rich ones and poor ones, are in the treaty. Spreadsheets containing statistics about the individual countries can be provided; email me at the address shown on the cover page.

According to the *Factbook* the world has 239 nations. The 52 Antarctic Treaty members are just 22 percent of that total.

They did it their way

Coming in to the cold. Malaysia, then an outsider, argued in the 1980s that the treaty had three fatal flaws: it was exclusive (not all nations were members), it was total (it covered all activities in Antarctica), and it was unaccountable (it was not subject to review by another body). Scientists, representatives of treaty parties, and representatives of nations not in the treaty (including one from Malaysia) met for a week in, of all places, a Jamesway camp in the Transantarctic Mountains in 1985 to sort through the issues. Even today a 1986 National Academy Press book recording the 1985 workshop’s proceedings (*Antarctic Treaty System—An Assessment*) is a worthy read. In 2011, Malaysia acceded to the Antarctic Treaty. In 2016, Malaysia will host the Scientific Committee on Antarctic Research (SCAR) Open Science Conference, which is held every 2 years.

Science again driving a political decision? The Islamic Republic of Iran (not yet a treaty member nation) now is represented by the National Center for Antarctic Research, Tehran, in SCAR, which is international but nongovernmental. Iranian scientists envision a year-round Antarctic station, and accession to the Antarctic Treaty is being studied.

Little nation, big job. Bulgaria, fifth smallest of the consultative nations in population and next to smallest in GDP, will host the XXXVIII Antarctic Treaty Consultative Meeting 1-10 June 2015 in Sofia. Bulgaria established its Antarctic program in 1993 and achieved treaty consultative status in 1998.

Not all big and rich nations are treaty parties. Indonesia, Nigeria, Bangladesh, Mexico, and the Philippines exceed 100 million people apiece. The GDPs of Indonesia and Mexico are greater than a trillion dollars each; the economies of Iran, Saudi Arabia, and Taiwan are nearly that big.

But they represent 65 percent of the world's human population and 70 percent of its economic activity. The original 12 treaty nations back in 1959 held only 14 percent of the world's population (going by today's figures). The inclusiveness achieved in the treaty's first half-century is impressive.

Two-thirds of the world

To round off to an easy fraction, the treaty represents two-thirds of the planet's people and two-thirds of its economy.

But what about the big rich greedy nations claim? The average population of all the world's 239 countries is just over 30 million. The consultative parties range in population from Uruguay, with 3,332,972 people, to China, with 1,355,692,576. Twelve of the 29 Antarctic Treaty consultative parties contain fewer people than the world average.

Gross domestic products tell a similar story. Ten of the 29 consultatives have a smaller gross domestic product than the international average of \$383-billion (purchasing power parity).

The treaty's richest consultative party *per capita* GDP is Norway (the third-least-populated consultative nation) at \$55,400. India is at the other end of the list with \$4,000 per person per year. Both support substantial research and year-round stations in the Antarctic. Nine treaty consultative nations have a per capita GDP less than the world average of \$17,511.

The *World Factbook* doesn't have a greed category. Maybe the accomplishments of the Antarctic Treaty itself answer that accusation, along with the annual process that operates on consultation and consensus.

Few excluded; 42 nations could join

How many nations are shut out of the treaty because of their small population or GDP? A way to answer might be to

assume that the smallest Antarctic Treaty consultative nation, which happens to be Uruguay in terms of both population and economy, represents the threshold size needed to achieve consultative status.

Of the world's 239 nations, 105 have populations less than that of Uruguay. These nations contain 1 percent of the world's population. Three of them (Mongolia, Estonia, Monaco) have acceded to the treaty: that is, they agree to abide by it, but they do not have consultative status.

And 131 of the 239, totaling 2 percent of the world economy, have smaller GDPs than Uruguay. Four of those nations (North Korea, Estonia, Papua New Guinea, and Monaco) have acceded to the Antarctic Treaty. (Any State that is a Member of the United Nations can accede to the Treaty.)

In conclusion, something like 70 million (1 percent) of the world's more than 7 billion people live in the hundred or so nations that – based solely on national population and GDP figures – are unlikely to attain consultative representation. These figures, I suggest, are far smaller than some might infer from the charge that “most of the developing world and many middle-income countries” are excluded from developing Antarctic science programs and becoming eligible for consultative status in the Antarctic Treaty.

Forty-two of the nations that are not Antarctic Treaty consultative parties have both populations and GDPs that are larger than Uruguay's. If these 42 nations were to achieve consultative status, 91 percent of the world's population and 83 percent of its economy would be represented in Antarctic Treaty consultative deliberations.

The Storied Ice: Exploration, Discovery, and Adventure in Antarctica's Peninsula Region

book review by J. Stephen Dibbern

Joan Boothe's Preface says it all; she began work on this book (Regent Press, Berkeley, 2011, 373 p.) because of her interest in the area as a tourist and the lack of historical perspective offered to acquaintances on similar Antarctic cruises. Those who have experienced Antarctic Peninsula cruises may have had a similar reaction to the concentration of on board history lectures on a few well know subjects, particularly the near religious devotion to Shackleton. Some cruise lecturers are terrific, but some are abysmal. I had one tell me on South Georgia that "nothing happened here in the Falklands War."

Ms. Boothe has set out to remedy the situation with this wonderfully researched book laying out for the reader a comprehensive history of the exploration of the Antarctic Peninsula. I emphasize research because I found that her reference list itself is worth the cost of the book. She also includes several interesting appendixes in the form of a time line, list of firsts and a glossary. The accompanying maps are clear and very nicely done and her illustrations are well chosen and extensively captioned.

The really impressive thing to me, however, was the text. I must admit that I was wary of a rehash of Antarctic history. Even the most hardened Antarctic aficionado will enjoy this freshly written book. Joan Boothe has a writing style that is very readable and includes a nice balance of historical facts and figures along with a tantalizing number of anecdotes... did you know, for example, that unofficial ownership of Deception Island was decided over a game of darts?

Few visitors will know that some of the most famous expeditions of the 18th and 19th centuries such as those of Cook, Bellingshausen, Wilkes and Ross, though made famous in other areas did work in the Peninsula, South Georgia and the Scotia Arc. Amundsen cut his "Antarctic teeth" here and many early geographic and scientific expeditions took place here in the

Heroic Age doing their important work in the shadow of the "Pole Seekers." It was also the area of commercial exploitation with the fur seal and whaling fleets. Finally it was the center of the first permanent occupation of the continent and the political controversies that followed. All of this is nicely recounted in this important book.

This is a very nice addition to any Antarctic's library and a "must read" for anyone going to the Antarctic Peninsula. We have had wonderful books about the flora and fauna of the region as well as a number of beautiful coffee table books. Now we have a beautifully written and scholarly researched book to fill in the history of this most visited but "under-history'd" region of our continent.

The book can be ordered on-line from Amazon.com, Barnesandnoble.com, powells.com, Longitudebooks.com, regentpress.com and direct from the author at Joannboothe@Joannboothe.com. The cost is \$34.95 for hardcover, \$24.95 for soft cover and \$14.95 for e-book.

Port Lockroy: 18,000 visitors

by Liesl Scherthanner

No two seasons in Antarctica are the same. At least that's my story, and this last season at Port Lockroy (64°49'S 63°29'W), Goudier Island, Palmer Archipelago, was yet another new experience.

Port Lockroy, known also as "Penguin Post Office" thanks to a recent BBC/PBS documentary, is a Treaty-registered historic site: Base A, the first permanent British base on the Peninsula, was established in 1944; its research included the first ionospheric measurements and the first recording of an atmospheric whistler in Antarctica. Today, little science is done there, but it is one of most visited sites in Antarctica.

A marketable distance from Ushuaia, Argentina, it is near the beautiful Neumayer and Lemaire channels and in a protected bay surrounded by mountain peaks and calving glaciers. The island, the size of a football field, is home to 600 pairs of breeding gentoo penguins, a museum, post office, small gift shop, and at least four human inhabitants who look after the site during the austral summer. My job was to greet visitors, look after shop finances, espouse history, count penguins, and maintain buildings. It is a lovely place to visit and an even better place to be employed. Over 2,000 individuals applied to work there next season.

Coming from a background of operations and science support in the U.S. Antarctic Program, and progressing to one of maintenance and conservation with the U.K. Antarctic Heritage Trust (ukaht.org), I now was on the receiving end of intense tourism. While excursions to the southern continent are an expensive way to learn about the area's natural environment, history, and wilderness, tourism is growing, particularly along the Antarctic Peninsula. This summer we greeted over 18,000 guests – an average 160 a day. The number accounts for only about half the visitors to the continent. Because tour companies (members of the International Association of Antarctica Tour Operators) have an interest in the longevity of the industry, they manage landings well. The impact appears minimal as indicated by studies on breeding success in trafficked vs. non-visited penguin colonies. Visitors show themselves to be interested in preserving scenery and environment and to be ambassadors for the continent.

Now the season has changed again. Tourists have gone home, penguins chicks have fledged, we've closed Port Lockroy for the season, and winter is on its way. It will be nice to see what next season brings.

Sidenote on *The Storied Ice*: Joan Boothe's book (reviewed in this issue) is the

definitive Antarctic Peninsula history. It is a "must have" for lecturers and a satiating pleasure for anyone wanting to know more about places visited or heard about. At Port Lockroy, we sold out midseason.

A killer whale feeding frenzy

by Christopher J. Wilson

While in Antarctica last season as Naturalist on the Holland America Line cruise ship *Zaandam*, I saw unusual seabird activity on the afternoon of 9 February. Killer whales (*Orca orca*) were feeding on something large and attracting hundreds of the birds. The ship was en route from Paradise Harbour across Gerlache Strait toward Neumayer Channel.

I had taken a break from my shipboard commentary (which I give from the bridge), but knew this was something special. I ran back to the bridge and asked Captain PJ van Maurik if there was any chance of turning the ship around: to see these whales feeding would be a 'chance in a lifetime.' The captain, immediately interested, issued commands. He repeatedly asked me, 'Are they still there?' as he brought the 65,000 tonne ship around and headed toward the action.

Staff positioned the ship to avoid interfering. In excess of 1,000 birds were around the kill: large numbers of southern giant petrels, southern black-backed gulls, and south polar skuas along with hundreds of Wilson's storm petrels. An initial five killer whales increased in number to 12 by the time the ship moved on some 30 minutes later. At least one small killer whale calf was present.

The birds and whales paid no attention to our presence, and I observed no animosity among them. On occasion the larger animals could be seen rolling, rearing up, and flapping tails. They often dove over

the carcass, which came to the surface frequently.

The killer whales appeared to be a larger type 'B' species known to feed on minke and humpback whales, but believed not previously recorded in this part of the Antarctic. Professor Robert L. Pitman of NOAA's National Marine Fisheries Service (La Jolla, California), who studies killer whales in the Antarctic, examined photographs and stated, "it looks to me like they have the lower jaws of a humpback whale there at the surface and they are feeding on the tongue and peeling off the lip. . . . We do not have any confirmed records of humpback kills in Antarctic waters, so we are very interested in following up on this."

The episode became a talking point of the cruise – an amazing wildlife event and a potentially useful observation in the continuing study of whale activity in Antarctic waters.

On <http://wildside.ie/> see "Tasting Antarctica and South America . . .," 16 Feb 15. For photographs, click "Gallery" at the bottom.

20th Century whaling: emptying the oceans

Any whale in any ocean: that's what whalers were capable of taking for much of the 20th Century. Less known, perhaps, is that 1.2-million of the 2.9-million large whales harvested from 1900 to 1999 were taken in Antarctic and subantarctic waters.

Markets for whale oil of course were mostly in the north, but by 1909 whaling south of the equator had surpassed that in the north. That's where the whales were.

A summary in NOAA's *Marine Fisheries Review* (volume 74, no. 4, 2014), the authors state, is the first accounting of the total global catch by industrial whaling operations in the 20th century.

This account and others – based on Committee for Whaling Statistics and other sources – demonstrate that, once factory ships had the capability, they took big whales first, then more or less worked their way down. In the Antarctic, the peak year for harvesting blue whales was 1932-1933, when 18,624 were caught. Antarctic fin whaling had its peak in the 1937-1938 season, when 26,457 were taken; and so on: humpbacks, 4,460 in 1936-1937, sei whales 19,874 in 1964-1965, minke whales 8,900 in 1976-1977, sperm whales 11,834 in 1974-1975.

The three authors of the *Marine Fisheries* report state that, remarkably, no complete accounting has been made of the total number of whales taken by industrial whaling in the world's oceans in the 20th century. A 2008 attempt by others assessed totals for the Southern Hemisphere, including revised catch totals for the USSR to take into account illegal whaling after World War II. New information is added continually to the International Whaling Commission database.

By the time the IWC voted in 1982 for a moratorium on whaling beginning in 1985, many populations had been reduced to fractions of their pristine abundance. Southern Ocean blue whales today are estimated to be at less than 1% of their pre-whaling numbers. Some populations of whales appear to have been extirpated, or nearly so. Whaling management in the 20th century was an interminable debate about the status of stocks until all doubt was removed. And so were most of the whales.

The 20th Century total of close to 3-million animals, states the *Marine Fisheries Review* article, makes it, at least in terms of biomass, perhaps the largest hunt in human history.

For a century whale oil made fortunes and eased folks' lives by illuminating lamps and providing soap and margarine. Today's ethic is captured, maybe, by a recent incident aboard a cruise

ship operating along the western coast of the Antarctic Peninsula. A humpback whale blew so close that a woman on an open deck felt the spray. “Whale snot,” she said. “I’ve been anointed by whale snot. I’ll never wash.”

*The Crossing of Antarctica:
Original Photographs from the
Epic Journey That Fulfilled
Shackleton's Dream*

reviewed by Paul Dalrymple

Don’t confuse this book by George Lowe and Huw Lewis-Jones (Thames & Hudson Ltd., London, 2014) with one having the same main title published by Sir Vivian Fuchs and Sir Edmund Hillary in 1958. This new one is by and about New Zealand’s own George Lowe (1924-2013), the photographer and cinematographer who documented the 1957-1958 Commonwealth Trans-Antarctic Expedition and who also was an explorer, mountaineer, and school teacher. It’s unique, as even though most of it is by George Lowe, it was assembled and put together by his close friend Huw Lewis-Jones. Lewis-Jones in turn invited 14 other polar specialists to write supporting chapters. I’m one of the invited writers, as I was a friend of George. Other guest authors are Felicity Ashton, Ken Blaiklock, Jon Bowermaster, Sebastian Copeland, Klaus Dodds, Sir Ranulph Fiennes, Arved Fuchs, Peter Fuchs, Sir Wally Herbert, Borge Ousland, Jonathan Shackleton, Geoff Somers, and Eirik Sonnerland.

Two of the authors – Borge Ousland and Eirik Sonnenland – are Norwegian, and one – Arved Fuchs – is German. Felicity Ashton is the only woman to have skied alone across Antarctica, 1,744 km (1,084 miles) in 59 days in 2012. Amazing to me, her chapter never once references her being

female – so unlike an American Antarctic female skier we all know!

The only Antarctic veteran who accompanied the expedition was Ken Blaiklock, who had wintered eight times in Antarctica, and insofar as I know is still going to the ice in the austral summer as a surveyor. Remarkable man.

Another one of George Lowe’s comrades on the 1957-1958 expedition was Ralph Lenton, who could do almost everything. I am happy to say that following their expedition, he married a Canadian school teacher. Who was the best man at their wedding? ME! And where is Ralph now? At the U.S. station at the South Pole. Per his request, he asked that his ashes be taken there. One of his sons, working on the ice for the contractor, fulfilled Ralph’s request.

My association with George began in late January 1958 when the Commonwealth Trans-Antarctic Expedition (TAE) laid over at the South Pole station for five days on its crossing of Antarctica. On the evening of the 23rd of January, George Lowe and I played three hours of contract bridge vs. two members of the TAE, Ken Blaiklock and Ralph Lenton. George and I lost two rubbers of bridge that night. Pure folly!

Later in life, after we both had retired, George and his wife number two came by my home on coastal Maine for an overnight visit. I had pulled out a recording that I had made of all members of the TAE when they were at the South Pole. Unannounced to George, shortly after their arrival I played the recording that I had made of George. He had completely forgotten about it, was thrilled to hear it, and asked me to copy the whole tape and to send it to the Scott Polar Research Institute Library in Cambridge, England. It was duly done.

When the TAE pulled out of the South Pole en route to McMurdo they were wearing an admixture of British and U.S. clothing. We Americans had excellent,

well-insulated fur-backed polar mittens. Bunny Fuchs was not happy to see his men accepting them. My journal showed that I left a whole case of Hershey chocolate bars in Hal Lister's Sno-cat!

One of the TAE's dogs was not a sledge dog, but a gift from the London Zoo to the expedition. Name: Beauty. In the transfer of the TAE dogs at the Pole onto a plane bound for McMurdo, Beauty escaped. During the winter, Beauty befriended me. At the end of the year, I sent a message to Fuchs asking him if I could have the dog. The answer came back that we could have her. So she was mine, but the pilot taking me out refused to take Beauty as he had his own dog on the aircraft. So Beauty wintered another year!

This book consists of 239 pages, and it has 154 illustrations, 60 of which are in color. George Lowe's writings occupy 35 pages of the book; his is the biggest contribution. The book has over a hundred full-page pictures. In a way, it resembles a coffee table book. If your forte is reading, there is plenty of interesting exploration material. If you like to just see pictures, particularly of Sno-cats and Weasels in crevasses, you will be in Heaven. Scenery, nyet. Women, forget them, they just aren't there. You probably should buy this book, as overall it is a winner.

Frazil helps sea ice stay thick

by Anthony J. Gow

Frazil ice is a mix of water and ice that forms in bitterly cold water – supercooled water. On a cold March or April morning, you might see hundreds of tons of it slushing down Yosemite Creek in California (NPS has a video about this).

In the Antarctic, frazil ice in large amounts was observed for the first time in 1980. American researchers examined the

internal structure of ice floes in the eastern Weddell Sea. Frazil was prevalent, averaging 72% of the thickness of 13 multiyear floes and 37% of 49 first-year floes.

The frazil ice may have started out as tiny crystals that floated up to the underside of existing sea ice and frozen in place. Later observations by American and German researchers pointed to *rafting* of frazil-rich pancake ice created initially by wind- and wave-induced turbulence in leads and polynyas – open areas in the pack. Rafting, the overriding of one or more sheets of pancake ice, is now regarded as a major contributor to frazil ice production in the Weddell Sea. Frazil is estimated to constitute at least 50% of the ice production in the Weddell Sea embayment. This widespread occurrence has resulted in exceptional thickness, with up to 5 meters growth in less than 2 years. Large amounts of frazil ice also are encountered in the Ross Sea and in the Indian Ocean sector of the Southern Ocean. Frazil formation in these seas is primarily due to turbulence in the near-surface water column.

In striking contrast, frazil ice in the land-fast ice embayment of McMurdo Sound was found to constitute less than 3% of the thickness. It was limited generally to the upper layers of a congelation type ice that is formed by direct freezing of sea water, which on average is more than 90% of the thickness of ice in McMurdo Sound. The near absence of frazil ice probably can be attributed to the bay-fast nature of the sea ice and to the rarity of leads and polynyas.

Substantial thicknesses of frazil ice have been observed accreted to the undersides of ice *shelves* – that is, fresh water ice that originated on land. Drilling revealed in excess of 300m of frazil ice frozen to the bottom of the Filchner-Ronne ice shelf in west Antarctica and at least 150m of frazil ice frozen to the bottom of the Amery ice shelf in east Antarctica. Nucleation of frazil crystals must have

occurred at considerable depths in the water column beneath both ice shelves.

A new study by New Zealand researchers adds another complexity. Plumes of supercooled water beneath the ice shelves, called Ice Shelf Water, can stimulate the growth of both ice shelves and sea ice. The existence of a plume depends directly on the size and concentration of the frazil ice crystals within it. The scientists modified an existing one-dimensional plume model to focus on the interface of sea ice and ocean water. Oceanographic stations in McMurdo Sound provided the data. They concluded that the Ice Shelf Water plume contributes a tenth of a meter of growth to McMurdo Sound sea ice each year—accounting for about 5% of the total average thickness. The model predicts that the plume increases thermodynamic growth of sea ice by approximately 0.1 m yr^{-1} (~5% of the average growth rate) even as far as 100 km beyond the ice shelf edge.

An East Antarctic ice shelf joins the mass-loss crowd

Totten Glacier, which drains a substantial portion of the part of East Antarctica that's south of Australia, has joined the half dozen West Antarctic outlet glaciers mentioned in recent newsletters whose ice shelves are losing mass at an accelerating rate.

A 16 March 2015 paper in *Nature Geoscience* by eleven authors from eight institutions in four nations finds that Totten Glacier, which is the primary outlet of the Aurora Subglacial Basin, has the largest thinning rate in East Antarctica. Warmer ocean currents – the same modified Circumpolar Deep Water that has been linked in reports over the last 2 years to glacier retreat in West Antarctica – are a suspected cause.

New sea floor bathymetry from gravity and magnetic flights, as well as ice-thickness measurements, provide the new data that led to identification of entrances to the ice-shelf cavity that could allow intrusions of warm water. Radar sounding revealed a previously unknown inland trough that connects the main ice-shelf cavity to the ocean.

The researchers argue that if thinning trends continue, a larger water body over the trough could enable more warm water to get in the cavity, leading to eventual destabilization of a low region between Totten Glacier and a similar deep glacier that flows into Reynolds Trough. They figure at least 3.5 m of eustatic sea level potential drains through Totten Glacier, so “coastal processes in this area could have global consequences.”

Richard Alley, Penn State, says the paper may solve a long-standing puzzle. Around 5.3 million years ago, Pliocene sea levels were as much as 40 meters higher than today's. This new research hints at a possible source. “The sea-level indicators from the Pliocene have suggested that an important amount of ice came out of East Antarctica into the ocean,” he told the *Washington Post*. “Sedimentary records offshore pointed in the same way, and recent modeling... shows the strong potential for this to have happened. This new paper adds to the evidence — the pieces are fitting together.”

James Barry Burnham,
1934-2015

by Paul Dalrymple

I was not only lucky to spend my second Antarctic winter at the South Pole, but to be with a great bunch of young scientists.

One of the youngest was the ionospheric physicist, Jim Burnham, who not only wintered over at the South Pole in 1958, but who came back for a second year, 1961. He also spent a summer with his buddy Mario Giovinetto at Camp Michigan on Roosevelt Island. I loved old Jim, as he was a real character in the truest sense, but he was destined for hard times; a son got run over as a child and had to have a leg amputated.

One of the good things about Jim's life was meeting his second wife, Joan, at a sky diving event – no doubt the best thing that ever happened to him. But at the same time, he discovered he had Parkinson's. He fought this tooth and nail, and after thirty-five years he succumbed last month.

He was told when he had only a month to live, and he invited his whole family to come to his bedside in Tampa. According to Joan, that visit of a week or more was one of extreme pleasure for Jim.

Several months before Jim passed away, he willed all of his slides from the Antarctic to the Antarctic Society, where they now rest in the capable hands of Chips Lagerbom to be preserved for posterity. Several years ago, confined to a wheel chair, he had Joan bring him to Port Clyde where an Antarctic Gathering was going on. There he met with past buddies from the South Pole (Red Jacket Art Jorgensen, Charlie Greene, Johnny Dawson, and myself). And I think Jules Madey, K2KGJ, might have been there, too. Kirby Hanson, our chief meteorologist that year, had just passed away, another victim of Parkinson's. Polies are usually a close group, but we lost track of Jim until many years afterwards.

Charlie Greene was flying from Hartford to Washington, D.C. As people were claiming their seats, Jim looked at Charlie and said, "Do I know you?" And that is how we all got back together again. I had the pleasure and honor of visiting with the Burnhams several times in Tolland,

Connecticut, and they were here in Maine another time.

Joan is a sweetheart, a true blessing for old Jim. She was a raving beauty of a redhead when they got married. She is not quite so red of hair nowadays, but she is still beautiful. Jim was lucky to have had her. She was lucky to have had Jimbo, too. God bless them both.

Membership-Treasury report

Notices for members owing dues for the CY 2015 were sent out in early March. To date we have responses from 71 per cent of our membership, which means that we are awaiting returns from 99 of you folks. Make us happy: when you send in your dues, make payments for multiple years.

Treasury-wise, including our checking account here in Maine, the Society holds \$65,616.22. Our aim is to operate so that we will always be solvent. We operated on a shoestring until the late 1970s, when Ruth Siple took over as our treasurer. Then we had less than \$2K, but during her nearly 25 years as treasurer we built our bank accounts up by over \$50K.

Our Society consists essentially of scientists and support people who went to the Ice as early as the beginning days of Deep Freeze and the U.S. Antarctic Research Program. Even today we have 24 members who wintered in the Antarctic during the IGY. Another dozen went to the Ice on summer programs in the late 1950s. And another half dozen widows have continued their husbands' memberships, so our base goes back to our foundation in 1960. Our longest membership goes back to 1960 when Ken Moulton joined up. I don't know who our oldest member is. It might be me, as I am 91 and hopefully still adding years. The youngest IGYer has to be Eagle Scout Dick Chappell. The mostest at the South Pole could well be our vice president, who spent 13 summers at the South Pole.



The Antarctic Society

VOLUME 14-15

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NO. 4

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ANCHORS AWAY (AND AWEIGH)

The Society's web site and newsletter observe and celebrate present and past events. And they – at least virtually – bring us together. But there's nothing like a gathering. On the next page, our Treasurer asks us to Port Clyde, Maine, for a July 2016 gathering – and coastal delights of the season in the USA's most northeastern state.

If you like his suggestion, let Paul know. Write or call him (see TREASURER to the left). If a threshold is passed, planning will start! We'll let you know more next issue. See you in lobster city.

Mid-Summer in Maine. Mid-Winter on the Ice. Both can be special for an Antarctic. So also can be the first time one arrives in the Antarctic, or the last time one leaves. Will Silva, who has wintered at Palmer and South Pole as station physician, shares such a moment in this issue. "Little actually happens; the horizon becomes internal," he says of a winter at Pole. Enjoy Will's essay. And consider sharing your Antarctic moment in a future issue.

People who work in the Antarctic tend to be overqualified for their jobs and to have energy and drive to match. Two examples appear in this issue. Tom Henderson, the Society's webmaster – as if that weren't enough – has produced films with Antarctic themes and describes a new one here. Bill Spindler is the Antarctic veteran behind southpolestation.com.

More than half this issue was written by people other than me. I'd like nothing better than to see the newsletter contain yet more different authors – bringing different voices, different experiences to our members.

A distinguished voice has newly assumed the mantle of our society's Honorary President. I've had the privilege of knowing Robert H. Rutford since he headed NSF's polar office in the 1970s. Welcome, Bob, to this new role!

Guy Guthridge

A 2016 gathering in Port Clyde, Maine?

by Paul Dalrymple

Another Mid-Winter Day passed last month. Always good to see one come, always good to see one go. In olden times the Washington segment of our society used to gather for a midsummer picnic basically put on by the large number of thirty U.S. Geological Survey Antarctic Society members who used to work in the Antarctic.

Those Washington-area picnics died with time. In the last decade, however, ancient and honorable Antarcticans have gathered several times for three days or so each at the coastal Maine abode of our treasurer. The first one or two had a hard core of about twenty-five or thirty IGYers; later ones grew to about a hundred and twenty-five, including offspring of Antarcticans.

Should we meet again? Those old timers who repeatedly showed up seemed to enjoy themselves. Right now we would love to entice more of the crowd from the 1980s, the 1990s, and this century to join in.

Where do we meet? About half way up the coast of Maine, in a small lobster town of Port Clyde, population several hundred. We rent a tent for a seafood dinner, featuring hot-boiled lobsters. We turn a two-car garage into a lecture hall, and several of our members present talks about their halcyon days on the ice. It is low-key, with some attendees having taken up residence in nearby hotels, some in b&bs or vacation rentals of which plenty are nearby, and some in their own tents sprinkled around the area. For the events themselves, there are no charges up front, just a bucket or two on site for donations to help defray the cost.

If this idea sounds interesting, something you might enjoy participating in, and you want to hear more about a gathering

in mid-July 2016, let us know. We will put more in the October newsletter.

For more about the last gathering, see the October 2014 newsletter, page 2, and Jim Mastro's article in the January 2015 issue.

Robert H. Rutford is Society's fourth Honorary President

by John Spletstoesser



Dr. Robert H. Rutford

We are pleased to introduce Robert H. Rutford as Honorary President of the Antarctic Society. He follows our previous Honorary Presidents Paul Daniels, Ruth Siple, and Charles Swithinbank.

Bob's distinguished career in science, government, and academia includes Antarctic field research since 1959. More recently, he was president of the University of Texas at Dallas for 12 years before returning to the faculty to teach geology until retiring in 2008. He now is President

Emeritus, and Excellence in Education Professor of Geosciences Emeritus.

A graduate of the University of Minnesota, Bob has been involved in polar research since 1955 when as a Lieutenant in the U.S. Army he spent a year in Greenland testing and operating over-the-snow heavy equipment, some of which was used during the 1957-58 International Geophysical Year.

After a first experience in Antarctica as a graduate student in 1959, he returned in 1960-61 as deputy leader of a University of Minnesota team working on the geology of the newly discovered Jones Mountains. In 1963-64 he headed field research that led to his doctoral dissertation regarding glacial geology and geomorphology of the Ellsworth Mountains. In the late 1960s he was on the Eights Coast of West Antarctica for additional study.

In the early 1970s Bob moved to the University of Nebraska - Lincoln to lead the Ross Ice Shelf Project researching the glaciology of the Ross Ice Shelf, then moved to Washington, D.C., where from April 1975 to July 1977 he headed the Office of Polar Programs, National Science Foundation.

Bob returned to academia as vice chancellor for research and graduate studies at the University of Nebraska - Lincoln. His Antarctic research continued as a member of the multinational Ellsworth Mountains Expedition, 1979-80.

The National Academy of Sciences in 1986 named him U.S. Delegate to the Scientific Committee on Antarctic Research (SCAR). He held that position until 2006, was vice president in 2000, president in 2002-2006, and past president until 2008. From 1976 to 2000 he was an advisor to the U.S. Department of State on Antarctic Treaty matters.

Bob was honored with the University of Minnesota's Outstanding Achievement Award in 1993 and entered on the university's Alumni Wall of Honor. He was awarded a D.Sc. honorary degree from St. Petersburg State Technical University,

Russia, in 1994, the Commemorative Medal from the Polish Academy of Sciences in 2004, and the Distinguished Service Award from the U.S. National Science Foundation in 1977. Mount Rutford (Antarctica's seventh highest) and Rutford Ice Stream are in or near the Ellsworth Mountains.

Bob has lectured on tourist ships visiting the Falkland Islands, South Georgia, and the Antarctic Peninsula.

Whether a person is born a leader or becomes one can be debated, but either way Bob was one early. I was on the Jones Mountains expedition in 1960-61. Bob led the way, drawing upon his experience in Greenland and that prior season in Antarctica, his strength as a natural athlete, and a contagious sense of humor. Several of us worked following seasons in Antarctica on various projects; the lessons learned in 1960-61 provided a basis for knowing the meaning of leadership.

The Last Time South Pole Station, 2014 – 2015

by Will Silva

My days grow short as shadows lengthen. A month since summer solstice, my balaclava and extra long johns go on before a nightly ski. The wind is cold, -20°F at 12 knots from grid northeast. The warm (-8°F, 4 knots) bright days of summer are over.

I first came here in the summer of my years. A friend had asked as he walked me to my car, "Will, how old are you?" "Forty-four." Charlie clucked, "Right on schedule." Indeed, my velvet midlife crisis was an escape from the crazy world of American medicine early in the HMO revolution. I had grinned as I chucked a Land's End catalog into the recycle bin: this is not my uniform any longer.

I step outside into the brightness – full sun at 7:00 pm, diamond dust in the air.

Maybe see some halos tonight. Skis on, over a berm and up a Cat track alongside the new elevated station, I ski onto the surface by the geographic Pole marker that we placed New Year's Day. The Dome used to be right about there.

Home from my last tour in June 2008, I walked along the beach north of the West Point light. I was sure then I was done with Antarctica, even done working, but the financial meltdown that autumn proved me wrong. Back to work, Antarctica far from my mind . . . well, maybe not that far. In Ketchikan, in the ER picking up a new admission late at night, I thought about how on the Ice, even on-call 24 x 7, I rarely was called out after hours.

I ski past the flags at the Ceremonial Pole, those of the dozen nations that first signed the Antarctic Treaty in 1959. Like a hockey player tapping his goalie's pads before the game, I tap a ski pole gently against the Australian pole. It bears a plaque, memory of a friend who died here in 2000. "Rodney Marks, friend, musician, scientist, 1968-2000."

Early in the season the sastrugi had been choppy; I picked my way along powder paths, smooth, wind-accreted mounds between the frozen waves. By midsummer the surface was smoother. Some nights, ice crystals refracted rainbow colors as though a giant had cast gems. With a Canadian bush pilot for the first time since we'd met in 1997, I asked how he decides whether he can land his ski Twin Otter at field sites. Moment of silence. Henry shook his head. After 10,000 hours flying in Antarctica, you get a feeling for it. I recall a picture of him sitting on a piece of the airplane on the snow, a wrecked Otter behind him. In 1999, he had caught a ski on a take-off run. Good judgment is the result of experience. . . .

The idea to return came two summers ago, visiting Ice friends at a reunion on Lopez Island. Several were getting ready to deploy. I wanted to see how

the community had evolved, 5 years after the new station was completed. The population is down from a peak of 260 working 3 shifts around the clock during the construction years to 150 mostly on one shift now. I like the change: it's calmer, quieter. I know people's names, at least contract workers here all summer. Grantees come and go. I enjoy the company of the "geezers" and the energy of the kids. I do a little medicine, go to the mat to get a few through their medical qualifications. Today, folks about to winter returned from a week's R&R in McMurdo. Without thinking I greeted a few with, "Welcome home." I'm sad to be leaving, but don't want to stay. I like the community and team loyalty. This can be a very funny utopia.

This tour caps my medical career. Antarctica had a large role. It was a second career; a new lease on life. Fitting, then, that this should be the end. Many veterans I know are gone. The corporate and HR stuff is deeper. Ironically, folks I've known since my first tour, ones who then had already been in the Program a decade or more, now are at the helm.

A few evenings ago I thought of how you never know when will be the last time for something: last time visiting friends, last time I saw my parents, last time climbing with one partner or another, a lover's last kiss. It's the time of life when there will be more of those.

This was my last ski at South Pole, though I didn't know it at the time. I came back to find the new winter doc and physician's assistant laboring over a very sick man. He would do better at sea level, we decided. I flew with him down to McMurdo the next morning. The patient did well, and I got my first ride on a DC-3 – the Basler turboprop conversion.

Sudden, but not a bad end.

“Nuisance flooding” tipping point

In years past, glaciologists and others used a picture showing the Statue of Liberty up to her armpit in seawater (a rise of 213 feet as thought at the time) if all Antarctic ice were to melt. Over the years, as West Antarctica became the main suspect for nearer term sea rise (then 26 feet or so if all of it were to melt), an image of a flooded south Florida came into favor. The pictures were (and are) dramatic, and they brought attention and, probably, funding to the discipline.

These days, drama enough (related story, page 6) comes in a new projection that the tipping point for U.S. coastal nuisance flooding – a foot or two – may come by 2050.

In a 2015 paper, “From the extreme to the mean: acceleration and tipping points of coastal inundation from sea level rise” (in AGU’s open journal *Earth’s Future*), NOAA’s William V. Sweet and Joseph Park say a *tipping point* arrives when increasingly severe tidal flooding increasingly compromises public works or coastal habitats. Thirty days a year is their threshold, and they project numerous cities on U.S. coasts will get there over the next several decades. By the end of the century, nearly all the locations in the study may face minor floods every day – maybe not catastrophic, states a 15 May *EOS* news article about the paper, “but they still can be damaging and costly.”

More intimidating is this sentence by Sweet and Park: “At very high thresholds, such as those of the 100-year event experienced during hurricane strikes, RSLR [relative sea level rise] has and will continue to nonlinearly compress recurrence probabilities in the future because smaller storm surges will increasingly impact fixed elevations.”

That’s happened. Scott Kulp of Climate Central, a research outfit in Princeton, New Jersey, calculates that sea level rise over the 20th century caused more than \$2-billion in *additional* damage in New York City alone during the October 2012 Hurricane Sandy. He says we therefore can attribute at least part of Sandy’s damage to climate change.

Remember the old days, when Antarctic scientists yearned, mostly in vain, for folks to see the relevance of their research to everyday lives? Dig out that old picture of the Statue of Liberty.

38th Treaty Consultative Meeting concludes in Bulgaria

Bulgaria’s Ministry of Foreign Affairs and its Antarctic Institute hosted the 38th Antarctic Treaty Consultative Meeting 1-10 June in the capitol city, Sofia. The nation’s President, Rosen Plevneliev, opened the discussions, noting that Bulgaria acceded to the treaty in 1978 and became consultative in 1998. “I am proud Bulgaria is among the small number of countries in Southeast Europe” with a research station in the Antarctic, he said.

More than 400 participated from the treaty’s 52 member nations and the (overlapping) 37 Protocol for Environmental Protection parties, along with observers.

The focus was on understanding global climate change, promoting research, and “consolidating the culture of international collaboration,” according to a post-meeting communiqué by the host. Management and operational challenges on the agenda included work on a multiyear strategic plan. Delegates worked on a strategy for environmentally managed tourism and non-governmental activities.

The treaty’s Committee on Environmental Protection (CEP), which also met in Sofia during the period, discussed making science more accessible via the

Antarctic Environments Portal (<https://www.environments.aq/>); better understanding and addressing implications of climate change for protection of the Antarctic environment; and reviewing guidelines for environmental impact assessment. Parties approved 18 Measures updating management plans for protected areas within Antarctica. The U.S. representative to the CEP, Society stalwart Polly Penhale, was elected for a second term as Vice-Chair of the CEP.

The Antarctic Environments Portal mentioned above is worth a look. It has peer-reviewed information that's "factual, free of jargon, with no recommendations."

An emerging-issues section lets researchers post new ideas. An interactive and searchable map displays topography, place names, environmental information, and biogeographic regions. David Walton, a long-time Antarctic hand, is interim editor. Antarctica New Zealand manages the site. The delegates held a full day's workshop on education and outreach.

As usual for consultative meetings, the final report with recommendations and other information will be on the secretariat's site (http://www.ats.aq/index_e.htm) before the next meeting, scheduled for Santiago, Chile, 6-15 June 2016. Parties agreed to hold a special, one-day symposium at the Santiago meeting to celebrate and take stock of Antarctic environmental protection on the occasion of the 25th anniversary of the Environmental Protocol to the Antarctic Treaty.

Your editor visits two Washingtons, D.C.

America's two largest science organizations recently partnered to use polar research in promoting geosciences to political Washington, D.C.

"Living at the Extremes" was the title of two events AGU and AAAS

sponsored 15 and 16 June. Robin E. Bell (Lamont-Doherty Earth Observatory) and Brendan P. Kelly (Monterey Bay Aquarium), who have worked extensively in polar regions, were the featured scientists at both. Robin, drawing on her study of characteristics and dynamics of Antarctic land ice, focused on the unprecedented declines in West Antarctica. Observations of increased glacier speed, reduced elevation, and reduced mass, drawn from three independent techniques, have convinced researchers the losses are real and are unprecedented in the instrument era.

The events – one in the American Association for the Advancement of Science (AAAS) auditorium at its headquarters downtown, the other in a hearing room at the Dirksen Senate Office Building on Capitol Hill – drew hundreds each. Both had free refreshments; the AAAS one had free wine and beer, too. The first was in the evening; the second, mid-afternoon.

Your editor was born in Washington, grew up in a suburb, lives there still. The place has pulled itself into two. When the District recently lost its bid to host the 2024 summer Olympics, organizers said "the city's bad reputation damaged its proposal." Associated with Congress, it polls worse than traffic jams and cockroaches, says the 14 June *Washington Post*.

AAAS and the American Geophysical Union (AGU) represent the other Washington – people who take pride in their work and want it to be helpful. Exceptions exist on both sides, of course. Rush D. Holt, now AAAS's CEO, moderating the first event, had been a teacher and a scientist and had represented New Jersey's 12th Congressional district for 16 years. Responding to a question about why the USA is behind in responding to the challenge that Antarctica's ice loss is sending, he said that a "concerted campaign of disinformation" stalling action about climate change is "costly and deadly." Sustained applause followed.

Next day, Kathryn Sullivan, former astronaut and now administrator of NOAA, talked about the connection between polar events and hurricanes off the U.S. east coast, drought in the west, tornados in the middle. We need “environmental intelligence,” she said. “We need fundamental research and sustained observations.” She referred to science’s “evil twin,” which attempts to discredit climate science the way the tobacco industry tried to discredit science demonstrating smoking is harmful. Her message for scientists was, “Stand up for the integrity of your profession. Make sure people know where the real science is.”

Two Senators joined the group. Senator Bill Nelson of Florida remarked that Florida needs to pay attention to coming change. “Geoscience,” he said, “informs life as we know it.” Senator Sheldon Whitehouse, Rhode Island, said it does not take a rocket scientist to put a thermometer in the water and see that the ocean off his state has warmed in the last half century.

What comes from events such as these? A questioner from the audience at the AAAS event asked what she might say to a friend who does not want to believe what Antarctica is telling us. Robin Bell suggested looking at the facts and summarized the main point of the presentation she had just delivered. West Antarctic ice is speeding its flow into the sea. It is getting thinner. What’s left weighs less.

Then, she said, the friend has to make up her mind.

Ice Eagles, a coming new film

by Tom Henderson

Much of what has been accomplished by the United States in Antarctica would not have been possible without aviation. The story of the men, women, and aircraft that have met the

challenge of the most hostile environment on the planet will be documented in my new film, *Ice Eagles: An Account of American Aviation in Antarctica*. This is my fifth film with an Antarctic theme and by far the most ambitious, covering from Admiral Byrd’s first expedition in 1928-30 to the present day. I began researching and interviewing for the film in 2014 and will continue this phase through the end of 2015. I expect to release *Ice Eagles* in mid-2016.

By the end of the year, I will have interviewed over 60 pilots, air crew, maintenance specialists, builders, coordinators, scientists and others with a connection to Antarctic aviation. I have interviewed persons from every American expedition starting with the 1939-41 United States Antarctic Service Expedition (USASE). Notable interviewees include the last surviving member of USASE, BMC Robert R. Johnson USN (Ret.), Robert Dodson who was a member of the Ronne Antarctic Research Expedition in 1946-48, and two members of the crew of R4D *Que Sera Sera* that made the first landing at the geographic South Pole, pilot LCDR Conrad “Gus” Shinn USN (Ret.) and plane captain CPO John P. Strider USN (Ret.).

I have accumulated a massive amount of archival film, photos, and documents from national repositories such as the National Archives, the Byrd Polar Archives, and the National Naval Aviation Museum and complemented this material with numerous personal films, photos, and documents contributed by individuals interested in seeing this story told. A great deal of this personal material has not been publicly seen.

The local PBS television station in Albany, New York, has sent a letter of interest in broadcasting a version of this film when it is completed. Otherwise, it will be available through my business website, www.gwillow.com, where anyone can find more information on the film and follow its progress.

I am grateful to all of the people whom I have interviewed and corresponded with for the making of this film. Almost without exception, they have been open and sharing. The greatest joy for me in making *Ice Eagles* has been getting to know so many good people.

History of an Antarctic historical website

by Bill Spindler

Like many folks who spent time in the Antarctic in the pre-digital-photo era, I came away from my 1976-77 summer-winter at the South Pole with a collection of slides that mostly gathered dust for a long time. Until 1999, when I was contacted by Tadashi Yogi, one of my fellow winterers who was attempting to locate the rest of our 21-man winter team for a proposed reunion on Midwinters' Day 2000.

Before leaving Pole, we created and printed out an address list (these are now called "dinner lists" based on the premise that Antarctic folks might want a place to eat and sleep while traveling about the world). It turned out that I was the only one of us whose address/phone number from that list still worked. It was my parents' place in a suburb of Cleveland, Ohio.

So I helped him search out the rest of our winter group (we'd called ourselves the "Pole Souls") using the Internet search engines of the time. Meanwhile, I decided to dust off the photos from our winter, to share at our reunion . . . or . . . then I got the idea that I might want to put them up on a website. So I started laboriously scanning some of the slides using an HP scanner with a triangular mirror device that you put the slide under, and some old software to attempt to despeckle them and clean up the colors. As I started putting the diary of our winter together, I got the idea to add a historical station timeline. Of course the

photo sizes were kept small, as the Internet at the time (including mine) was mostly dialup. Plus (then as now) I was attempting to make the site visible to people at Pole; they have always had an even slower internet access than I.

I had a bunch of old files of articles, *Polar Times* and *Antarctic Journals*, newspaper clippings, reference books, and other information collected by my parents and myself. And I'd actually previously created a sort of "timeline" while working at Pole during the summers in the late 1980s. The facilities engineer I was working with gave me access to the station files, and in addition to seeing what projects might need to happen, I created a "facilities timeline," which I'd shared with the other people on station. That became the original basis for the website timeline. But then, I soon decided that I needed to include information about the station winterers. My first goals were to identify how many people wintered each year, and the identity of the station manager or officer in charge. Then I thought that perhaps I could acquire the actual winter photos and the names of the winterers.

At first the website was hosted on a free area provided by the Delphi.com site, but in April 2000 I decided to acquire a real site: "southpolestation.com." This was back when domain names such as this were available free for the asking (as was palmerstation.com a few years later). Much more recently (a few months ago) it cost me \$750 to acquire mcmurdostation.com, although I haven't had time to do much with it yet except put up a home page.

One of the early things I had to deal with was how to *create* a website. At the time (and still today) many many sites/programs/apps will let one create website pages quickly by what-you-see-is-what-you-get drag-and-drop interfaces. I tried a few of them and quickly discovered they were worthless. They'd create a nice-looking page, but it would be full of bloated

unintelligible code and impossible to update. So I quickly learned that the only way to do things was to write the HTML myself using notepad (or more recently textedit). For example, just today I updated some pages I'd originally created more than 10 years ago.

The site has continued to grow, helped in part by my two winters at Pole in 2005 and 2008 during which I documented all of the extant winter photos and helped get more of them sent down to be hung in the main hallway. And I've also been helped by the many ice friends past and present who have shared information, photos, blogs, and links.

Perhaps the greatest success was the creation of a spreadsheet listing all of the South Pole winterers. I must confess I didn't put it together; friend BK Grant developed the original spreadsheet. The spreadsheet is not available publicly (you can ask me for the page/password) but I've used it to develop a public page covering the winter statistics: <http://www.southpolestation.com/trivia/wo.html>.

My site <http://www.palmerstation.com> also includes a historical timeline with winter photos and lists. I'm working on a spreadsheet list of Palmer Station winterers—a bit more difficult because ships can call there almost year-round, making “winter” less well defined than the Pole one with its 8½-month period of physical isolation from the outside world.

Bela Csejtey (1934-2012), a rare Hungarian in Antarctica

by Art Ford

“My name is Bela! Bela Csejtey!” (*pr. Shay'tay*) loudly in broken English ended my doze one late October afternoon in 1962 waiting for the O Club bar to open. The door crashed ajar, and two bulging orange duffle bags and blowing snow flew

past into McMurdo's crammed transients' hut, *Vermin Villa*. With that, I had just met my first Hungarian, now my new double-decker bunkmate while awaiting an R4D flight to Byrd Station for “eastern Horlicks” fieldwork (today's Thiel Mountains). Hungarians were rare amongst USARPs, and maybe Bela was the first.

The Club opened and — dinner forgotten — I listened to tales of a WW-II childhood under Nazis and American bombers, followed by life under Soviet occupation of Cold War years. My First Hungarian Rule learned was *Never Challenge a Hungarian to Beer Drinking*. Nazi patrols and Allied bombs had to be avoided while growing up in wartime Budapest, with subrosa “underground” early schooling by parish fathers and nuns. Postwar schooling under Soviet occupation was just as challenging. Bela's father, as an officer in Hungary's anticommunist underground army during 1950s revolutionary uprisings, was sought by Soviet troops, and the family barely avoided Soviet tanks in escaping to freedom in Austria and then USA in 1956 — prematurely ending Bela's training in geology at Eotvos Scientific University of Budapest.

Bela adapted quickly and by 1957 worked on California oil rigs before entering Princeton University, completing his PhD in 1962. He then joined Prof. Fiorenzo Ugolini (Rutgers University) studying soil formation under polar conditions of the McMurdo Dry Valleys. After a few days exchanging tales Bela headed west to the Dry Valleys and I eastward to Byrd Station.

Tracks recrossed in 1969 in Menlo Park, California, both of us now members of the USGS Alaskan Geology Branch. I heard “the rest of Bela's Antarctic story.” His short Rutgers field season studying polar pedogenic processes with Fio Ugolini in Lower Wright Valley was made even shorter by another close call mirroring his wartime Budapest days. Their helicopter resupply

flight had terminated in a crash virtually on their tent, after which Bela and Fio were awarded citations by Rear Admiral David Tyree, Commanding Officer, for the pilot's rescue.



Bela's geological reports and maps earned a distinguished career in central and arctic Alaska, for which his iconoclastic views on tectonic development were legendary. Following both our 1995 USGS retirements we joined forces for work on the Denali Fault System.

A return to Gondwana by ISAES

by Art Ford

Mid-July of this year sees ISAES-XII, the 12th International Symposium on Antarctic Earth Sciences, in Goa, India, under auspices of SCAR, the Scientific Committee on Antarctic Research. SCAR's international symposia in various sciences, usually about every 4 years, track research progress.

“Gondwana?” That “Land of the Gonds,” ancient warriors of central India, also is the name of a hypothetical former continent containing characteristic but long extinct fossil trees and reptiles on all southern continents. ISAES-XII occurs in the heart of old Gondwana. It's a nirvana for visiting paleontologists and paleo-glaciologists: before the age of dinosaurs, great ice sheets once covered that now tropical region.

SCAR earth scientists last met on a Gondwana continent in 1982 (ISAES-IV, Adelaide, South Australia). By then continental mobility by seafloor spreading from mid-ocean-ridge volcanic activity generally was accepted. This *sea change* in the geological paradigm was occurring at the time of ISAES-II (1970, Oslo), when the idea of continental drift was transforming into the theory of plate tectonics, and few still held notions of continental fixity. This progress is inferable from tables of contents and indexes in the succession of ISAES proceedings volumes.

The Cape Town meeting of 1963 — “SCAR-Geology 1” (we may as well label it ISAES-I) — was a learning experience for most geologists from the north. Geology had not been part of 1957-58 IGY research, but that omission was being rectified quickly, and close geological similarities with other southern lands were being noticed.

South Africans thus invited those northern hemisphere rejecters of drifting continents to see how that famous Paleozoic to Mesozoic-age sequence of sedimentary rocks called the Beacon Supergroup and its Gondwana fossils of the Transantarctic and Ellsworth mountains matched so well with South Africa's Karoo sequence of rocks. The best explanation? Movements apart along continental splits, namely continental drift.

Attending were geologists of most of the then 12 Antarctic Treaty signatories, with notable exception of Russians. Perhaps

the USSR was boycotting South Africa's apartheid; perhaps it was intolerant of South Africa's extreme anti-communist policies. Northerners had long considered South Africa a hotbed of "continental drifters" or "drifter crackpots" (notably A.L. Du Toit and his book *Our Wandering Continents*, 1937), a prejudice soon to reverse owing much to fieldwork in the Transantarctic and Ellsworth mountains. The Afrikaners particularly wanted the northern skeptics to see for themselves the varied, close matches in rock types and rock sequences showing the same histories of now widely separated lands. Dr. F. Truter, Director, South African Geological Survey, did that by leading a remarkable country-wide field excursion. Drift skeptics became convinced, eventually even evangelical, upon seeing the Karoo's sandstones and coals and the mighty Drakensburg escarpment of basalts and related igneous rocks of Natal province — all so much alike the Beacon Supergroup and Ferrar igneous rocks of the McMurdo

Dry Valleys! Continental mobility is now viewed as virtually a fact, after the finding of the plate tectonics mechanism.

Those seminal 1963 meetings were held at beautiful Cape Town University amidst lush gardens and lawns under the craggy, towering sandstone cliffs of Table Mountain — whose southern relatives make up some of Antarctica's highest peaks. We'd seen apartheid's "Nie Blank" (Whites Only) signs everywhere along our travels, but none of us took notice of a little island just off Cape Town's shore — Robben Island, where political prisoner Nelson Mandela was held for 18 years' hard labor before eventual apartheid ending by De Klerk's 1989 revoking of the Population Registration Act. Mandela, along with America's 1964 Civil Rights Act following riots in Birmingham, marks another paradigm change, a societal one even more profound than our geological one of continental mobility and plate tectonics over those early SCAR years.



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ANCHOR AWEIGH

Antarctic science has global consequences. This sentence, in a newly published strategic *vision* for Antarctic and Southern Ocean research, is obvious to us today. It was not always so. In 1960 T.O. Jones, head of NSF's then new Antarctic office, lamented to *Science* that few scientists were attracted to the field and that even a "balanced program" of examining what was there was yet to be achieved.

Fifty-five years later, a now vibrant Antarctic research community has placed before us a bulging suite of globally urgent scientific questions. "The need for prioritization in allocating resources is real," the report's authors write. Turn the page for more about a way forward – a vision – for the United States Antarctic Program.

The strategic vision advocates, among structural improvements, more efficient field work. Rising to this challenge, a new penguin census blends remote and ground counts to give us the good news that far more Adélie's are alive today than at the last thorough check in 1993.

International cooperation is a must, the report says. Read below about 171 scientists from 22 countries and their new 510-page Southern Ocean atlas.

Every national program has an HQ. America's is on the seventh floor of a leased building in Arlington, Virginia. Below, we peek at the 48 public servants who rally institutional and financial support – and who choreograph those 3,000 souls whose labors express the National presence on the Ice.

Readers have expressed sufficient interest in an Antarctic Society Gathering in Port Clyde, Maine, next summer that we have set dates for a 3-day affair that will feature presentations, festivity, food, and maybe a few surprises: Friday 15 July through Sunday 17 July 2016. Stay tuned!

Guy Guthridge

A strategic vision for NSF Antarctic and Southern Ocean research

Two years ago, the National Science Foundation decided it needed a “compelling research strategy” for increased understanding of Antarctica and the Southern Ocean. It awarded the National Academy of Sciences \$836,619 to produce one.

The Academy’s Polar Research Board set up a 17-person committee of scientists and educators of whom Robin E. Bell, Columbia University, became chair. The group spent 11 months engaging more than 450 researchers across the United States within the many-disciplined Antarctic community. They started with a town hall at the 2013 American Geophysical Union fall meeting, had a town hall web site through much of 2014, and ran 14 outreach sessions at universities and in conjunction with existing conferences.

Even before it started, the committee had a lot to work with. In 2011 the Academy had published a 195-page evaluation of questions that will drive science in Antarctica and the Southern Ocean over the next 2 decades. The following year a blue ribbon panel showed that science is the visible tip of an iceberg whose underwater portion is operational support; its 224-page study asserts that fundamental change in this support will be required if research needs are to be met.

Coincidentally the international Scientific Committee on Antarctic Research (SCAR) was identifying the most compelling 80 science questions in what it called a horizon scan. Some members of the U.S. committee were part of that process.

To do the actual writing of its report the committee met six times and heard from yet more scientists and representatives of Federal agencies. After, 15 other scientists reviewed the draft in a procedure administered by a separate Academy group to assure

independence and make sure all institutional procedures were considered.

Why all this?

Chuck Kennicutt, Texas A&M, who chaired SCAR from 2008 to 2012, told *Science* (14 August) the studies are forcing researchers to decide what's important and justify their work to a broader audience. “These reports lay out why we want to spend the money it costs to be in Antarctica. They show that the community is organized.”

The *Science* article says infrastructure upgrades are sorely needed; the NAS report “adds to this sense of urgency.”

The committee’s report recommends acknowledging a central reality, and focusing on three other distinct priorities. The reality is that to predict where major advances will happen is impossible. Continue, it argues, “across all major areas of Antarctic and Southern Ocean science, the curiosity-based research driven by proposals from principal investigators.” But, it says, look for efficiencies. Improve coordination and data sharing among independent studies.

The priorities start with how fast and by how much sea level will rise. To know this, we need to know why the ice sheets are changing and how they will change. Past ice sheet change will help us understand rates and processes.

The second big question regards how biota evolve and adapt to the changing environment. We need to decode the bases of biological adaptation and response across organisms and ecosystems.

The third question uses, but does not help to explain, Antarctica: How did the universe begin and what are the underlying physical laws that govern its evolution and ultimate fate? A next-generation cosmic microwave background program is envisioned, building on accomplishments at South Pole Station and elsewhere across the Antarctic.

Recalling the above iceberg analogy (a lot of support is essential for a given level

of science), the committee sees seven critical areas of operational and program improvement. Access to remote field sites has to be improved even beyond America's already excellent capability. Ships are needed, and that includes a new logistics icebreaker as well as research platforms. Observations that are *long term* are critical for understanding the natural environment and its human influences. Communications and data transmission have to be improved. Data must be managed to be preserved and accessible. Coordination needs to be improved at all levels, ranging from within NSF to among nations.

And, seventh, education and outreach are critical to this as to any public program: give people a sense of connection to the Antarctic to help them better appreciate the scientific and societal value of research in this remote part of the world.

A concluding thought of the report centers on the committee's hope that the ideas it raises, informed by researchers across the country, will be a framework for helping NSF make choices. Antarctic science has a pivotal role in understanding how Earth and the universe operate.

As evidence for major shifts in Earth's climate accumulates, the role of Antarctica and the Southern Ocean is increasingly apparent, the report says. Continued discovery and awe, with the need to understand how these complex systems work, motivate the pursuit of science in the Antarctic, along with the infrastructure and logistics needed to support it.

Both *EOS* and *Science* give sympathetic evaluations of the new report. "The United States' research in Antarctica needs fresh initiatives and better equipment," writes Carolyn Gramling in *Science*. "But how to afford them remains a conundrum."

Read [A Strategic Vision for NSF Investments in Antarctic and Southern Ocean Research](#) (170 p., 2015) free on the Academy's web site (nas.edu), or buy a paperback there for \$50.

First global census of the Adélie penguin

The decline of Adélie penguin populations along the Antarctic Peninsula is a familiar, discouraging story to travelers who visit that region of the continent. So a census published in 2014 is welcome news because it reports big increases in breeding populations elsewhere.

H.J. Lynch, Stony Brook University, and M.A. LaRue, University of Minnesota, used ground counts and satellite images to find a total breeding population 53-percent larger (3.79-million breeding pairs in 251 breeding populations) than the last estimate, in 1993.

The Antarctic Peninsula decline is more than offset, they find, by increases in East Antarctica. Approximately 21-percent of the population breeds along the Antarctic Peninsula, 33-percent in the Ross Sea, and 30-percent in East Antarctica.

Their work also is the first abundance estimate for 41 previously unsurveyed colonies, with 420,000 breeding pairs, and it reports 17 previously unknown colonies, 11 of which may be recent colonizations representing some 5-percent of the total increase. Adélies are philopatric – they like to return to a particular place – so the new colonies suggest resilience, adaptation, in the face of changing environmental conditions.

Census by satellite isn't direct counting. The images usually aren't sharp enough to distinguish species, but spectral and spatial characteristics of the guano can do the trick. The researchers explain: "Except where constrained by topography, Adélie penguins nest in a close-packed nesting formation with a relatively homogeneous nest density that allows us to convert an area of nesting (as identified by the area of guano staining) to an estimate of the number of pairs breeding within."

They are confident in their method and thus use "census," rather than "survey,"

to describe both the field counts and the satellite population estimates. “Our estimates reflect (as far as we are able to determine) a complete enumeration of the population of each breeding site and, taken in aggregate, of the entire global Adélie population.”

The [full paper](#), in *The Auk*, 131(4): 457-466, is online and available to anyone. NSF is supporting the work with two 5-year grants (2008-2018) that add to \$907,951. With 3 years still to go, the grants have produced 32 publications including this one.

Adélies are a “sentinel” species, or what ornithologist David Ainley’s 2002 book calls a bellwether of climate change. Their importance as a proxy monitor for fisheries, state Lynch and LaRue, is driving a renaissance in the tracking of penguin populations using satellite imagery. Their work relied on manual identification and interpretation, but automated methods in development will enable regular monitoring across the breeding range. This topic is of interest in particular for designing a sustainable krill fishery, and the 53-percent Adélie increase suggests current estimates of krill consumption by Adélies are underestimated.

Apologies for doing this summary more than a year after the paper appeared. Your editor became aware of it because of a reference in the August 2015 *SCAR Bulletin*.

Biogeographic Atlas of the Southern Ocean

This massive volume, printed in 2014 and still moving toward full online availability, is said to be the largest contribution in biology of the 2007-2009 International Polar Year. Undertaken as part of the global Census of Marine Life (a \$650-million endeavor funded by the Alfred P. Sloan Foundation, New York), it enables us, states the preface, to understand at a glance “the grand carousel that whirls around Antarctica.”

The Total Foundation, Paris, and the Cosmos Prize Foundation, Tokyo, also provided financial support.

Twenty-six Americans are among the 171 scientists who contributed material, and six of the 26 had NSF grants totaling \$2.2-million at least partly for the purpose. But this initiative started with a 5-year Census of Antarctic Marine Life (CAML) led by the Australian Antarctic Division. Andrew Clarke, emeritus fellow, British Antarctic Survey, writes in the volume’s foreword that the census delivered “the single largest step in our knowledge of Antarctic marine diversity and biogeography since the first half of the 20th century.”

SCAR’s Marine Biodiversity Information Network archived the 2.9 million items of georeferenced biodiversity data, covering 14,000 species, that went into compiling the volume’s maps, tables, and text.

All together, the volume involved researchers from 22 nations.

The project in short is a new synthesis of Southern Ocean patterns and processes covering benthos, zooplankton, nekton, birds and seals. It’s a benchmark to help define present provinces and predict changes under various climates.

It also predicts where species will be according to abiotic factors. Dynamic editions will connect to other databases, enabling more data visualization and analysis.

The first task was to figure out what’s known. Claude De Broyer and Philippe Koubbi, senior editors, write in their introduction, “The first and fundamental step of the Atlas project was to compile and database all occurrence records available from the literature (since the very beginning of Antarctic exploration), from museum collections, as well as from CAML and other recent Antarctic sampling campaigns.”

John Davenport, University College Cork, Ireland, provides an informed 2-page

review in *Antarctic Science* (2015), concluding with these sentences: “a substantial tour-de-force, with a few flaws that no doubt stem from the admirable speed with which this book has been produced, plus the increasing unwillingness of scientists to display their most exciting research findings in a forum other than high-impact research journals. Necessarily the market for this book is limited, but it is a landmark reference volume that should be in the libraries of all marine institutes and every university that teaches and researches life and environmental sciences. It is an excellent showcase of the value of modern scientific power combined with cooperative and altruistic endeavor.”

The project has worthwhile maps and other information even if you're not an Antarctic biologist. Your editor has looked at plenty online, but has not seen the actual book, a paperback of which can be bought from amazon.co.uk for £80. Further description, and some chapters, are at biodiversity.aq.

The headquarters outfit, U.S. Antarctic Program

A literal organizational interpretation of the celebrated 1970 Presidential pronouncement that science is the principal expression of U.S. Antarctic policy is this: Eight program managers on the seventh floor of the National Science Foundation in Arlington, Virginia, hold America's Antarctic future in their hands.

In reality, it's more complicated. Still, simplistic explanation can clarify complexity: NSF's job – those eight folks and another 36 heading up operational, environmental, communications, safety, and leadership roles, is to keep getting and spending the money that made U.S. scientists lead (or sole) authors of 26.7 percent of the 10,942 Antarctic papers published globally from 1980 to 2004 *and*

that established the USA as the most networked country in Antarctic science, according to a 2008 study.

The 48 Antarctic people in the polar office are part of NSF's 2,100 staff whose \$7.3-billion (this year) supports a quarter of the Nation's academic scientific and engineering basic research and education.

The simple, effective model is that scientists at universities send research project proposals to NSF. It's not easy. In fiscal 2014 NSF funded 11,000 of the 48,100 proposals received and put through competitive merit review. Internal operations including review accounted for 6 percent of the NSF budget. The rest of the money went out the door to put the country at the leading edge of discovery in places like the Antarctic.

Your editor's perspective based on 38 years with the polar office is that what keeps staff there is working with top researchers on vital scientific questions while figuring out how to support them in an inhospitable climate where you have to import everything. Along with that you have international collaboration, the never-quite-absent geopolitical posturing, and the intriguing operational aspects of getting around in anything from an airplane to a bunny boot.

What drives 'em nuts at the polar office is there's never enough money to do it all just right. Let's be specific.

“Under current practice,” reads a 2012 blue ribbon review of the Antarctic program, “when NSF and its contractors must choose between repairing a roof and conducting science, science usually prevails. Only when the science is seriously disrupted because the roof begins to collapse will it be replaced; until then, it is likely only to be repaired. Examples of this phenomenon abound: a warehouse where some areas are avoided because the forklifts fall through the floor; kitchens with no grease traps; outdoor storage of supplies that can be found only by

digging through deep piles of snow; gaps so large under doors that the wind blows snow into the buildings; IGY-era vehicles; antiquated communications; an almost total absence of modern inventory management systems; indoor storage inefficiently dispersed in more than 20 buildings at McMurdo; 350,000 pounds of scrap lumber awaiting return to the U.S. for disposal; and more. The status quo is not an option; sooner or later the atrophying logistics infrastructure will need to be upgraded or replaced. Failure to do so will increase logistics costs until they squeeze out funding for science.”

And yet, as those statistics a few paragraphs back show, science thrives. Some of the above complaints have been fixed or are getting there. The dilemma (fortunate from the human safety perspective) is nothing fails dramatically enough to motivate a slug of new money from – where else? – Congress to really and permanently raise efficiency.

In its 2016 proposal to the Congress NSF identifies a project, Antarctic Infrastructure Modernization for Science, that would move the program toward more efficient science support. The concept includes replacing the Palmer Station pier and redeveloping McMurdo’s support facilities, communications, runways, and ship support. This operations upgrade is one of three “key priorities” in the polar programs budget proposal.

So the new strategic vision from the Academy (see the above story) is a big deal. It slingshots earlier reports (issued in the last 4 years) using recommendations that are fine-grained enough to be practical and that are aligned with the money likely to be available.

And with all those reports finished and distributed, it falls to the 48 folks in HQ on the seventh floor of the NSF building to convert mere printed pages to Antarctic reality.

Correction – or perhaps an explanation

The July issue, page 1, calls Maine the most northeastern state. Member Robert Mayo Failing, MD, of Santa Barbara, writes:

“I suspect by now a number of readers have noted the error. The rough north and east coordinates of Maine are 47.20 N lat., 67.00 W long.

“The most northeastern USA state is Alaska. The coordinates of Attu Island, one of the Near Islands in Alaska’s Aleutian chain, are 52.56 N lat., 173.00 E long. Alaska is also the USA’s most western state.”

Your editor replied. “Someone in a plane flying west to east would see Alaska first, Maine last. That’s how I was thinking. It’s the tyranny of the Greenwich prime meridian that I overlooked.

“Your email got me interested, and it wasn’t ‘til 1884 that 0° became today’s 0°. A score or so candidates lost out to the one used now. If only Gerardus Mercator’s 1595 prime had held!” [Mercator’s prime meridian was at present-day 14°01’W.]

Celebrating the life of Winifred Reuning

by Lynn Teo Simarski

Winifred May Reuning--NSF editor, writer, webmaster, and warm-hearted friend and colleague to so many for decades--died at age 62 on 4 August 2015 in Alexandria, Virginia. “Winnie”—as she was known to all--was a lodestar who guided the National Science Foundation’s polar office from the old way of communicating with scientists and the public to our on-line world.

During 35 years at NSF, Winnie brought her twinned gifts of memory and empathy to bolster those who worked with her. “Winnie had a memory for people, documents and events that was astonishing,”

said Guy Guthridge, this newsletter's editor, who originally recommended her hiring at the NSF. "Countless times, after exhausting my own search, I quickly got the missing information from Winnie."



Winifred May Reuning

As for empathy, Winnie often seemed to have telepathic fibers throughout the polar office and beyond that helped her colleagues overcome bureaucratic obstacles. She was invariably ready to listen and dispense solace along with her trademark no-holds-barred laugh. Near her desk was a chair reserved for guests, concealed like a confessional within books and papers. (As a neophyte in NSF's public affairs office, I benefitted immeasurably from Winnie's emotional and organizational wisdom.)

Winnie graduated as valedictorian of her high school class in Selinsgrove, Pennsylvania. She studied English literature and writing at Hobart and William Smith Colleges. In her earlier NSF years, she was one of the pioneering women to deploy to Antarctica. In 1980, she became editor of NSF's *Antarctic Journal of the United States*, with her name on every masthead from 1980 through the final issue in 2005.

A key player in the fledgling NSF-wide webmaster group, she developed and

introduced the online identity of the Division of Polar Programs. She also collaborated with the Department of State to publish the first online edition of the *Handbook of the Antarctic Treaty System*, for which she received an NSF award. Over the years, when approached at the last minute by countless higher-ups, Winnie rescued them with her ability to create slides and presentations.

Winnie's memorial service on 15 August was led by an old college friend, Minister Robert John Andrews, who shared many English classes with her. His eloquent testimonial to Winnie wove his own comments, poems, lyrics from Van Morrison and the Beatles (Winnie loved music), and biblical passages.

Talks by Winnie's family members celebrated her accomplishments and her spirit. Winnie's siblings spoke of her unconventionality, and a younger sister, sharing a room with a teenage Winnie, recalled being awakened by the earthy cries of Janis Joplin at two in the morning. Winnie also loved science fiction and discussing any and all topics at length.

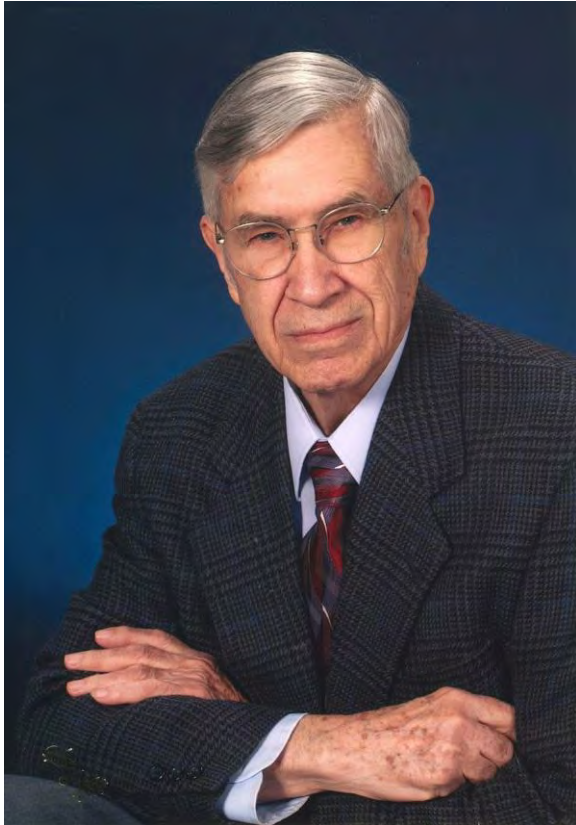
At the service, Andrews evoked Winnie's youth with a poem from Yeats ("a glimmering girl/With apple blossom in her hair/Who called me by my name and ran/And faded through the brightening air.") He also recalled how, after 40 years, he and Winnie finally reconnected this summer in Pennsylvania. "She taught me over that lunch how her Antarctic world wasn't a single discipline but many, all interconnected," he said; "where even a cold desert offers the promise of life."

In that cold desert, Winnie is commemorated for her contributions by Reuning Glacier, named for her. It is located on Alexander Island adjoining the south-most part of the Antarctic Peninsula. Now this place takes on special meaning. As Reverend Andrews quoted from the Bible, "For where your treasure is, there will be your heart also." We lost Winnie way

too soon, but her heart lives on in those she treasured and in Antarctica.

Quiet, unassuming, lovable Bob Allen succumbs

by Paul Dalrymple



Robert J. Allen

If ever an Antarctic was loved by one and all, it was Bob Allen of the USGS. He was at the beck and call of those who wanted an official photographic portrait of a geographical feature named after them. No matter how obscure the feature might have been, he came up with a product. One such finding was that of Mount Benkert, Antarctica, named for a dear friend of mine, an admiral in the U.S. Coast Guard. Aerial photography in the USGS archive showed Mount Benkert to be nothing more than a nipple of a snow hill. But Bob found it!

Ruth Siple and I went to the open hearing honoring the passing of Bob's first

wife. Bob brought hundreds of pictures and told us how wonderful she had been. On our departure, I said to Ruth that after a marriage like that one he would never marry again. How wrong I was. Within a year he had remarried, this time to a working cohort in the USGS, and this marriage also lasted over 20 years.

After my retirement from the Washington scene, I called Bob frequently from my retreat in Maine, and Bob regaled me with stories about various and sundry women friends who wanted him to marry them. It seemed that most were single and were looking for someone who had good health insurance. Each newsletter that I sent to Bob, I wrote a prelude warning him to stay single. Whether I had any influence I will never know, but he never tried a third marriage.

Robert J. Allen was born in Martinsville, Virginia, on 12 January 1923. His father died when Bob was 6. During the Depression, at about 10, he was sent with his brother Jack to be raised in the Pythian Home of New Market, Virginia, which the Knights of Pythias operated for orphans and aged widows.

The Army drafted Bob in 1943 and held him in reserve until calling him up for Korea. He trained in engineering, leadership, cartography, marksmanship, and artillery.

Honorably discharged, he began work in the U.S. Geological Survey. He was there for 60 years as a cartographer, creating and verifying maps all over the globe and even of the Moon and Mars, but his specialty was Antarctica. His final postings were with the SCAR library and the Antarctic Resource Center at the USGS in Reston, Virginia. He was honored in the Congressional Record for his achievements and his service to U.S. Antarctic researchers. He never visited the frozen continent.

Robert Allen had survived heart surgeries, bladder cancer, and melanoma. In his advancing years he suffered from dementia and heart failure. After a final

heart attack, he passed away on 10 July 2015.

Lakes under the ice: Antarctica's secret garden

Curiosity-driven science not connected to a specific social need has high priority in the strategic vision report that is the first item of this newsletter. A much discussed example is discovery and examination over the last few decades of liquid water under both the East and West Antarctic ice sheets.

In the 20 August 2014 *Nature*, Douglas Fox calls the water's microbes, and ecosystems yet to be discovered, Antarctica's secret garden: in the first direct sample, retrieved in 2013 from Lake Whillans 800 meters below the West Antarctic Ice Sheet, John Priscu of Montana State University and colleagues found 130,000 cells of microbial life in each millimeter of lake water. Nearly 4,000 species of bacteria and archaea are represented. "I was surprised by how rich the ecosystem is," Priscu said.

Scientists are paying attention. In March of this year the seventh international meeting on subglacial lake environments was held over 2 days at [Chicheley Hall](#) in the United Kingdom. Sixty researchers from a dozen nations reviewed results and planned future work.

Three priorities emerged: to develop technology for clean, reliable deep-ice access and in situ data acquisition; to consider a variety of subglacial environments for exploration rather than singling out fewer targets; and to share logistics, equipment, and samples internationally.

In the 10 July 2015 *EOS*, three scientists who attended the Chicheley Hall meeting write that researchers now have an excellent understanding of how to explore a subglacial lake, first envisaged 20 years ago for East Antarctica's subglacial Lake Vostok (which is the size of one of the Great Lakes).

You drill using hot water, deploy a variety of instruments, and use proved cleanliness techniques. "It is entirely feasible," they write, "that this and other subglacial lakes can be explored thoroughly in the coming decade, making research priorities set at the meeting pivotal to the history of Antarctic subglacial exploration."

Another new iceberg

[Iceberg B-35](#), which calved in August, at 12 by 8 miles is no record-breaker in size, and in fact it's smaller than B-31, which broke from the same area in 2013.

But B-35 calved from much-studied Pine Island Glacier, which drains a large fraction of the West Antarctic Ice Sheet and which has been documented to be undergoing rapid change.

Recent issues of this newsletter have discussed the increasing loss of ice from numerous coastal glaciers in both East and West Antarctica. B-35 is part of a saga whose next chapter remains to be written. Stay tuned.

Antarcticans drink too much?

Wired magazine on 5 October wrote that, to stay sane, "many" scientists, technicians, cooks, and drivers at McMurdo and South Pole "employ the social lubricant of alcohol to decompress." A 5 July report by the Inspector General for NSF about safety and health in the U.S. Antarctic Program inspired the story.

At South Pole Station, the IG auditors had found a scientist brewing beer in a lab, which violates NSF's Antarctic code of conduct.

Peter West of NSF's polar office later informed *Wired* that the scientist had left Pole, and NSF advised the scientist's institution about the violation. "Alcohol-related misconduct is not disproportionately

represented at the Antarctic stations,” Peter is quoted in the article.

In its report, the IG’s finding number 4 is that breathalyzer tests could enhance workplace safety.

Wired observes that Antarctica isn’t U.S. territory. “Who would administer the tests? Where would people challenge the order, or the results? Antarctica doesn’t have any courtrooms or, thankfully, many lawyers,” it notes.

Separately, Peter commented to *Wired* that the audit confirmed NSF and its contractor, Lockheed Martin, are effective at ensuring health and safety of the participants across the USAP. Nevertheless, NSF is considering the effectiveness and legality of using breathalyzers in Antarctica.

Other news organizations are evaluating the IG’s report. Peter told your editor, “The story is too good to die.”

Antarctic People

Entire books by and about Antarcticans, each in their way, describe the strong personal and geographic affinities that develop after a spell in the Antarctic. A contract employee with long ties to the U.S. Antarctic Program catches the spirit in 44 lines:

It takes a special kind of fool
To leave a home and job, or school
And pack a bag and grab a plane
And leave behind the 'safe and sane'

To go somewhere remote as Mars
With no McDonald's, T.V., or cars
No Exxon stations, no Pizza Huts,
No 7-11's - you'd have to be nuts!

To cast one's lot with a gang of freaks
Misfits, outcasts, grouches and geeks
Collectors of rocks, of eggs, of scales
Sewer repairmen, benders of nails

Far-fetched minds from far-flung places

Wild lights in their eyes, strange knots in
their laces

Strange tastes in music, strange tastes in
food

Strange hair; strange clothing; good God,
what a brood!

What fool wants to go where those maniacs
are?

Each one a stranger, each stranger bizarre
Who'd leave behind all that's comfortably
known

For a place without streetlights, police, or
ozone?

A fool, perhaps, with the mind of a child
Alert and curious, friendly and wild
Foolishly tickled to witness a dawn
Delighted when two other fools sing a song

Or perhaps a fool with a cynical bent
Who scoffed at society, got up and went
Broke off and ran from what others hold
dear
Went as far as one can - and washed ashore
here

Or it could be a fool of Columbus's mold
Miraculous worlds to seek and behold
More faith in tomorrow than any 'today'
No 'here' as delightful as getting away

Fools? Perhaps; but special past doubt
Children and skeptics from the wide world
about
Gathered by chances as random as dice
And sent to this 'home for the way-weird':
the Ice

And here to be tortured, ignored, and
distressed
And find in each other the strength for the
test
And find in these fools the best friends
they've known
And see in themselves a fool of their own

So they bond together in a blissful way

Hopeful fools in their world for a day
As a part-time tribe, a fore-doomed race
Good friends? Total strangers? Both at once
- what a place

Jim 'Thumper' Porter
24 February 1989
Amundsen-Scott South Pole Station

To read the poem online see
<http://quest.arc.nasa.gov/antarctica/background/NSF/poem.html>.

Gathering in Maine 2016 or 2017

by Paul Dalrymple

Our request to members in the July 2015 newsletter (page 2) for expressions of interest in attending an Antarctic Society Gathering in Port Clyde, Maine, got suggestions for one in 2016 and others for 2017.

If you have not written or called me and are interested in attending a Gathering, please do so. If 2016 becomes the selected year, we will publish dates and plans in the January 2016 newsletter so people will have time to book lodging and travel.

We envision a 2-day event in July of socializing, a seafood dinner or two, and the famous Antarctic Society Garage Theater featuring members and others presenting talks about Antarctic topics.

On a third day an optional day or evening cruise will be booked on one of the local tour boats. For many visitors to Maine, a coastal cruise is a must-do.

If you've been to one of these Gatherings you're probably thinking about coming again. If you haven't, you're in for a treat if you like coastal Maine in summer and things Antarctic.



The Antarctic Society

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NO. 2

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ANCHOR AWEIGH

Now in my third season lecturing on an Antarctic cruise ship, I realize the difficulty in helping passengers understand the difference between land ice and sea ice. We pass an iceberg higher than the bridge deck. A passenger asks, "Since it is flat on top, does that mean it is sea ice?"

A lecture with slides, "Antarctic Ice 101," explains it all, I want to think. On the stage of the ship's 500-seat theater, we put water and ice cubes in a large bowl and call it the Southern Ocean with sea ice: no change in sea level as the cubes melt. We noisily add more ice cubes—simulating calving bergs—to raise sea level. More theater: as the ship passes real-life examples, our commentary from the bridge drills home appreciation of what's a berg, a bergy bit, sea ice, fast ice. After days south of 60°S I watch the satisfaction of understanding unfold on the faces of passengers who were strangers, now are acquaintances, and are about to be gone from my life forever.

They go home, tell others. Steve in Michigan isn't one. Diane Rehm, a public-radio interviewer with a national audience, recently hosted two of the world's top glaciologists. Eric Rignot and Richard Alley described the revolution in understanding of ice sheet dynamics and newly measured rates of land ice loss, especially from West Antarctica and the northeast quadrant of Greenland. Steve of Michigan called in to correct their *gross* misunderstanding: the scientists had failed to read NASA's news that the sea ice around Antarctica had reached a record maximum area. The two scientists, he explained, are "fear mongering climate change nuts."

Reality, in whatever form, can make a difference, even if it's only a few days on a cruise ship. The 36,702 tourists who visited the Antarctic last season will pass it on, each in her or his own way. Maybe one will tell Steve.

Guy Guthridge

Where we stand on ice sheets

by Eric Rignot

At the American Geophysical Union Fall Meeting in December Eric Rignot, NASA Jet Propulsion Laboratory and University of California Irvine, gave the broad view of where science stands in understanding ice sheet dynamics and sea level change. Here's an excerpt.

Modern views of ice sheets provided by satellites, airborne surveys, in situ data, and paleoclimate records, while transformative of glaciology, have not fundamentally changed concerns about ice sheet stability and collapse that emerged in the 1970s.

Motivated by the desire to learn more about ice sheets using new technologies, we stumbled on an unexplored field of science and witnessed surprising changes before realizing that most were coming too fast, soon, and large.

Ice sheets are part of the Earth system; they interact vigorously with the atmosphere and the oceans, yet most of this interaction is not part of current global climate models. Since we have never witnessed the collapse of a marine ice sheet, observations and exploration remain critical sentinels. At present, these observations suggest that Antarctica and Greenland have been launched into a path of multi-meter sea level rise caused by rapid climate warming.

While the current loss of ice sheet mass to the ocean remains a trickle, every millimeter of sea level change will take centuries of climate reversal to get back. Several major marine-terminating sectors have been pushed out of equilibrium, and ice shelves are irremediably being lost. As glaciers retreat from their salty, warm, oceanic margins, they will melt away and retreat slower, but concerns remain about sea level change from vastly marine-based sectors: 2-m sea level equivalent in Greenland and 23-m in Antarctica.

Significant changes affect marine-based sectors in Greenland – Jakobshavn Isbrae and the Northeast Greenland Ice Stream – with Petermann Glacier not far behind. Major changes have affected the Amundsen Sea sector of West Antarctica since the 1980s. Smaller yet significant changes affect the marine-based Wilkes Land sector of East Antarctica, a reminder that not all marine-based ice is in West Antarctica.

Major advances in reducing uncertainties in sea level projections will require massive, interdisciplinary efforts that are not currently in place but are getting there. Projection scenarios are overwhelmingly conservative, pushed up by observations, awaiting more detailed knowledge of ocean circulation, winds, ice-ocean interaction, and mechanics of rapid ice fracture, not to mention the mere definition of static boundaries (ice thickness and sea floor bathymetry).

Here are a few recent findings that likely helped shape the above statement.

- “Today we present observational evidence that a large section of the West Antarctic Ice Sheet has gone into irreversible retreat,” said Eric Rignot, lead author of a 27 May 2014 paper in *Geophysical Research Letters*. “It has passed the point of no return.” Four feet of ocean rise will be the likely outcome over the next couple of centuries from the six outlet glaciers Rignot and his team examined directly. The disappearance of those six will destabilize other sectors, and “the ultimate rise could be triple that.”

- Ian Joughin came to comparable conclusions in “Marine ice sheet collapse potentially under way for the Thwaites Glacier Basin, West Antarctica,” *Science*, 16 May 2014.

- A shift of winds to the south has nudged warmer ocean currents closer to ice

shelves, particularly in West Antarctica, and now is responsible for more than half the total melting of some ice shelves, according to another paper by Rignot and others, this one in the 19 July 2013 *Science*.

- Fernando Paolo and others state in a 26 March 2015 *Science* paper, “Volume loss from Antarctic ice shelves is accelerating,” that average ice-shelf volume change accelerated from negligible loss at $25 \pm 64 \text{ km}^3$ per year for 1994-2003 to rapid loss of $310 \pm 74 \text{ km}^3$ per year for 2003-2012. West Antarctic losses increased by 70% in the last decade, and earlier volume gain by East Antarctic ice shelves ceased. In the Amundsen and Bellingshausen regions, some ice shelves have lost up to 18% of their thickness in less than two decades.

- A warmer Antarctica means more snow. Jay Zwally and others (30 October 2015 *Journal of Glaciology*), using satellite data, found the Antarctic ice sheet gained 112 billion tons of ice a year from 1992 to 2001. The gain declined to 82 billion tons of ice per year between 2003 and 2008. “We’re essentially in agreement with other studies that show an increase in ice discharge in the Antarctic Peninsula and the Thwaites and Pine Island region of West Antarctica,” said Jay (of NASA Goddard). “Our main disagreement is for East Antarctica and the interior of West Antarctica – there, we see an ice gain that exceeds the losses in the other areas.” But it might take only a few decades for Antarctica’s growth to reverse. “If the losses of the Antarctic Peninsula and parts of West Antarctica continue to increase at the same rate they’ve been increasing for the last two decades, the losses will catch up with the long-term gain in East Antarctica in 20 or 30 years -- I don’t think there will be enough snowfall increase to offset these losses.”

In a 2 November 2015 review in the online *Science Magazine News*, Rignot say “the jury is still out” on various time scales

currently proposed for West Antarctic collapse. The long-term evolution of an ice sheet “is a very complex modeling problem. Some of the variables controlling the models are not all that well known,” including winds, ocean circulation, and how icebergs calve. “There is not a model out there that is getting it right, because they all have caveats. I think the discussion is ongoing, and it is only going to be more interesting with time.”

Review: *It’s a Dog’s Life in Antarctica*

by Tom Henderson

Peter Otway’s new memoir, *It’s a Dog’s Life in Antarctica*, is an excellent first-hand account of one of the last major dog sledge mapping expeditions in Antarctica. Structured around his detailed diaries over two seasons in the field and a winter-over between, this is a glimpse of classic sledging life in a forbidding and relatively unexplored continent through the eyes of a young, eager surveyor. His travails and triumphs as a member of the 1960-1962 New Zealand topographical and geological team surveying the treacherous terrain of the Transantarctic Mountains south of Ross Island make for fascinating reading.

The book is a portrait of close comrades, dedicated dogs, and the adventures they shared. It is richly illustrated with photographs, most of them in color. Peter wisely took a good camera on the expedition as evidenced by the numerous photos that he himself took. His images of the region around the Axel Heiberg Glacier and Mount Nansen are nothing less than spectacular.

The descriptions of the dogs are a highlight. Each had its own personality and temperament; “Brae, to put it mildly, is pugnacious and clueless He is so

completely without fear or brain, when he gets a beating from one of us, he immediately blames the dog next to him at the time and flies at him. . . . Despite this, he can pull exceptionally well and often starts an excited yapping and straining ahead as though he sees a vision beckoning him on.”

The ceaseless work and long hours of the summer sledging are contrasted by the more relaxed winter regime at Scott Base. Peter describes the activities of the small wintering party that passed the time and focused minds during the endless winter night. One of these activities was photographing the aurora, stars, and twilight, the most brilliant of which appear in this segment of the book.

Another highlight is the account of his team’s descent of the Axel Heiberg Glacier during the 1961-1962 summer, the first since Amundsen accomplished the feat 50 years earlier during his expedition to the South Pole. His descriptions of the treacherous ice falls and huge crevasses leave the reader envying the sheer adventure of it.

This book is a fine read which both experienced Antarctic veterans and those with an armchair fascination with The Ice will enjoy. It is a record of the end of an era.

The book currently is available only in New Zealand. Peter will gladly take orders from non-Kiwis. Contact him at otway1@xtra.co.nz. The cost is \$45 (NZ) plus \$37 (NZ) mailing (a total of \$54 US at current exchange rates). An easy way to handle the currency exchange is to pay through PayPal.

Penguins in the zoo: reducing mortality from 50% to 1%

by Scott Dreischman

In the wild, penguin mortality can be high. An ornithologist at Hallett Station, Antarctica, in the 1960s observed that in one

season 39 percent of eggs and chicks died. Storms, predators, and other factors such as sea ice extent make growing up a tough proposition.

In the early 1970s Sea World accepted the transfer of a number of Adélie penguins from the National Science Foundation. Dr. Richard Penny had finished his grant work with the birds he had moved from the Antarctic to the zoo.

At Sea World they were kept in a refrigerated facility with clean filtered water. They prospered and bred readily. At the same time Frank Todd arrived as the new curator of birds. Frank was enamored with the penguins and was encouraged by their breeding activity. Shortly after his arrival, NSF asked if Sea World would be interested in establishing a large, long-term penguin breeding program for Adélie and emperor penguin. How could Frank resist?

A cooperative agreement was formed. Sea World would build and maintain the facility and the birds, and it would allow NSF grantees to perform noninvasive research on the penguins. NSF would provide logistics, both on the Ice and transport to California.

In 1972 Frank flew to McMurdo. His goal was firsthand experience of how the birds conducted their lives during the breeding season. He immediately saw snow, ice, and cold. It was not a stretch to say that, in captivity, the birds would need these conditions if they were to survive. Frank quickly envisioned how we needed to build and exhibit.

Throughout the 1970s Frank, I, and others made several more trips to the Ice to gather more knowledge about the birds, conduct baseline research, sample blood for viruses, and record other aspects of penguin life. Breeding pairs of birds were brought to Sea World to test nest site or mate fidelity.

The staff at Sea World faced a monumental challenge. Up to that point, penguins that were collected from the wild had less than a 50% chance of survival in

the first year. Most were dying of a fungus they had no resistance to. The birds of which we aware at other facilities were a different species than we were working with, but we knew we had the same issue. The solution was obvious: remove the fungus from the air before it got to the birds. Through extensive air filtration – originally 5-gallon pails filled with an antifungal dripping onto towels at the point makeup air came into the facility, and later HEPA (High Efficiency Particle Arrestance) filters – we reduced mortality from 50% to less than 1%.

Both Adélie and emperor penguins were brought from McMurdo Station to Sea World on a C-141 aircraft. NSF working with the Air Force did a remarkable job of assuring the birds were safely delivered to San Diego. Many hilarious stories are associated with those sometimes perilous airlifts.

The penguins were flown all the way from McMurdo via New Zealand and Hawaii with a “cold deck” – an airplane interior at subfreezing temperatures. Society member David Bresnahan, then an NSF Antarctic operations manager, was on all those flights. It is unknown if David was so dedicated to his job he was making sure it went well, or he just wanted to get back home to his wife! Either way, his oversight was critical to the success of the transport.

In following years, eggs instead of live penguins were collected in Antarctica, which made the moves more efficient. The eggs were successfully incubated and the young raised at Sea World.

Once at Sea World the birds settled in nicely and were breeding like flies. The year 1982 brought a special event. The emperors had laid eggs, and in September the first ever emperor chick in a controlled environment hatched. It was the first time anyone had seen an emperor penguin less than six weeks of age. For all of us working there, it was the sign that we could successfully keep these highly specialized birds. In 1983 the Penguin Encounter of Sea

World, San Diego, opened after a 2-year construction. The rest is history.

At least three PhDs have been completed at the Penguin Encounter. Numerous field research methodology strategies have been solved. Bioenergetics studies, bioacoustics, and breeding behavior work have added to our knowledge of these fascinating birds. Breeding is continuing after more than 50 years.

Offspring of the original wild penguin group are adding to captive breeding colonies across the globe. Every person involved with this endeavor was part of a remarkable legacy in zoological history.

Scott Drieschman was Curator of Birds at Sea World for 16 years. He has lectured extensively and published numerous research papers and articles. He travels the world consulting with zoos and aquariums providing advice for the well being of birds and other animals. Drieschman received the Antarctica Service Medal in the early 1970s for his time in Antarctica working with penguins.

Review: *Reclaiming S. Georgia*

by Stephen Dibbern

South Georgia is a breathtakingly beautiful sub-Antarctic island with an extraordinary population of wildlife: fur seals, elephant seals, penguins, and other ground-nesting birds. Introduced populations of rats and mice devastated the bird colonies. The rats came with the discovery and exploitation of South Georgia, first by Yankee and British sealers and later by the whaling industry, which populated the island from the turn of the 20th Century until the 1960s.

New Zealand had pioneered “de-ratting” sub-Antarctic islands, but its projects were small compared to South Georgia. This book is the story of the

attempt by a small Scottish environmental group, the South Georgia Heritage Trust (and its U.S. branch, the Friends of South Georgia Island) to eradicate the scourge of rats and mice from the island.

The project began in 2007 and took four operating seasons. The authors of the book *Reclaiming South Georgia – The defeat of furry invaders on a sub-Antarctic island* are Tony Martin and Team Rat (South Georgia Heritage Trust, 2015). Tony Martin directed operations all four seasons. They referred to themselves as “Team Rat,” thus the colorful authorship. Eradication took place using helicopters to bait areas of the island divided by glaciers that isolated discrete rat environments. The large island thus was baited without rats repopulating treated areas.

Those who have visited South Georgia (as I have) will understand what the flying must be like in a place where the weather is violent and changeable. The text describes the operation in readable detail without burying the reader in jargon. It is an exciting read; the location and weather provided tension and anticipation.

In some ways the best of the book is its lavish photography, much of it from the air. Because South Georgia has no airport, aerial photography of the island is rare. (A British military friend was sent to the island after the Falklands War to find a runway site. The one candidate was deemed so huge an ecological disaster that the military did not even consider the idea!) This smallish coffee table book is of the very finest order. It seems sized to fit a tourist’s luggage after a trip to the island.

Spoiler alert: The eradication effort appears to have been successful. Proof of success lies in an otherwise unremarkable little bird, the South Georgia pipit, the island’s only song bird. It is breeding now on parts of the island where rats and mice had decimated the population. Slower breeding larger sea birds such as the

albatross will take longer to reestablish, but now they have a chance.

I highly recommend this remarkable book. South Georgia is an enchanting place, and Team Rat has given its wildlife a new beginning. The \$40 U.S. plus shipping price helps fund a follow-up visit to check on the completion of the eradication. I will close with an anecdote from the book: a well-known ornithologist said, “if he had one week to live, he would spend four days on South Georgia and the other three days getting there!”

Reclaiming South Georgia is available from the South Georgia Heritage Trust, www.sght.org

Christopher Wilson, 1946-2015



Christopher Wilson with Storm Petrel

Killer whales ganging up on and eating a juvenile humpback is an apparently undocumented event (other than observation of stomach content after the fact). Passengers last season aboard *Zaandam* saw such a spectacle right alongside the Antarctic cruise ship, but only because onboard naturalist Christopher J. Wilson with his signature Swarovski binoculars spied unusual activity on the surface, raced to the bridge, and convinced the captain of the 785-foot ship to turn around.

Chris's description of the incident is in the April 2015 issue of this newsletter. It is his first, and last, contribution to the Antarctic Society. Debarking *Zaandam* near the end of the 2014-2015 austral summer after a 2-month tour aboard as naturalist and lecturer, he said, "I'll be back next season, health permitting."

Health did not permit. Diagnosed in July as having pancreatic cancer, he died in August, age 69. His wife Annie told your editor that fears and tears dominated first knowledge of his fate, but "He was laughing at the end."

Author and broadcaster as well as naturalist, Chris was a great nephew of Edward A. Wilson, the naturalist and artist with Robert F. Scott's second British Antarctic Expedition, 1910-1913.

Chris was born in July 1946 at Sevenoaks in Kent and brought up there and in Ghana, where his father and mother were medical pioneers. He was a London policeman for 16 years, married Ann O'Brien of Tipperary in 1968, and moved to Ireland in 1981. There, he recorded local fauna and flora and became, through radio and other media, a widely known naturalist.

In 1991 he became warden of the Wexford Slob Wildfowl Reserve, looking after much of the world population of Greenland white-fronted geese each winter. Chris's work on the breeding biology of the tree sparrow saw him elected as a Scientific Fellow of the Zoological Society of London. He also worked on conserving the orange-bellied parrot in South Australia and looked after the breeding colony of roseate terns in Wexford, Ireland, where he lived.

Chris was the author of several books, particularly on wildlife of Ireland, and he co-authored two volumes of his great uncle's wildlife notebooks with his brother, David. He campaigned tirelessly, without success, to persuade the Irish Government to sign the Antarctic Treaty.

Chris Wilson's enthusiastic lectures aboard *Zaandam* about Antarctic and

Southern Ocean wildlife enriched birders and neophytes alike with his accurate and intimate explanations. His sometimes day-long commentaries, made severally over loudspeaker from the bridge of the ship, were as exuberant at the end of the day as they were at the beginning of it. "Oh, ladies and gentlemen," he said during a particularly memorable passage through LeMaire Channel in February 2015, "what a day this is! Thank you. Chris Wilson here."

Arthur E. Jorgensen, 1933-2015

Arthur "Art" Jorgensen, nicknamed Red Jacket, died at 82 on 30 October 2015 at his home in Hilton Head, South Carolina.

He wintered at Amundsen-Scott South Pole Station during its first (1958) winter as meteorological aide, using skills learned in the Navy and during his studies of meteorology and climatology at Rutgers University. Art raised the second Norwegian flag to fly at the South Pole, the first having been by Roald Amundsen in 1911.

He was a member of The Antarctic Society, and in lieu of flowers the family suggested donations to the Society. Art is survived by his wife Joan Jorgensen of Hilton Head and a large family.

Did you know?

In 1819 the 74-gun *San Telmo*, flagship of four Spanish navy men-of-war sailing from Spain to Peru, sank in Antarctic waters. All 644 officers, seamen, and soldiers on board died, by far the largest documented loss of life in the Antarctic. A storm in Drake Passage south of Cape Horn had destroyed rudder and topmasts, and the ship had made for the south seeking better weather. *Primerosa Mariana*, one of the other ships, tried to tow *San Telmo*, but

hawser after hawser parted, and *San Telmo* was lost on 2 September in about 62°S 70°W, a position 70 nautical miles or so west of the South Shetland Islands group. Built in 1788, *San Telmo* measured 53 by 14.5 meters (174 by 48 feet). It was one of the best ships of the Spanish Armada in the late 18th century.



NAVIO SAN TELMO
de 74 cañones, fuchando el velacho
para fondar la segunda ancla.

Woodblock Print of *San Telmo*

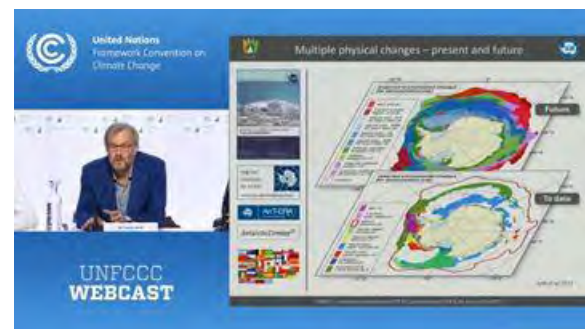
William Smith in the brig *Williams*, who discovered the South Shetland Islands and put a crew ashore on King George Island on 15 October 1819, just weeks after *San Telmo* was lost, is said to have found an anchor stock and perhaps spars presumed to be wreckage from the warship. In 1820 James Weddell, on a sealing voyage prior to his famous voyage far into the Weddell Sea, found evidence that survivors of a shipwreck had lived for a period on what he called “the principal in the group” of South Shetlands. A cairn, Antarctic Treaty Historic Monument 59, on Livingston’s Half Moon Beach, commemorates those lost.

King Ferdinando VII had sent the ships to Peru to try to counter the independence of Spanish territories in South America. The leaders of Chile (Bernardo O’Higgins) and Argentina (Jose de San Martin) – now heroes of the two countries – had routed the Spanish military at Chacabuco, Chile, on 12 February 1817, and they continued to harass Spanish shipping.

Today, San Telmo Island (by Livingston Island), the historic monument at Half Moon Beach, and the year-round Antarctic stations O’Higgins (Chile) and San Martin (Argentina) commemorate a dramatic part of South American history and the largest loss of human life in the Antarctic.

[Sources: Lonely Planet, *Antarctica*, 5th edition; www.wrecksites.eu, Wikipedia, www.worldofwarships.eu, *Geographic Names of the Antarctic* (USBGN, 1995), Joan N. Boothe, author, *The Storied Ice*.]

Antarctica at Paris climate talks



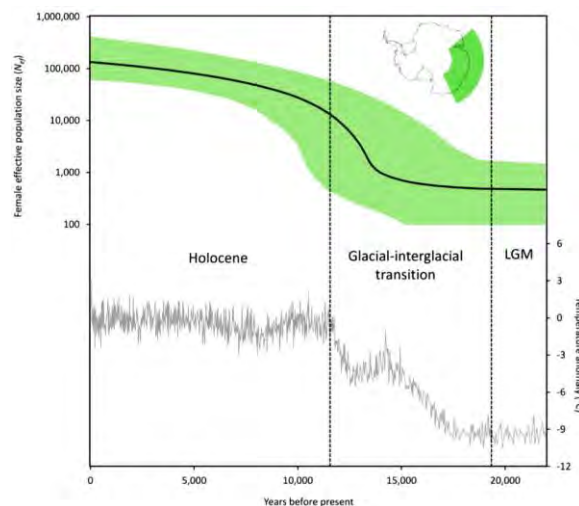
An Antarctica Day at the Paris COP-21 climate conference in December 2015 (www.cop21.gouv.fr/en/) presented the theme, “View from Two Poles: Climate Lessons from the Arctic and the Antarctic.” Four talks by Ricarda Winkelmann, Jonathan Bamber, Jeremy Wilkinson and Frank Pattyn centered on Arctic sea-ice changes and on the instability of the Antarctic and Greenland ice sheets and resulting sea-level rise.

Julian Gutt in a fifth talk focused on responses of benthic and pelagic systems, including top predators, to environmental change. A press conference provided for interviews on climate change in the Southern Ocean and Antarctica. Julian Gutt, at an additional event organized by the International Union for Conservation of Nature, talked about life in the Southern Ocean and how to get results from climate impact projections into conservation strategies.

The presentations are part of the most recent update of the SCAR *Antarctic Climate Change and the Environment* (ACCE) report to the Antarctic Treaty consultative meetings. For more see scar.org.

More Adélies since Ice Age

An article in the October 2015 newsletter reports that the global breeding population of Adélie penguins today is 53-percent larger (3.79-million breeding pairs in 251 breeding populations) than when the last estimate was made in 1993. The information is from a 2014 paper in *The Auk*, 131(4): 457-466, online without restriction.



A more recent paper, in *BMC Evolutionary Biology* (2015) 15:236 (also open access, published online 18 November 2015), finds that if you look back 14,000 years instead of just 22 years, the Adélie penguin population has expanded 135-fold. The population growth was coincident with deglaciation in East Antarctica and, therefore, an increase in ice-free ground suitable for Adélie penguin nesting.

Analysis indicates that East Antarctic Adélie penguins share a common ancestor with Adélie penguins from the Antarctic Peninsula and the Scotia Arc, with an estimated age of 29,000 years ago, in the midst of the last glacial period. This finding suggests that colonies today in East Antarctica, the Scotia Arc, and the Antarctic Peninsula were founded from a single glacial refuge.

While deglaciation appears to have been the key driver of population change over millennia, sea ice changes are a critical driver of Adélie penguin population success over decadal and yearly timescales. This distinction highlights the need to consider millennial-scale trends alongside contemporary data when forecasting species' abundance and distribution changes under future climate change scenarios.

The study focuses on East Antarctica, home to 30% of the global population of Adélie penguins. The scientists used mitochondrial DNA from extant colonies to reconstruct the population trend over the last 22,000 years. To determine the relationship of East Antarctic Adélies with populations elsewhere in Antarctica, they constructed a phylogeny using mitochondrial DNA sequences.

The authors, Jane Younger and four others, are from the Institute for Marine and Antarctic Studies, University of Tasmania, and other Australian research institutions.

Antarctic Gathering at Port Clyde, Maine, 15-17 July 2016!

Thirty-five Society members have written Paul Dalrymple or your editor expressing interest in participating in an encore Antarctic Gathering in Port Clyde, Maine, this summer. Dates are Friday 15 July through Sunday 17 July 2016 if we do this. We appreciate that others have expressed a preference for a date in 2017, but time has a way of marching on, and we decided to *carpe diem*.

That's enough interest to lead us to the decision to hold the next Gathering this year. If you are planning to attend, help us get ready by writing your editor or Paul at the emails shown on the front page of the newsletter. This spring we will email you with a specific schedule for the three days.

Paul's house and lawn on Marshall Point just outside the village of Port Clyde will be the locus of festivities. Welcoming refreshments will await starting noon Friday.

Saturday will center on Antarctic presentations in the celebrated Garage Theater. We are still in the welcoming stage for suggestions about speakers and topics. Saturday evening will be dinner on your own at one of the area's restaurants.

Midday Sunday will be a lobster feast in Paul's yard.

How to pay for all this is as unique as is the Antartican Society itself. A bucket or two will be placed around Paul's yard, and you toss in cash or check in the amount you think is right. This amazing accounting system has resulted in pretty much breaking even at past gatherings.

Hotels, b&bs, and rental cottages abound (see p.10), but summer demand can make an early reservation prudent. Find out an establishment's cancellation policy when you reserve so that you can back out if not enough people express interest in coming. Paul welcomes tent campers to pitch tents in his yard. Because of extremely limited

parking, however, wheeled campers won't be admitted on Paul's lawn or driveway. The entire Marshall Point area is just as limited for parking even a little car.

Old Antarctic hands and new. Terrific food. Coastal Maine in summer. That's a recipe for three great days!

More details will follow in the next newsletter.

Antarctica 2016 calendars!

Email Treasurer Paul Dalrymple (see masthead, p. 1) for one of these great Colin Monteath (N.Z.) calendars. \$22.50 each while they last. Paul has only a dozen or so left.

Lodging in and near Port Clyde, Maine (see also www.visitmaine.com)

East Wind Inn
21 Mechanic St
Tenants Harbor, Maine 04850
207 372 6366 800 241 8439
e-Mail: infor@eastwindinn.com
Web Site: www.eastwindinn.com
Distance to Meeting: 5.5 Miles

Mill Pond House B & B
Leslie Korpinen, proprietor
453 Port Clyde Rd,
Tenants Harbor, ME 04860
(207) 372-6209
e-Mail: mlpndhse@midcoast.com
Web Site: www.millpondhouse.com
Distance to Meeting: 3miles

Ocean House Hotel
870 Port Clyde Road
PO Box 66
Port Clyde, Maine 04855
207 372 6691
Propriator: Patsy Merdock
e-Mail: info@oceanhousehotel.com

Web Site: www.oceanhousehotel.com

Distance to Meeting: .5 mile

Seaside Inn B&B

8 Cold Storage Rd

PO Box 215

Port Clyde, MaE 04855

800-710-2817

207-372-0700

e-Mail: innkeeper@seasideportclyde.com

Web Site: www.seasideportclyde.com

Distance to Meeting: .5 miles

Craignair Inn

Innkeepers, Michael and Joanne O'Shea

5 Third Street

Spruce Head, ME 04859

1.800.320.9997

Web Site: www.craignier.com

Distance to Meeting: 12 Miles

Gilchrest House

P.O. Box 497

Tenants Harbor, ME_04860

Tel: 207.372.6735

e-Mail: info@gilchresthouse.com

Web Site: <http://www.gilchresthouse.com>

Distance to Meeting:

Long Cove Cottages

174 River Rd.

Tenants Harbor, ME_04860

Tel: 207.372.8994

Web Site:

e-Mail: lccrhm@aol.com

Distance to Meeting: 6.3 Miles

Pointed Fir Cottage

401 Port Clyde Rd.

Tenants Harbor, ME_04860

Tel: 207.372.6213

Web Site:

e-Mail: pntdfir@aol.com

Distance to Meeting: 2.9

Inn. Five miles away in Tenants Harbor is the East Wind. Both offer attendees a discount (ask for it). Eight miles from Port Clyde is the Craignair Inn. No real bargains in Maine in the summer, but on the other hand it is never hot. Remember: parking at Paul's house is very limited. Carpool to Paul's house each day with other attendees who are staying where you are lodging.

Book as soon as you can. The closest and smallest is The Ocean House in Port Clyde, less than a mile from Paul's house, as is Seaside



The Antarctic Society

VOLUME 15-16

APRIL

NO. 3

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LOOKING BACK FROM THE PERSPECTIVE OF TODAY

Decades after returning to lives in lower latitudes, four veterans in this issue describe their Antarctic sojourns from a modern perspective. Cliff Dickey, near the end of that first winter at 90°S in 1957, "knew then that the United States would never leave the South Pole." Teacher Joanna Hubbard, 16 years after a season at Palmer Station, says the experience "likely set the stage to keep me in education for the long haul."

Attorney Jim Porter, with 84 months on the Ice including four winters, says, "I appreciate the inquiry about tying my Antarctic past to my federal present, but it's no use. I cannot identify any causal connection. *But I used to be interesting!*" Our own Joan N. Boothe gives us Walter Roots's take on the 1950s South Georgia Survey. "I thought I knew about everything published regarding that project," Joan writes. "Now we have wonderful recollections of what was a significant, but today little known or remembered, expedition."

Cory Laughlin's "Stowaway in Antarctica" rounds out our bylined articles. A frightened bird, far from home, found support and a happy ending.

John Spletstoesser, a Society stalwart, scientist, administrator, Antarctic, and good friend since the 1960s, died 25 January 2016. An obituary, in preparation, will be published in the July newsletter.

Every newsletter article started from people (most Society members, some not) who want the Antarctic story told. We have some material for the next (July) issue, need more. Write *your* story. Suggest ideas and sources.

Jump to the last page if you are committed or considering coming to the July Antarctic Gathering in Maine. Important: if you are going to be there, it's not enough just to make a hotel reservation. Tell Paul Dalrymple or me you are coming (if you haven't already) so caterers can plan meal quantities.

Guy Guthridge

Sixty-year-old random memories from the first winter at 90 South

by Cliff Dickey

Amundsen-Scott South Pole Station, at the geographic South Pole, has operated continuously since its establishment in 1956. This recollection is by one of its original inhabitants, the Navy electronics technician. Cliff and Jean live in Newport News, Va.



South Pole Station, first season (1956-1957). The footprints are the author's. The photo is from grid north, now in the clean air (upwind) zone.

There were 18 of us: nine scientists and nine Navy support men, plus one dog. When the last plane flew away for the season, I wondered "What did I get myself into now?" Until then, we had been too busy to think.

All time zones come together at the South Pole. It would have been reasonable to select Greenwich as our time. However, we worked closely with McMurdo coordinating flights; they worked closely with New Zealand; so we all used New Zealand time.

We maintained a 24 hour a day schedule. That way, we kept breakfast and dinner separate. We also had a "day" crew and a "night" crew. The meteorologists scheduled observations and balloon runs around the clock. The radio shack was manned 24 hours a day to communicate with air operations. Our radioman, Bill McPherson, couldn't do 24/7, so I became a

second radioman (I was the Navy electronics technician), and we split it 12/7 each.

Air operations included Air Force and Navy planes. The Air Force flew mostly C-124s and dropped our supplies by parachute. Most of the parachutes worked, but not all of them. Parachutes whose lines tangled gave us "streamers," and parachutes that didn't open resulted in "free falls." On more than one occasion, I noticed the C-124 had one or two out of four engines feathered, but they made the drop and got back to McMurdo safely.

Parachute drops were an all-hands event, to chase the parachutes and cut the shroud lines to keep the wind from blowing the packages away. One, with part of our barracks, escaped into a whiteout where we couldn't chase it. Paul Siple and Jack Tuck went after it later in the Weasel, followed its track for about 13 miles, then radioed the tractor to bring them more gas and pull the package back to camp.

We had a snow-packed runway for planes equipped with skis. Those were the Navy planes, P2Vs and R4Ds. It was almost a constant job to keep the airstrip dragged, knocking off the tops of sastrugi and filling in the gaps.

Our weather was cold and colder. Our builder, Tom Osbourne, would bring 2x4s into the galley to warm them enough to pound nails into them. He said otherwise it was like driving a nail into a railroad track.



In 1957, before the sun has set, the flag is at half mast in commemoration of the 11 March death of Admiral Richard E. Byrd.

After sunset we were still on a 24-hour schedule. If we slept late on a Sunday, we'd be messed up for several days, like jet-lag or worse. Since then, I've taught some classes about Antarctica, and found that people have a hard time with the concept of six months of daylight and six of darkness. I explain my tour at the Pole like a tour they might get from a travel agent, e.g., four days and three nights. My tour at the Pole was two days, one night, but lasted all of 1957.

We didn't have all the tools we needed, but we found a work-around for things we really needed. On our tractor, a bearing went bad. We needed a ten-ton tool to remove it, and had only a ten-pound sledge hammer. We packed ice around the axle, used a torch on the bearing, and did a lot of pounding. We fixed it. Our movie projector had at least six months of movies, and only one bulb. We put a resistor in series with the bulb to make it last. We used baling wire for lighting the snow mine.

Chet Segers, our cook, had trouble baking cakes. All the Navy recipes were for sea level, and the South Pole is at 9,000 feet. Denver recipes didn't work either. A baking company took a plane to 9,000 feet and experimented to find out what worked at that elevation. Of course, they got some publicity out of it. The Navy told us not to do that kind of stuff again, but we didn't care, because we had our cakes, and what could the Navy do to us anyway?

Judging distance and size on the snow was difficult. Twice I went out to investigate an object on the horizon; it turned out to be a beer can the Air Force had accidentally dropped. The first time, I just kicked it. The second time, I stomped it into the surface so it wasn't visible. When the runway at McMurdo melted, we didn't have any flights and ran out of cigarettes. We searched the surface for discarded butts. The last plane dropped mail. The bag ripped open. We searched the snow for letters.

When Sputnik went up, its orbit took it close to us. Paul Siple, Jack Tuck, and I

tried to get a visual on it, but failed. We could hear it on the radio. I have a reel-to-reel recording of it, but no way to play it to find out if it's still good.

I knew then that the United States would never leave the Pole.



Clifford Dickey Howard Taylor Earl Johnson Robert Benson Paul Siple William Johnson
Melvin Havener Herbert Hansen Thomas Osborne William McPherson Arlo Landolt Chester Segers
John Tuck "Bravo" Edward Remington John Guerrero Kenneth Waldron William Hough Edwin Flowers

"That's us," says the author: the 18 men who made up South Pole Station's first winter, 1957.

We dug a snow mine to supply water and to study the layers of the snow. We got down to about 90 feet vertical depth, although we were at an angle. Below about 15 feet it was ice, not snow, and we had to chip it instead of shoveling. We had a parachute bag on a banana sled to haul the ice up to the surface, pulled by a homemade electric winch, powered by a motor from one of my spare transmitters, with a lot of parachute lines. Our melter was an old-style soft drink dispenser, with exhaust from the generator piped through it.

Chet, the cook, had Sunday off, so if you wanted to eat, you had to fix it yourself, although Chet left supplies in the galley. All eighteen of us took turns as mess cook. The duties were to bring in ice from the snow mine to fix with the fruit juice. Ice crackled when you poured the juice on it. We washed dishes, pots and pans, set up the tables, and helped Chet any way he needed. The mess cook got to choose one of his favorite meals for everyone to have.

Everyone had “house mouse” duties, also. We kept the heaters going and swept the hallways in the barracks. These duties lasted about a week, then rotated. This practice started after the airdrops ended.

1957 was the year of the Asian flu pandemic. When the first visitors arrived in the spring, all the wintering-over guys took turns catching it.

TEA (Teachers Experiencing Antarctica and the Arctic) – 16 years later

by Joanna Hubbard

In 1999, some NSF reviewer(s) took an unusual chance on a very new teacher and, half-way through my third year of teaching, I was on the RV *Laurence M. Gould* headed to Palmer Station as part of a scientific team looking at the chemical ecology of marine invertebrates and macroalgae. That experience likely set the stage to keep me in education for the long haul, certainly set key markers in my classroom practices for teaching science in a realistic way, and introduced me to the fantastic working environment of polar programs.

While formatting my resume on the application for the TEA program, I thought about leaving my SCUBA diving certification off the list, but shrugged and kept it in. You never know what might happen. I had been fortunate in becoming part of the group of science teachers involved in a state-wide NSF systemic change grant when I started teaching, primarily because I said “yes” to anything more experienced colleagues recommended to me. “Yes” to the POLARIS program. “Yes” to their summer training programs, which led to “Why Not” apply to TEA, and finally to a big “Yes” when, during our May orientation at NSF, the Office of Polar

Programs manager asked if I would possibly be interested in SCUBA diving in Antarctica.

The preparatory cold water dives I took around Washington’s Olympic Peninsula were among some of the most beautiful dives I’ve ever done. Swimming through the milky blue water spiked with orange bull kelp over a carpet of purple and pink sea stars and urchins remains a favorite.

But the payoff of being one of the small group of individuals privileged to see the underwater forests in Antarctica was breathtaking. Our collecting of macroalgae primarily focused on the browns; big, sturdy plants that clung tenaciously to rocks, took up huge amounts of space in collecting bags, and made up layers so thick in some places that a diver could disappear underneath. Of course unique vertebrates are around, too. Gentoos are still my favorite penguin because a group of them met us at the surface at one dive and followed us down to 110 feet: hard to focus on what you are supposed to be accomplishing with plump black and white torpedoes zooming around you. You will have to find me in person to hear the leopard seal stories!

My experience with Teachers Experiencing Antarctica and the Arctic was my first true scientific field experience. I got to see firsthand the advance preparation in the lab, the academic and intellectual collaboration, and the teamwork that made the Antarctic field season productive. Everyone working at the station, staff or science, had worked so hard to get there and was incredibly proud of doing the best job they could. It was and is a fantastic work environment for that reason. Joining an entire community of competitively selected people dedicated to making the scientific enterprise possible was wonderful.

After seeing what was possible, it is not a coincidence that every position I have taken since was in a situation that supported strong collaborative teams. It is a challenging way to work, but it makes

difficult jobs like teaching more rewarding and less draining. Experiencing the working environment on station in Antarctica helped me create and support a collaborative environment for my students in the classroom.

My time with TEA was also the first time I was involved in interdisciplinary science, chemistry + biology + ecology + physics. Up to that point my scientific training had been compartmentalized. Even my work in a molecular genetics lab in college hadn't required acknowledgement or use of other disciplinary areas. With my students, that dose of reality has been influential. Nearly all my teaching focuses on digging in deeply to one topic or problem through the lenses of all applicable scientific disciplines. Integrated science is what is happening all around us, and I want to make sure that is what my students see, rather than separate "Biology" or "Chemistry" topics.

Since my time with the TEA program I have taught 7th graders, left the classroom to do K-12 teacher and curriculum support in science, gone back to the classroom to teach 8th graders. I have received a Presidential Award for Excellence in Science Teaching and am currently a Capitol Hill Albert Einstein Distinguished Educator Fellow in D.C. with Congressman Mike Honda. I got to go back to Antarctica with the ANTArctic DRILLing program at McMurdo Station. Through them I was involved in the International Polar Year and helped to found the Polar Educators International professional teachers' association.

All of this, and the many other education related activities I have been involved in during the years since, stands on the foundation of my early experience with TEA. The professional development I received through the program was excellent, but the actual participatory experience was the key. Just like our students, teachers apply knowledge best when they have been immersed in it. I was probably always

going to be a decent teacher. But TEA helped me step out of the standard way of doing things, and it keeps me going back to the classroom.

TEA's successor PolarTREC (Teachers and Researchers Exploring and Collaborating) places K-12 teachers in 3- to 6-week collaborations with field scientists in polar regions.

"Antarctic People" was my heartfelt tribute

by Jim Thumper Porter

The editors of the Antarctic Society newsletter saw fit to publish my old poem, "Antarctic People," in the October 2015 edition. Via the omniscient medium of Society member Bill Spindler, Guy Guthridge contacted me to inquire whether I'd be willing to provide the readers with the backstory, if any, of the poem. I was honored by the request, and happy to say yes.

In the years before writing "Antarctic People," it had been my good fortune to have a diverse and interesting career on the Ice – four summers at Siple Station (where I reminded a coworker of Thumper, the rabbit in *Bambi* – a nickname I bore happily through 18 years of Antarctic deployments); summers and two winters at McMurdo; work at two field camps (Northern Victoria Land and South Beardmore); and a few weeks at South Pole, all these trips occurring between 1976 and 1988. "Antarctic People" was written during a summer at Palmer Station, which was followed by a full year at Palmer. I spent my last three Antarctic seasons at South Pole, culminating in a winter there in 1994.

Sojourns at Palmer Station filled part of that interim period. By the time of my first trip to Palmer, in October 1988, I had

had the opportunity to work in a number of places with a wide assortment of people; each experience bringing its technical and social challenges; and every challenge surmounted (or at least, endured!) by the idiosyncratic and ephemeral communities that form on the Ice.

I had been a carpenter's helper at Palmer Station for about three months when, on 28 January 1989 the Argentine Navy ship *Bahia Paraiso*, departing Palmer after bringing its tourists for a visit, struck a submerged pinnacle and tore a 50-foot long gash in its hull.

The ensuing hours and days proved enormously taxing for the 26 or 27 of us on station. More than 300 people, including about 100 tourists, were aboard the *Bahia Paraiso*. Soon after the ship ran itself onto the pinnacle, passengers and crew boarded life boats and life rafts. The station personnel were called on to tow life rafts to shore (about two miles); carry on a flurry of communications with the *Bahia Paraiso*, other ships in the vicinity, other bases, and the United States; feed and shelter hundreds of strangers speaking a mix of languages; try to save the ship by sending out our large portable fuel pump on a lifeboat; all while protecting our guests from harm and our station from our guests. And always the underlying dread of what would happen if the hundreds of thousands of gallons of diesel fuel in the ship's hold were spilled.

All of the tourists and many of the Argentine military personnel were able to depart that night on other cruise ships, but we continued to host a sizeable group of Argentine military people for days.

Late in the afternoon two days after the grounding the ship rolled onto one side, spilling propane tanks and fuel drums into the sea. Station personnel in Zodiacs worked for hours rounding up all that they could find – a strenuous and heart wrenching task; our ire and frustration was exacerbated by the inactivity of several military ships that sat at anchor nearby.

Later still, *Bahia Paraiso* turned completely over. Over the space of days and weeks, much of the ship's cargo of fuel spilled, fouling the air and water and killing birds and other wildlife.

The physical and emotional toll exacted on the station crew may be imagined. We were very, very conscious of our need for mutual support and comfort. Besieged as we were, by people we didn't know and threats we never expected, it's little wonder that we developed something of a siege mentality.

One of our number, Heidi Goodwin, was an excellent artist. In the aftermath of the *Bahia Paraiso* disaster, she proposed that we have an art show. I am utterly without talent as a graphic artist. But I had always enjoyed the challenge of writing poetry. "Antarctic People" was my submission to the station art show. And while it was primarily an exercise in putting together verses that have rhythm and rhyme (more or less), I hoped to tell a true story. It is not a new story. Surely every Old Antarctic Explorer comes to recognize that it is the unique *human* environment that draws us South year after year. It is the same story underlying Apsley Cherry-Garrard's wonderful passage in *The Worst Journey in the World: Antarctic 1910-13*:

Some will tell you that you are mad, and nearly all will say, 'What is the use?' For we are a nation of shopkeepers . . . And so you will sledge nearly alone, but those with whom you sledge will not be shopkeepers: that is worth a good deal.

After his final trip to Antarctica, Thumper went to college and earned a law degree, leading to a job as an attorney with the Department of the Interior in Washington.

The 1950s-era South Georgia Survey

by Joan N. Boothe



Grytviken, South Georgia, is at left. Of the two tall peaks, Mount Nordenskjöld is to the right, and Mount Roots is on the left.

South Georgia, a 110-mile-long island, lies just south of the Antarctic Polar Front. Despite having been visited by thousands of sealers in the late 18th and early 19th centuries, and inhabited year-round by whalers since 1904, maps of the island in 1951 consisted of little more than an iffy outline of the coast with a few bits of the rugged, glacier-covered mountainous interior sketched in. In late 1951, however, six men arrived to begin an ambitious effort to map the entire island. Led by Antarctic veteran Duncan Carse, the South Georgia Survey (SGS) team included trained surveyors, a geologist, and mountaineers. Among them was 24-year-old Walter Roots, a Canadian mountaineer and skier.

More than 50 years after spending six months on South Georgia in 1951-52, Alec Trendall, the SGS geologist, asked Walter to contribute a chapter about the work of the 1951-52 team to a narrative account of the South Georgia Survey. The book that Roots contributed to was published in 2011 as *Putting South Georgia on the Map*, a gloriously illustrated and wonderfully written work. In the meantime, Roots's family persuaded him to publish his account privately. This work, *Sledge, Tent &*

Theodolite appeared in 2008. What follows is from both books.



Walter Roots during the expedition.

The men of the 1951-52 SGS sailed from England to South Georgia on a whaling ship, reaching South Georgia at the beginning of November. Here was the island they were to survey, a stunning unmapped land. Roots recalls, "*It looked like a mass of terrific alpine peaks — snow and bare rocks right across the horizon. . . . As for roughness and number of peaks, it certainly beats anything I've seen.*"

The SGS team established its base at the British administrative settlement at King Edward Point. The seldom-used local jail became their home for the times that they were not in the field, "*a rather nice abode,*" Walter called it.

A few days of getting organized, then it was out into the field. Walter would be a participant in all the significant trips into the South Georgia interior. They began with a reconnaissance trip into the interior of the southern part of the island, followed by a

similar reconnaissance trip to the northern part of the island. Then it was on to the serious survey work, beginning with what was planned to be a 50-day survey trip to cover the southern interior and west coast of the island.



Manhauling up the Ross Glacier. Walter Roots is third from the right. Duncan Carse made the photograph.

This journey began in early December. A sealer landed them at Royal Bay, and then they headed away from the coast, manhauling their sledges up a glacier. Things went well at first, until the weather turned on them. During eleven days tent-bound, they celebrated Christmas. They capped the evening *“Reading aloud as the book was passed around we did Shakespeare (Macbeth if I remember correctly — perhaps a bad choice). Carols were sung as Alec picked them out on his recorder and there was Christmas music via short wave*

from . . . Mozambique.” Two days after Christmas they moved on and resumed the survey.

New Year’s Day, disaster struck. Alec Trendall, the recorder-playing geologist, slipped on a snow slope, slid a few feet, and then plunged into a crevasse. Team-member Kevin Walton, who had participated in a crevasse rescue in the Antarctic several years previously, organized things, and then had the other men lower him into the crevasse. He found Trendall 180-feet down. Walton roped Trendall to himself, then signaled those above to pull them out. Roots remembers, *“We began to pull up None of us can say how long it took. Certainly not less than two hours, maybe four, it doesn’t matter. . . . Finally came the last 30 feet or so, when muffled voices could be heard and we could pull more easily. . . . Then we had Alec on a sledge and back to the lunch halt where we could put a tent over him. Thank God.”*



Alec Trendall on the sledge following his fall into the crevasse.

Roots, in his role of expedition medico, diagnosed Trendall as having shock, cold, scrapes and lacerations, bruising, none of this really serious except for the shock. But Trendall’s knee was another matter. Was it broken or “simply” dislocated? With the degree of injury uncertain, it was clear that they had to end the journey and return to King Edward Point. They converted one of their two sledges into a litter for Trendall. With only

one other sledge, it was impossible to transport all of their gear and supplies, so they created a large depot of provisions before they departed. The plan was that later in the season, they could return here and resume this part of the survey. Several days later, they reached King Edward Point. When Trendall was examined by the doctor at the Grytviken whaling station, the diagnosis was that his severely dislocated knee was too serious to treat at South Georgia. He was evacuated to England.

Trendall was gone, and with him the geology work of the season. But the survey effort was still intact, and it went on. A successful survey of the central part of the island followed up on the Northern Reconnaissance trip. Then it would be back south to complete the southern survey.

With Roots in charge of a four-man team, the resumption of the southern survey trip began in mid-March. This time, it took only three days to reach the place where they had turned back to evacuate Trendall. But where was the depot of food that they were depending on? They couldn't find it, despite frantic digging. Once again, they had to turn back. That was bad enough, but it was only the beginning of an escalating series of problems. A smashed sledgemeter. A sledge towrope breaking and the sledge careening down a slope on its own. A flooded campsite. The worst was to come. A day later, howling winds roared in. As they lay inside holding on as best they could, the tent that Roots shared with one of the men *"vanished from over us! Also, everything that had been in it and around it. . . We hopped, in our sleeping bags, over to the other tent and asked to come in. . . . We would now be four people in the small tent. . . I watched a full five-gallon tin of fuel go bounding up the glacier like a child's balloon. . . . [and then] While eating lunch, there was a 'crack' and the sledge went. . . ."* The next morning, calm at last, a search for the vanished tent and the escaped sledge turned up both, seriously damaged.

They began their desperate retreat with Roots and a companion setting out to walk to Cumberland Bay to summon help. At last, luck was with them. After 6-7 miles, the two men spotted a ship coming to shore to hunt seals. *"We ran to the beach like madmen By 6 pm the other two were also on board, and we were eating an enormous supper of pork chops. . . ."*

The 1951-52 SGS team left South Georgia in mid-April, once again as passengers on a whaling ship. Their work was an encouraging success, but there was still much to be done to complete the map. Duncan Carse would return for three more summers, with a team of four in 1953-54, eight in 1955-56, and by himself in 1957-58.

Walter Roots would not be with any of these later teams. He married shortly after his return home in 1952. After his marriage, Walter went back to college to complete his teaching certification and then spent the rest of his working life as a teacher. He never returned to South Georgia, but his time with the SGS had a lasting impact on him. Asked about this in later years, he responded that it given him *"a wider outlook, an appreciation of people and places one probably would not have had otherwise. Four facets of life which seem important were enhanced: humility, independence, resilience and understanding."*

Stowaway in Antarctica

by Cory Laughlin

Cruising to Antarctica presents challenges like high seas, frigid temperatures, seasickness, and icebergs. We faced all of these on our trip this past austral summer with the Holland America Line *Zaandam*, a cruise ship carrying 1,400 passengers. One more wrinkle presented itself on 11 February 2016 when a tiny, frightened bird was discovered hiding under an outside stairwell.



The stowaway diving petrel.

My husband, Scott Drieschman, was the naturalist on the ship and we are both aware that seabirds can be swept onto decks during storms, and can also become deck bound when attracted by ship lights. A caring couple spotted a movement under the steps and alerted us to the little stowaway. Scott picked up the bird to examine its condition. This common diving petrel (*Pelecanoides urinatrix*) was wet and cold and needed immediate care. Since these birds nest in burrows where they are safe from predators, we created a make-shift nest in our state room closet – a laundry bag in a box. Only about 130 grams, these pelagic divers must eat often. They prey on krill and other small crustaceans.

Food was one problem to solve, but we had another more critical issue to address. The species of bird before us does not occur in Antarctica, and we were smack in the middle of the Lemaire Channel in the Antarctic Peninsula. Diving petrels inhabit the ocean waters between 35 and 55 degrees south. Their nesting habitat is subantarctic islands where they prefer grassy slopes with loose dirt for their breeding dens. My best guess was that our visitor had been blown on the deck during high winds off Cape Horn, and remained hidden for three days. The only solution was to feed our petrel for the next few days and release it near the Falkland Islands, close to the same latitude as Cape Horn.

Scott and I have raised thousands of penguins, puffins, and other seabirds. We relied on common sense to nurture our stowaway back to health. It was important that it be dry and fattened up before release.

Off to the restaurant we went and asked the chief food steward for raw shrimp and fish. When we said it for a seabird in need, our request was first met with a frown and reluctance. He told us to come back later, and at that time he gave us a bag with fresh salmon, scallops, and prawns – enough to feed a sea lion, but that was fine with us! Our petrel eagerly gobbled bits of the seafood. We scheduled five feedings a day and kept our diminutive seabird's "burrow" clean so the feathers would retain water-proofing. Without clean feathers it could not be released.



The stowaway adjusts to conditions aboard the cruise ship.

It is quite impossible to remain completely detached to a wild creature you are helping. Both sexes look alike in this species so we could not know for sure if we had a male or female. But, I picked this bird to be female. Our bird "Petra" was calm, bright-eyed, and did not hesitate to "knock" on the closet door when she was hungry. I always got the feeling that she knew we were helping her. There is a balance between science and emotion that I sometimes have a problem keeping. That is okay, as long as it does not affect research. It is part of being human.

As we approached the Falkland Islands we "beefed" Petra up, adding extra

calories for the days ahead. And then it was time. I gave our petrel a little push off my open hand and she fluttered down to the ocean surface and lay on the water with wings out. After a few anxious moments our week-long tagalong dove, wings flashing under the surface of the blue sea. Gone.

Common diving petrels can dive to 180 feet. They fly through 40 foot waves and negotiate the roughest waters in the world. We had just helped one of the most fearless, toughest creatures in the world. What began as a “wrinkle” ended up a gift.

Working ponies and dogs commemorated, at last

“The names of products, sled dogs, or pets,” sniffs the United States Board on Geographic Names in its *Policy Covering Antarctic Names*, “will ordinarily not be considered appropriate for application to *natural features* [emphasis added].”

No problem. Colonel Ronnie Smith, U.S. Air Force (Retired), was in-theater Commander of Operation Deep Freeze (the DoD logistics support to the U.S. Antarctic Program), 2005-2008. After researching the history of Roald Amundsen’s and Robert F. Scott’s 1911-1912 South Pole expeditions, Col. Smith recommended that aviation waypoints – hardly natural features – on the route between Christchurch, New Zealand, and McMurdo, Antarctica, be named for some of the ponies and dogs that, during Amundsen’s and Scott’s traverses to the South Pole, shouldered a good part of the load.

"Once the names were developed with the aid of the Christchurch Aviation Authority, I worked with the U.S. National Geospatial Intelligence Agency, which makes the maps, to get the new chart printed in time," Smith says. "I had to coordinate with all the embassies in the United States and internationally who would be affected.

And I had to get the Department of State on board.”



The presentation in Christchurch NZ by U.S. State Department Secretary Hillary Rodham Clinton to Rob Fenwick, Chairman of Antarctica New Zealand. The chart rests in the Canterbury Museum next to the Robert Falcon Scott display.

The State Department got on board, all right. In November 2010, then-Secretary of State Hillary Rodham Clinton presented a copy of the new aeronautical map at a meeting of the U.S. Antarctic Center and Antarctica New Zealand in Christchurch. She said, "The map has many benefits, but one especially unusual feature. As a reminder of the sacrifices it took to conquer the conditions on the continent, 11 of the waypoints have been named after the unsung heroes of Antarctic exploration – the dogs and ponies that made those early trips possible. In the story of the Antarctic, the names of the explorers are well-known and famous, but now they're joined by the likes of Helge and Snippet and Bones and Nobby."

Read “Ponies of the Southern Sky,” by Colleen Rutherford Archer, in the January 2016 *Equus Magazine*:
<http://equusmagazine.com/article/ponies-southern-sky-30724>

Henry Worsley's ending goal

We have lost a Society member with the recent death of Henry Worsley. An attendee at our Port Clyde gatherings, Worsley died near the end of an attempted 1,100-mile solo, unaided crossing of Antarctica from Berkner Island via the South Pole. He had successfully descended the Shackleton Glacier and was on the Ross Ice Shelf when he requested airlift out of Antarctica 30 miles short of his "journey's intended end," to use the *New York Times's* phrase in its 26 January 2016 obituary.

News accounts mostly leave out the rationale for where this ending point is located. Worsley's shackletonsolo.org web site does not:

"Once clear of the mouth of the Shackleton Glacier, Henry will travel out onto the Ross Ice Shelf, to find a suitable site which is crevasse free and flat enough to land a small aircraft. He expects to be picked up by late January 2016. He will then be flown back to the Union Glacier camp where he will wait to be flown to Punta Arenas in Chile to complete the expedition."

Worsley collapsed short of his goal and was flown back to Punta Arenas, Chile, where he died.

In addition to the *Times*, *The Economist* and other world-scale publications widely covered his progress and end of his epic journey, and the Society's web site directs readers to other sources. He will be missed.

Correction: Jorgensen obituary

The January 2016 issue erred by stating that Arthur "Art" Jorgensen, who died 30 October 2015, was at Amundsen-Scott South Pole Station during its first winter. Pole Station was started in late 1956; the first winter was 1957. Jorgensen wintered in 1958.

Cliff Dickey (see page 2), John Spletstoeser, and others called attention to this mistake.

***Update!* Antarctic Gathering, July 2016, Port Clyde, Maine**

Wow! So far, a hundred people – old timers and newcomers – have told us they will come to Port Clyde for another Antarctic Gathering, Friday through Sunday 15-17 July 2016.

We've held these gatherings every other year for a decade. People enjoy the Maine coast and meeting with comrades to renew memories or trade new ones.

Friday afternoon: beverages on the lawn; for dinner we may have fish chowder.

Saturday: we open our garage to speakers with tales of Ice experiences or science or other; a catered lunch is on site.

Sunday: a local lobsterman prepares a midday feast.

Where: 155 Marshall Point Road, Port Clyde, Maine 04855. Cost: a donation bucket will be conspicuous.

See January newsletter for lodging info, or email Paul Dalrymple or your editor.

All who tell us they're coming will receive an email in June with more particulars, including a list of Saturday speakers.



The Antarctic Society

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NO. 4

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A NEWSLETTER BY AND FOR MEMBERS

Antarctican Society members wrote more than three-quarters of this issue. Topics range from experiences at the start of the U.S. Antarctic Program in the 1950s to a moment 106 years ago when American Robert Peary *almost* pulled off an expedition to the geographic South Pole. Read on!

This issue of the newsletter comes out on the eve of the 15-17 July 2016 Antarctic Gathering at Treasurer Paul Dalrymple's house in Port Clyde, Maine. We announced the Gathering in the January and April newsletters and will summarize talks and other happenings in the next (September) issue. The issue will have room for other items, too, so please suggest or contribute articles of your own.

We've allowed the terrific contributions from members to squeeze out news about recent discoveries. One big one: scientists at MIT and elsewhere have identified first fingerprints of healing of the Antarctic ozone layer. The September ozone hole has shrunk 4 million square kilometers —half the area of the contiguous United States — since 2000, the peak year. Volcanic eruptions have slowed the recovery at times, but the new work shows the ozone hole to be on a healing path.

After scientists at McMurdo discovered the cause of the ozone hole in the mid-1980s, virtually every country signed on to the Montreal Protocol to ban the use of CFCs and repair the ozone hole.

"We can now be confident that the things we've done have put the planet on a path to heal," says Susan Solomon, lead author of the new study and chief scientist of the McMurdo research teams 30 years ago. "Which is pretty good for us, isn't it? Aren't we amazing humans, that we did something that created a situation that we decided collectively, as a world, 'Let's get rid of these molecules'? We got rid of them, and now we're seeing the planet respond."

Guy Guthridge

Deep Freeze I was a stepping stone to my career in space physics

by Ken Behannon

Graduating high school in 1951 at 17, I attended a small college. I thought I would be happiest with a career in journalism. At the end of that college year, I was no longer certain about that choice – or any alternative. Two high school buddies said they were going into the Navy. I decided joining them would give me a foundation while I figured out what to do with my life.

The Navy was building up its aviation, so we three went in as airman recruits rather than seaman recruits. After boot camp we attended Airman School. Following that, I was accepted into Aerology School, which trained me to be an Aerographers Mate: a weather observer. My first duty was at Mustin Field at the Naval Yard in Philadelphia, an auxiliary airfield with only a few AGs. On many weekends I was the only one on duty; I had to make forecasts and clear pilots for takeoff. After Mustin Field, I had a stint as the only weather analyst aboard USS *Pillsbury*, a destroyer escort converted to a radar picket ship. Meanwhile I had applied for a change of duty, hoping to get something more challenging.

I obtained a transfer to Air Development Squadron Six (VX-6), which would be supporting development of a base and an airstrip at McMurdo Sound in Antarctica as part of Operation Deep Freeze I. I was assigned to the cargo ship USS *Wyandot* (AKA-92), a component of Task Force 43. I was an AG 2nd class by this time and one of several AGs on the *Wyandot*. We sailed from Norfolk, Virginia, on 14 November 1955 and via the Panama Canal arrived at Port Lyttelton, New Zealand, on 12 December. We waited in nearby Christchurch until 16 December for the Ross Sea pack ice to loosen sufficiently for the

icebreaker *Glacier* to lead us through without delays. We arrived at McMurdo Sound on 27 December and tied up to the ice. Construction supplies were offloaded and transported across the ice to Hut Point where the air facility was to be built.

As work proceeded, a heavy equipment driver named Richard T. Williams was killed when the big Caterpillar tractor he was driving crashed through ice into 100 fathoms of water en route to Hut Point. Later, the completed station was named Williams Air Operating Facility in his honor. Because of the danger, crew and special teams on board such as our weather staff with no work assignments on the ice were forbidden from going on foot any farther from the ship than the trash dump near the gangplank. On one of my few trips to the dump, a large seal was only a few feet away. Cautiously I walked over to look. Later I was told the seal could have swung its tail and broken my legs.

Aboard, we recorded hourly weather observations and periodically took balloon soundings aloft. We received weather reports from only a few other sources in that part of the world. Weather satellites were far in the future, so detailed daily forecasts for our location required a certain amount of guesswork.

When not on duty we delighted in observing whales surfacing, penguins racing each other over the ice on their bellies or lining up to dive into the water, and small icebergs nearby, which at times required the ship to move. We enjoyed looking toward 13,000-foot Mount Erebus, the only known active volcano on the Antarctic continent. Although it was 90 miles away, the Antarctic air was so crystal clear Erebus appeared to be just over the horizon.

Our ship became known as the *Wyandot-Hilton*, because it provided hot meals, showers, and berthing for Seabees, pilots, and plane crews. A special treat for us from 7 January to 3 February was for *Wyandot* to serve as flag ship for Admiral

Richard E. Byrd, making his final visit to Antarctica.

We adapted to the cold. Only one day did the temperature on deck rise as high as 37 degrees. Several of us off-duty AGs celebrated by donning swimming trunks and sitting on deck sunning, as if we were at the beach.

When our work in McMurdo Sound was complete we sailed to the site of Little America V, 400 miles to the east, arriving 12 February. Unlike our sea ice pier in McMurdo Sound, not much higher than the water, at Little America we tied to an ice shelf higher than the deck of the ship. We saw no penguins dive off that shelf. We stayed at the Little America location long enough to offload cargo, then set out for Auckland, New Zealand, a happy destination because we had enjoyed our stay in Christchurch on the way down and were ready to see green landscapes again.

The rest of the cruise was uneventful, even when we rounded Cape Horn, for the seas there were not as rough as expected. On the way north we stopped in Montevideo, Uruguay, and in Rio de Janeiro, Brazil. In Rio we donned our swim trunks once again, this time for Copacabana Beach and a real chance to get tans. *Wyandot* docked finally at Norfolk on 20 April 1956 – after an adventure that lasted 158 days and a voyage of 27,675 miles.

I had planned to be discharged soon after, but the opportunity arose for transfer to the Fleet Weather Center in London, England, if I extended my service. I had married shortly before leaving on Deep Freeze I. My wife voted for London, so we spent the next 3 years in England. The London facility gave me the chance to do statistical studies and other higher level analysis. I learned more about new electronic equipment.

By the time I did take my discharge in 1959, I was ready for professional challenges I would not have dreamed of before my Navy experiences. I was not

keen on continuing in meteorology, but did want to remain in a scientific field. Even though it was my worst subject in high school, I was persuaded by a faculty counselor to give physics another try. Because of the maturity accrued during my 7 years in the Navy, especially from the technical work I was involved with in Antarctica and in London, I had the confidence finally to take his advice.

I studied not only physics but also advanced math and astronomy. I graduated from the University of Texas with a BS in physics and was recruited to work as an astrophysicist at NASA's Goddard Space Flight Center. During my career at Goddard I earned my MS and PhD degrees, while analyzing magnetic field data from earth-orbiting spacecraft and later from the Mariner 10 mission and the Voyager 1 and Voyager 2 missions. With Mariner 10 we discovered the magnetic field of Mercury and mapped the inner solar system field. With the Voyagers we studied the fields of Jupiter, Saturn, Uranus and Neptune, as well as the distant magnetic field of the Sun.

Midwinter and July 4th celebrations at South Pole Station in 1957

by Bob Benson

After congratulating Cliff Dickey on his excellent article in the April Antarctic Society Newsletter (sixty-year-old random memories from the first winter at 90 South), he encouraged me to write an article describing the first July 4th celebration at the South Pole. I agreed to do so. A little background:

I first met Cliff on 12 February 1957 when I arrived at the South Pole. I was on the last plane to land before the darkness and cold of winter set in. Six other winter-over personnel arrived with me on that Navy R4D: Herb Hansen, Mel Havener, Floyd

Johnson, Arlo Landolt, Tom Osborne, and Ed Remington (Moose). I had the honor to be the 18th person to be selected to spend the first winter at the South Pole thanks to Willi Hough.

In the fall of 1956 Willi had argued that another scientist was needed at the South Pole because he was scheduled to operate the ionosphere, seismology, and geomagnetism programs and to assist Arlo with the aurora program. Fortunately, I had submitted my application for the Antarctic International Geophysical Year (IGY) program earlier and it had arrived at the right time. Having just finished my BS degree in geophysics at the University of Minnesota my background appeared to be what Willi was requesting. On his way back to Boulder from the east coast he stopped by Minneapolis to meet me and he gave the OK that he thought he could work with me for a year at the South Pole. I was to be responsible for the seismology program and to help Willi with the ionosphere program and Arlo with the aurora program. Willi was to be responsible for the ionosphere and geomagnetism programs and to help Arlo with the aurora program.

Many of Cliff's stories in the previous newsletter were new to me and reminded me of some of my own, e.g., having to use a primus stove to thaw the end of a long 7-conductor cable so as to bend it into position to fasten the lugs to the terminal strip in the seismometer pit located 1,000 ft from the Science Building. The 7-conductor cable wasn't long enough to reach the Science Building so two additional cables (one 4-conductor and one 3-conductor) were connected to the end of the 7-conductor. This operation required lots of thawing of the plastic coverings while working in the cold tunnel between the seismometer pit and the Science Building.

On July 4th we tried to make some explosives. Paul Siple, Jack Tuck, William McPherson (Mac), Willi, and I prepared a bonfire (excelsior soaked in diesel fuel) in

front of a 55-gallon empty oil drum (except for a few cupfuls of gas and lots of fumes). The hole in the drum was left open, and the setup was ignited by Jack using a flare gun resulting in some beautiful flames but no bang. Moose made a firecracker using powder from some shells, but it just went poof. John filled a balloon with hydrogen, but it just burned. Mac was the only one to make a bang with a firecracker made using black powder from a flare shell.

Midwinter, on 22 June, was our biggest celebration because it marked the halfway point of our 6-month-long winter night. At 4:00 pm we had a feast: a turkey dinner prepared by our cook Chet Segers with some assistance from station leader Paul Siple. This delicious meal was preceded by champagne toasts. We ate by candlelight at a long table with a red table cloth and blue napkins under colorful balloons and Christmas-tree lights.

Earlier in the day, six of us had a somewhat cruder celebration in the form of an outdoor picnic (Arlo, Moose, John Guerrero, Herb Hansen, Doc Taylor, and myself). In my diary I noted that Arlo got me up at 8:00 am on 22 June so we could start our picnic preparations. I retrieved the icecreamsicles from the passageway and brought them into the Science Building to thaw somewhat. They were frozen so hard that we could drive nails into the workbench with them. (Doc Taylor donated some tongue depressors that we used as handles for the ice cream.) Moose made wiener sticks from aluminum rods with nails fastened to the ends. A few days earlier I prepared Jello (using 5 packages) in a large pan. We made a blazing fire using trash and some pre-warmed wood soaked in kerosene. We enjoyed this fire with our hot dogs, Jello, and ice cream under a clear starry sky with lots of aurora. The hot dogs didn't stay hot long with the temperature at minus 75 degrees and a 20 knot wind. After Doc cooked his, he screamed "Now, how do I get it in my face mask!" It was good that the

Jello was in a pan that we could keep by the fire - it was superb. Almost everyone ate their ice cream. It was necessary to hold it over the fire in between bites. Mine fell in the fire. After a minute of fishing around I was able to rescue it. It was a little softer after that warmup and easier to eat. Herb was particularly enthusiastic over his ice cream until he realized that he had eaten half of the stick. Doc Taylor brought a ukulele, but complained that it went in or out of tune depending on how close he was to the fire. We sang some songs and all had a good time. It was a great picnic: smoke in the eyes was somewhat irritating, but there were no ants.

Bob continued his ionospheric interest at the NASA Goddard Space Flight Center in Greenbelt, Maryland, where, after earning MS and PhD degrees, he has been actively involved in research for over 50 years (currently as an emeritus scientist). Bob and his wife Marilyn live in Silver Spring, Maryland.

David Ferguson, Scottish Antarctic geologist

by Guy G. Guthridge

What's in a name?

During three Holland America Line *Zaandam* cruises every summer that include travel in Antarctica, your editor – armed with maps, electronic charts, reference books, travel guides, and histories – spends the four Antarctic days on the bridge using an all-call to tell passengers about sights. They learn, and I do too. In Paradise Harbor we loitered near the Argentine seasonal station Brown. I commented that Coughtrey Peninsula, on which the station is built, was “first mapped as an island in 1913-14 by Scottish geologist David Ferguson.”

In Moon Bay by Livingston Island we looked at Edinburgh Hill, “photographed

and named by Scottish geologist David Ferguson in 1913-14.”

Mount Inverleith in Graham Land: “first charted and named Inverleith Hill by Scottish geologist David Ferguson in 1913-14.”

Who was David Ferguson? A search through the 1995 *Geographic Names of the Antarctic* (free pdf from usgs.gov) came up with 21 Antarctic Peninsula places Ferguson named or charted, all in the 1913-1914 season.

But, in that season, no research expedition was in the Antarctic Peninsula area. After Charcot left in 1910, the next documented exploring or science wasn't done until the 1921 winter when two young Englishmen studied penguins at Waterboat Point.

How did Ferguson get to all those places he named? Society Secretary Joan Boothe prompts the answer in *The Storied Ice* (Regent Press, 2011): he was not with a science expedition at all. From 1905 to 1931, whaling was the overwhelming human presence along the Antarctic Peninsula. Factory ships, catcher ships, and shore whaling stations numbered in the hundreds. Some, Joan points out, welcomed scientists.

Like the whalers, Ferguson was after resources. He was a mining engineer and a geologist who had worked in Africa, Iran, Newfoundland, and Great Britain.

In the 1911-1912 season he had surveyed South Georgia. His sponsor for that work, and for the Antarctic prospecting, was Christian Salvesen and Company of Leith (it continues today as a logistics firm), which then did whaling, shipping, and mining. The company held a minerals lease from the U.K. Colonial Office for both South Georgia and the Antarctic.

Ferguson's prospecting came half a century before the Antarctic Treaty set aside territorial claims and 80 years before the treaty's environmental protocol forbade mining. The Salvesen lease was issued under British Letters Patent of 21 July 1908

claiming the Antarctic Peninsula area as U.K. territory.

No Antarctic mining occurred as a result of Ferguson's survey.

Instead, Ferguson, perhaps anticipating a more permanent value of his investigations, documented his findings in the open scientific literature: the 28-page "Geological observations in the South Shetlands, the Palmer Archipelago, and Graham Land, Antarctica," published 16 December 1921 in *Transactions of the Royal Society of Edinburgh*.

Few geologists had investigated the Antarctic Peninsula before he came along. Raymond J. Adie's "Geological investigations in the Falkland Islands Dependencies before 1940" (*Polar Record*, 1957, p. 502-513) cites James Clark Ross in 1843 (samples were taken to England) and geologist Henryk Arctowski with de Gerlache's *Belgica* expedition in 1898, along with Nordenskjöld's 1901-1903 expedition and geologist Ernest Gourdon on both of Charcot's expeditions (1903-1905 and 1908-1910).

A problem, for a geologist, was trying to use a ship. Adie writes, "The majority of geologists who have worked in the Antarctic from ships have had to adopt 'hit and run' tactics in order to achieve results in the short space of time available to them." Many early geological observations in the area were no more than comments in the journals of ships' captains and surgeons. Geological specimens typically were collected as a matter of personal interest, and most were not thought of as scientifically valuable.

Ferguson had better ship support than others. His company had engaged the small, fast whaler *Hanka*, which "proved very suitable for prospecting work." The expedition traversed 3,000 miles in the Antarctic and collected 131 bags of rock specimens over a northeast to southwest direction of 270 miles, all in that single season.

Regarding the significance of Ferguson's Antarctic work, Adie seems lukewarm: Ferguson "examined many of the well-known harbors of the Danco Coast and confirmed the earlier investigations by the *Francais* expedition [led by the Frenchman Charcot]."

Ferguson's specimens – those 131 bags – went to the Natural History Museum in South Kensington, the Royal Scottish Museum in Edinburgh, and the Sedgwick Museum in Cambridge. Back home, petrologist G.W. Tyrrell analyzed them and published his own study, "A contribution to the petrology of the South Shetland Islands, the Palmer Archipelago, and the Danco Land Coast, Graham Land, Antarctica," in the same *Transactions of the Royal Society of Edinburgh* (p. 57-79) as Ferguson's paper.

David Ferguson (c1857-1936), already trained as a mining engineer, had taken classes in geology and mineralogy at the University of Glasgow, Scotland, between 1905 and 1908. Its museum's largest collection of Antarctic rocks was collected by him. The university archives Ferguson's papers and field notebooks, as well.

A 2013 paper by Phil Stone and John Faithfull in the *Falkland Islands Journal* (vol. 10, no. 2, "David Ferguson's mineral prospecting visit to the Falkland Islands, 1913-1914") provides a significant footnote to the early work. The authors state, "Until recently, the value of this material was limited by a lack of accompanying archival data. Then, in November 2003, the Bank of Scotland Archives gifted to Glasgow University a collection of papers that had been retained from the estate of David Ferguson since his death in 1936. . . . The material proved to include Ferguson's field notebooks from his South Atlantic and Antarctic prospecting trips; they are partly water-damaged, but the writing and diagrams are mostly clear and comprehensible. They provide a fascinating

accompaniment to the rock specimens. Confidential reports on his prospecting were of course submitted by Ferguson to the Salvesen Company and these, together with some of his photographs and letters, are preserved in the Salvesen Archive, now held by the library of the University of Edinburgh. Taken together, this wealth of material throws light on a little-known contribution to the scientific exploration of the South Atlantic region. It is to be regretted that whilst prints and original glass plate negatives for many of Ferguson's photographs from South Georgia and the South Shetlands are present in the Salvesen Archive, none of his Falklands photographs seem to have survived."

Back to the Antarctic place names that stimulated my interest. Despite those 21 features Ferguson charted or named for others, no one named an Antarctic feature for Ferguson. The closest he gets is South Georgia, where in 1957 the United Kingdom named 560-meter Ferguson Peak (54°47'S 35°50'W), 21 years after his death and 43 years after his summer of prospecting in Antarctica.

Race for the South Pole: the forgotten role of the United States

by Joan N. Boothe

In the last several years, multiple celebrations have recognized centennials of the 15 expeditions of Antarctica's Heroic Age — expeditions from Belgium, Great Britain, Germany, France, Norway, Japan, and Australia. Missing from this list is the United States. Where were the Americans while explorers from other countries were looking south, while men from Norway and Britain were racing to be first to the South Pole, and while others were laying the foundations of Antarctic land exploration and science?

In particular, why was no American expedition involved in the "Race to the Pole" — 90°S latitude — where a U.S. research station has existed since 1956-57?

Nearly forgotten today is the fact that the United States was *not* entirely absent from the Antarctic Heroic Age.

When the period began, in 1897, American interest in the polar regions was focused on the Arctic, especially on Robert Peary's repeated efforts to conquer the North Pole. In September 1909, Frederick Cook declared that he had attained the Pole in April 1908, snatching the long-sought prize from Peary. Less than a week after Cook's bombshell, Peary delivered his news: that he had achieved the Pole in early April 1909. The opposing claims for primacy immediately ignited fierce controversy. Peary's partisans soon drowned out the few voices raised in support of Cook, and Peary was acclaimed the "discoverer" of the North Pole. Today, many doubt both Peary's claims and Cook's long discredited ones.

The North Pole prize had been claimed, but the South Pole remained unconquered. Until 1910, the Race for the South Pole was a matter of first one expedition trying for the Pole and failing, then another making a follow-up attempt. Peary's claim of the North Pole altered the game. Accepting that the North Pole had been conquered, Norwegian Roald Amundsen secretly decided that he would enter the contest for the South Pole, rather than taking an expedition directly to the Arctic as he had announced originally. A true race for the South Pole was on, with both entrants — Robert F. Scott of Britain and the initially secret Amundsen — heading for the goal the same summer.

Early in 1910 Scott was as yet unaware that Amundsen would challenge him. But he did know of another potential challenger: Robert Peary and the Americans. With the North Pole prize claimed, Peary

had decided to mount a 1910 expedition from the United States.

In February that year, Peary proposed to the National Geographic Society that it and the Peary Arctic Club jointly sponsor an expedition to bag the South Pole for the United States – an expedition whose “primary object . . . would be to plant the Stars and Stripes at the South Pole. . . .” The expedition would leave home in August 1910 and set out for the South Pole in the summer of 1911-12, precisely when Scott was planning his attempt. This challenge to Scott was direct and public, although Peary proposed starting from not the Ross Sea but the other side of the Antarctic continent.

Peary was 53 years old and worn out from his Arctic efforts. He had no interest in leading an Antarctic expedition himself. But Bob Bartlett, who had been Peary’s ship captain in the Arctic, was prepared to go as expedition leader, and many other members of Peary’s North Pole expedition were eager to participate. Peary offered his Arctic vessel the *Roosevelt*, his polar equipment, and \$10,000. He looked to the National Geographic Society for the additional \$50,000 he estimated would be needed to get the expedition going.

The Society was enthusiastic. But contributing any money, let alone \$50,000, was out of the question because it had committed its funds to acquiring a new building. The Directors turned to Society members, asking for donations. Two months of appeals brought in only a few thousand dollars, far less than what Peary thought necessary. In April, the Society withdrew its support and returned the contributions. Peary, with nowhere to turn in time for an August 1910 departure, abandoned the plan. The Race for the Pole would be left to Great Britain’s Robert Falcon Scott and Norway’s Roald Amundsen. (A Japanese expedition led by Nobu Shirase was hoping to compete, but the effort was never a serious one for the pole itself.) On 14 December 1911,

Amundsen’s team of five reached the Pole. Robert Falcon Scott’s party of five followed on 17 January 1912.

The “Race to the South Pole” was over, with Amundsen and Norway the victors over Scott and Great Britain. No U.S. team even reached the starting gate.

The United States would remain absent from Antarctic exploration for nearly two more decades, until Richard Byrd arrived in Antarctica with a large expedition in early 1929. Following a winter at the coastal base he called Little America, in November 1929 he and three others would make the first plane flight over the South Pole.

And in November 1956 a U.S. plane made the first ever landing at the Pole, bringing the first men to stand on the surface since Scott’s team had left in 1912. That austral summer, the United States established Amundsen-Scott South Pole Station, 90°S. Eighteen men – and one dog – spent the winter, beginning an unbroken human occupation at the South Pole that continues today, nearly 60 years later. Robert Peary perhaps would have been proud to know that even though Americans didn’t get there first, the Stars and Stripes have been planted at the South Pole for international collaboration in science under the Antarctic Treaty.

John Splettstoesser, 1933-2016

John Frederick Splettstoesser died 25 January 2016 of a massive heart attack in his home in Waconia, Minnesota. A geologist, he specialized in landforms and wind erosion, and on the effect of changing climate on glaciers. His work took him to all three poles – geographic, geomagnetic, magnetic – north and south. Over eight summer field seasons, work in Antarctica between 1960 and 1986 focused on the Jones, Ellsworth, and Transantarctic mountains – ranges in the continent’s

interior – as well as the Ross Ice Shelf, Byrd, South Pole, and Vostok for ice studies and geophysics. He worked on the other six continents, too, and on islands the world over.

The outdoor work fueled 180 papers under his name in peer-reviewed journals and in conference proceedings along with five books that he edited or coedited on polar subjects: *Ice-Core Drilling* (1976), *Geology of the Central Transantarctic Mountains* (1986), *Mineral Resources Potential of Antarctica* (1990), *Geology and Paleontology of the Ellsworth Mountains* (1992), and *Antarctic Tourism* (1994).

John was a member of the Antarctic Society since 1963, and he was its president from 2002 to 2004.

John's employers, starting in 1962, were the American Geological Institute, where he was a writer and an editor, and then the Library of Congress (1964-1967), where he was an editor and a supervisor on the NSF-funded *Antarctic Bibliography*, the world's most complete on that topic and a resource today. Moving to Columbus, Ohio, from 1967 to 1974 he was associate director, then acting director, of the Institute of Polar Studies, Ohio State University, a premier polar research center then and now (present name: Byrd Polar Research Center). John relocated in 1974 to the University of Nebraska at Lincoln, where he codirected the Ross Ice Shelf Project Management Office, a multi-institutional scientific inquiry that included first research drilling through the ice shelf.

In 1979 John became program manager and senior scientist at the University of Minnesota, Minnesota Geological Survey, a position he held until 1989. During that same period, he was a consultant and an educator advising science museums, performing technical editing, and lecturing on tour ships to polar regions and other areas.

From 1991 to 1994 he was visiting faculty at the College of the Atlantic, Bar

Harbor, Maine, teaching course on the geology of that state's Mount Desert Island and on the ecology and politics of Antarctica.

The lecturing experiences on cruise ships led to a role as spokesperson and advisor to the International Association of Antarctica Tour Operators since its founding in 1991. He participated in Antarctic Treaty Consultative Meetings held in Germany (1991), Italy (1992), Japan (1994), South Korea (1995), the Netherlands (1996), Poland (2002), and South Africa (2004). He testified on pending Antarctic tourism regulations before the U.S. House of Representatives and the U.S. Senate.

John was born 17 October 1933 in his parents' house in Waconia, Minnesota, where he also died. He graduated from Waconia High School in 1951 and was class president his freshman and senior years. John graduated from the University of Minnesota in 1962 and received higher education from the U.S. Department of Agriculture Graduate School and the Industrial and Management Systems Engineering School at the University of Nebraska-Lincoln.

Enlisted in the U.S. Army Signal Corps 1954-1956 and trained as a radio operator proficient in sending and receiving Morse Code, he operated radioteletype and other communications equipment at locations in the United States and Korea. He trained in astronomical surveying at the U.S. Geological Survey and learned mountain climbing at the Exum Mountaineering School in Teton National Park.

Slide scanning report

by Charles H. Lagerbom, Society Historian

The Antarctic Society scanning effort has doubled in size of its operations. Earlier in the year, Tom Henderson, Society

Webmaster, used the society's back-up scanner to digitize more members' slide collections – a methodical and time-consuming process.

One completed project is Bob Dodson's wonderful slides from the 1940s-era Ronne Antarctic Research Expedition. Bob provided comments and details for just about every slide; the result is an important visual/historical record.

Antarctican Jim Burnham's large slide collection (+2,100) from his 1957-1958 years in Antarctica is being scanned and cataloged.

We now have a database of +40,000 digitized images from over 50 collections spanning nearly 70 years of Antarctic history. It is hoped that all these images will become accessible and searchable for members in the society's website, with the ability for members to add comments and further identification.

Another future idea is that a series of shots from the same location can show a timeline. For instance, a member might search "McMurdo Station + Observation Hill" and access related slides from every collection in our database. Many who went through McMurdo and climbed Observation Hill took a picture from pretty much the same vantage point at the top! Exciting possibilities for this growing database for and by Antarcticans.

Nick Knezevich, 1948–2015

Society member Nick Knezevich Jr. died 10 September 2015 with liver cancer. He lived in Oklahoma City, Oklahoma, with his wife Faira. Nick was in the Navy for 6 years and said his most interesting tour was to winter (in 1974) as an electronics technician at South Pole Station.

He worked much of his career at the FAA as an engineer, receiving numerous

awards. Retiring in 2005, he established a company, Digital and Linear Systems Research, and repaired avionics on L39 jets. His favorite thing was airplanes, and he loved flying.

Knezevich Rock, a summit outcrop on Mount Takahe in Marie Byrd Land, is named in Nick's honor.

Third winter medevac from SPole

The well-publicized June 2016 medical evacuation of two ailing personnel was only the third such winter mission from Amundsen-Scott South Pole Station. Prior missions were performed in 2001 and 2003.

Two Twin Otters operated by Kenn Borek Air, a Canadian company with a long-term U.S. Antarctic Program contract for aviation support, staged through South America to the British Antarctic Survey station Rothera, on the Antarctic Peninsula. Then, one went on to Pole to complete the southbound part of the mission.

"It really is just kind of what we do," chief pilot Wally Dobchuk told the *Washington Post* (7 July). "It came down to, you know, I guess planning it. ... We didn't get caught off guard. We weren't worried about anything. We weren't scared."

Air traffic to Pole normally is summer only, November-February.

Colleagues had flown the Twin Otters from Canada to Punta Arenas, Chile, enabling the six crew members who would do the Antarctic part to fly commercially and arrive rested. They waited 2 days for weather, then reached Rothera 20 June.

On 21 June, the three air crew and a medic flew one of the planes on to Pole for "a nice buffalo steak" and some sleep before heading north with two passengers – one said to have a gastric problem, the other having suffered a heart attack. On 23 June they delivered the patients to Punta Arenas for treatment not available at Pole.



The Antarctic Society

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MAINE GATHERING PROVES SOCIETY'S HISTORICAL RICHNESS

The Society's July 2016 three-day Gathering at Treasurer Paul Dalrymple's coastal home in Port Clyde, Maine, drew 114 members, relatives, and friends from across the Nation. A day of presentations in Paul's Garage Theater dramatically showed how today's understanding of Antarctica grew out of the slow and painstaking – and cold – investigations done more than half a century ago. During that transitional time, among many advances, we heard from our speakers – they had been there back then! – how glaciology was transformed from a descriptive branch of geology to an analytical branch of physics. We were informed about some of the ways that glacial geology – investigation of landforms to infer glacial history – made big strides.

Papers that follow, contributed by the Garage Theater speakers, are based on their talks and describe some of this early work done by them in Antarctica. For me, and I'm sure others who were there, being in the presence of not just one but a half dozen of these pioneers was electric. Audience participation revealed that several people in attendance had early experiences in some of the same regions the speakers had explored. What a wealth.

Four of the eleven invited Garage Theater speakers are represented in this issue. Of the other seven, Bob Rutford's commemoration of John Spletstoesser is summarized in an obituary in the July 2016 issue. Bob Breyer's talk about his grandfather, Admiral Richard E. Byrd, and a planned recovery of an airplane that crashed in March 1929 during Byrd Antarctic Expedition I, is addressed in Bob's web site, <http://www.admiralbyrd.com>. Other papers based on talks given at the Gathering will appear in future issues. As with all issues, the online version of the newsletter includes images and pictures provided by authors or others; the print version does not.

The Society is considering another Antarctic Gathering in the northern summer of 2018, time and place to be determined. Check future newsletters for updates. See you there!

Guy Guthridge

July 2016 Gathering at Port Clyde, Maine



Dr. Paul Dalrymple in Garage Theater



Antarctican Society Board Meeting



Paul and Gracie at Lunch



Bob and Margie Rutford



Dr. George Jiracek in Garage Theater



Dr. Paul Mayewski in Garage Theater

Photos courtesy of Lou Lanzerotti

The University of Maine in Antarctica

by Harold W. Borns

Maine, as a state, has long been related to Antarctica, first through the fur seal fishery along the Antarctic Peninsula and the associated China tea trade of the 1800s, and later through Admiral Richard E. Byrd, who in the 1920s and 1930s summered on Tunk Lake, Maine, where he dictated his Antarctic expedition volumes and his famous book *Alone*, sitting on a raft with his secretary and his dog Igloo, according to his daughter, Bolling.

During the 1957-1958 International Geophysical Year, University of Maine's Assistant Professor Harold W. Borns, a Tufts undergrad, was invited by Professor Robert L. Nichols to join the Tufts 1959-1961 Antarctic expedition as a field assistant working in the McMurdo Dry Valleys and the McMurdo Sound area. I was thrilled. Eventually I spent 28 field seasons "on the Ice" as a glacial geologist and from 1988 to 1990 was program manager for polar glaciology at the National Science Foundation in Washington, on loan from the University of Maine.

In 2002 Maine's Climate Change Institute, formerly the Institute for Quaternary Studies (of which I was the founding director), was established as a multidisciplinary research and teaching unit focused on Ice Age research in the disciplines glacial geology, prehistoric archaeology, paleoecology, and glaciology. CCI has had a presence in Antarctica through Professors Harold Borns, George Denton, James Fastook, Terence Hughes, Paul Mayewski, and others.

The institute now has about 15 tenured faculty and 60 students. The university's marine biological sciences have been involved through Professors John Dearborn and Hugh DeWitt, since IGY at McMurdo and Palmer and more recently Bruce Sidell at Palmer Station. Together,

these scientists represent nearly 60 years of research by the University of Maine in Antarctica.

In joining The University of Maine CCI in 2000, Professor Paul Mayewski brought ice core science into the University's established glacial geological focus, which has been providing proxy records of climate changes from locations around the globe, including extensive work in Antarctica, Chile, and New Zealand by George Denton and his team of scholars from several institutions, Brenda Hall, and others.

Paul Mayewski was appointed Director of CCI in 2002 and continued to expand both the geography and the analytical capabilities of ice core research. He promoted and developed campus-wide interest and activity in climate change documentation and its applications to academic and public fields, including programs of Maine state government.

I will be 89 years old this year, am "retired," and remain in good health. My last Antarctic research was a cooperative venture with Parker Calkin, SUNY (Buffalo), and Robert Ackert, Harvard University, to determine the height of the West Antarctic Ice Sheet at the Last Glacial Maximum, measured on nunataks of the Executive Committee Range, which is on the ice divide of the ice sheet.

Paul Mayewski, George Denton, Brenda Hall and others continue the presence of the University of Maine in Antarctica as well as in other glaciated regions, while I, in my "failed retirement," am doing field research in the northeastern United States and in Ireland.

The work in Ireland is documenting a low latitude marine-based glacier off the western coast. This investigation is an extension of retired University of Maine Professor Terry Hughes' revolutionary concept of marine-based ice sheets, which evolved largely from his study of the largest of them all, the West Antarctic Ice Sheet.

Antarctic and global climate interpreted through analogs for past and present atmospheric circulation

by Paul Andrew Mayewski

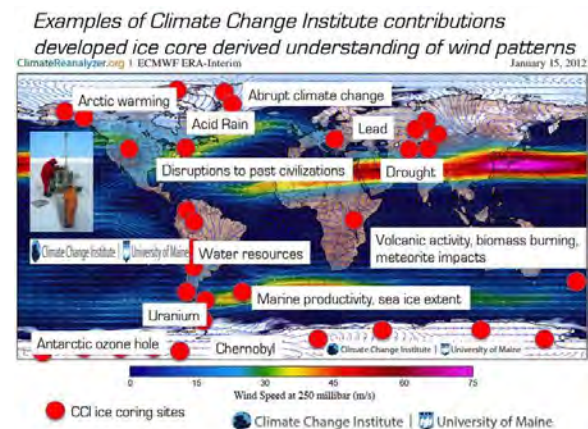
During our second expedition into the Ladakh Himalayas in 1980 we were fortunate enough to notice clouds converging from the north (Tibetan Plateau) and from the south (India). Where the two conveying air masses met, over our 20,450-ft-high ice core drill site, snow fell. It was the ideal situation to test an intuitive concept that ice/snow cores carry chemical fingerprints (signatures) of their source region (temperature, dustiness, biotic productivity, and more). While the snow was still fresh we raced downhill to just below 10,000 ft and then back up to our camp to complete drilling for a history of the Indian Monsoon. The concept worked. We have since been able to track the source, emission strength, and transport pathway of many air masses feeding air to the ice cores we have recovered from Antarctica, the Arctic, Asia, South America, North America, Australasia, and Europe.

Understanding the past and present history of air masses is critical because air masses carry heat, moisture, and pollutants. They impact ocean surface currents, sea surface temperature, and sea ice extent. We also know from our work recovering, analyzing, and interpreting the Greenland Ice Sheet Project Two (GISP2) ice core that air mass strength – and the shape of atmospheric features such as the austral and boreal westerlies and the intertropical convergence zone – can change abruptly, in less than a year, and stay in the new state for decades to centuries. These abrupt reorganizations of atmospheric circulation can, therefore, impact all aspects of climate.

The International Trans Antarctic Expedition (ITASE) involves 21 countries. Its goal is to understand past and present climate as analogs for predicting future

climate in concert with climate models. The project has recovered and analyzed scores of ice cores and completed thousands of kilometers of oversnow traverses that have provided a base for understanding glacier dynamics and atmospheric chemistry. ITASE and associated SCAR programs have contributed to understanding not just Antarctic climate change, but also the interaction of Antarctic climate with Southern Hemisphere and global climate.

Today, climate change in the polar regions is having remarkable consequences. Recent Arctic warming, induced by greenhouse gases, has been abrupt, as much as 5°C in the eastern Arctic over recent years. It has led to poleward migration and weakening of the boreal westerlies and massive embayments of the jetstream – with extreme weather event consequences. In the Antarctic, stratospheric ozone depletion and greenhouse gas warming have caused the austral westerlies to migrate poleward and strengthen, leading to changes in sea ice extent, drought in Australia, cooling of some Southern Ocean currents due to enhanced upwelling, and southward movement of warm currents to reduce the mass of some Antarctic ice shelves.



The potential for abrupt climate change, the significance of shifts in atmospheric circulation patterns, and impacts of human activity on the chemistry of the atmosphere – all gleaned from ice cores – have in less than three decades of

research turned out to be essential to predicting the course of a defining reality of the 21st century – human induced climate change.

Paul Andrew Mayewski is the director of the Climate Change Institute and distinguished professor (School of Earth and Climate Sciences, School of Marine Sciences, School of Policy and International Affairs, Business School) at the University of Maine. Internationally acclaimed glaciologist and explorer, leader of more than 55 expeditions to some of the remotest regions of the planet, >400 peer reviewed scientific publications, two popular books, hundreds of media and speaking venues worldwide, leader of GISP2 and founder/leader of ITASE, numerous first ascents, oversnow traverses to unexplored Antarctic territory, coupled with major contributions to the understanding of past, present, and future climate change.

For more information:

http://climatechange.umaine.edu/people/profile/paul_andrew_mayewski

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Exploring the Antarctic polar plateau

by Jack Long and John Clough

Our discussion at the 2016 Garage Theater centered on exploration and research of the Antarctic polar plateau using two Sno-Cats and Radar Echo Sounding. Jack talked about the two amazing 843 Tucker Sno-Cats, and John discussed the successful use of RES.

The largest Sno-Cats. The Sno-Cats, built specifically for the polar plateau, worked for and protected six different groups of scientists traversing over 5,000

miles in unexplored Antarctica over 8 years from 1961 to 1968 at altitudes up to 14,000 feet and temperatures down to minus 75°F. These are the only large 843 Sno-Cats in existence and are the largest Sno-Cats ever built. Their successful exploration required on-the-Ice redesign and field retrofitting, along with construction of three garages, continual maintenance, and two LC-130 transport trips from the polar plateau to McMurdo Station and back.

This overview includes conception in 1958, birth in 1959, traverse life from 1961 to 1968, death in 1968, and afterlife from 1968 into the future.

Conception. At the end of IGY in 1958, someone with foresight realized that western Antarctica (Little America, Byrd, Ellsworth, and Palmer Stations) was pretty well overflowed, traversed, and explored, while eastern Antarctica was looming as the next huge unknown. The United States had South Pole Station (SPS), supported by air from McMurdo, but we had never traversed there or done extensive geophysical studies on the polar plateau. The British, New Zealanders, and Russians had traversed to the SPS. The Russians were particularly active in this large unexplored section of the continent. U.S. scientists had unique capabilities, and exploring the polar plateau was the next logical step.

The big problems were high altitude and extreme cold. Due to less oxygen at these higher altitudes, the existing gasoline-powered Tucker Sno-Cat traverse vehicles (orange beetles) would lose 30% of their power around Pole Station and 45% at Plateau Station, not compatible for towing large loads. Further, the orange beetles would not provide sufficient protection for humans in the extreme low temperatures. Of note, the orange beetles were cramped inside, and the headroom was only 4½ feet.

The visionaries ordered two new traverse vehicles from Tucker Sno-Cat that could handle the high altitude and low temperatures with long range capabilities.

These vehicles would have turbocharged diesel engines, large towing capacity, cold weather starting capability, 6-foot headroom, and accommodations to house scientists and gear in relative comfort. They would be transportable by an LC-130 aircraft.

Tucker had never built such a monstrosity. These vehicles were to be two to three times bigger than anything they had built and of new and untested design. Their largest Sno-Cats to date were the “orange beetles” that we were already using.

Tucker had no jigs, fixtures, forgings, or castings in the factory for so large a vehicle. The company had never used diesel power. They introduced new and untested track and drive systems, frame, and body. The tracks were higher, wider, and longer than any prior Sno-Cat.

To date, these are the only two 843 Tucker Sno-Cats ever built. At the time Tucker likely felt that this was just the beginning, and the Navy, NSF, and other countries would order more vehicles in the future.

Birth. For several months in 1959, Tucker Sno-Cat stopped all other production at the factory in Medford, Oregon. The focus was on building the two 843s. I was sent to the factory to make the new vehicles compatible with our traverse instruments and Antarctic operating conditions.

The two new machines arrived in McMurdo in early 1960 as deck cargo on a U.S. Navy cargo ship.

Traverse life. Arriving at McMurdo Station in February 1960, the two Sno-Cats began 8 years and six successful traverses in some Antarctica’s worst conditions: high altitudes, extreme weather, crevasses. Throughout their 5,000 miles the 843s provided safe and comfortable living and working environments for the scientific teams. They met the established traverse routes, destinations, distances, and times.

The traverses were:

1961, Discovery Deep Traverse on the Ross Ice Shelf from McMurdo. 400 miles

1961-1962, McMurdo to South Pole Station. 1,250 miles

1963-1964, South Pole Station to Horlick Mountains. 800 miles

1964-1965, QMLT-I South Pole Station to Pole of Inaccessibility. 950 miles

1965-1966, QMLT-II Pole of Inaccessibility to Plateau Station. 825 miles

1967-1968, QMLT-III Plateau Station to Shackleton Range. 825 miles

The Sno-Cats could be self-sufficient over a 1,000-mile range, which meant no dependency on refuel flights. In reality, to lighten the load for certain areas of soft snow and crevasses the fuel load was reduced, the range shortened, and fuel airdropped. Even so, the Sno-Cats always towed a large load of fuel and supplies on every traverse. Typically, a traverse would start out with each Sno-Cat pulling 2,000 gallons (14,000 lb) of fuel and 3,000 lb of supplies on a 4,000 lb Rolligon trailer. This created a total towed weight of 21,000 lb.

A Rolligon trailer is a military four-wheel cargo trailer rated at 2½ tons. The tires are big and fat – about 5 feet in diameter and 4 feet wide. Each wheel was equipped with 1½-inch fuel ports and could be filled with 500 gallons of fuel. Compressed air would force fuel out of the fuel ports. On soft snow with full wheels, towing was difficult. The Sno-Cats would gear down, but keep going. Infrequently, trenches made by the Rolligons were 18 inches deep. Distribution of fuel in the wheels was an important towing factor. The 1961-62 McMurdo to SPS traverse was the first use of Rolligons in Antarctica. They worked well and were considered a success. Had the Rolligons failed, the backup plan was to use U.S. Navy 10-ton sleds.

The Sno-Cats reliably performed and pulled these large loads year after year, but not without a lot of help. Repairs and modifications were required. Three garages

were built: McMurdo, used by NSF for 40 years; SPS, canvas over aluminum frame, used for 2 years; and Pole of Inaccessibility, self-inflating 200' diameter plastic bubble, used 2 weeks.

The design and rebuild problems started in 1961 at McMurdo when a decision was made for a 500-mile traverse on the Ross Ice Shelf, called the Discovery Deep Traverse (DDT). The Sno-Cats departed McMurdo in the fall of 1961 after the search-and-rescue planes were put away for the winter. Things did not go well. Aware of failures and crevasses, VX6 started to pull helicopters out of storage, as winter set in and we had not yet returned to McMurdo. Back in McMurdo it was discovered that the tracks and drive sprockets were almost worn out having traversed only 400 miles pulling light loads, meaning the planned 1,200-mile traverse from McMurdo to SPS would fail. Tucker's new design had to be changed. With the first flight of spring, new track parts arrived.

The traverse to SPS was successful. (See Ed Robinson's video, "Antarctic Traverse Adventures, 1959-1961," on the Antarctic Society website.) It revealed another problem, though. The machines could travel only in the gear in which they started. During a try to shift up, the Sno-Cats would stop. Our speed was limited to 2 mph. The next summer at SPS, the Sno-Cats were converted from five-speed manual to six-speed automatic transmissions, making 3.5 mph possible, and sometimes up to 5 mph in good conditions.

Throughout the traverses, some mechanical failures were a result of wear and tear; others, due to design and material selection. Some parts needed to be replaced with stronger steel. As the years passed, design problems diminished. Wear and tear was dealt with as much as possible in the field, but twice the Sno-Cats were flown to McMurdo for extensive refurbishing. This airlift was possible at SPS and Plateau Stations, with prepared skiways.

Death. The Antarctic traverses came to an abrupt end through a radio message during the QMLT-III in 1968, which was headed to SPS with 600 miles to go. In effect, the radio message said, "Radar Echo Sounding can now be done from the air. There is no point in driving any farther. Pack your personal belongings and scientific instruments, and get on the LC-130 that will land shortly. Abandon everything else."

John Clough had singlehandedly dealt the death blow to the 843 Tucker Sno-Cats and their Antarctic traverses! He had been too successful with the then experimental Radar Echo Sounding used on the last two traverses. From here forward, RES would be airborne!

Afterlife. Is this the end of the Sno-Cats? It doesn't have to be. There they sit, 600 miles from SPS: still operational with fuel and supplies. Install new batteries, fire them up, and you're on your way!

Several foreign countries have museums with Antarctic dog sleds, ships and airplanes, and yes, even early Tucker Sno-Cats. Here in the United States we have saved airplanes and ships. Why aren't we saving the vehicles that played such an important role in exploring the last continent with the harshest living environment on earth? Why not drive them down to British Halley Bay Station? Load them on a ship, and bring them back to America for the benefit of future generations? Let's not let these important gems of our history slide into oblivion.

Scientific objectives of the traverses. During the International Geophysical Year (IGY) in 1957-1958 and the next few years, over-snow scientific traverses were conducted by the U.S. in West Antarctica. Geophysical and glaciological observations provided data on surface and bedrock topography and on snow and ice deposition and accumulation.

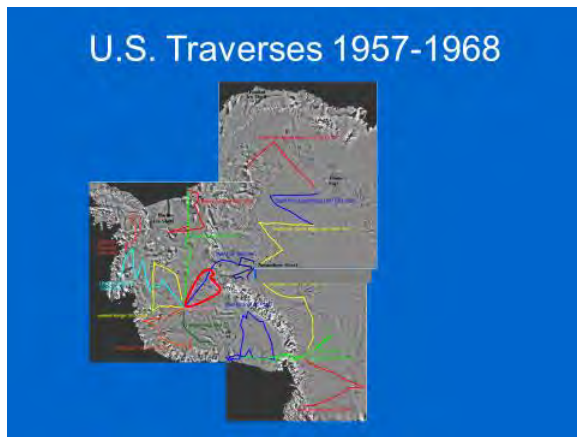


Figure 1. Map of IGY traverses in West Antarctica and the East Antarctic traverses described below.

During the late 1950s, plans described above were made to traverse to the high plateau of East Antarctica. Conditions in East Antarctica with a self-sufficient larger crew called for a larger vehicle than previously used. Hence the Sno-Cats were designed and built by Tucker to sleep five persons, provide all living and science spaces, and tow heavy cargo and fuel loads.



Figure 2. The two Tucker 843 Snocats at Pole of Inaccessibility (1965)

QMLT-2 in 1964-1965 included two new techniques: Radio Echo Sounding (RES) and a neutron density probe for measuring snow density in our 15-meter drill holes.

The 30 Mhz radar was loaned to the project by Amory "Bud" Waite, a Byrd

expedition radio operator who was instrumental in the discovery of RES.



Figure 3. "Bud" Waite and the RES equipment inside the 843 "Seiscat"

RES provided a detailed profile of depth to bedrock and stratigraphy and internal layering within the 3,500-meter-thick ice column.

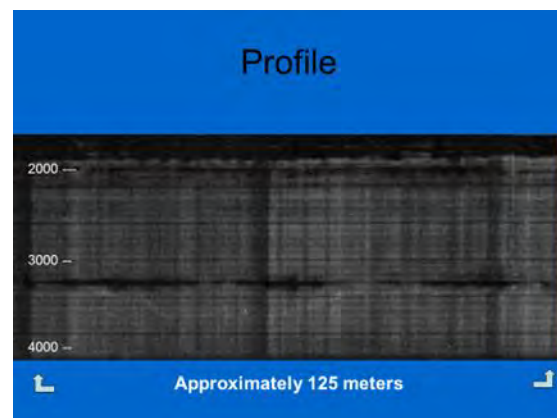


Figure 4. A short sample of RES continuous profile from QMLT-2. The bedrock reflection is seen at approx. 3200 meters.

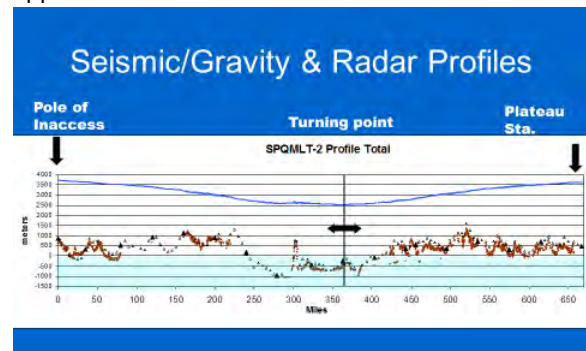


Figure 5. QMLT-2 profile.

QMLT-3 occurred during 1967-1968, after the 843s were flown to McMurdo for a season of rehabilitation. The

traverse covered 840 miles in a grid northwest direction and ended in the area of the Shackleton Range about 600 miles from Pole, where we received the call from McMurdo telling us to park the Sno-Cats.

One explanation was that future surveys would be conducted by remote sensing. Airborne radio-echo sounding would undoubtedly provide basic bedrock mapping. Ironically, with spiking fuel prices and budget constraints it was 40 years before significant airborne mapping was achieved.

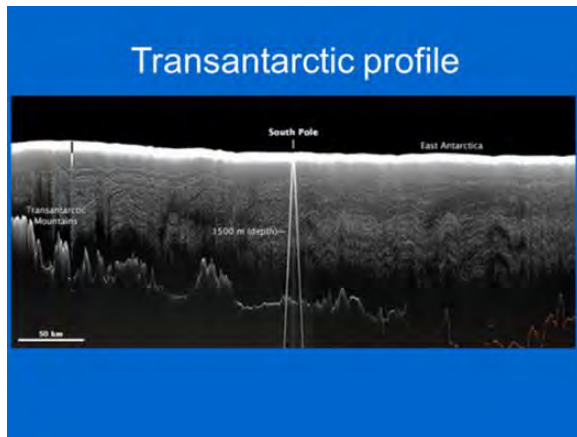


Figure 6. Note the internal layering within the ice sheet.

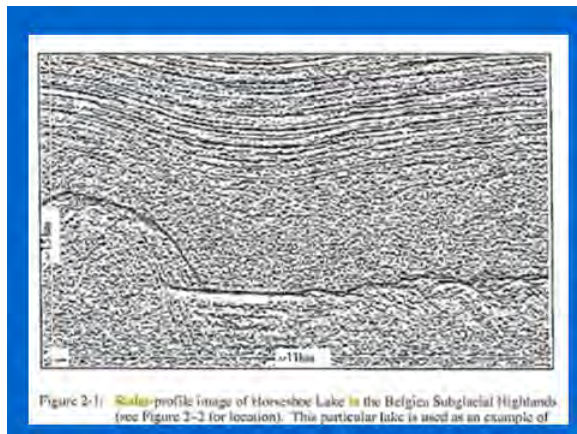


Figure 7. A detailed profile over an East Antarctic lake.

In the 1960s the East Antarctic Ice Sheet was considered very stable. Bedrock topography was mapped from -500 meters to +3000 meters below and above sea level. (QMLT data mapped bedrock depths of -1000 meters.) The ice at the bedrock

interface was thought to be close to the melting point, but essentially frozen to bedrock.

Modern RES has revealed a complex hydrodynamic system of 145 or more lakes and channels. Deep fiords lie beneath the ice sheet. RES interpretation shows deep ice melting and water forced up to shallower depths and refrozen. Many of these lake features are expressed at the upper surface of the ice sheet and are visible on satellite imagery. The East Antarctic ice sheet appears far less stable than previously described. It all started with those two 843 Sno-Cats.

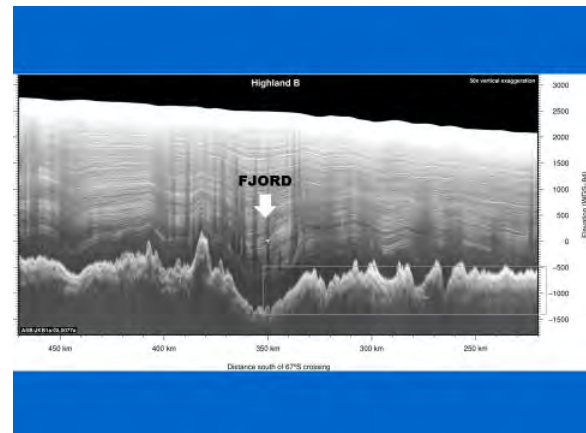


Figure 8. RES interpretation shows deep ice melting and water forced up to shallower depths and refrozen. (Figure 9)

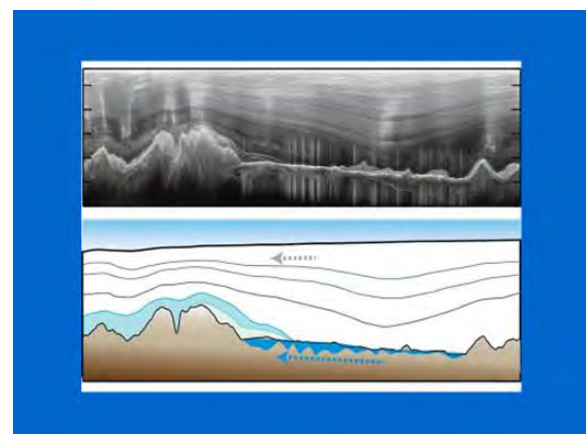


Figure 10. illustrates fresh water being forced up-hill and refrozen at much shallower depth.

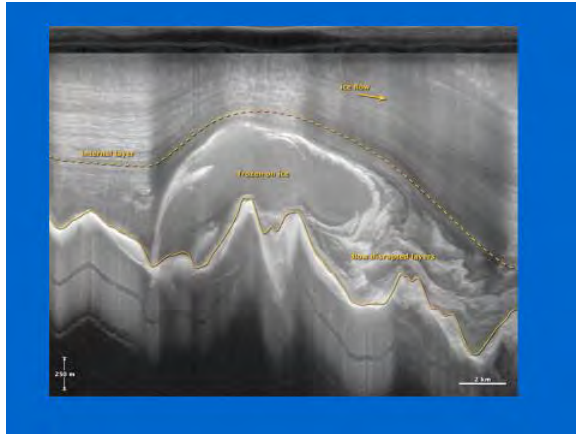


Figure 11. A detailed image of refrozen Ice

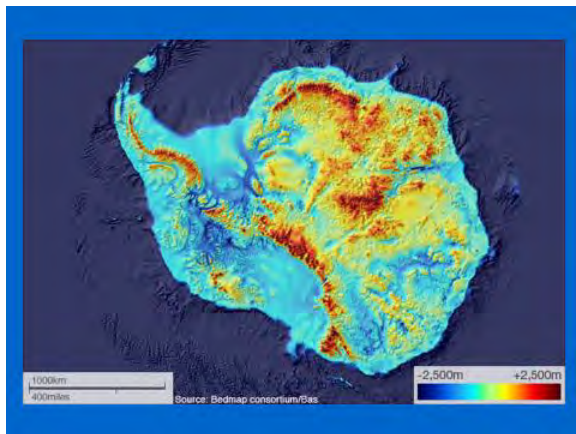


Figure 12. A current map of Antarctica's bedrock contours showing low areas where lakes and streams are located.

Jack Long and John Clough co-presented "Exploring the Antarctic Polar Plateau" to Antarctic colleagues at the July 2016 Antarctic Society Gathering in Port Clyde, Maine. During their talks, Jack ran a silent movie, recorded in 1963-64, showing the South Pole to Horlick Mountains traverse to demonstrate the historic exploration of Antarctica from 1956 to 1968, during the earliest years of airborne Radar Echo Sounding (RES). For a 48-page report about the 843 that Jack wrote in November 1962, see <https://minds.wisconsin.edu/handle/1793/64961>.

First Antarctic radar profiling and sounding at South Pole 1964-65

by George R. Jiracek

Let me be clear when I say "first Antarctic radar profiling." Radar profiling of a few tens of kilometers had been done before 1964 near McMurdo. And the British were doing radar profiling in 1964 on the other side of the continent. A major joint U. S.-British effort during the boreal 1964 summer in Greenland measured over 200 kilometers of radar profiling. The 1964-65 radar profiling represents the first such increase in scope in Antarctica.



Greenland 1984 near U. S. Army Camp Tuto

I was a member of the Greenland team, but my Antarctic discussion is set in the context of how operations were done there.

In Greenland, explosion seismics near the edge of the ice cap and gravity measurements were included along the traverse from Camp Tuto to Camp Century and beyond. The U. S. radar team was headed by Amory "Bud" Waite, then of the Army Corps of Engineers. I pay tribute to him for not only teaching me the details of glacial radar theory and equipment, but also for his contagious enthusiasm for polar exploration. Bud was a radioman on Byrd's 2nd Antarctic 1933-35 expedition. He and two others are credited with saving Byrd's life as described in Byrd's book entitled *Alone*. Bud recognized back then that radio

waves between two ships were not attenuated when passing through intervening ice bergs. This led to his first glacial radar soundings in the 1940s. Knowing Bud Waite, you never forgot him. He was both gregarious and humble. His story-telling was unmatched – about not only Byrd, but others such as Shackleton and Scott, although he never met them. It was a privilege to spend time with him in Greenland and to use his radar equipment during the 1964-65 Antarctic season.



"Bud" Waite

A polar traverse in Greenland was called a "swing" with large boxcar-like sleds called "wanigans" and huge cargo-carrying trailers pulled by D-8 tractors with extra-wide treads for lower ground pressure. Wanigans had living, cooking, and lab space and even a snow melter for showers. The huge tires on the trailers were about 3 meters across, easily dwarfing me when standing next to them.



Greenland "swing." Wanigans, large sleds, and rubber-tire trailers being pulled by D-8 tractors during near white-out conditions

On to Antarctica! I did radar profiling and soundings on the Ross Ice Shelf near New Zealand's Scott Base, on the Skelton Glacier, on Roosevelt Island south of Little America (a coastal station on the Ross Ice Shelf), and at the South Pole. In contrast to the giant wanigans in Greenland, my assistant (and buddy) Jim Nichols and I built a "mini-wanigan" radar lab out of plywood and canvas and lashed it to a Nansen sled. A single motor toboggan (now called snowmobile) could pull three Nansen sleds with fuel, supplies, and our mini-wanigan. For profiling, the 30 MHz radar transmitting and receiving antennas were



Author next to large trailer's nearly 3-m diameter rubber-tires



Author in "mini-wanigan" containing 30 MHz radar transmitter, receiver, and oscilloscope

attached to separate sleds with bamboo poles. One person operated the equipment inside the lab, and one person drove the

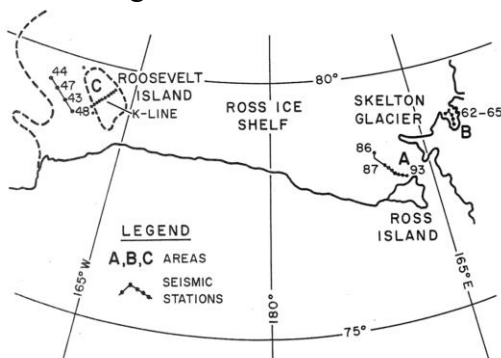
motor toboggan and called out distances from a bicycle-wheel odometer. Meals were cooked and eaten outside our tents where we slept. Cooking dinner on a hot plate with a Coleman stove started with nearly a pound of butter, a can of mushrooms, and filet mignons. Because I was in the Navy Reserve then, I was given two special privileges by the Navy support staff. I directly chose our food supplies from the Navy stores (heavy on filet mignons). And I had full access to the McMurdo photographic facilities where I developed rolls of 35 mm film. This film contained our radar images taken with a camera attached to an oscilloscope. Developing the film in Antarctica meant not having to wait until returning to the States to confirm our recorded data. (It turns-out that the oscilloscope did not work after shipping to Antarctica. This likely would have canceled our project then except that Bud Waite had packed spare parts for everything. My Navy electronics training enabled me to figure out which component was bad.)

The radar profiling results were:

1) the first recordings of multiple radar reflections through ice, these from the 100- to 300-meter thick Ross Ice Shelf when the radar antennas were separated up to 1 kilometer apart

2) multiple, rough bottom echoes exhibiting radar polarization changes from the 1.7-kilometer deep Skelton Glacier

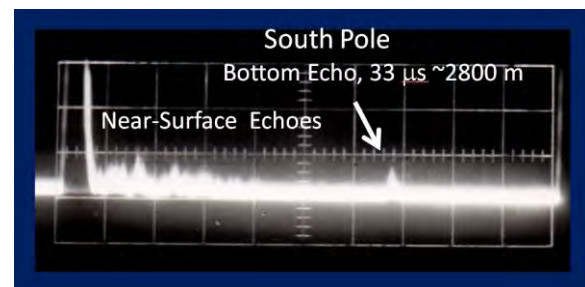
3) four radar profiles totaling over 150-kilometers traversing the nearly 900-meter thick grounded ice of Roosevelt Island



Areas of Radio Velocity Measurements in Antarctica

Even though the accurately measured survey markers on Roosevelt Island have moved greatly in 52 years, it would be valuable to compare the radar soundings of 1964 with those today to document ice thicknesses changes, possibly quantifying an effect of global warming.

Our two-person radar team and gear were airlifted to the South Pole in early January 1965 where my Professor, Charlie Bentley, joined us for the first ever radar sounding at Pole Station. A stronger than expected bottom echo was recorded at 33 microseconds, which was converted to an ice thickness of $2,800 \pm 17$ m. This compared favorably to a nearby seismic measurement by the University of Wisconsin of 2,803 m. Shallow radar echoes up to 20 microseconds “deep” were partly caused by Pole Station infrastructure. But, some were probably caused by past climate-change discontinuities preserved in the ice. Our celebration of the successful South Pole results included “refreshments” in the lounge while we watched Navy sailors dance with sled dogs and female, department store manikins.



Oscilloscope image of first ever radar sounding at South Pole

I returned to Madison, Wisconsin, mostly via the Super Constellation prop plane called Pegasus, the winged-horse of mythology. From New Zealand, the flight had refueling stops in Pago Pago, Honolulu, and California before arriving in New Jersey. When I finally arrived in Madison, Wisconsin, the temperature was minus 21°F; when I left the South Pole it was a warm summer day of minus 5°F.

I'm forever grateful to Bud Waite and Charlie Bentley for allowing me to have had this lifetime experience. Bud Waite sent me an amusing comment that I shared with the Garage Theater audience.

See: Jiracek, G.R., 1966, Radio sounding of Antarctic ice: Univ. of Wis. Geophys. and Polar Res. Ctr., Res. Rept. Series 67-1, 127 p.



J. Green, British Antarctica Survey, and Charlie Bentley in Hawaii alongside the Super Constellation called Pegasus

George R. Jiracek is Emeritus Professor of Geophysics, San Diego State University.

The Message

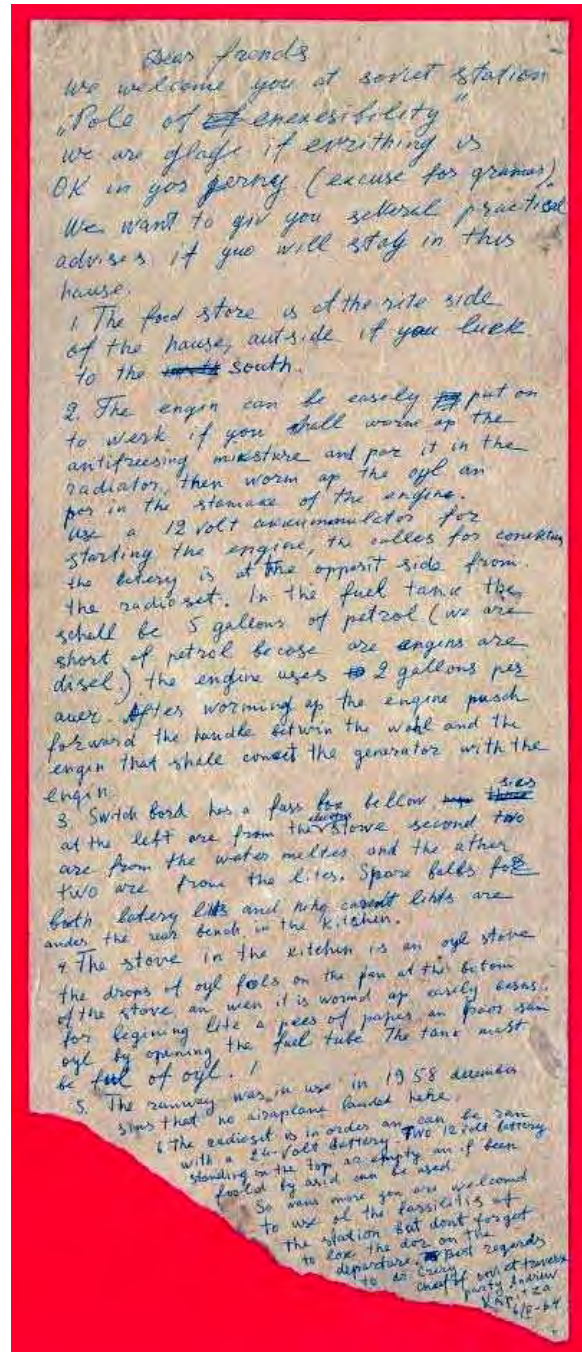
by Dick Cameron

As an addendum to the presentation on the East Antarctica traverses by John Clough and Jack Long, Dick Cameron told about the message dated 6 February 1964 that the Americans found at the Pole of Relative Inaccessibility, a station the Soviet Antarctic Expedition first operated in December 1958 and now Historic Site 4 under the Antarctic Treaty. Andrew Kapitza, the son of Peter Kapitza (a scientist who worked with Rutherford) and Chief of the Soviet Traverse Party, had written the message.

The Soviets knew the Americans were planning to visit the station the following year, so they left information

about what was available for visitors to the station. Our traverse reached the station on 27 January 1965.

For the Garage Theater talks, Andy Cameron (son of Dick) had the message enlarged and posted on the wall.



Here is the beginning of the message:

Dear friends

*We welcome you at Soviet Station
“Pole of Enexesibility”*

*We are glad if evrithing is OK in yor
jerney. (excuse for gramar). We want to giv
you several practical advises if you will stay
in this house.*

The note lists six things the visitor should be aware of such as the location of the food, the kinds of fuel available, how the generator works, and how to start it: “*worm up the oyl an por in the stamake of the engine.*” When non-English-speaking people write English it is wonderful and understandable. The message ends:

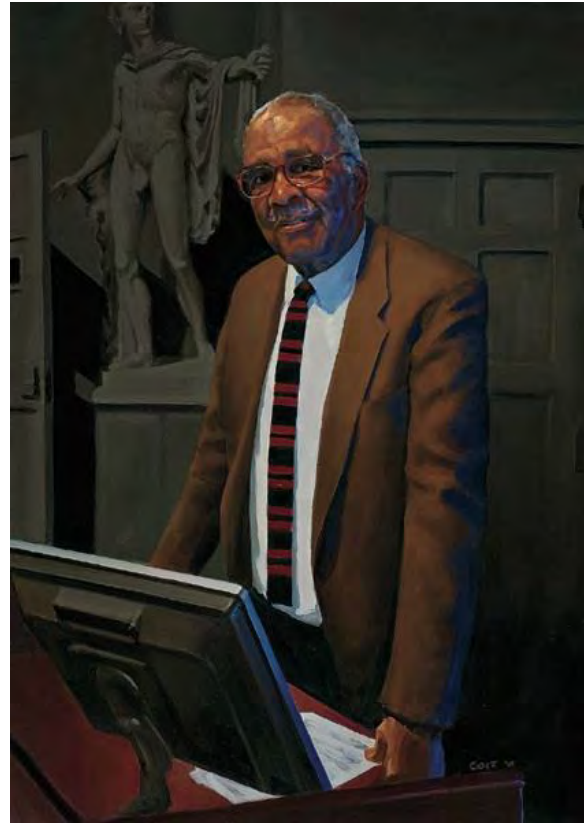
*So wans more you are welcomd to
use ol the fassilitis of the station but don’t
forget to lok the dor on the departure. Best
regards to dr. crery.*

Lok the dor meant for the visitors to kindly secure the door on departure so that snow would not filter into the building. *Dr. Crery* is Albert P. Crary, then chief scientist of the U.S. Antarctic Research Program.

All-American Antarctic succumbs at age 89

by Paul Dalrymple

Chester M. Pierce was born 4 March 1927. Brought up in Glen Cove, Long Island, whose population was just 10 percent black, he was the first black president of his high school. Entering Harvard in 1943, he became an All-American tackle as a 6’4” freshman. which he downplayed saying the real All-Americans had gone off to war. In addition to football he played lacrosse and basketball at Harvard. He became famous Nationwide as first black to play collegiate football in the south, to the consternation of the University of Virginia, on 11 October 1947. Sixty years later the University of Virginia awarded Chester the Vivian Pinn Distinguished Lecturer Award for achievements in the field of health



Dr. Chester M. Pierce

disparities. So you see what goes around can come around!

Chester received his medical degree from Harvard Medical School in 1952.

In the 1960s, pursuing his interest in the physiological and psychological responses of people to extreme environments, he collaborated with Dr. Jay T. Shurley, University of Oklahoma, on studies of the psychophysiology of personnel while asleep and awake before, during, and after winter sojourns: first at Byrd and then at South Pole Station. This and related research in Antarctica resulted in 12 research papers he published between 1968 and 1990 that address response to the protracted stress of wintering, loss of white blood cells during the dark period at Pole, and lessons from Antarctica that might be applied to long duration travel in space. Based on the Antarctic work, Chester introduced the concept of microaggression: small acts, almost innocuous in themselves, that in aggregate can undermine self-esteem and

destroy relationships. In all, Chester wrote more than 180 books, articles, and reviews.

He must have attracted more than minimal interest in the polar community, as soon he found itself a member of the august Polar Research Board of the National Academy of Sciences, where among other things he chaired a 1982 assessment of polar biomedical research.

Seeking a speaker for a Washington program of the Antarctic Society, we approached Bert Crary for a likely candidate. Without hesitation Bert replied, "Chester Pierce." Chester's 1979 lecture on a physician's view of Antarctica was the beginning of a wonderful association of our society with Chester, especially for myself and Gracie Machemer.

Chester's career as a Harvard professor spanned 41 years. He was Emeritus Professor of Education and Psychiatry at Harvard Medical School, past president of the American Board of Psychiatry and Neurology and past president of the American Orthopsychiatric Association. He was a Fellow in the American Academy of Arts and Sciences. Massachusetts General Hospital has renamed its psychiatry division the Pierce Global Psychiatry Division.

He died on 20 September 2016. Chester was one of a kind. I am proud to say that I enjoyed my association with him and only wish that it could have been extended for many more years. But cancer has no ground rules.

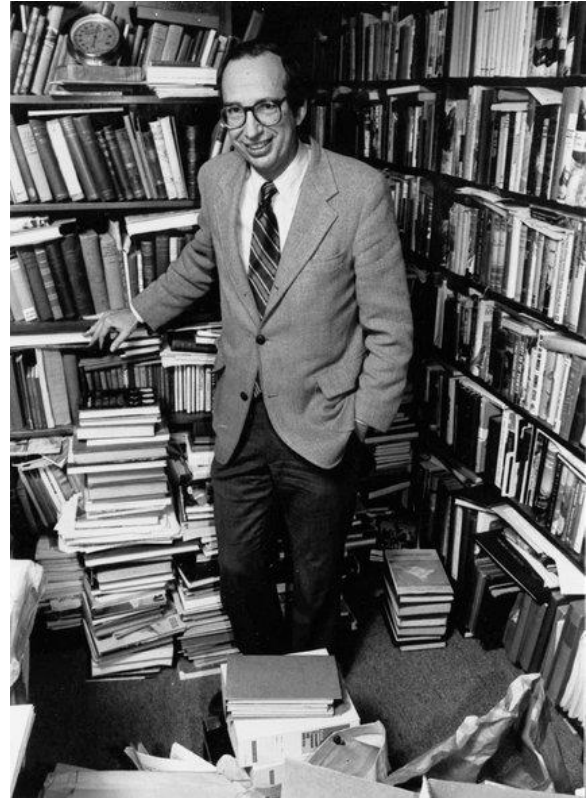
Another famous Antarctic, Nick Clinch, dies at age 85

by Paul Dalrymple

Nick Clinch, an audacious and intrepid mountaineer, who led a ten-man expedition in December 1966 to climb and conquer Antarctica's highest peak, Mount Vinson, died from cancer on 15 June 2016.

A graduate of Stanford University with a law degree, he became the executive

director of the Sierra Club Foundation. A tall, gangly individual, he had an



Nick Clinch

extensive personal library that I was privileged to see once on a visit to his home. His wife, Betsy, once worked as a librarian at the National Geographic Society in Washington. A cohort of hers at that Society was Ruth Siple! *Clinch Peak*, 15,883 feet in Antarctica, is named for Nick.



Antarctic Mountaineering Expedition 1966-67.

Back Row: John Evans, Dick Wahlstrom, Nick Clinch, Barry Corbet, Pete Schoening.

Front Row: Charlie Hollister, Sam Silverstein, Brian Marts, Bill Long, Eiichi Fukushima

New Society Website

by Tom Henderson

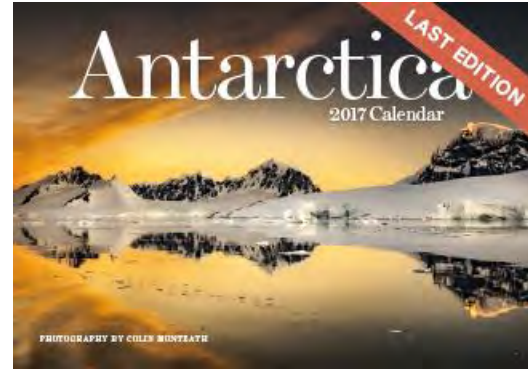
Work has begun on a new, updated Antarctic Society website. The Antarctic Society Board of Directors approved the development of the new website at its July meeting. There are several reasons for the update. The first is that the original website was designed and coded by an amateur web developer (me!). Its construction was neither professional nor did it take into account modern coding for security. As you know, security is becoming an increasingly larger issue in the cyber world. Second, the original website was coded using a coding platform called ColdFusion. Because it is proprietary rather than the more common open source platforms, our host charges around 30% more per month to support it. Finally, the new design will be easier to maintain which is a significant consideration when the time comes to transfer the site to a new webmaster.

The work for developing the new website is contracted to Troy Web Consultants in Troy, New York. They are a very experienced and well-regarded company in upstate New York. They have given the Society a 25% discount for this work.

In the next article, I will explain further the features of the new website and the changes from the original. One change to be aware of immediately is that the username for logging in to the new website is required by the security system to be your email address. If you do not have an email address, contact the webmaster at the

address on the newsletter masthead above for instructions.

Antarctic calendars



The excellent 2017 Antarctic calendars are available directly this year for NZ\$23 from the Caxton Press, 113 Victoria Street, P.O. Box 36411, Christchurch, New Zealand:

<http://www.caxton.co.nz/Printshop/Calendars/>

Winter-over study

Dear Antarctic Society:

This study is led by PhD candidate, Cyril Jaksic, from Lincoln University, New Zealand. Its aim is to collect psycho-social data from former winter-overs to investigate the social context in such an unusual environment. The results should help, amongst others, to refine training processes for future Antarctic expeditions or socially similar environments (e.g., spaceship, submarine).

Important note: The present survey is solely aimed at former winter-overs; that is to say, you should only complete this survey if you have spent a winter in an Antarctic station.

The survey consists of two parts:

- Part One (about 10 minutes): questions related to your experience during your last winter-over in an Antarctic station
- Part Two (about 10 minutes): personality questionnaire

The results of the project may be published, but you may be assured of your anonymity in this investigation: you will not be asked to disclose your name. No personal data will be published. The data will be analysed as a whole and no individual data will be disclosed.

This research is independent from any National Antarctic Programme and your participation is entirely voluntary.

By filling in the questionnaires you confirm that you have read and agreed with the conditions mentioned above, and that you give your consent to participate in the research. You can also withdraw from the study at any time until the submission of your survey. Be aware that only completed survey will be analysed and any data on surveys left uncompleted will be deleted. If you have already spent an austral winter in an Antarctic station and you are willing to take part in our survey, you will find the survey on this link:

http://lincoln.nz1.qualtrics.com/jfe/form/SV_79b416T3SxerMs5

We would appreciate if you could complete the survey within a month, thank you.

This research has been reviewed and approved by the Human Ethics Research Committee, Lincoln University.

The project is being carried out by:
Cyril Jaksic: cyril.jaksic@lincolnuni.ac.nz /
0064.21.261.3890
Dept. of Tourism, Sport and Society
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New Zealand



The Antarctic Society

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ANTARCTICA'S SCIENCE IS MORE POPULAR THAN EVER

Bill Meserve's "An Antarctic discovery," page 2, rounds out our reports based on talks given last July during the Society's Gathering at Treasurer Paul Dalrymple's coastal home in Port Clyde, Maine. The October 2016 newsletter has other papers that resulted from talks at the July Gathering.

Consideration is being given to a possible next Antarctic Gathering in the summer of 2018. Separately, thought is being given to a possible assembly that will be limited to 1957-1958 Antarctic IGY alumni. Please give Paul Dalrymple or me your ideas. Our emails are to the left.

This season is my fourth lecturing aboard an Antarctic cruise ship – the Holland America Line's *Zaandam*. The three 3-week voyages this time are a bit different from past seasons. All three cruises have sold out; the so-called Christmas cruises, which take place over the holidays, were well below capacity in prior years. Passengers this time are, if possible, even more enthusiastic than before. Lectures by my colleagues Dave Bresnahan, Scott Drieschman, and me have pushed the ship's theater almost beyond capacity. Q and A sessions following lectures have been spirited and thoughtful.

One of my lectures, which I call Antarctic Ice 101, has the inevitable connection with global issues. Try as I might to focus entirely in my talk on what is happening in *Antarctica* ("just the facts, ma'am"), a few passengers over the years have jumped on the, for some, emotionally charged connection with global warming, asserting that scientists are politically motivated and Earth is cooling, or not changing, or – whatever. What's new is that I scarcely have to open my mouth in rebuttal: other passengers spring to the defense of the scientific findings I've just presented!

Guy Guthridge

An Antarctic discovery

by Bill Meserve

Although I'm now a lawyer and have been for many years, during the Antarctic summer of 1959-60 I was a member of a geology expedition in the McMurdo Sound area headed by Robert L. Nichols, the Chair of the geology department at Tufts University.

Bob Nichols first went to the Antarctic in 1948 as the chief scientific officer for the Ronne Antarctic Research Expedition, and he and Bob Dodson still hold the record, I believe, for the longest dog sled trip (in terms of duration, not distance) in Antarctica. He returned for the IGY in 1958-59 and subsequently went back at least twice. He also led field expeditions to Inglefield Land in the northern part of Greenland, on one of which I later accompanied him. Bob believed in taking undergraduate students as his field assistants, and by doing so he instilled incredible enthusiasm for field geology and the Antarctic in many of them. Indeed, his greatest contribution to studies of polar geology might not have been his own work, but that of his former Tufts students like George Denton and Hal Borns, who subsequently returned to the Antarctic many times on their own and established the outstanding Antarctic studies program at the University of Maine, and Parker Calkin at Ohio State.

Where do I fit in? I had taken freshman geology at Tufts and had done very well in the course, but I had no intention of becoming a geology major. I had, however, worked for a summer backpacking heavy loads as a hutman for the Appalachian Mountain Club in New Hampshire, and I had also spent a summer in Greenland working for the U.S. Weather Bureau. Bob knew that I could carry heavy loads in bad weather, and since he planned to manhaul sleds and then camp and backpack in the Wright Valley (a dry valley

in southern Victoria Land), he was looking for someone to help with the logistics. Essentially, I was recruited as a talking dog, though in the end I think I contributed as much to the geology as any of his field assistants.

Why did Bob (or "Dr. Nichols" as we called him then) decide to manhaul and backpack? There were two reasons. The most important was that we could control our own destiny. By manhauling we could maximize our days in the field and manage the duration of our stops without being dependent on favorable weather conditions and the availability of helicopters from McMurdo. The second, and less obvious, was that Bob Nichols was an incredible romantic when it came to Antarctic history. His heroes, Scott and Shackleton, had manhauling, so he wanted to do so too. In fact, we were the first expedition to extensively manhaul sleds in the Antarctic since Shackleton had done so in 1916. Several others have, of course, subsequently followed our example.

The plan

Our plan was to manhaul from Marble Point to Granite Harbor and back studying raised beaches (evidence of the magnitude of previous glacial activity) and other geomorphological features. When the ice started to break up, we would be airlifted to the Wright Valley to camp and backpack and study evidence of multiple glaciations there. Our core party was four people: Bob Nichols, Bob Goodspeed, Roger Hart, and me (the latter three all undergraduates at Tufts). For the manhauling segment we were joined by Bob Rutford, then a graduate student in Minnesota, who was also on his first trip to the Antarctic and was interested in learning about the utility of manhauling. We had three sleds: two banana sleds and a Nansen. Bob Nichols and I (mostly me) pulled the Nansen, Bob Rutford and Bob Goodspeed pulled a banana sled, and Roger

Hart pulled a smaller and lighter banana sled and served as the “pioneer,” scouting out the best routes over the ice for the rest of us. Bob Goodspeed and Roger shared a tent, Bob Rutford and I shared another, and Bob Nichols had his own. It was a phenomenal experience in perhaps the most beautiful place I have ever been.

While manhauling, we had experiences of particular interest to those familiar with Antarctic history. The first occurred shortly after we had left Marble Point. We had been sledging for only a few hours when someone noticed a small black object on the ice in the distance. We sledged over and found a piece of a leather strap, about two feet long. From its age and dimensions, it was clear that it had fallen off a sled, presumably a sled used by one of the Scott parties that had traveled along that coastline in 1911-12. It was a needle-in-a-haystack moment.

A few days later we arrived at Cape Roberts at the head of Granite Harbor. A large cairn is there, and we were fascinated to pull out a metal container bearing names from Scott’s Western Parties, his Northern Party, and the Edmund Hillary/Bunny Fuchs Transantarctic Expedition of 1957-58. All of them had passed by there, and we were in their footsteps!

The discovery

Most significant, however, was the discovery of a hut built by Scott’s Second Western Party at Cape Geology in Granite Harbor in 1911. Bob Nichols was probably one of the few who knew it was there, and we located it.

Scott’s Second Western Party had consisted of four men: Griffith Taylor, Frank Debenham, Robert Forde, and Tryggve Gran (Scott’s Norwegian ski expert). While doing field work in Granite Harbor, they established a base at Cape Geology where they built a small hut to serve mainly as a cook shack for their

blubber stove and, perhaps, as a place to sit together and stay warm out of the wind. They expected *Terra Nova* to pick them up at the end of the summer, but the ice was slow to break up that year so the ship could not get anywhere near land. By mid-January, they realized the ship would never make it into Granite Harbor, so they hurriedly left their camp and retreated to Cape Roberts. After waiting there for a few days with no change in the situation, they continued on down the coast traveling mostly over piedmont glaciers rather than sea ice. Eventually they succeeded in reaching a point where they could get to the ship nearly two months later than originally anticipated after subsisting on seal meat for part of the time. It was a close call, but they avoided spending a terrible winter in the field. Scott’s Northern Party, on the other hand, was not so fortunate. They never did reach the *Terra Nova* that year, but miraculously survived the winter after a harrowing ordeal.

The hut we located at Cape Geology was 9 feet long by 6 feet wide and only 5’2” tall. Two or three opportunely located large boulders formed a good portion of the perimeter. The rest (except for the doorway) was a manmade stone wall. Sealskins had been stretched across the top as a roof, and pieces of sealskin had been stuffed in any chinks in the windowless walls. Inside the enclosure was what appeared to be a small scraper (presumably to scrape sealskins) fashioned from a tin can and a small sack of brown or yellow material that may well have been some kind of spice. We didn’t sample.

Outside were three metal biscuit tins and a Nansen sled 12’4” long, 21” wide and 7¼” high with wide ski runners. On the sled were two books: one of Edgar Allan Poe short stories and the other *The Secret of the Island* by Jules Verne (known to us as *The Mysterious Island*). We also saw toilet paper, a tobacco box, an empty tin of salt tablets, a canvas cloth, and five boots (strange to find an odd number!) with leather cleats on the soles. One gasoline tin

was on the sled, and two more were on the ground. An ice axe was nearby. A bamboo pole was on the sled, and another was nearby. The load had been lashed to the sled with ten leather straps.

After taking the inventory and a few photos, we left everything exactly as we found it with one exception. We took the Jules Verne book with us. Why? Frank Debenham was then still alive and was the Director of the Scott Polar Research Institute at Cambridge University. Bob Nichols wanted to visit him personally and return “something he had left behind” nearly fifty years before. He did so on our trip home. To my great regret, none of his field assistants were invited to join him.

When our field season was over, our discovery of the forgotten hut received attention in news stories all over the world. For a few months thereafter, the hut became a “tourist stop” for visitors to McMurdo. Unfortunately, I’m told that virtually every item we left behind was subsequently looted. If not destroyed by now, they are probably randomly located in various man caves all over the United States. It’s a sad postscript to an unforgettable experience.

The New Zealand Antarctic Heritage Trust (<https://www.nzah.org>) maintains historic huts in the Ross Sea area of Antarctica and has accepted donated return of artefacts for archival preservation. – Ed.

Erebus and Terror found in the Arctic

HMS *Erebus* and HMS *Terror*, the two ships that James Clark Ross used in his famous 1840s exploration of the Antarctic, have been found in Arctic waters following a multiyear search by Canadian government agencies and the Arctic Research Foundation, a nonprofit backed by BlackBerry founder and Ontario native Jim Balsillie.

Sidescan sonar picked up images of *Erebus* in Baffin Bay in 2014. Divers found a nearly intact ship. Photography shows details including the ship’s bell, cast in 1845



Side-scan sonar image of fabled British explorer ship HMS Erebus on the sea floor in northern Canada



The detached bell of HMS Erebus as found on the deck

to honor the expedition, amazingly well preserved. Two years later, in September 2016, a return search found *Terror*, 80 miles north of the first find. *Terror* is tightly sealed and probably contains documents and other artifacts in pristine condition, according to a feature article by Gayathri Vaidyanathan in the 27 November 2016 *Washington Post*. Underwater archaeologists continue to examine the ships.

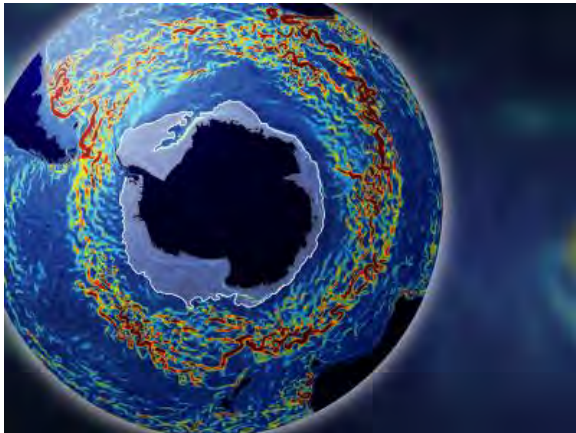
The British admiralty had sent John Franklin and the ships into the Arctic in 1845 to find a northern sea path linking the Atlantic and the Pacific oceans. The crews got within 850 miles of the North Pole before succumbing to the elements. Search parties in following seasons never found the ships or survivors, and for decades any remains were considered lost to history.

The well-publicized contemporary retreat of summer sea ice in the Arctic Ocean emboldened the modern-day search organizers. Those searches started in 2008, motivated partly by Canada's intent to demonstrate its strong link to the North.

The Guardian (12 September 2016) has a story and pictures. <https://www.theguardian.com/world/2016/sep/12/hms-terror-wreck-found-arctic-nearly-170-years-northwest-passage-attempt>

Ocean current stronger than thought

The Antarctic Circumpolar Current, long undisputed as the planet's largest ocean current, is 30 percent more powerful than previously measured, according to 4 years of measurements by gages placed across Drake Passage.



An ocean circulation model shows the Antarctic Circumpolar Current swirling around Antarctica, with slow-moving water in blue, and warmer colors indicating faster speeds (red represents speeds above 1 mile per hour). Courtesy San Diego Supercomputer Center.

The classic estimate for the current's transport is 134 sverdrups, or million cubic meter per second. The new estimate is 173.3 sverdrups. The older "canonical" value often has been the one used as the benchmark for global circulation and climate models.

Stronger winds in the Southern

Ocean over the last few decades are unlikely to have caused the increase; satellite observations over the period have shown fairly steady transport. It's likely that improved measurement tools, not increased wind, are responsible for the new value.

The U.S. Antarctic Program research icebreaker *Nathaniel B. Palmer* deployed the Drake Passage instrument array. Emily Underwood has a short report in the 27 December 2016 *EOS*. The full paper, in the 21 November *Geophysical Research Letters*, is by K.A. Donohue (University of Rhode Island) and others.

Ocean melting of an ice shelf – far back from the edge

Ocean melting of the bases of ice shelves has been documented at least since 2013, when a paper in *Science* by Eric Rignot and others showed that warmer currents have shifted toward the Antarctic continent and become responsible for as much as $\frac{3}{4}$ of total mass loss on some ice shelves.

Now, in the 28 November 2016 *Geophysical Research Letters*, Seongsu Jeong (Ohio State) and others report recent rifts starting from basal crevasses in the center of the Pine Island Glacier ice shelf, causing calving farther upglacier than previously observed. Ice velocity patterns suggest that this internal rifting resulted from melting within basal crevasses, perhaps linked to ocean forcing.

Lauren Lipuma writes in the 4 January *EOS* that another clue that the center of the ice shelf is weak is that the rift opened in the bottom of a "valley" in the ice shelf where the ice had thinned, showing what researchers suspected: Ocean water can intrude far inland and remain unseen because the bottom of the West Antarctic Ice Sheet lies below sea level. Images the researchers analyzed were taken when the Sun was low in the sky, casting long shadows that highlighted the valley.

The rifting provides yet another mechanism for rapid glacial retreat. Similar valleys are even farther upglacier, suggesting the potential for accelerated ice loss.

And now, Larsen C is set to break up



And now, Larsen C . . .

By the time you read this, a chunk of the Larsen C Ice Shelf the size of Delaware may have calved. A curving crevasse first noticed in 2010 has grown upglacier and then seaward again, moving roughly south to north and reaching a hundred miles in length in early 2017. It has nearly severed the potential tabular iceberg from the parent glacier.

Larsen C is on the east side of the Antarctic Peninsula. Larsen B, to its north, famously collapsed over several weeks in 2002, demonstrating the potential for similar rapid collapse farther to the south.

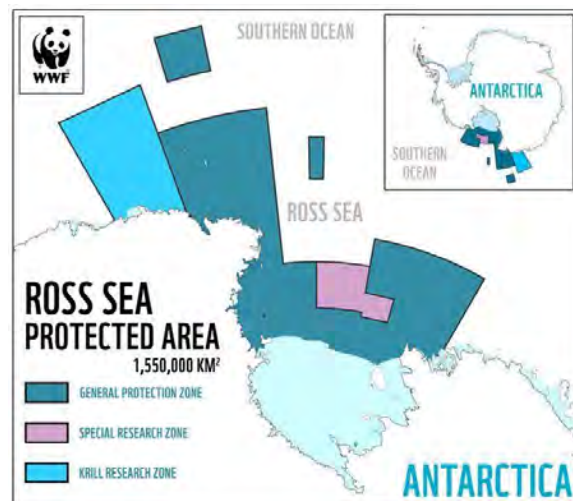


The expected calving would remove between 9 and 12 percent of Larsen C's surface area and could lead to total loss of what is by the far the largest ice shelf on the Peninsula's east coast.

Project MIDAS, UK-based, is keeping track. <http://www.projectmidas.org>

World's largest marine reserve established in the Ross Sea

Large areas of the Ross Sea, 600 square miles in area, have been designated a marine protected area, or MPA. CCAMLR, the Commission on the Conservation of Antarctic Marine Living Resources, established the preserve after 2 weeks of meetings in October 2016. But the negotiations really stretch back 5 years, because some member countries were concerned how the MPA might affect their fishing industry.



The Ross Sea protected area is the world's largest Marine Protected Area. It bans fishing, but allows research fishing in 28% of the total area of 600,000 square miles or 1.5 million sq km. The rules enter into force 1 December 2017 and will extend at least 35 years.

Fishing is barred in the reserve, with exceptions for research. The concept is to safeguard the area against pollution and overfishing, which will protect species

ranging from krill to whales.

All 25 members of CCAMLR had to agree. Membership comprises 24 nations and the European Union. The agreement comes up for renewal after 35 years.

The Ross Sea has a diverse ecosystem, considered one of the planet’s most pristine

. It also has been an area of fishing – especially for Patagonian toothfish (a.k.a. Chilean sea bass), a valuable species that straddles the northern border of the CCAMLR area.

Designating the area as a preserve will enable researchers to focus on such factors as the response of the area to climate change, providing insights for application in others marine areas.

Secretary of State John F. Kerry was closely involved in negotiations particularly with Russia, which had been reluctant to sign on.



Secretary of State John Kerry near McMurdo Station. He also visited South Pole Station and New Zealand’s Scott Base.

He said the agreement represents “further proof that the world is finally beginning to understand the urgency of the threats facing our planet.” The new agreement “happened thanks to many years of persistent scientific and policy review, intense negotiations, and principled diplomacy. It happened because our nations understood the responsibility we share to

protect this unique place for future generations.”

In a separate event, the Secretary of State visited McMurdo and South Pole stations in November 2016. He is the highest ranking U.S. official ever to have visited Antarctica and U.S. Antarctic Program facilities there.

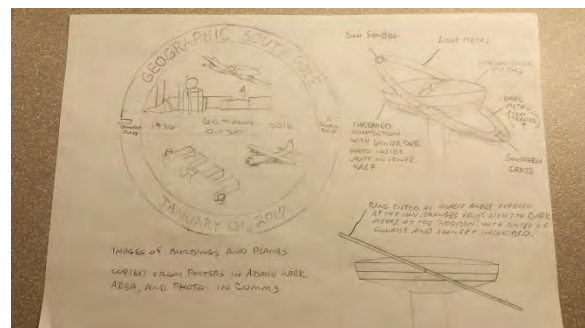
Amundsen-Scott South Pole at 60

The U.S. station at the geographic South Pole turns 60 years old in 2017.

Continuous human occupation of the site since shortly after Gus Shinn landed an R4D on 31 October 1956 has had one major station build and two rebuilds: the original facilities established in 1956-57, the geodesic dome station dedicated in 1975, and the current above-grade station dedicated in 2008.



The 2017 custom-made marker at 90°S



Sketch of marker by designer

Used always as a research site, the station’s facilities have evolved from natural

sciences observing Antarctic characteristics to include major facilities for astrophysics, seismic observations, and other studies.

Society member Jerry Marty has provided a photograph (see the online edition of the newsletter) of the commemorative marker placed 1 January 2017 at the exact location of 90°S latitude.

Attention Palmer Station alumni(ae)



Polly Penhale at Palmer Station, January 2017. Ice-strengthened research ship Laurence M. Gould is at the pier.

From Palmer Station: Polly Penhale, NSF Polar Programs' Environmental Officer, sends greetings from the sunny South. Summer is in full force, with science focusing on the marine ecosystem, penguins, humpback whales, terrestrial insects, and atmospheric chemistry.

This year marks the 27th anniversary of the Palmer Long Term Ecological Research (LTER) program, which examines variability in sea ice dynamics, primary production, zooplankton ecology, predator distributions, and microbial and biogeochemical processes in the Antarctic marine ecosystem. The LTER also is identifying the mechanisms of ecosystem response to rapid climate change. LTER scientists work from station, as well as on the research vessel *Laurence M. Gould* during a January cruise which conducts

studies from Palmer Station south to the U.K. Rothera Station.

Request for 1968 photo. The stairwell in the GWR Building displays photographs of wintering personnel from 1965 through 2015. However, a photo of the 1968 winterers is *missing*. If you have a photo of personnel from that year, please contact Polly, ppenhale@nsf.gov or 703-292-7420. Arrangements will be made to copy the photo so it can be framed and displayed at Palmer.

We have a new website!

by Tom Henderson, Webmaster



The Antarctic Society launched its new website during Thanksgiving week of 2016. We hope you like it!

There are reasons for this move. The original website was developed nine years ago by an amateur (me!) using custom coding written in a proprietary coding language called Cold Fusion. Cold Fusion was what I was familiar with from my work life. The site coding was not up to professional standards and was difficult to maintain. When Cold Fusion was upgraded, I had to comb through the site, identify problems, and correct them. Cold Fusion is proprietary, so we have been paying an extra charge to support the language. Now we no longer have to worry about upgrades or coding changes; our host takes care of that.

Our hosting cost before the migration to the new website was \$31.95 per month. The monthly cost on our new host,

Squarespace, is \$18. We pay \$5 per month for a secure login application (Sentry Login) and \$5 per month for an email host (Google GSuite), so the overall cost has been reduced slightly.

We were about to exhaust the available space on our old site (3 GB, which included email and the website) and would pay a minimum of \$8 per month more for additional space. Now we have 30 GB of space for email alone and unlimited space for the website itself! We also no longer pay \$100 per year to a separate host for our video and audio files.

Security was becoming a concern on the old site in that we were getting an increasing number of phishing spam messages. Since we switched to the new site, we have had no such spam. Finally, having the website on Squarespace means that if another webmaster were to take over the site, the learning curve would be less because there is little custom coding in the new site, and that is in simple HTML. I have a detailed manual for maintaining the website.

Same great content

The content on the new website is the same as on the old one. The contractor, Troy Web Consultants, recreated all of the web pages and moved all of the content, including the data for Society members and the archive of over 3,500 emails. The total cost was \$5,500, several hundred dollars less than the original estimate.

The new website is not database-driven. As a result, members will no longer be able to update their personal information directly. You will have to notify the webmaster of the required changes, who will make the update manually.

The Sentry Login security system requires that all usernames be in email format. Members who have an email address of record with the Society must now use that email address to login. Members without an

email address of record have been assigned a username comprised of the member's last name followed by "@antarctican.org." Passwords remain the same as those on record for the old website. As before, you can change your password and the prefix of your username any time by contacting the webmaster. If you are unsure about what to use, please contact me so we can clarify your login credentials and make any needed changes. If you see a message saying "Your account is not active" it means that our records show that your membership has expired and a payment of dues needs to be made. Here is my contact information:

Tom Henderson
520 Normanskill Place
Slingerlands, New York 12159
518-888-0387
webmaster@antarctican.org

These changes will take adjustment but were necessary. I hope you find the new website at least as easy to use as the old one.

As always, I welcome comments on the website.

Climate scientist Gordon Hamilton dies near McMurdo

University of Maine glaciologist Gordon Hamilton, 50, died 22 October 2016 when his snowmobile fell into a crevasse near White Island, 20 miles south of McMurdo Station. He and colleagues were making an early-season inspection of a prepared track on which heavy vehicles transport supplies. The area, known as the Shear Zone, is where the Ross Ice Shelf meets the McMurdo Ice Shelf. It is intensely crevassed, and the ice approaches 650 feet in thickness.

In a prepared statement the university's president, Susan J. Hunter, said "Gordon's glaciology research around the world – from Antarctica to Greenland – was second to none. He leaves a legacy as an outstanding scientist and a caring mentor

and well-known teacher to undergraduate and graduate students.”

Dr. Hamilton was born in Scotland, graduated from the University of Aberdeen, and received the doctorate from the University of Cambridge, U.K. After working at the Byrd Polar Research Center, Ohio State, and the Norwegian Polar Institute, he joined the University of Maine’s Climate Change Institute in 2000.



Dr. Gordon Hamilton in Antarctica. Courtesy University of Maine

He studied the behavior of ice sheets and their role in the climate system and modulating sea level, focusing recently on the role of the ocean in ice shelf stability.

Kelly Falkner, who heads NSF’s polar office, wrote that researchers in Antarctica are “at the frontiers of human knowledge, but also at the physical frontiers of human experience” and that Hamilton’s death “is a tragic reminder of the risks we all face – no matter how hard we work at mitigating those risks.”

Justin Gillis, *New York Times*, who had accompanied Gordon on some of his fieldwork, wrote that field scientists are rational people, not thrill-seekers. Even out on the ice they spend a lot of time thinking in equations, and they tend to be safety-minded and careful. “The real thrill for them is figuring out something hard.”

“We’re always playing catch-up,” Gordon told Gillis about his research. “The ice sheet does something we never predicted. And then we see it.”

Erich Bloch, NSF Director 1984-1990

Erich Bloch, who led IBM’s development of the System/360, called the most successful computer system of all time, and later, from 1984 to 1990, was director of the National Science Foundation, died at the age of 91 on 25 November 2016 at his home in Washington, D.C.



Erich Bloch at IBM shows a component of System/360. Courtesy Washington Post.

Mr. Bloch was the first NSF director to come from a business rather than an academic background. He was credited, writes Emily Langer in a 28 November *Washington Post* obituary, with transforming the agency from a benefactor mainly of pure research into an engine of practical advancement.

Some said the approach may have saved NSF from the axe during Federal belt-tightening. Mr. Bloch even persuaded Administration officials to increase its budget.

Your editor, then working in the Foundation's polar office, recalls Mr. Bloch telling us, "Twice as many of you work here as are needed. I'm going to either double the budget or fire half of you." We kept our jobs.

Mr. Bloch was born in Sulzburg, Germany, on 9 January 1925. His father and mother were deported by the Nazis and perished in the concentration camps.

"I have been pretty much on my own my whole life," he told the *New York Times* in 1987. "It wasn't easy getting started. It took a certain amount of drive and aggressiveness. I learned very early I had to do things myself for something to get done."



Erich Bloch (right), then at IBM, discusses computer development with a colleague. Courtesy Washington Post.

That frame of mind got translated into practical advice for Society member David Bresnahan, then NSF Representative, Antarctica, at McMurdo. Mr. Bloch was there on an inspection visit and gathered the handful of NSF employees for a question-and-answer session. Dave told the director that he was obliged to make decisions quickly and irreversibly regarding scientists at the station, decisions that affected their field research and possibly their careers. "How much authority do I have for these decisions?" Dave asked. Mr. Bloch replied, "You have whatever authority it takes. I will back you up."

Shortly after Mr. Bloch began at NSF, our Society's current honorary president, Robert H. Rutherford, who headed NSF's polar office at the time, was making a presentation to the National Science Board, the Foundation's governing body. Your editor was seated near Mr. Bloch, who seemed focused more on paperwork than what Bob was saying. Suddenly he shifted his full attention to Bob. After listening for a minute or two, he whispered in admiration to a subordinate, "Where'd we get this guy?" The polar office seemed to do well during Mr. Bloch's tenure at NSF.

An interviewer asked if, looking back, he would have done anything differently.

"No. I did what I thought at that time was important. Revisiting that now and coming to a different conclusion is not helpful to anyone, especially oneself. You live a life only once. You don't live it twice. You do what you think is right at the time, and you stand on that."

Lou Lanzerotti receives AGU award



Dr. Louis Lanzerotti. Courtesy EOS

The Society's Board of Directors member Louis J. Lanzerotti was awarded the 2016 William Kaula Award at the American

Geophysical Union Fall Meeting Honors Ceremony, held on 14 December 2016 in San Francisco. The award honors an individual for extraordinary dedication to, and exceptional efforts on behalf of, the Union's publications program.

Lou, whose earlier work in the Antarctic focused on processes in the upper atmosphere, established the AGU journal *Space Weather* to promote communication among scientists, engineers, technicians, science administrators, and policy makers to help mitigate space environment hazards to technical systems. The success of this journal set the stage for the National Space Weather Strategy and Action Plan, rolled out by the President's Office of Science and Technology Policy in October 2015.

Lou spent much of his career at Bell Labs, which focused on basic as well as more applied research. He currently is at the New Jersey Institute of Technology in Newark.

Julie Palais retires after 38 polar years



Dr. Julie Palais at South Pole Station

After 38 years of involvement with the United States Antarctic Program (formerly United States Antarctic Research Program), 28 trips to the ice (23 of them as program director for NSF's Antarctic glaciology program), 3 trips to Greenland when she also handled the Arctic glaciology program, and 26½ years at the National

Science Foundation, at the end of 2016 Julie Palais hung up her mukluks.

Julie's own research focus was on volcanic ash in ice cores. She says she's had one of the best careers anyone could have asked for, seeing parts of the world few get to see and having a fantastic group of scientists and students working on research funded by her program. These folks contributed discoveries with great impacts and societal relevance during an explosive period of advances in glaciological methods. She observes that things have changed a lot since she started as a graduate student at The Ohio State University in 1978.

Julie plans to follow her passion with the newly emerging field of animal welfare science, starting with completion of a postgraduate certificate in international animal welfare, ethics, and law.

Seabird rescues continue on cruise ship

by Cory Laughlin

Once again a petrel was fussing about in our stateroom closet, asking to be fed. Here we go again. Off to see the chef to order fresh scallops and shrimp.



White wing bars are one of the identifiers for Magellanic diving petrels. There are three other species of diving petrels – common, Peruvian, and South Georgian.

Last year the Expedition Team, for Holland America Line Antarctic trips aboard *Zaandam*, rescued several pelagic seabirds that landed on the ship. This season was no

different, with 20 birds trapped on board, needing care and release back to the sea. One bird, a Magellanic Diving Petrel, was discovered hiding under a stairwell while cruising in Antarctica, far from its breeding grounds in the Strait of Magellan. So, like our stowaway last season, we were obligated to house and feed our visitor until giving him back to the ocean near the correct latitude for his species.



Diving petrels have tubular nostrils that aid in eliminating salt, allowing them to only drink sea water.

Why do these strandings happen? In the southern oceans pelagic petrels and shearwaters travel to and from their breeding islands at night. Sometimes, disorientated by the bright lights, they land on ships. In other instances the diminutive pelagic birds are blown onto the decks during storms. Their legs are not designed to walk on hard surfaces, which traps them until caring humans lift them over the rails.

I am trained in aviculture (the care of wild birds in captivity), and it is my second nature to rehabilitate sea birds. I realize it is crucial to ensure the stowaway is well fed and dry before release. Stress and rubbing up against ship stairs and walls can disrupt waterproofing and expose the skin, which can lead to hypothermia. Time in a dark, warm space allows the bird to calm down and preen its feathers, and dry out. Of course, our stateroom closet is perfect!

Releases take place in early morning in the appropriate breeding range. If predators are in the area the release is delayed. Giant petrels and skuas are only too happy to swoop in to kill and eat a newly returned petrel.

Preventive measures are taken by many ship crews who are conservation-minded and believe in the “do no harm” rule when travelling in wild places. On *Zaan-dam*, lights are dimmed as much as possible at night to reduce seabird strandings. Signs are posted throughout the ship advising passengers to contact onboard naturalists when they find a bird on the deck.

On 29 December 2016 we picked up 15 common diving petrels from the top deck and released them after a 4-hour respite in boxes so they could preen and dry off.

Our Magellanic diving petrel roommate for five days was successfully returned to the wild, full of fresh seafood. He had at least 200 miles to fly to his home island, but the stamina of these birds is unparalleled, and our hopes were high.

God Speed little one.

Holland America Line Antarctic Expedition Team: Dave Bresnahan, Guy Guthridge, Scott Drieschman, Cory Laughlin

This story updates “Stowaway in Antarctica” in the April 2016 newsletter.

Phoenix snow runway opens

A new runway near McMurdo that’s one of its kind in the world has been approved for use by U.S. Air Force C-17 planes and other heavy aircraft.

The runway was built by carefully and repeatedly compacting the snow surface on the McMurdo Ice Shelf at a location where snow adds about 1½ feet a year: not too much to deal with, but enough to whiten dark particulates (dust) that would absorb the Sun’s heat and compromise the surface.



Phoenix snow runway

It's 3 miles from an older compacted snow runway called Pegasus, which has been in use for 26 years. Over that time movement of the ice shelf has taken Pegasus $\frac{2}{3}$ of a mile from where it started; strong melting there now can ruin the surface.



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WILL ANTARCTIC SCIENCE ADVANCE ANOTHER LEVEL?

When the third polar year – the 1957-1958 International Geophysical Year – replaced start-then-stop expeditions with continuous Antarctic programs, scientific output went up. The fourth one – the 2007-2008 International Polar Year – used far better research tools such as satellite observations, computer visualizations, and modeling. Scientific output went up some more.

The need for boots on the ground remained unquestioned. Even remote sensing requires ground truth, dictating a continuing human presence.

Those boots need places to sleep, eat, and do science. Some new stations are breathtaking: Belgium's Princess Elisabeth, an aerodynamic pod on steel legs built in 2009, is the first with zero emissions. Solar and wind energy run it, great insulation greatly reduces heat loss, and waste heat and human activity keep the interior warm. For more, see "From huts to sci-fi chic."

Of course, for years that human presence has been challenged by automated monitoring devices that transmit weather and geophysics to home institutions by satellite. In fact, unattended stations already outnumber the human-occupied facilities in Antarctica. We'll cover this in a future issue.

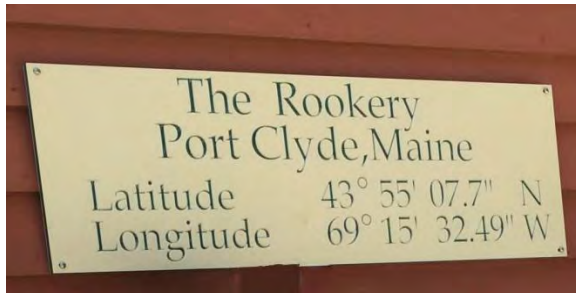
Now, though, comes another challenge to some of the human presence. Two British Antarctic Survey staff have opened a discussion of how nations should be selected for consultative, or decision-making, status in the Antarctic Treaty. While a physical Antarctic presence may historically have been a major factor, shouldn't scientific output – however achieved – be the more useful criterion? See "What makes a nation consultative?" inside.

Three remarkable Antarcticans are commemorated below. The Ice draws accomplished individuals; these men each made unique contributions.

Other news includes a report on the Society's 2016 board meeting and the next Antarctic Gathering in Port Clyde, Maine, 20-22 July 2018. Read on!

Guy Guthridge

20-22 July 2018: mark your calendar for the next Antarctic Gathering!



The Rookery, home of the fabled Garage Theater in Port Clyde, Maine

Treasurer and Guiding Soul Paul Dalrymple has graciously, again, invited the Society to cosponsor with him an Antarctic Gathering at his house in Port Clyde, Maine, to take place Friday through Sunday, 20-22 July 2018.

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

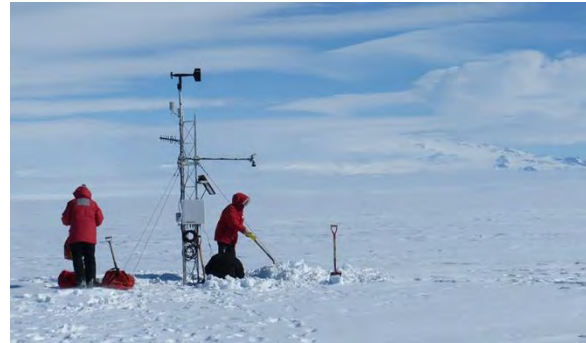
We especially hope, this go-round, also to attract any and all 1957-1958 International Geophysical Year alumni(ae). Your 60th anniversary!

Gee. Coastal Maine, summer, seafood, colleagues new and old, and presentations that will glue you to your seat.

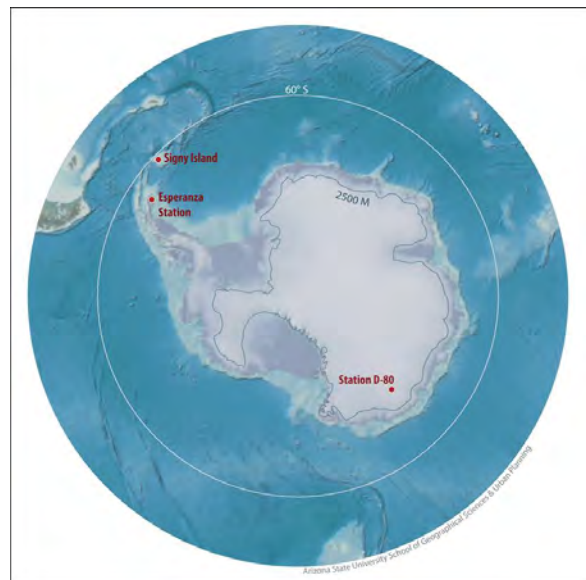
It's not too early to sign up, even if you're only tentative at this point. We encourage you to do that and have started a list. Write Paul Dalrymple or your editor (Guy Guthridge) using an email address shown on the front page of this newsletter.

Surface temperature extremes in the Antarctic

The World Meteorological Organization, reporting an evaluation of surface temperature records, has a new paper in *EOS* (American Geophysical Union) stating



Installation and maintenance of an AWS station in the Antarctic of a type similar to D-80 AWS which recorded the highest temperature seen on the Antarctic Plateau (-7° C on December 28, 1989). Credit: David Mikolajczyk.



The area of the United Nations/WMO Antarctic region (all lands and ice south of 60° S) with the 2500-meter elevation delineated (using the digital terrain model of Liu et. al [2001]). Locations of the three high-temperature extreme stations are shown. Credit: WMO.

Antarctic record *high* temperatures and explaining how they were verified.

Three record highs are given:

- one for south of 60°S: 19.8°C (67.6°F) observed 30 January 1982 at Signy, a British station on Signy Island, elevation not stated but near sea level, latitude 60°43'S
- one for the Antarctic continent: 17.5°C (63.5°F) observed 24 March 2015 at Esperanza, an Argentine station near the tip

of the Antarctic Peninsula, elevation 13 meters, latitude 63°24'S

- one for the Antarctic plateau: -7.0°C (19.4°F) recorded 28 December 1989 at D-80, a U.S.-operated automatic weather station (AWS) in Adélie Land, elevation 2,500 meters, latitude 70°06'S

The paper contains the following caveat: “As with all WMO evaluations of extremes (e.g., temperature, pressure, wind, etc.), the extremes presented here are the highest observed temperatures placed before the WMO for adjudication that passed WMO’s standards for such data. It is possible, indeed likely, that greater extremes can and have occurred in the Antarctic but have gone unreported.”

Here’s where things get interesting for your editor, who is not a meteorologist. The new *EOS* paper starts this way: “On 21 July 1983 the lowest temperature ever observed on Earth was recorded at a Russian research station [Vostok] in central Antarctica: The thermometer at the site read -89.2°C (-128.6°F). But it’s not just the lowest lows that have caught the attention of scientists in the Antarctic. Especially in the face of climate change, researchers have also begun to investigate how warm the planet’s southernmost region can get.”

Pondering that record low

The Vostok temperature was observed on 21 July 1983, and it is credible in two ways. It is not much lower than the August 1960 record of -88.3°C for the same location, and it is published in a 1984 paper, “Novyy absolutnyy minimum temperatury vozdukh [New absolute minimum of air temperature],” *Sovetskaia antarkticheskaia ekspeditsiia Informatsionnyy biulleten*. no.105.

For decades the Vostok world record low has been one of the extremes that people like to state for Antarctica (others being highest, windiest, most remote, and so on).

The figure continues to be used widely in the popular literature, and the new *EOS* paper presents it without elaboration.

But. That 1984 Soviet paper about the Vostok record states, “According to theoretical calculations, air temperature in the area could fall below -90°C , but this would require prolonged absence of heat advection.”

Sure enough: Ted Scambos and others of the U.S. National Snow and Ice Data Center (NSIDC) found temperatures from -92° to -94°C (-134° to -137°F) in a 1,000-kilometer stretch on the highest section of the East Antarctic Ice Sheet. The measurements were made between 2003 and 2013 by the Moderate Resolution Imaging Spectroradiometer (MODIS) sensor on board the Aqua satellite and in 2013 by Landsat 8, a then new satellite launched by NASA and the U.S. Geological Survey.

On 10 August 2010 the MODIS measurement for the region was -93.2°C (-135.8°F). Commenting about it on 10 December 2013, the Scientific Committee on Antarctic Research noted that the 21 July 1983 Vostok measurement “was an air temperature taken a couple of meters above the surface, and the satellite figure is the ‘skin’ temperature of the ice surface itself. But the corresponding air temperature would almost certainly beat the Vostok mark.” Wikipedia’s “Lowest temperature recorded on Earth” article makes that point and says, “it is most likely that the real temperature on the [satellite-observed] site was lower than that recorded at Vostok.”

For historical continuity, the 1983 Vostok temperature remains useful.

But it’s also reasonable for us to state that Antarctica is colder. In whatever way you decide to assess the information, Antarctica is the coldest place on Earth – even though parts of it are getting warmer.

Observations from satellites, after all, are used the world over to fill in areas where surface instruments are not present. The NOAA statement that 2016 was Earth’s

warmest year on record, for example, derives from all observations including satellite ones.

Officially documenting and verifying high-temperature extremes is the business of the World Meteorological Organization Commission for Climatology (CCI). For the highest Antarctic temperatures evaluation, the CCI created an international committee of climatologists and meteorologists associated with Antarctic temperature measurements. Reflecting this, the new *EOS* paper has 15 authors from institutions in seven nations.

Citation. Skansi, M. d. L. M., et al. (2017), Evaluating highest-temperature extremes in the Antarctic, *EOS*, 98, <https://doi.org/10.1029/2017EO068325>. Published on 01 March 2017.

What makes a nation consultative?

by Guy Guthridge

Reference source:

<http://www.tandfonline.com/doi/full/10.3402/polar.v35.34061>

The 12 nations' representatives who signed the Antarctic Treaty in 1959 (and whose governments ratified it in 1961) included a provision for other nations to join. New adhering nations would be in one of two categories: agreeing to abide by the treaty but having no say in decisions at consultative meetings ("acceding," as prescribed in Article XIII), or achieving "consultative" or voting status equal to the original 12 by meeting a threshold requirement.

The treaty's Article IX sets the threshold:

"Each Contracting Party which has become a party to the present Treaty by accession under Article XIII shall be entitled to appoint representatives to participate in the meetings referred to in paragraph 1 of the present Article, during such time as that

Contracting Party demonstrates its interest in Antarctica by conducting substantial scientific research activity there, such as the establishment of a scientific station or the despatch of a scientific expedition."

Other nations indeed have signed on to the treaty. Joining the dozen original signatories over the years, 24 nations have become acceding parties; 17 others have achieved consultative status. These 53 Antarctic Treaty nations represent two-thirds of the world's population.

The treaty's position as the international management mechanism for Antarctica is secure, especially so after weathering a challenge in the 1980s that the United Nations should take over. (The primary antagonist at the time, Malaysia, acceded to the treaty in 2011.)

Achieving consultative status is therefore significant. It is the one avenue enabling a nation to be a party to decisions regarding future uses of the Antarctic.

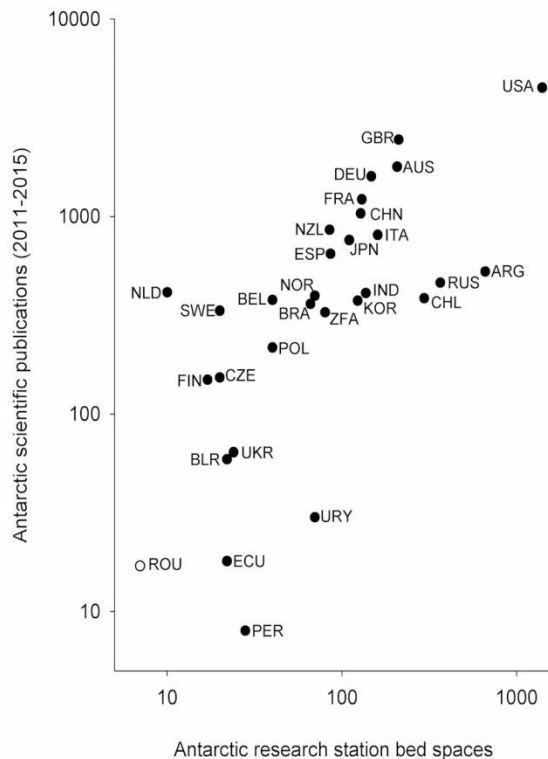
Despite the emphasis of Article IX on "substantial scientific research" as the desired admitting criterion for consultative status, the article's dependent phrase "such as the establishment of a scientific station" sometimes has been construed as the admitting criterion, and at present all 29 consultative nations happen to operate Antarctic stations (a few on a shared basis). It was not ever thus: when the Netherlands achieved consultative status in 1990 it had no permanent Antarctic infrastructure of its own and no declared intention to establish any.

Improving the selection criteria

Then, at the 2016 Antarctic Treaty consultative meeting, an application for consultative status was not successful. Several member nations suggested that more specific selection criteria be developed, and an intersessional group was set to work.

Enter two British Antarctic Survey employees: Andrew D. Gray, Librarian, and

Kevin A. Hughes, Environmental Research and Monitoring Manager. In a December 2016 paper in *Polar Research*, they examine the relationship between existing Antarctic infrastructure extent and scientific research output, figuring the metrics they've developed would help a nontreaty nation assess its chances and help the existing consultative parties decide whether or not to accept a new request for consultative status.



“Our study found that national investment in Antarctic infrastructure, estimated by the number of bed spaces at stations, was not a reliable indicator of scientific output.” Stated another way, their metrics introduce the awkward possibility that an existing consultative nation may not be delivering sufficient research activity to merit its ongoing consultative status.

Gray and Hughes evaluated research activity directly by identifying both numbers of Antarctic research papers published and the proportion of national scientific output these papers represented.

Here’s another surprise. “Our data,” they write, “show that, even without land-

based Antarctic infrastructure, Canada, Denmark, and Switzerland may have reasonable grounds to demonstrate substantial research activity on a level comparable with existing Consultative Parties.”

Emphasizing research outputs rather than construction of Antarctic infrastructure would be beneficial, the authors argue. Stations tend to occupy scarce coastal ice-free areas, which harbor penguin rookeries and seal haul-out sites, and can affect their local environments. Especially along the northern Antarctic Peninsula, with lots of stations, humans and indigenous fauna and flora compete for ice-free ground.

Assessing the scientific element on the basis of measured outputs as explained in their paper, the authors argue, would prioritize research and would move decisions away from logistics or beds or stations as a research proxy. “This development,” they write, “would protect further the scientific values of the continent.”

Gosh: imagine the efficiency of replacing the 13 stations operated by 7 nations on Maxwell Bay, King George Island, all within 10 miles of each other, with one or two shared research facilities better than anything there now.

National pride and culture

But a counter motivator is in play. When Richard E. Byrd established quarters on the Ross Ice Shelf in 1928, he named it Little America. The name stuck; four facilities and three decades later at that location the name was still in use. Peru’s Antarctic station is Machu Picchu. A Chinese one is named Great Wall. Nations export their culture and their identity to Antarctica. Brazil is building a \$100-million replacement station on Admiralty Bay for one that burned in 2012; its name is Commandante Ferraz, commemorating a Brazilian oceanographer. “Antarctic stations have become the equivalent of

embassies on the ice,” says Professor Anne-Marie Brady, editor-in-chief of the *Polar Journal*. “They are showcases for a nation’s interests in Antarctica.”

Gray and Hughes have a counter-argument: Technological changes in recent years have made development of new station infrastructure less critical for Antarctic science, which is undertaken increasingly during short visits or using offshore cruises, through data reanalysis, or using remote sensing aboard satellites, aircraft, or unmanned platforms, which require infrastructure only for ground truth verification.

The Antarctic Treaty has sustained its validity through reasonableness, management effectiveness, and inclusiveness. The paper by Gray and Hughes identifies a refreshing new way to further all three attributes.

Citation: “Demonstration of ‘substantial research activity’ to acquire consultative status under the Antarctic Treaty,” by Andrew D. Gray & Kevin A. Hughes, British Antarctic Survey, Natural Environment Research Council, High Cross, Madingley Road, Cambridge CB30ET, UK, *Polar Research* 2016, 35. Correspondence to: Kevin A. Hughes, kehu@bas.ac.uk.

People and books

by Paul Dalrymple

The big question we all seem to have is what we should do with our Antarctic library? We recently heard from Art Ford, and he is in a quandary as to what to do with his. I am in the same boat as Art, as I have quite a collection of Antarctic books. This past year we thought we might come up with a solution, but it fell through.

Paul-Emile Victor, the famed French polar scientist, sold his at an auction, but most of us do not have enough holdings to hold an auction. The biggest private polar library that I knew of belonged to Mary Goodwin in Los Angeles. It was fantastic,

as she hocked her crystal and china to buy the rarest and best books available. Her husband was a professor at UCLA, and now her polar library rests in the UCLA library.

The best polar library within our membership that I know of belongs to our past president, Chip Lagerbom. It seems to me that those of us who want to dispose of their holdings could do a lot worse than pass them along to Chip. There is an outside possibility that the University of Maine might establish an Antarctic library. Contacts there would be either Paul Mayewski or Hal Borns. Another candidate could be the Nevada Museum of Art, which has an Antarctic emphasis (William L. Fox, Director, Center for Art + Environment, wlf@earthlink.net).

When I came off the ice after two years back in 1957, I went to Wellington where I visited with Les Quartermain. This led me to getting several first editions of Scott, Shackleton, and Mawson for less than a song and a dance (\$US 28). The prize was an autographed gift copy of Scott’s diary which Scott’s widow once had passed on to Lord Corzon (then president of the Royal Geographical Society). Clearing customs in Hawaii, they tried to take them away from me, but I fought like hell, and they finally decided to let me keep them! Thank God.

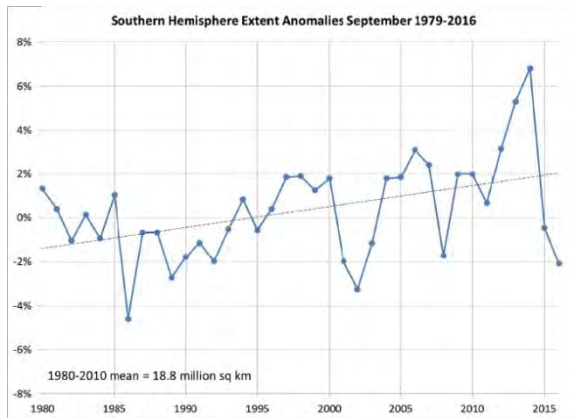
Another vital part of my collection consists of cachets from all Antarctic stations during the IGY signed by station leaders. I am not personally responsible (a family friend, Mrs. Maxwell Elliott, did the leg work), but what a great collection!

Sea ice breaks a record, and a trend

Antarctic sea ice during the 2016-2017 summer season dropped to a minimum surface area not observed since the 1978-1979 season, when the satellite record began. On 1 March 2017 the sea ice occupied 801,200 square miles (2.075 million square kilometers), according to the National Snow and Ice Data Center: not

even $\frac{2}{3}$ of the February mean (1981-2010) of 3.1 million square kilometers.

The big drop broke the upward trend in Antarctic summer sea ice minimum area observed since 1978. February, January, December, and November areas also have been in an upward trend over the period. But, in the 2016-2017 season, all these months broke that trend to the downside.



September Southern Hemisphere sea ice extent anomalies for 1979-2016.

Source: http://nsidc.org/data/seaice_index.

Antarctic maximum sea ice extent in winter also has been in an upward trend – at least since 1979 – of 0.9 percent per decade. The record maximum area came on 20 September 2014 with 20.201 million square kilometers. But 2015 was nearly as big.

Sea ice loss at the other end of the world, of course, gets the headlines. Arctic sea ice loss over the period since 1979 is three times the magnitude of the area of sea ice that Antarctica has been gaining.

Just months before this season's surprising summer minima, a January 2016 workshop in Boulder, Colorado, looked at what's driving recent Antarctic sea ice variability. Here's a report, recently out: *Antarctic Sea Ice Variability in the Southern Ocean-Climate System*, National Academies Press (2017) <https://doi.org/10.17226/24696>.

On 4 May 2017 from 2 to 3 pm EDT a webinar briefing will describe the report and how the science has advanced since the workshop.

From wood huts to sci-fi chic

Source: January 13, 2017 BBC online magazine.

<http://www.bbc.com/news/magazine-38574003>

Note: Be sure to follow the link above to see gorgeous pictures of the new stations!

Sprawling old McMurdo Station barely makes the cut in this BBC review of the amazing structures erected in Antarctica by some of our colleague Antarctic Treaty nations, or consortia of several of them.

What's happening, says Professor Anne-Marie Brady (University of Canterbury, New Zealand), executive editor of the *Polar Journal*, is, "Antarctic stations have become the equivalent of embassies on the Ice."

Well, that and more. "All the newest bases look good as well as do the science," she says. Princess Elisabeth station, built in 2009 by Belgium, has zero emissions. It runs on solar and wind energy and doesn't have a furnace. Dense insulation reduces heat loss to almost zero, keeping waste heat from electrical systems and human activity inside. The seasonal station is 1,500 meters above the sea at 71°57'S in Queen Maud Land.

If you're reading the newsletter in its print edition, with no pictures, this article alone might make it worth your while to hike over to the library and look at the online edition on the Antarctic Society website. The new buildings are impressive, as shown by the photos the BBC assembled.

Newest is Brazil's Comandante Ferraz, because it isn't even built yet. The old station burned in 2012. In January 2017, when your editor passed by on a ship, a Chinese cargo ship was anchored offshore, and cranes were putting up a \$100-million station that is expected to be ready for occupancy in 2018. A Brazilian architectural firm created the design, but a

Chinese company won the building contract. The futuristic design – a dark, sleek building, low and long – will be the waterfront home for up to 65 people at a time. An upper block will contain personal rooms, dining, and living space; the lower block will have laboratories and operational areas. The station is on Admiralty Bay on King George Island.

India's coastal year-round Bharati station, at 69°25'S 76°12'E, can support 47 people in the one main station and another 25 in summer camps. Dedicated in 2012, it has an "aesthetically designed living, dining, lounge, and laboratory space." A dedicated satellite channel is said to provide direct communication with India. It was built from 134 prefabricated shipping containers, for ease of transport and construction, but you'd never believe that, looking at the picture.

South Korea has a new (2014) 60-person station, Jang Bogo, on Terra Nova Bay off the Ross Sea. It's a triple-winged module on steel-reinforced blocks that has featured zero waste discharge during both construction and operation. Wind, solar, and diesel cogeneration provide power and heat.

Back to McMurdo, the U.S. "legacy" station, working nonstop, summer and winter, since 1955. It's by far Antarctica's largest and, one might reasonably argue, most capable station, housing 1,100 or so in summer and, for the 2017 winter, 210. With the world's farthest south seaport as well as airstrips and a helipad, it can put large science teams, complete with helicopters and semipermanent buildings with showers and toilets, almost anywhere in Antarctica. Review after high-level review, it's been found indispensable to the science that the U.S. Antarctic Program supports.

Poor workaday McMurdo, the butt of disparaging comments: mining town gone wrong; Desolation Junction; loading dock of Antarctica. "We bring all our waste back from our field camps and pile it up to wait for the backload ship at McMurdo," a

geologist told your editor some years back, "so Greenpeace can take pictures of how the Americans are polluting Antarctica." Those contentious days are over, but the station remains aesthetically challenged. It superbly does the job of supporting science and then some, however, and is beloved by many who toil there year after year.

McMurdo likely won't ever be "dark, sleek, low, and long," but implementing the published master plan will keep the place efficient, reliable, and safe and "a viable platform for supporting Antarctic science for the next 35 to 50 years."

Still, it's fun to envy those gorgeous new, self-contained stations that increasingly are to be found around the Antarctic. Thanks to the BBC for rounding up the pictures.

Most distinguished Antarctic, Chester Pierce

by Paul Dalrymple

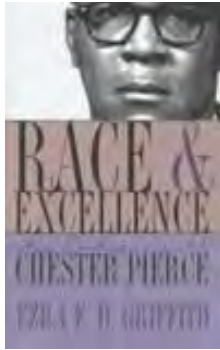
There have been many, many distinguished Antarcticans. Coming to my immediate mind are the likes of Ambassador Paul Daniels, Bert Crary, Jim Zumberge, and Mary Alice McWhinnie. But one person seems to stand head and shoulders above all, Dr. Chester Middlebrook Pierce, who passed away on 23 September 2016 and whose obituary appears in the October newsletter.

His achievements at Byrd Station and at the South Pole in the 1960s may seem insignificant to many of you, but his post-Antarctic career is unequalled.

Chet was a full professor at three Harvard University facilities: medicine, education, and public health. He published over 180 books, articles, and reviews. Dr. Ezra H. Griffith summarizes Chet's career in his 1998 book *Race and Excellence: My Dialogue with Chester Pierce*.

Chet was a professor of education and psychiatry, being the first African-

American full professor at Mass General Hospital. He was a fellow of the American Academy of Arts and Sciences. He was president of the American Board of Psychiatry and Neurology and was also president of the American Orthopsychiatric Society. The Global Psychiatry Division at Harvard has been renamed the Pierce Global Psychiatry Division.



University of Iowa Press 1998. "In a racist world, African Americans always walk a tightrope. The narrowest of these strands carries the true gentleman across the pitfalls of self-indulgent black rage and self-immolating Uncle Tomness. Chester Pierce has made that difficult traverse all his life without a misstep, but his 'natural regality' would never have permitted him to tell us how he kept his balance. Fortunately, in this dialogue with his spirited young colleague Ezra Griffith, we discover how he managed this passage. There is wisdom here for people of all races about how to live both with passion and with amazing grace."—Alan A. Stone, past president, American Psychiatric Association

Chet was an athlete, playing both football and lacrosse at Harvard. He was an All-American at Harvard as a freshman and is legendary for being the first black to play collegiate football at an all-white southern college, playing at the University of Virginia on 11 October 1947. Virginia tried hard to dissuade Harvard from using Chet, but Harvard would not give in. In a turnaround, the University of Virginia invited Chet back in 2007 to speak at its annual symposium on race and society!

In the 1970s, Chet was a member of the National Academy's Polar Research Board and headed its biomedical panel. In those years our Society held almost monthly meetings in the Washington, D.C., area with featured speakers. I asked my good friend

Bert Cray who we should get as a speaker. Without hesitation Bert replied, "Get Chester!"

So our local chapter had the honor and pleasure of having Chet speak the evening of 22 March 1979 on "A Physician's View of Antarctica." The newsletter announcement of the meeting referred to Dr. Pierce's staggering credentials, including authorship of three books and over a hundred scientific articles. "He knows more about what men are really thinking and dreaming at night," I wrote, "than their wives."

We tried for the past decade to get Chet to one of our Antarctic summer gatherings in Maine, but he has been incapacitated by cancer for many years and could not make it. Both Gracie Machemer and I were in touch with him nearly monthly via Ma Bell. Although Gracie never met Chet face-to-face, her telephone connections with him have been priceless. Chet was a jewel, and we miss him terribly.

John Perry, 1937-2016, built South Pole dome

John Ellery Perry Jr., 79, of Fairfax, Virginia, died of natural causes at home on 1 September 2016. He spent three tours of duty in the U.S. Antarctic Program.

Commissioned in the U.S. Navy Civil Engineer Corps in November 1963, he was officer in charge of construction at Atsugi Naval Air Station in Japan from 1964 to 1967.

His first Antarctic tour was as public works officer for Naval Support Force Antarctica from 1967 to 1969; he wintered at McMurdo in 1968.

He then was officer in charge of Construction Battalion 201, Operation Deep Freeze, from 1969 to 1971; he received the Navy Commendation Medal in recognition of this service.

While assigned to the National Science Foundation, 1971-1973, he was

special projects officer responsible for overseeing construction of the geodesic dome that became the central structure of South Pole Station until it was replaced by a new central station in 2008.



In Antarctica at the South Pole, the top of the Dome is shown in its environment, while the dome station was still in operation. Station buildings were under the dome. The new (dedicated 2008) elevated station is in the background.

Later assignments included serving as officer in charge of construction at the Norfolk Naval Shipyard in Portsmouth, Virginia, 1982-1985.

Mr. Perry served 26 years in the Navy, retiring in 1988 as Commander. He then held consulting positions, including as project general manager at NASA Goddard Space Flight Center and site manager at Cape Canaveral, Florida.

Born in Willimantic, Connecticut, 16 February 1937, Mr. Perry obtained an associate degree from Wentworth Institute and a BS in civil engineering from Northeastern University in 1963. In 1974 he earned a master's degree in civil engineering from the University of Washington. He is survived by his wife of 52 years, Marilyn (Maine) Perry.

Mr. Perry was instrumental in preserving the South Pole dome's distinctive top ring – a pentagonal shape made of aluminum with circular openings – and other parts of the innovative design at the SeaBee Museum in Port Hueneme, California. "Over the years, I was always interested in seeing how the dome was doing," Perry told

the *Antarctic Sun* in 2011. "We hated to see the dome destroyed. Wasn't there something else that could be done?"

There was. The dome was disassembled in Antarctica with care. Each panel was documented and shipped to Port Hueneme. In July 2010, 2 weeks before the new museum was to open, Perry – along with Society member Jerry Marty and Lee Mattis, a structural engineer employed by Temcor, the manufacturer of the dome – arrived to reassemble the 600-pound top ring of the dome and hoist it into a space designed for its display. The dome will be the centerpiece of the Seabee Antarctic exhibit, along with the console from the PM-3A nuclear power plant that operated at McMurdo from 1962 to 1972.



Lee Mattis, left, and John Perry, far right, assemble the hardware used to hang the top section of the South Pole Station Dome from the roof of the new Seabee Museum in Port Hueneme, California. Mattis, Perry and Jerry Marty worked for years to save the Dome and see it enshrined in a museum.

Bob Dingle, 1920-2016, a British Australian American Antarctic

by Herbert J. G. Dartnall

Bob Dingle, who wintered at Byrd in 1962 and Plateau in 1967 and was senior Australian weather observer on USNS *Eltanin* from 1968 to 1972, died in Tasmania in September 2016.

William Robert John Dingle, born in Cornwall, England, in 1920, got his

Antarctic start after migrating to Australia and, in 1950, joining the Commonwealth Bureau of Meteorology as a trainee. January 1951 saw him on his way to Heard Island as part of the Australian National Antarctic Research Expedition, where he spent his first winter south. In the 1954 winter, Bob was sole weather observer in the party of ten that established Mawson, Australia's first continental Antarctic base. He spent the 1956 winter on Macquarie Island and the 1957 winter at Davis, Australia's second continental Antarctic station, as officer-in-charge and sole meteorological observer.



Bob Dingle at the radiosonde recorder on subantarctic Macquarie Island

The five-man Davis 1957 wintering party did meteorology and geology, maintained an all sky camera for auroral studies, and explored the local area.

In 1959 Bob was officer-in-charge of Wilkes Station (on the Antarctic coast facing Australia) following its post-IGY transfer from U.S. to Australian operation in February 1959.

Bob's adventures began before emigrating to Australia. In the Royal Air Force Volunteer Reserve, he was a wireless operator flying four-engine Halifax bombers. By December 1943 he had flown 38 missions.

On the next mission, to Frankfurt, an engine inexplicably caught fire, and the pilot gave the order to bail out. Bob landed alone and spent the next day (21 December) in a haystack. At dusk he linked up with the Belgium resistances but on 6 January was caught by the Gestapo and spent the rest of the war a POW.

To join the U.S. Antarctic Program, in 1961 Bob was granted leave from the Bureau of Meteorology to be part of the 1962 team at Byrd Station. He observed weather for the U.S. Weather Bureau and snow drift for Melbourne University.

In 1967 at Plateau Station, one of Earth's most isolated and coldest places, he again observed weather for the US Weather Bureau and did other research for Australia.

It was a co-operative program between Australian and U.S. weather services that made Bob the senior Australian weather observer on *Eltanin*.

Board of Directors meeting, July 2016

by Joan N. Boothe

On Sunday morning 17 July, at the close of the 2016 Antarctic Gathering in Maine, the Society Board gathered in Treasurer Paul Dalrymple's dining room for our Annual Board meeting.

With President Tony Gow presiding and a quorum of Board members present, we quickly got to work, beginning with the usual, approval of the minutes of the last (2014) meeting. Then it was on to multiple topics. What follows highlights vigorous discussion at a 3-hour meeting which provided an excellent view of the state of our society and many ideas for the future.

Paul Dalrymple summed up our financial situation. The short version is that our bank balance is in good shape. The 2016 Gathering, however, despite our best hopes, was not fully covered by donations. Given a strong feeling that all members benefit from these meetings (such as by reading accounts

of the presentations in this newsletter), even if they cannot make it, we voted unanimously to cover the shortfall from Society funds. (114 people, including spouses, partners, etc., attended the meeting.)

Other than the meeting, our income, largely from dues, is pretty much covering our normal, ongoing expenses.



The Antarctic Society Board of Directors meets in Paul Dalrymple's dining room, July 17, 2016. Attendees shown (left to right) are Joan N. Boothe, Secretary; Guy Guthridge, newsletter editor; Tom Henderson, Webmaster; Michelle Raney; Paul Dalrymple, Treasurer; and Ronald Thoreson, one of the nine Directors. Not all who were present are shown in this photograph. Photograph by Louis Lanzerotti.

Current membership, including honorary members, is 362, of whom 205 are still receiving a hard copy of the newsletter. That newsletter is a real attraction for our members. And now it's wonderfully archived, thanks to Tom Henderson: see the web site. As for current issues, they just keep getting better and better, thanks to the terrific job that Guy Guthridge is doing editing it.

Our Society is not a 501 (c) (3) organization. A previous board meeting had approved taking steps to obtain this status, but as of the 2016 meeting, this has not been done. We discussed at length just what is involved in doing this, and in particular, the value of being a nonprofit and what it might enable us to do that we cannot now — making donations tax-deductible, possibly creating a scholarship fund, obtaining

insurance. We agreed that Bob Rutherford would pursue the matter with members Bill Meserve and Rob Flint.

Where to hold the next gathering? We talked about this a great deal, as well as timing. One reason for this discussion was to consider other possible locations around the country in addition to Port Clyde.

Suggestions included Jackson Hole; Denver (NSF's Antarctic support contractor Lockheed Martin is headquartered there); and central Virginia, where director Steve Dibbern has property. No decision was reached at the Board meeting, but, as you may have read on page 2 of this issue, Port Clyde now has been set as the venue for the next Antarctic Gathering, 20-22 July 2018.

On the social media front, we've made progress, with a Facebook page, and work on a new website, which is now up and running as described by Tom Henderson in the January 2017 newsletter. Both are important for membership recruitment, especially for younger members. At the Board meeting, Tom described his efforts redoing the website, the company he's working with, scope of work, issues with the current one, etc. This was a lengthy discussion, with Tom leading the way, clearly explaining what's involved and needed. Security is a special concern, much talked about.

There were also many good ideas for future add-ons, including a proposal to develop an app for a link to the website, something that might be attractive if we want to draw younger people to the website. We agreed to pursue this idea.

As a clarification, Tony Gow, installed as president at the 2014 meeting, still has 3 years to go on his 5-year term. In the ordinary course of events, he'll be succeeded by the Society Vice President.



The Antarctic Society

VOLUME 16-17

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NO. 4

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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.

*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](http://iaato.org) 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 *Arktika*, 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 Antarctic 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.

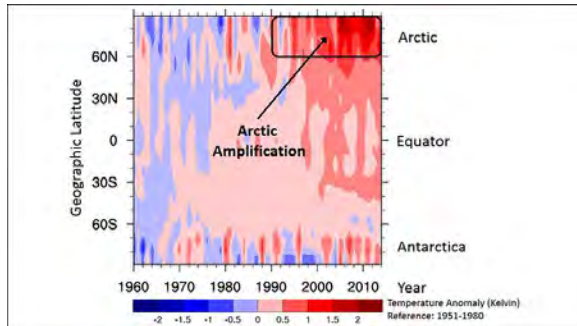
He worked extensively with the U.S. Antarctic Research program as part of the International Geophysical Year.

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.

Manabe and Wetherald actually wrote their paper, what they wrote was in fact a *prediction*?

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 *polaramplification*, 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



The Antarctic Society

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MOVES: NSF INTO ALEXANDRIA, VA.; CHINA INTO ANTARCTICA

Most of my career was with the National Science Foundation, which funds 12,000 science projects a year; a hundred or so are performed in Antarctica. When I started in 1970, the Federal agency was two blocks from the White House. In 1992 NSF moved across the Potomac River to new quarters in Arlington, Virginia. I retired some years back; the agency moved again this year, to Alexandria, Virginia, where I happen to live.

On walks, I admit to a stir when passing the new building. The NSF assignment is "to promote the progress of science; to advance the National health, prosperity, and welfare." What noble goals. NSF values its Antarctic responsibility, and the organization's "At a Glance" description on its website uses a photograph of Antarctic ice coring as the one image illustrating field work it supports.

Antarctica fits the NSF mission. "Freedom of scientific investigation in Antarctica and cooperation toward that end . . . shall continue," states the Antarctic Treaty, which the United States did so much to help bring into being. In 1959, when the treaty got going, we Americans were one of just twelve Antarctic nations. Now, quadruple that are involved, and their capabilities have ramped up. NSF-funded Antarctic science remains preeminent, but the research has become truly collaborative internationally, and results the other treaty nations are achieving are hugely significant.

China in particular is showing large ambitions in Antarctica. It's worth our considering what the future may hold. This issue (see page 2) gives more than passing attention to a new book, *China as a Polar Great Power*, a serious attempt by a highly qualified scholar to examine the possibilities.

Guy Guthridge



The new National Science Foundation building in Alexandria, Virginia

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

We said this in the April and July issues. Here's a reminder:

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



The 2018 Antarctic Gathering will be here!

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

If you want to stay in a nearby hotel or cottage, reserve soon.

While you are at the Gathering, donations to cover the cost of food, etc., will be enthusiastically accepted.

China as a Polar Great Power

by Guy Guthridge

Is China playing fair as it expands its presence in Antarctica? Taking the global perspective, the 23 September 2017 *Economist* notes China's monumental industrialization and sees concern that the world will be dominated by an entity that can be illegal, intense, or unfair or all three. The cover story argues that China is in process of joining the world commercial, military, and scientific ecosystems and is becoming one of their custodians. A second China cover story three weeks later says Xi Jinping "now has more clout than Donald Trump."

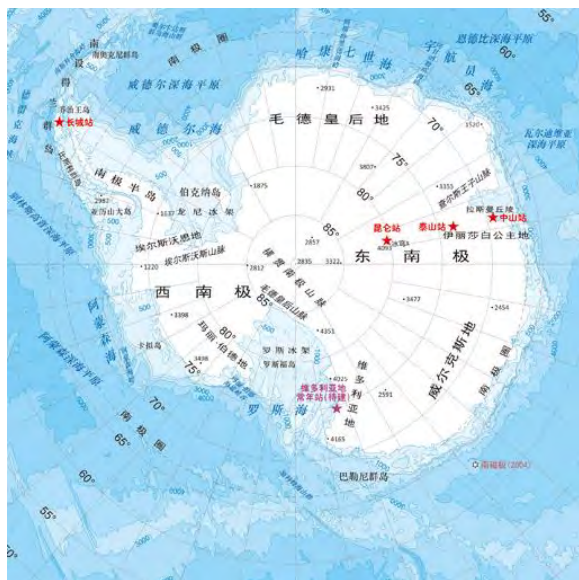
Anne-Marie Brady, a specialist in Chinese and polar politics based at the University of Canterbury in Christchurch, New Zealand, addresses Arctic and Antarctic aspects of the China phenomenon in a new book, *China as a Polar Great Power* (280 pp, Cambridge University Press, 2017). "In the past ten years," she writes, "as part of its overall expanding global foreign policy, China has become a leading polar player with wide-ranging and complex interests in both the Arctic and the Antarctic."

My first encounter with Professor Brady did not go well. Her 2013 lecture at Georgetown University was weak on identifying sources and suggested, I thought, China hopes to run roughshod over the Antarctic Treaty. (China acceded in 1983, achieved consultative status in 1985, and has performed basic research in the region since.) In an email, I objected to her assertion that the Treaty excludes most nations, noting that its 53 parties represent two-thirds of the world's population and four-fifths of its

economy and that nations applying for entry and performing research are admitted.

Times change. A lecture she gave on 18 September 2017 at the Woodrow Wilson International Center for Scholars in Washington, D.C., “Facing the new geopolitics: China as a polar great power,” erased my initial negative impression and then some.

Professor Brady is fluent in Mandarin. In addition to her polar focus, she writes about China’s propaganda system and management of foreigners in the country. China does not have a formal document outlining a strategy for the polar regions, but she found specialist websites and classified material where policies are discussed freely, as are plans for an overarching and possibly public strategy focused on security, resources, and strategic science.



China’s five Antarctic base sites

The government, according to two leading Chinese polar scholars, is working to “create an international image of China as a peaceful and cooperative state.” Her book, she says in the introduction, breaks ground to describe China’s polar interests and their implications for global governance. It places China’s polar activities and policies “where they belong, in China’s evolving maritime policy (*haiyang zhengce*).”

China, Professor Brady writes, now has more money than any other polar state to spend on new infrastructure such as bases, planes, and icebreakers. In the last ten years it has doubled its number of bases in Antarctica and has circumnavigated the continent twice. A 2012 report (in Chinese) states that “in preparation for the future contention over Antarctic resources and sovereignty, China must increase its substantive presence in Antarctica so as to establish the necessary physical foundations for China’s Antarctic rights, Antarctic governance rights, and the future opening up of resources.”

The Antarctic infrastructure upgrade is under way. Great Wall, the first station, was set up on King George Island in 1984, and beds now are being made available to partner states, in particular Thailand to help it join the Antarctic Treaty. Zhongshan, in East Antarctica near Russia’s Progress II, was set up in 1989; the wintering station has an ice airfield.

Kunlun, at Dome A, is the first station in the interior. China calls Dome A one of Antarctica’s “scientifically and politically strategic” sites, the others being the geographic pole, the geomagnetic pole, and Dome C. The four sites are “occupied” or “held” by the United States, Russia, France, and China, all four having space and missile programs that “require polar satellites and polar receiving stations.” Opened in 2009, the station isn’t used much yet; it is an “empty fort” (*kongcheng ji*) advertising China’s polar strength and preventing occupation by another nation.

Taishan, set up in 2014, is inland from Zhongshan on the route to Kunlun and also to the Grove Mountains, where China has a field camp. Taishan is summer only, has an area of 1,000 square meters (more than 10,000 square feet), is a handsome above-grade steel structure, and has an ice runway.



Taishan Station, East Antarctica, under construction

“Victoria Land Permanent Base” is the working name of the fifth station, to be occupied year-round. China announced its intention for the station in 2013 after a team selected Inexpressible Island in Terra Nova Bay. The Ross Sea area will be “one of the hottest locations in Antarctica,” the head of the Chinese Arctic and Antarctic Administration told reporters. The senior glaciologist said “resource exploration and climatic studies” will be the main tasks. The Treaty-required CEE, or Comprehensive Environmental Evaluation (2014), though, highlights climate change research, space science, and remote sensing.

Jumping ahead of Treaty approval, in January 2015 the icebreaker *Xue Long* delivered 10 tons of material, set up prefabricated accommodations, and built a wharf. In January 2016 eight scientists surveyed and mapped the island, and they set up an automatic weather station. After more work onsite in February 2017, China confirmed it to be the preferred site for the new base.

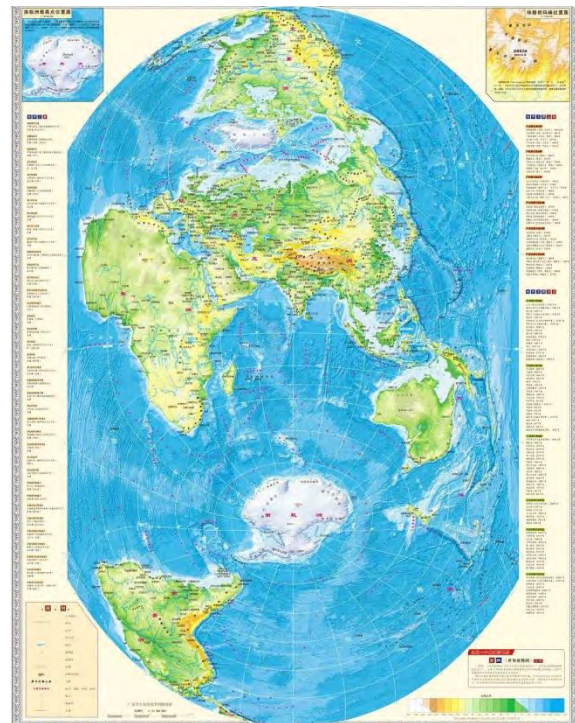
U.S. and N.Z. officials objected to the initial CEE, saying the proposed base is not needed for science. But the Chinese government has approved funding, and the base will be completed within 5 years. At 5,500 square meters it will be China’s largest Antarctic station (80 summer personnel, 30 winter) and a thousand square meters bigger than nearby South Korea’s Jang Bogo station, also on Terra Nova Bay.

Professor Brady points to advantages of the new station for all parties active in the

Ross Sea. The Chinese station will have an airfield, and its state-of-the-art logistics will add to the region’s search-and-rescue ability. China could join the existing U.S.-N.Z.-Italy-South Korea air and sea logistics pool.

The Chinese-government document authorizing the growing Antarctic budget says the existing and new Antarctic infrastructure will enhance the nation’s “political, economic, diplomatic, and military” interests on the Ice.

The book (and the Chinese government) take the long view of history’s take on the rise and fall of great powers. For China, Professor Brady states, the deep seabed, outer space, and the Arctic and Antarctic are the “new” New World, rich in resources and opportunities and ripe for exploitation. China incorporates new ideas and breaks with old ways of thinking, as demonstrated, she says, by the People’s Liberation Army’s adoption of Hao Xiaoguang’s extraordinary vertical world map that is the cover illustration of her book.



Has Xiaoguang’s vertical world map

In a 2014 speech in Hobart, Chinese president Xi Jinping said China soon would

be “joining the ranks of the polar great powers.” That point seems the tone of Professor Brady’s book, but her points are thoughtful, thorough, and extensively referenced.

And she examines not just China’s recent Antarctic presence, but also, by reflection, other nations’ positions in the region. “States that are able to dominate militarily at the two poles are truly powerful, controlling key choke points into strategic regions,” she writes. “Currently only the United States, with its strong military presence in both the Arctic and the Antarctic, has this capability. Yet massive pressure on the U.S. budget since the 2008 global financial crisis, which has capped spending on polar-related infrastructure and science, means that U.S. polar capacity is steadily slipping backwards.”

Remembering the growth of U.S. and other programs in Antarctica during and after the International Geophysical Year, a generation from now maybe China’s own version of Larry Gould or Bert Crary will inspire young scientists to break out their bunny boots, pull on their parkas, and head south.

Discovering Antarctica 1820-2020

by Nicholas R. Bell

Mystic Seaport, the preeminent maritime museum in the United States, sits on 17 acres of waterfront along the Mystic River in southeastern Connecticut, a hub for enthusiasts for maritime history and our nation’s enduring connection to the sea.

Few people are aware, but the village of Mystic isn’t incorporated – rather, it is made up of parts of the towns of Groton and Stonington. Many more readers of this newsletter, however, will grasp the significance of the latter: not more than three miles from the museum is the home of Nathaniel B. Palmer, the clipper ship captain who in his heady youth steered the 47-foot sloop *Hero* from a modest Stonington berth down

to the South Shetlands in fall 1820. Then, when he encountered stiff competition for seals, he pushed yet farther, sighting the Antarctic Peninsula in November. It remains remarkable that after centuries of inquiry and decades of actual effort by James Cook and others to determine the prize at the bottom of the world, three nations should discover the existence of earth’s final continent within a single calendar year.

2020 marks the bicentennial of this series of events. Mystic Seaport is embarking on a major exhibition project that will capitalize on the occasion to draw attention to the history of Antarctica’s discovery, the many facets of life there, the role the continent has played in modern science, and its lasting role in shaping the human imagination over 200 years.

Palmer’s story is only a thread of this saga, but it is one that allows Mystic Seaport an entry point into a network of topics and histories expanding far beyond the traditional scope of this museum. While we are not yet Antarctic experts, we can provide a platform for public dialogue about the value of all we know about Antarctica, and how that knowledge affects both the continent and our lives here at home.

For that reason, we invited more than two dozen specialists from across the disciplinary spectrum to convene at Mystic Seaport in June 2017 to discuss what the scope of this exhibition project should be and how we go about interpreting this massive body of knowledge for a general audience. Antarctic luminaries as diverse as Henry Pollack, Tim Jarvis, Joan Boothe, Guy Guthridge, Elizabeth Leane, Bob Headland, and experts of all stripes attended, both in person and via videoconference.

It was an exhilarating experience for our staff, none of whom have set foot on those most southern of shores, to witness a room brimming with firsthand Antarctic experience - the coming together of friends new and old to dissect the questions of how

and why we must bring the spirit of Antarctica to the continental United States.



Thompson Exhibition Building at Mystic Seaport

Three years out from opening, the exhibition itself remains loosely defined as we continue to gather information and materials to consider as we seek the best means to convey this story. We know we must tell the story of discovery. Equally, we must share the impact of climate change on Antarctica, and teach how the continent serves as a laboratory for the earth at large.

Many other stories will work their way into the project as it develops. Because we remain new to the Antarctic community we still have much to learn, and we seek your help. I encourage any reader with ideas for topics within Antarctic history, science, or the humanities, potential resources – collections, archives, etc. – as well as advice on potential funding sources to contact me at nicholas.bell@mysticseaport.org.

This project will be strongest through your involvement as a community. We look forward to welcoming Antarctic Society members to Mystic Seaport in 2020!

Nicholas Bell is senior vice president for curatorial affairs, Mystic Seaport: The Museum of America and the Sea.

SCAR Medal nominations sought

Every other year SCAR (the Scientific Committee on Antarctic Research) awards medals to reward “those who

exemplify the best of the Antarctic community and serve as models for the next generation.” In 2018 three will be awarded: one for excellence in Antarctic research, one for international coordination, and one for education and communication. The deadline for nominations is 14 February 2018.



The SCAR Medal

Our Honorary Chairman, Robert H. Rutford, received the medal for international scientific coordination in 2010. Paul Mayewski (University of Maine) received the 2006 medal for excellence in scientific research. Other U.S. recipients have included John Priscu (Montana State, subglacial microbiology) in 2012 and Robert Dunbar (Stanford) in 2016 for advancing knowledge of environmental change in Antarctica and the Southern Ocean.

See the [call for nominations](https://www.scar.org/general-scar-news/2018-medals-open/) at <https://www.scar.org/general-scar-news/2018-medals-open/>

Antarctic volcanic eruptions and Southern Hemisphere deglaciation

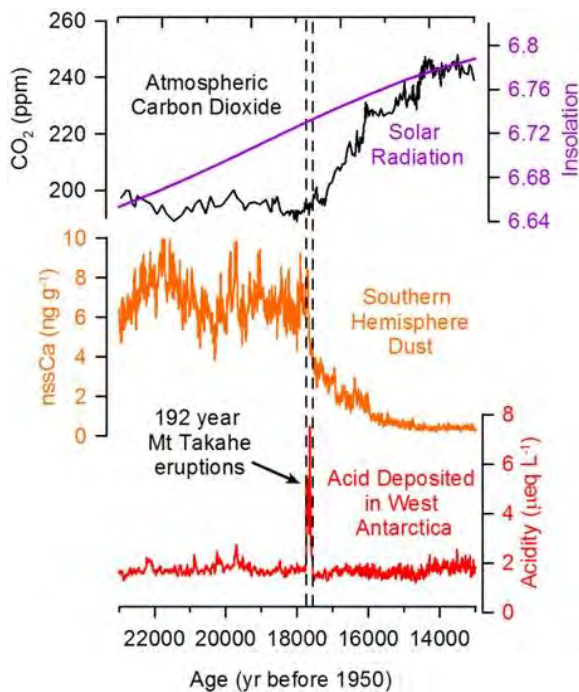
Eruptions for 192 years from the Mount Takahē volcano in West Antarctica 17,700 years ago coincided with accelerated deglaciation, widespread climate change, and rising greenhouse gases throughout the

Southern Hemisphere.



Mount Takahe today

Evidence of those changes is found at numerous Southern Hemisphere sites and in different paleoclimate archives. What prompted the changes was unexplained until analysis of the WAIS Divide ice core by Joseph R. McConnell and colleagues at the Desert Research Institute in Reno showed spikes in acid deposited in West Antarctica at the time.



“We postulate that these halogen-rich eruptions created a stratospheric ozone

hole over Antarctica that, analogous to the modern ozone hole, led to large-scale changes in atmospheric circulation and hydroclimate throughout the Southern Hemisphere,” McConnell said. “Although the climate system already was primed for the switch, we argue that these changes initiated the shift from a largely glacial to a largely interglacial climate state. The probability that this was just a coincidence is negligible.”

The WAIS Divide ice core, 3,405 meters deep, documents 68,000 years of climate and atmospheric constituents. No other record like the 192-year event was found anywhere else in the core.

The fallout from Mount Takahe extended at least 2,800 kilometers and likely reached southern South America.

[*Proceedings of the National Academy of Sciences*](#) published the findings in September. The paper is online free.

Animations

Nowadays, just about anything you might imagine can be made into an animation, authentic in terms of the data presented and sometimes yielding an insight you might not otherwise have had. Here are a few I’ve encountered. I’ll bet you have favorites of your own. Let us know.

Winds of the world. In a lecture called “Antarctic Ice” during my cruise ship days, I preceded the following animation with a cartoon showing Hadley cells, which send atmospheric moisture poleward: moisture that cools, and, on reaching Antarctica, precipitates to become – ice! But cartoons are – cartoons. The lecture’s next slide was an animation by NASA’s Goddard Scientific Visualization Studio of real global data over 2 years showing surface and upper level winds. If ever you wanted a visualization of the Roaring Forties, Furious Fifties, and Screaming Sixties, this is it.

<https://svs.gsfc.nasa.gov/30017>
Scroll down to “Surface winds.”

Real sizes on a Mercator map. We all know: Greenland isn't *that* big. And the way a Mercator projection shows Antarctica? Forget it.

Have a look at "How the world map looks wildly different than you think." The 6-minute video saves "shy Antarctica" until last. But even that boring old rectangle Wyoming isn't really the size it looks.

<https://www.youtube.com/watch?v=1PNrtjboISg&feature=youtu.be>

The Antarctica Series. *New York Times* reporters visited the Antarctic last season to write features for the newspaper. They also put together four virtual-reality films. You have to download an app and otherwise surrender to the digital domain, and for all that you may wonder what's new in the sense of gained knowledge. But here's a modern glimpse of how mainstream media are portraying the Antarctic:

<https://www.nytimes.com/interactive/2017/climate/antarctica-virtual-reality.html>

A Year on Ice. This speeded up depiction of McMurdo and elsewhere on the Ice is famous now and has been in movie theaters. If you haven't seen it, it's worth the effort to do so. Buy the dvd, produced by Anthony Powell, or just look at the trailer. Watching the ship unload is worth it all!

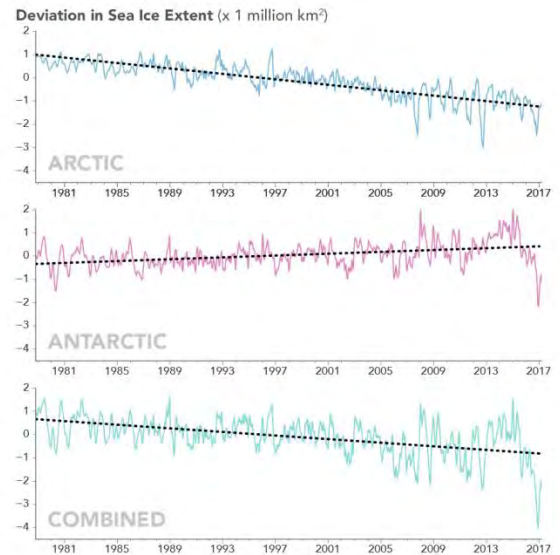
<http://frozensouth.weebly.com>

Society newsletters publicly online

Webmaster Tom Henderson informs us that a link on the Society's website under About Us is titled Public Newsletters. This part of the website contains the newsletter archive in the same manner it has always been for members, with the exception of the last 2 years. That is to say, now anyone – member or nonmember – can see those newsletters. For members, the full archive, including the most recent 2 years, is under Members > Newsletters.

This change satisfies a Board of Directors resolution made during their 2016 meeting.

Sea ice low after decades of advance



Monthly deviations and overall trends in polar sea ice as measured by satellites

After decades of gradual increase in area of about 0.9 percent per decade, Antarctica's minimum area of sea ice during the 2016-2017 summer was far smaller than in any other season. In a 22 March statement, NASA said this year's record low annual sea ice minimum of 815,000 square miles (2.11 million square kilometers) was 71,000 square miles (184,000 square kilometers) lower than the previous lowest minimum extent in the satellite record, which occurred in 1997.

Antarctic sea ice saw an early maximum extent in 2016, followed by a very rapid loss of ice starting in early September. Since November, daily Antarctic sea ice extent was continuously at its lowest levels in the satellite record. The ice loss slowed in February.

This year's record low happened just 2 years after several monthly record high sea ice extents in Antarctica and decades of moderate sea ice growth.

“There’s a lot of year-to-year variability in both Arctic and Antarctic sea ice, but overall, until last year, the trends in the Antarctic for every single month were toward more sea ice,” said Claire Parkinson, a senior sea ice researcher at Goddard. “Last year was stunningly different, with prominent sea ice decreases in the Antarctic. To think that now the Antarctic sea ice extent is actually reaching a record minimum, that’s definitely of interest.”

Sailing to Antarctica shakes you up

It’s official now. In comparison with sailing in calm water, whole-body vibration exposure increased by 21 times in rough open water and up to 11 times during ice passage of SA *Agulhas*, the research and supply ship that supports the South African National Antarctic Program.

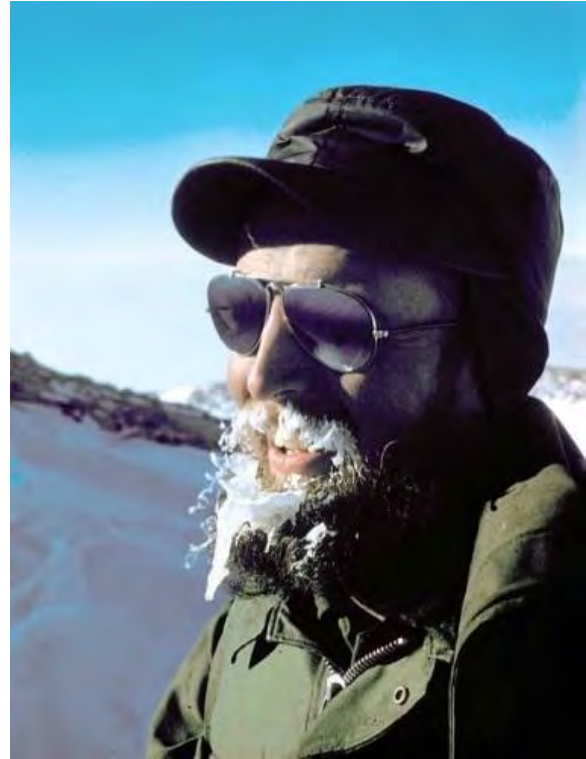
A. Bekker and others performed the study and published their findings in the June 2017 issue of *Cold Regions Science and Technology*. While an international association has established standards to ensure the safety of crew aboard steel ships in ice-infested waters, they don’t yet have guidelines for the allowable limits for vibration exposure.

The authors attribute this lack to the absence of scientifically reported field research on vibration condition in human environments when ships break through ice. Occupants on the studied voyage were exposed to perceivable vibration for most of it, and some vibrations were at levels considered “not comfortable.”

Charles R. Bentley, 1929-2017

Charles Raymond Bentley, who spent 60 years advancing understanding of Antarctic ice, died 19 August 2017. He was, Richard Alley of Penn State told the *New York Times*, “the absolute polar scientist, going where nobody else had gone and measuring what nobody else had measured.

Concern about rapid sea-level rise from ice-sheet collapse grew out of his early discoveries, and many of the tools to answer the big questions come from his research since then.”



Dr. Charles R. Bentley

Charlie, a long-time member of the Antarctic Society, did field research in Antarctica from 1957 to 2009, making more than 15 trips there to map structure and physical properties of the ice sheet and probe the continent beneath.

“Professor Bentley’s scientific exploits,” writes William Grimes in the 25 August *Times*, “combined the derring-do of the great polar explorers with the painstaking work of measurement and calibration.”

Charlie was enormously productive. He was an author on 157 cold-regions papers published during 53 years from 1958 until 2011 (when the NSF-funded Cold Regions Bibliography Project ended) and sole or first author of 72 of them. Of the 157, 126 were Antarctic. Eighty-eight were journal articles; the rest were monographs,

conference papers, technical reports, or online. A 23 August obituary on the University of Wisconsin web site states that he wrote more than 200 papers in total.

The National Science Foundation awarded 18 grants totaling \$4.8-million for Charlie's Antarctic research between 1976 (NSF records "may be less complete" for prior years) and 2001; the grants ranged from 1.5 to 5 years' duration, averaging 3.2. In the 1970s and '80s NSF awarded an additional three grants for ice studies in Greenland. Beginning in 2000, Charlie ran two cooperative agreements and one contract totaling \$37-million that NSF awarded to the University of Wisconsin for ice coring and drilling services to the glaciology community.



Bentley (center) during the International Geophysical Year

Charlie was a doctoral candidate in geophysics at Columbia University when he signed up for the International Geophysical Year in Antarctica. Soon after he got back (in 1961) he joined the University of Wisconsin, where his career in research and teaching continued until his retirement from the geosciences department in 2000. From then until 2013 he headed the NSF-funded Ice Drilling Design and Operations contract at the university's space science and engineering center.

For decades, his work was curiosity-driven science. "We didn't really understand back 50 years ago the connections between the polar regions and the rest of the world,"

he told *The Antarctic Sun* in 2007. "They seemed isolated and remote, and of interest as part of the earth; but it took quite a while to learn how closely related they are to the rest of the world."



Professor Bentley inspecting the barrel of an ice drill at the University of Wisconsin at Madison

Charles R. Bentley was born in Rochester, New York, on 23 December 1929. His father was a lawyer, and his mother was the granddaughter of a founder of Vacuum Oil, which later merged with Standard Oil.

Charlie graduated from Phillips Academy in Andover, Massachusetts, then earned a physics degree from Yale in 1950. He was going to study law, but changed his mind after a summer on a research ship in the Atlantic led by oceanographer Maurice Ewing of Columbia University. After enrolling in Columbia to study geophysics, he spent two years on the Greenland ice sheet developing a seismic method to measure ice depth. He defended his dissertation at the end of 1956, but the degree was not awarded until 1959 because he had forgotten to pay the \$50 fee before heading for Antarctica.

Charles R. Bentley was a member of the National Academy of Sciences' Polar Research Board for 20 years and chaired it from 1981 to 1985. Awards include the Bellingshausen-Lazarev Medal in 1971 from the Soviet Academy of Sciences and the Seligman Crystal from the International

Glaciological Society in 1990. He was an elected fellow of the American Association for the Advancement of Science, the American Geophysical Union, and the Arctic Institute of North America.

Bentley Subglacial Trench (maximum depth 2,540 meters) in West Antarctica, named by the U.S. Advisory Committee on Antarctic Names in 1961, commemorates Charlie's leadership of the 1957-1958 seismic traverse that discovered the feature and recorded its depth, which airborne radio-echo sounding confirmed a decade later. Mount Bentley (4,245 meters) in the Sentinel Range was discovered by the Marie Byrd Land Traverse, which Charlie led.



Charlie (left) with colleagues at Port Clyde, Maine in 2014

Margaret Lanyon, 1931-2017

Margaret Clare Lanyon, a New Zealand citizen who devoted 36 continuous years of exemplary service to the United States Antarctic Program advance headquarters in Christchurch, New Zealand, died on 31 July 2017 of a heart attack.

Starting in 1962 as secretary to the NSF Representative, New Zealand, Ms. Lanyon moved into roles of increasing scope and authority. She quickly became administrative assistant to the officer in charge of the Naval Support Force Antarctica, Detachment Christchurch, then, in 1972, administrative assistant to the NSF Representative

New Zealand. Promotion to NSF contractor representative New Zealand followed in 1974; her employer became NSF Antarctic contractor Holmes & Narver. When the contract changed in 1980, she continued in the same position with the new firm, ITT Antarctic Services. By 1999 under yet another NSF contractor (Antarctic Support Associates), she was responsible for managing all the N.Z. tasks that NSF assigned to the firm.



Margaret Lanyon at NSF Christchurch, NZ

Margaret was born on 5 November 1931. She retired in April 1999 and in September that year was awarded the National Science Foundation's Distinguished Public Service Award. "Few people are given the opportunity of spending a lifetime doing a job they love," she wrote at the time. "I was lucky and would not trade any of it."

During the time of her Antarctica career, NSF's Antarctic research nearly tripled, and its complexity grew manifold as science became increasingly complex, international cooperation intensified, conservation and waste management practices improved, and standards of efficiency and economy were raised. "These needs expanded the requirements for interaction and cooperation with New Zealand research organizations, government agencies, commercial purveyors of goods and services, and international forwarders," reads the NSF award citation. "Ms. Lanyon was at the

forefront of NSF's relations with these organizations.”



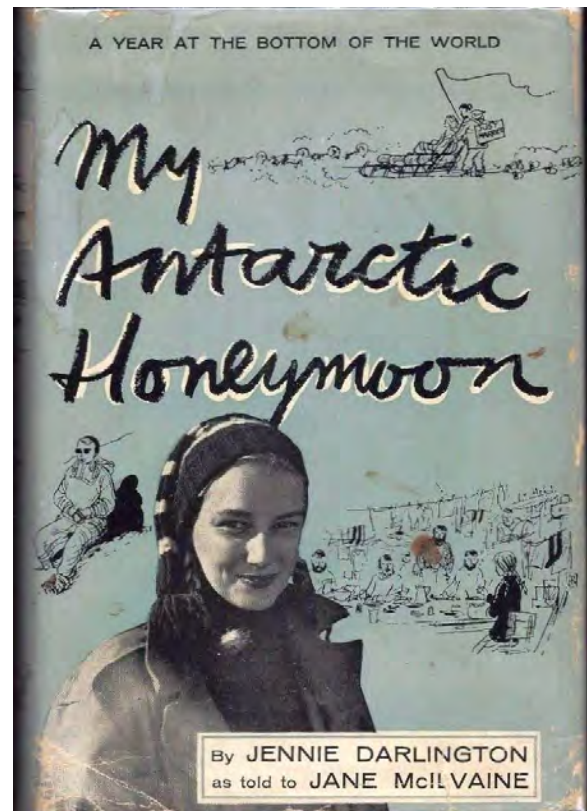
Margaret at home

Margaret, as U.S. travelers to Antarctica during the period know well, is an icon of the U.S. Antarctic Program. She represented to thousands of Americans her own and her country's high standards of friendliness, integrity, and achievement. An office colleague wrote, “This wonderful, dignified, articulate, and compassionate woman contributed so much to the scientific fraternity, contractor, and many participants during her years with the Antarctic program. I consider myself to have been extremely fortunate to have worked under her stewardship and blessed to have had her friendship.”

Jennie Darlington, 1924-2017

Jennie Darlington, part of the (U.S.) Ronne Antarctic Research Expedition of 1947-1948, died 30 August 2017 of heart failure at her farm near Marshall, Virginia, at 93.

Mrs. Darlington describes the journey in *My Antarctic Honeymoon* (Doubleday, 1956). She and the expedition leader's wife, Edith “Jackie” Ronne, were the first women to spend a full year on the Ice.



Mrs. Darlington joined the expedition after it started. Her husband Harry Darlington was chief pilot, but she was scheduled to leave the expedition ship in Chile. There, she and Jackie Ronne were asked by the expedition leader, Finn Ronne, to continue to Antarctica. In the draft of a new book about the expedition that Mrs. Darlington was working on at the time of her death, writes the *Fauquier* (Virginia) *Times* in an obituary, she starts with this: “Women should not go to Antarctica.” – Harry Darlington. “I went.” – Jennie Darlington.

“The presence of women on the team proved to be a blessing during times of unusual stress,” said expedition teammate (and Antarctic Society member) Robert H. T. “Bob” Dodson, after learning of her death.

The expedition, which was mainly privately financed and consisted of just 23 people, carried out one of the most extensive programs up to that time of aerial photography coupled with concurrent establish-

ment of ground control for mapping. To extend the range of the photographic plane, a second one with extra fuel “leapfrogged” ahead. Operating from its base on Stonington Island just west of the Antarctic Peninsula, the expedition explored one of the largest remaining gaps in the coastline hitherto not seen. Cooperation with a British party nearby considerably extended ground surveys of the Peninsula’s east coast.

“Afterwards, people used to ask me, ‘Was it cold?’ Yes. ‘Were there polar bears?’ No. ‘My God, what if you had gotten pregnant?’ I did.” Mrs. Darlington kept the secret in a small group that included the expedition doctor. She worried as summer didn’t thaw much ice and their ship might be stuck in the ice for another year. Two U.S. icebreakers working nearby freed the ship, and her daughter was born the next summer in Virginia. Jennie never returned to Antarctica.



Jennie Darlington at home in 2016

Jennie Darlington was born 25 January 1924 at St. Agnes hospital in Baltimore. Educated at Miss Shoemakers School, she earned her pilot’s license by the age of 20. After her marriage to Harry Darlington and their expedition to Antarctica, she and Harry settled on Chilly Bleak Farm near Marshall, Virginia, and raised angus cattle. Harry died in 1996.

She is survived by her daughter Cynthia Darlington Beyer of Marshall,

Virginia, and her son Harry “Skipper” Darlington IV, who resides on the farm.

In addition to the *Fauquier Times*, the *Washington Post* has an obituary of Mrs. Darlington in its 11 September 2017 edition.

Ken Waldron obituary correction

by Billy-Ace Penguin Baker

I recently finished reading the July newsletter. I read it from cover to cover, enjoy it, and sometimes learn something new about Antarctica. The obituary for Ken Waldron has a mistake. Ken was not the historian for the Old Antarctic Explorers Association (OAEA). I am the historian and have been since day one of the OAEA. Ken was a life member of the OAEA, and I think he may have been the historian for the Antarctic Deep Freeze Association.

The OAEA is a tax-exempt organization with more than 1,700 members worldwide. We hold reunions every two years on the even numbered years. More information can be found at <https://oaea.net>.

Billy-Ace Penguin Baker is the OAEA Life Director.

Other deaths

Felicity D. ‘Flash’ Davidson, 1954–2017. For 10 years Felicity was the smiling face behind the counter at Good Impressions print shop in Rockland, Maine, the company that prints our Society’s newsletters. In her too-short life she showed horses, caught fly balls, skied and lived in Utah, worked 10 years for a bank, had a son and grandchildren, and was Lobster Festival Sea Princess.

Felicity was part of the Dirty Herb Gang of Harley Davidson motorcycle enthusiasts and died suddenly 16 July as the result of a crash. “Please laugh after your tears, and remember me with a smile,” she once wrote.

Richard T. Crane, M.D., 1951-2015, the wintering physician at McMurdo Station in 1980, returned in later years to join the Antarctic Search for Meteorites.

As an Eagle Scout he had made a 56-day, 1,000-mile canoe trip in the Canadian Arctic with three friends.

After a University of Michigan B.S. in 1973, Dr. Crane graduated from Indiana School of Medicine in 1978. Following an internship at the Portsmouth, Virginia, Naval Hospital, he fulfilled a lifelong dream with the Antarctic trips.

Dr. Crane founded the Western Wisconsin Ear, Nose, and Throat Center in Eau Claire, which became a thriving practice. He was a philatelist and an amateur astronomer and geologist, and he collected historic expedition literature.



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SHOULDN'T THE WORLD BE RUN BY SCIENTISTS?

Read it and weep. The icebreaker story on page 8 makes it so straightforward. The Coast Guard should block-buy four heavy icebreakers, just like the technocrats at the National Academy of Engineering say it should, but the Coasties lean toward three heavies and three mediums, more expensive. Maybe something, well, political is going on when the Commandant says the budget request for three and three (or is it just three heavies, or four?) might possibly be susceptible to some amount of flex at some future date.

Another example: Jerry Marty's fine reminiscence on page 3 about the dedication a decade ago of the new Pole Station refers to a blue ribbon study run on NSF's behalf that told the agency to ask Congress for a 110-bed station when we needed 150 beds. Norm Augustine, a technocrat who has a knack for politics, headed the panel. We followed the advice after years of getting nowhere, got the 110-bed size, and later won Congress's support for the remaining 40 beds. Norm knew how to pursue the art of the possible.

In 1960 the nascent Antarctic Treaty, formulated by geopolitical specialists with some push from scientists, got off the ground (see my story on page 2), but not before politicians kicked it around. Scientists would have made it happen better, faster. Wouldn't they?

Over time, decisions tend to be good ones. But a worrying trend seems afoot. At the end of World War 2 the USA had so many icebreakers we lent three sturdy *Wind* class ones to the Soviet Union. Half a century later, our own polar fleet disabled, we had to recruit a Russian icebreaker to open the McMurdo channel for us. Now the Russian fleet dominates the world, and the new *Arktika* (see pages 8-9) is the biggest ever. Would scientists and technocrats running the U.S. Government kick us back into gear? Dream on.

Guy Guthridge

Maine Gathering approaching!

The next Antarctic Gathering is at Paul Dalrymple's house in Port Clyde, Maine, Friday-Sunday, 20-22 July 2018. Friday evening, fish chowder; Saturday, Garage Theater; Sunday, lobster brunch.

If you have not done so yet, (1) Tell Treasurer Paul Dalrymple or newsletter editor Guy Guthridge you're thinking of coming or know you are coming; see our emails on the front page. (2) If you're not going to tent in Paul's yard, reserve a spot in a hotel or cottage. Nearby hotels know about the event and are holding space; tell them that's why you are coming.

While you are at the Gathering, cash or check donations to cover the cost of food and drink will be enthusiastically accepted.

The controversial Antarctic Treaty

by Guy Guthridge

With 57 years of science, environmental preservation, and peace behind it and a membership that has grown over the decades to 4½ times its original 12 nations, the Antarctic Treaty is secure in its achievements. And because the U.S. Government championed the treaty's principles for decades and hosted the 1959 negotiations that resulted in its signing, one might expect official U.S. Government approval to have been without controversy.

Such was not the case as the process of ratification took place in the United States Senate. "This treaty," Senator Strom Thurmond of South Carolina stated on the floor on 9 August 1960, "would, in effect, surrender a valuable possession which belongs to all of our people; and from a study of the history of the explorations and various bases of claims in Antarctica, it is obvious that we would receive little, if any, consideration for our surrender of rights."

Thurmond was not at all alone in disliking the proposed treaty, but it's still not

obvious to me that the U.S. ratification was seriously threatened. In addition to the Department of State, Senator J. William Fulbright, who headed the Senate Foreign Relations Committee, strongly favored ratification and worked for months to get it to the Senate floor for a vote.

A 23 June 1960 report by Fulbright's committee considered the objections raised by Thurmond and other Senators. It "did not find them at all persuasive" and concluded that the treaty "will serve the best interests of the United States and its friends and allies, and will promote the overall cause of world peace."

Each nation approves a treaty in its own way. In the United States, Article II of the Constitution provides that the President "shall have Power, by and with the Advice and Consent of the Senate, to make Treaties, provided two thirds of the Senators present concur." Article VI says, "all Treaties made, or which shall be made, under the Authority of the United States, shall be the supreme Law of the Land."

On the Senate floor that day Mr. Fulbright said, "I have heard rumors to the effect that considerable opposition to the treaty—more than I had anticipated—has developed. But I deeply regret that during the discussion of the treaty today, I find in the Chamber only 8 or 10 Senators, who seemingly are in favor of the treaty, or at least understand it. But the Members of the Senate who oppose the treaty are, apparently, not interested in discussing it."

Territorial claims and Russia were at the center of the opposition. "The Union of Soviet Socialist Republics greedily anticipates our favorable action on this question," Senator Thurmond said. Other senators lamented the failure of the United States to stake a claim, despite its considerable work in the area. "Unless we know what we intend to lay claim to, and know what Russia and other countries intend to lay claim to, then I fear we will wind up with nothing but an ice shelf, while others will

become heir to whatever value there is,” said Senator Johnson of South Carolina.

Senator Dodd of Connecticut gave negative testimony occupying five pages of that day’s *Congressional Record*. For average Americans, the summer of 1960 had nothing to do with Antarctica and everything to do with the political parties’ selection of Richard M. Nixon and John F. Kennedy as their Presidential candidates. “I do not believe that our colleagues have had the time, because of the two great political conventions, to delve into the subject,” the Senator said. “Oh, it would be a great pity if, through lack of a full understanding and a deep appreciation of all that is here involved, we were to rush headlong into this dreadful kind of agreement.”

“What would the treaty do? It would invest the Soviet Union,” said Senator Engle of California, “which has no rights whatsoever in the Antarctic, with the right to veto the action of the 11 other signatories of the treaty. That is what it all amounts to.”



U.S. Senator Harry Byrd

Also against the treaty was Senator Harry Flood Byrd, Richard E. Byrd’s brother. During debate Byrd’s Antarctic expeditions were brought up often, generally with reference to his having established U.S. preeminence in the region. Historian Kenneth J. Bertrand later wrote (in 1970) that, as a result of Byrd’s expeditions in the 1920s and 1930s, “Marie Byrd Land became, in the popular mind, peculiarly American. This attitude undoubtedly encouraged and sustained American activity in the Antarctic which has placed the United States, during the last four decades, in a position of prominence in south polar affairs.”

Richard E. Byrd died in 1957, but at the time of the Senate consideration in 1960 his brother Harry was a long-serving Senator with National recognition. The two brothers along with their close friend Franklin Delano Roosevelt had done much to secure favorable support of the early private Byrd Antarctic expeditions as well as to initiate the first hopefully permanent U.S. Government Antarctic expedition just before World War II and the enormous Operation Highjump shortly after.



A roadside plaque in Winchester, Virginia, where both Richard and Harry Byrd were born and grew up, commemorates Richard E. Byrd as “the father of the Antarctic Peace Treaty.” At McMurdo the bust of Richard E. Byrd has his quote, “I am hopeful that Antarctica in its symbolic robe of white will shine forth as a continent of peace as nations working together there in the cause of science set an example of international cooperation.”

None of this stopped Harry Flood Byrd’s rising that August day on the floor of the Senate to say, “I shall vote against the pending Antarctic Treaty because, by its nature, it is certain to be bad for the United States, good for Russia, and contrary to the best interests of free nations in the world. It would freeze into uselessness the hard-earned bases for U.S. claims on the polar overrun areas to which they have neither rightful nor earned access.”

What would Richard E. Byrd have said about his brother Harry’s vote? We have this clue. Dedicating a statue of her famous father in 1997, Mrs. Bolling Byrd Clarke said in a [speech](#), “He worked very hard on the Peace Treaty and would be relieved, overjoyed, to know that it was ratified 2 years ago [sic] after his death.”



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

On 10 August 1960 the Senate voted 66 to 21 to ratify the Antarctic Treaty. With the U.S. precedent, all remaining uncommitted



Herman Phleger signing the Treaty
Photo courtesy of The Encyclopedia of New Zealand

signatory nations approved, and the treaty entered into force on 23 June 1961. The now celebrated document establishes an Antarctica that “shall not become the scene or object of international discord.”

Discord in the U.S. Senate in that ratification year of 1960 may seem quaint, but it’s not farfetched that different Senators in a different political climate might have voted the Antarctic Treaty down.



Vasily Kuznetsov signs treaty

New South Pole Station: 10 years old!

by Jerry Marty

Ten years ago, on 12 January 2008, what even today is called new South Pole Station was dedicated. A U.S. flag that had been on

top of the geodesic dome – since 1975 the station campanile – was raised on the elevated complex of structures that exist today at Earth’s southern spin axis: 90°S. The ceremony acknowledged 20 years of planning, construction, and transition of functions from old to new. Relocating a flag in use instead of raising a new one involved 246 people, each of whom passed it on to the next as it went hand to hand from the dome to the elevated station. Builders and scientists alike were filled with pride.



Flag daisy chain handoff



Lowering the American flag from the old Domed station

Over those two plus decades, a team from diverse backgrounds achieved a common goal: to design, construct, and occupy a state of the art research facility. The partnership drew from National Science Foundation, Department of Defense, U.S. Antarctic Program contractors, scientists, university officials, and the design team.



Raising the flag at the new South Pole Station



South Pole Telescope (10-m dish sub-millimeter radio telescope)

The facility became the platform for 21st century science as represented by the Ice Cube, South Pole Telescope, SPRESO and the Clean Air Facility science projects.

At the 2008 ceremony were current and past NSF directors, Congressional and other government officials, a National Science Board member, a scientist, members of a Blue Ribbon Panel that had validated the new station for Congress and others, representatives of the New York Air National Guard and other military, present and former directors of NSF's polar office, contractor personnel, the design team engineer, and design team members, a total of 24. Speakers included Dr. Arden Bement, Director of NSF, who also noted the passing of Sir Edmond Hillary on this



Distinguished Visitors, Guest Speakers, and NSF attendees at the 90 South marker

day and referenced Antarctic and South Pole accomplishments. The other speakers were Department of State Under Secretary Paula Dobriansky, Congressman Rodney Frelinghuysen (New Jersey), and Dr. Karl Erb, Director of NSF's Office of Polar Programs.

Four groups with different starting locations toured the station. The tour included the Dark Sector (astrophysics), NOAA laboratories (atmospheric sciences), summer camp (living quarters), and the satellite ground station (communications).

The South Pole cooking staff, led by James Brown, executive chef, prepared a masterpiece, food one might not expect at the bottom of the planet. South Pole meals had become known as the best. We Polies

realized that ingredients were the same as at other U.S. stations and recognized the extra efforts of our cooking staff. The menu ranged from appetizers of chilled roasted duck breast with spicy mango chutney to desserts of mascarpone cheesecake with fresh berries.

A packet given to each visitor and all personnel on station consisted of commemorative cast brass coins, patches, and stickers along with commemorative stamped postage envelopes hand cancelled at the South Pole post office and dated January 12, 2008. Envelopes went to project members who were not at the South Pole ceremony.

The visitors' day was far from over. We escorted them to the skiway and saw them off in LC-130s for McMurdo (as far as Chicago to Washington), and they changed there to a C-17 that took them on to Christchurch, New Zealand.

At South Pole that evening, for most it was back to business. A presentation by John Rand and Jerry Marty chronicled the events, challenges, and data (cargo, fuel, etc.) of the project. Then came a party in the gym with the Polie Band playing.

The 20-year project cost \$174.3-million for a 110-person facility with infrastructure adequate for future expansion to 150 (which has happened). The cargo came from McMurdo in 907 LC-130 flights of 26,000 pounds each: 23.6 million pounds.

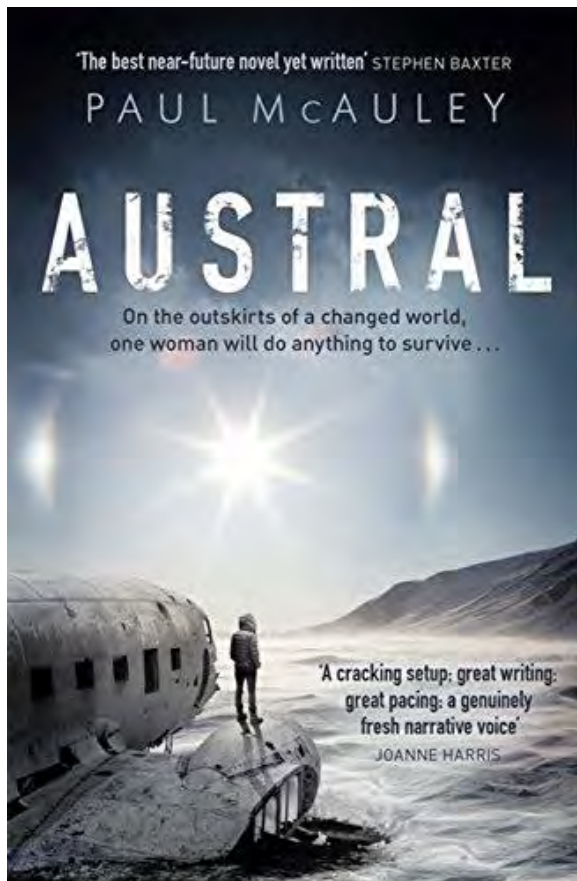
That's infrastructure. Science made possible by the new station is extraordinary. One South Pole astrophysics project, Ice-Cube, involves more than 100 National Science Foundation funding awards since 2008 that add up to more than the cost of the station rebuilding, and that's just NSF. Four other nations and other U.S. sources also fund this one project; scientific participation involves 49 institutions in 12 countries. Research results are at the forefront of ground- and space-based world astrophysics.

Book review: *Austral*, Paul McAuley

by Joan N. Boothe

“Beautifully written, thought-provoking, and well worth reading”

I’ve read a great deal of set-in-Antarctica fiction over the years, and, sadly, I’m been disappointed in most of it. Poor writing, unrealistic plots, little or no grasp of the Antarctic world — these and other failings are so common in my experience that I almost expect them when I pick up Antarctic fiction. *Austral*, happily, is an exception, a book that deserves the enthusiastic reviews it has received since publication, including being named one of *The Economist’s* Books of the year for 2017.



Set in the early to mid-22nd century, *Austral* takes place on the Antarctic Peninsula, a place much changed from what it is today. Climate change has resulted in massive glacial retreat, so much so that there are

now free-flowing rivers and large areas of open ground ripe for greening. Scientists and environmental activists called ecopoets have introduced grasses, flowers, trees genetically altered to survive the cold, and similarly altered fauna. Forests are developing. Following collapse of the Antarctic Treaty in 2048, minerals exploitation has become big business. The Antarctic Peninsula is now an independent country with two major cities and numerous small towns. Esperanza, the former Argentine base, is a city of 100,000 with 50-story apartment buildings, shopping malls, banks, and a criminal class. A railroad is being built along the west coast of the peninsula.

It is in this changed world that the action of the book takes place. At its most simple level, this is a chase thriller story. *Austral*, a genetically edited human — a so-called “husky” who is specially adapted to deal with the cold of the Antarctic — has kidnapped the daughter of a powerful government official and is on the run from bad guys who are trying to get the girl back. Complicating things, the girl’s father is *Austral’s* uncle, from whom *Austral’s* family is bitterly estranged. Early on, *Austral*, who narrates her story, tells us that she is writing this account so that her daughter will know the truth about her past. *Austral* herself is a beautifully developed character with depth and nuance.

But the chase is only a part of the story. *Austral* is also the tale of the new, changed Antarctic Peninsula, what it has become, and how it has gotten there. McAuley weaves in this element in two ways. First, as he describes the landscape that *Austral* travels as she tries to outrun her pursuers. Second, with interwoven chapters about *Austral’s* grandparents and parents that provide not only background to the kidnapping, but also political and scientific context for the changes to the Antarctic Peninsula world in which *Austral* lives.

To characterize this book simply as an exciting chase thriller, as some reviewers

have, shortchanges this book. McAuley has written thought-provokingly about the potential for and challenges to ecological evolution in a world where climate change has had a powerful impact. To me, the Antarctic world that McAuley creates and sets his story in is the most interesting aspect of *Austral*. Not only that, I found myself responding much more powerfully to his writing when he's telling the story of Austral's background and how it was linked to this changed Antarctica. As for the chase thriller story that is the central core of the book, although well written with lots of action, I found this to be weak. There are good guys, bad guys, unexpected betrayals, twists and turns, etc. In short, all the expected elements of a chase, sometimes too much so.

Well written, at times beautifully so, and often deeply thought-provoking. These are the true strengths and value of *Austral*. If you just want an absorbing story, it's worthwhile on that front as well. In short, this is a worth-reading work of Antarctic fiction.

Running away – memoir of an OAE

by Alfred J. Oxton

An old metaphor has it that boys run away to join the circus. I ran away twice in my younger days, the first time when I was six. We lived on Overlook Road in Weymouth, and I was fed up with harvesting icicles for water the winter my third brother was born. In the spring one Monday morning my mother packed me a lunch and reminded me of school. Away in the backyard, near the overlook that gave our road its name, was an old convertible in the overgrowth. Early on I'd discovered a way in and would sit there for hours. Now I sat there, ate my lunch, and went home before dark.

When my mother went 'round the bend with Alzheimer's in 1987 was the second time I ran away. Earlier, in the 'sixties, I'd turned down my first opportunity to go to The Ice. When opportunity knocked the

second time I was living and working at the Mount Washington Observatory. My sisters were debating who would take in Mom, my father was distraught that he was unable to care for his wife of more than forty years, and my 1967 Chevy G-10 van, after two engine transplants, had finally succumbed to road rot and died of a broken frame.

Little Jon and Dennis Tupick were already on The Ice when Dennis called from McMurdo one afternoon via the ten-dollar a minute Inmarsat. "We have work for you here," he said, "and bring your lineman's belt." I jumped at the chance. My last shift on the Rock Pile was Thanksgiving; I called my sister Susan and told her: "I can't take it anymore. I'm running away to Antarctica." A week later I was in Paramus getting acquainted with a whole new vocabulary.

Little Jon wrote hints. When the Navy shrink asked, "What are you going to do about sex?" I was ready with the correct reply: "I understand there's a penguin behind every tree." The circus was waiting.

How many OAEs does it take to change a light bulb? During my first winter at McMurdo I could do that job on my own. I'd walk to the carp shop and grab a step-ladder, stop off at my office in the Jamesway uphill from the FOC for a screwdriver or two, then fetch a fluorescent tube of the appropriate wattage and arrange everything under the offending fixture. Up and down the ladder a few times and the job was done. Everything returned and put away in time for lunch at the galley.

Ten years on, during my last winter at McMurdo, inflation had increased the number of OAEs required for this tasking. First, someone had to notice the bulb was misbehaving and file a work order. Order in hand, Maintenance would assemble a team: an electrician to open the fixture and change the bulb, an assistant to take the bad bulb from the electrician and pass it to the Hazmat person before passing up the new bulb (carried by a materials person). If the electrician

cian didn't have a ladder, someone from the carp shop would. Are you counting?

Strange things happen in the dark Antarctic night. I met the stress of that first winter by writing. Random notes gradually took on rhyme and reason.

At some point in those dark ages before the greenhouse, the galley served up the last of the freshies. This was a tipping point. I found my Self writing on napkins, tearing the flyleaves out of paperbacks, begging pencils from strangers...

*THE ONE HUNDRETH THREE BEAN
SALAD ANTARCTIC CUISINE*

*A paper I must quickly find,
To jot these words that crowd my mind:
The galley lined,
The mess defined,
Three Bean Salad- One.
It means the freshies are all done.
Soon, with the passing of the sun,
We'll Three Bean Salad all the way
'Til by its light the planes find day
To bring us lettuce for our pay.
One sock two sock
Blue sock blue sock;
Every foot here wears the same socks
Except the ones who've cut the tops off.
Of Three Bean Salad there is more,
It's getting to be such a bore;
One bean two bean three bean
Mung bean string bean fling bean!
They're piled in the corner, and
Strewn upon the mess hall floor,
Hanging tapestry from the I beam
My night-mares are like three bean dreams.
Quoth the skua even: "No more!"
Can't we have four bean?
The cook I implore,
Or, how about two bean.
The cook points: the door!
It is said strange things happen
In the dark Antarctic Night,
A man will do most anything
For a head of lettuce not too ripe;
Or an apple,
Or a celery, wither'ed or not,*

*Ahh- what I can think of for a carrot!
Fresh of course, not canned-
Not sliced nor diced, but whole.
I would carry it to my garret
Hoard it smell it revere and marry it!
Wait! Its June. The Midnight Moon lights
Mid-winters endless night and
Airdrop comes with eggs all scrambled
And mail is in such a shambles.
The mail we can sort and read
(Thank God for those who care to write.)
But as Humpty Dumpty learned,
No glue will egg shell seal tight.
And lettuce! Let us find the lettuce;
They said to us they'd send freshies
To ward off Three Bean Salad crazies
In the dark Antarctic night.
"Where's the lettuce?
Where's the Lettuce!"
Oh NO! That chute din't open
And the pallet's made a crater
And the freshies are all crushed;
Lettuce, toms and celery,
Carrots, rads and apples too?!
Quick, get a dozer over here,
I know just what we will do.
A great big bowl the crater makes,
We'll toss it with the dozer;
The splintered pallet use for toothpicks
When the salad feast is over.
Be quick now boys
And bring the dressing,
A hundred gallons should do just fine;
What's that, it's mayonnaise you want?
This line is Russian, that's Blew Cheese,
We don't have time for mayo please
The salad is about to freeze.
Jump right in!
Eat your fill!
Stuff it in your shirt and pockets,
Pack it under bed and lock it;
Eat and eat and eat until
We finish with this ballad
And it's back to Three Bean Salad.*

I scrounged up an early PC and a case each of yogurt cups and granola bars and locked my Self in my room for a week.

And wrote. At first my output was personal, fantastical, biographical. Deep dark teen-aged angst morphed to become. . .

*COAL AND ICE
NOT SO NICE*

*Don't you think that that's a lot of ice?
Coal and mountains
But no fountains,
Nine thousand feet straight up
From sea to air;
It's just not fair
To be so bare
Of flowers trees and hare.
The dust and rock,
It's not a crock,
There's naught that makes home here.
Except a lichen
Or a krill
Or a penguin,
Seal or whale.
But People!
People struggle to survive,
People build to stay alive,
People try and buy and cry and fly
To get back home where they may die;
But they don't Live
Out on the Ice.
It's not so nice.
There are no trees
To please and ease,
There are no girls and boys to tease,
No cats and rats nor oliphaunts;
Noah's Ark would be so empty
If he had started here.
To what use is all of this but
For a place to sell more beer?*

Eventually I ran out of yogurt and granola. Next was Pirate Radio, Ham radio and Super Bowl Sunday

In 1992, shuttle astronauts aboard STS-45 would be looking to Work All Continents during their 10-day mission. They would have only one or two opportunities where their orbit would put them in view of Palmer Station. Through the NASA God-

dard Amateur Radio club I relayed the message that KC4AAC would be waiting; when the spacecraft was indicated to be above my horizon I called: STS-45 this is Palmer Station! STS-45 answered right away, and after pleasantries of call signs the first words of the pilot, N5WQW, were: "You made our day!" Palmer Station; KC4AAC/k1oIq, was their seventh continent.

When AFRTS transferred all their programming from shortwave to satellite I used the Inmarsat spares at Palmer to retransmit Super Bowl Sunday to SPOLE and other stations along the Peninsula. But those adventures are told in other stories.

Followups (China, icebreakers)

China (October 2017 newsletter). A review of the book *China as a Polar Great Power* describes China's increasing activity in, and regarding, Antarctica.

Followup. "What's coming up in 2018," an article in the 5 January *Science*, says: "China's push to become a scientific and economic leader is sure to affect how, and where, research is done."

A two-page advertisement in the same issue states that Qingdao (China) National Laboratory for Marine Science and Technology, Texas A&M University (TAMU), and the U.S. National Center for Atmospheric Research (NCAR) are establishing a laboratory for high-resolution earth system prediction. The collaboration, starting in January 2018, will include study of mesoscale ocean eddies and their interactions with atmosphere and sea ice.

Coincidentally, Expedition 374 of the TAMU-operated deep earth drilling ship *Joides Resolution*, in the Ross Sea January-March 2018 to sample for West Antarctic Ice Sheet history, includes an inorganic chemist from Qingdao.

At Qingdao itself, research areas include polar oceans. A collaboration with Australia has established a Center for

Southern Hemisphere Oceans Research, to include Antarctic observations and research.

Looking back a bit with a U.S. Antarctic Program perspective, Dean Cheng of the (U.S.) Heritage Foundation in 2014 issued a report, "[The option for U.S.-China cooperation in Antarctica](#)," that concludes, "The Antarctic is an area where the U.S. and China have much to gain through greater cooperation and little to lose. Antarctic cooperation is therefore well worth exploring, to help improve bilateral ties without infringing upon either side's core interests."

Icebreakers (July 2017 newsletter). An article describes progress toward getting new U.S. polar-class icebreakers (the Coast Guard has asked Congress for three heavies and three mediums), and it notes the launch of a new Russian icebreaker.

Followup. Eugene Van Rynbach of Herbert Engineering Corporation argues that the Coast Guard, to save money without compromising mission, should give up on the medium class icebreakers and instead block-buy four heavies. Each new ship of the same class would cost less than the preceding one, and whatever yard got the job would make more cost-saving up-front investments if just one new class is to be built. Lessons learned from each new ship would be applied to the next one.

Van Rynbach, who was on the National Academy of Engineering study that identified the three heavy/three medium concept as well as the only-four-heavies approach in a July 2017 report, restated his argument at an American Society of Naval Engineers [Arctic Day](#) in November.

The [July study](#) itself favors Van Rynbach's approach. The two designs are almost the same size (132 vs. 128 meters LOA). The July report states, "the suggested acquisition strategy of four heavy icebreakers saves more than \$1 billion compared with the government's request of three heavy and three medium icebreakers."

The three-and-three idea comes from

a Department of Homeland Security mission needs statement approved in July 2013. In October 2017 a draft request for proposals was issued for design and construction of one heavy with options for two more. The Congressional Research Service estimates a block-buy instead would save upwards of \$200-million for all three, compared to the options approach.

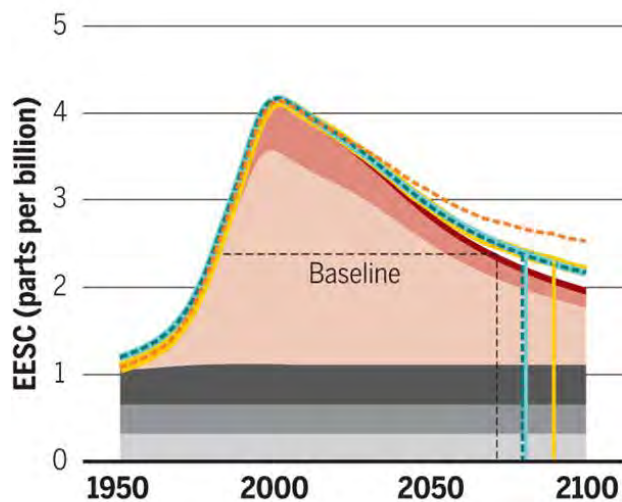
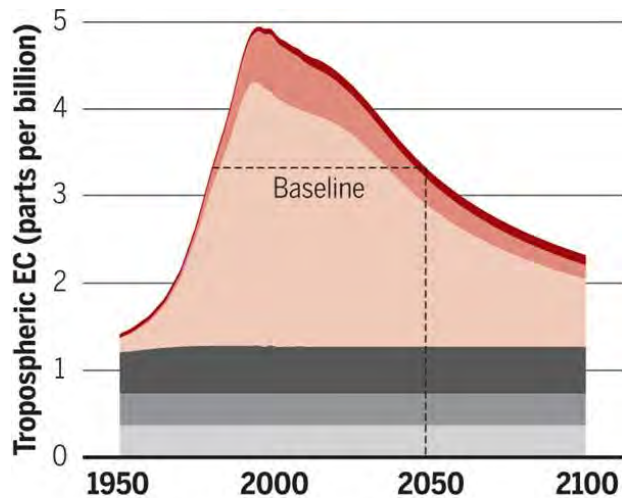
Coast Guard Commandant Admiral Paul Zukunft stated on 10 January that the new class can carry cruise missiles, but won't at first. According to an [article](#) in *Breaking Defense*, a construction contract for the first ship – a heavy – will be awarded early in fiscal 2019 (which starts in October 2018), and a block-buy contract for subsequent ships will follow. "The first ship would be finished in 2023 and enter service soon after," the article states. "Zukunft wants at least three heavy icebreakers and three medium ones, although he's open to trading some or all of the mediums for additional heavies."

As for the new Russian icebreaker *Arktika*, 173 meters LOA and a heavy, it was launched in June 2016 and is to be commissioned in 2019 as the lead ship of a new class of three nuclear-powered icebreakers, the world's biggest. Russia now operates six heavies.

A [chart](#) prepared by the U.S. Coast Guard Office of Waterways and Ocean Policy illustrates that 18 nations own and operate icebreakers. The Russian fleet of 46 operating, under construction, or planned is almost as many as the other 17 nations put together.

Ozone hole recovery is uncertain

Despite the success of the Montreal Protocol in limiting production of substances that cause the Antarctic ozone hole, bringing the chemistry of the stratosphere back to what it was before the ozone hole started lies in decisions yet to be made.



- Anthropogenic**
- VLSL_{Cl} ● Controlled Br ● Controlled Cl
- Natural**
- CH₃Cl ● CH₃Br ● VLSL_{Br}
- Scenario estimates**
- DCM — CCl₄ — Climate --- Combined

Recovery of the ozone hole depends on lowering halogen emissions (measured by the tropospheric EC, or “equivalent chlorine”), which in turn lowers the amounts transported to the stratosphere (measured by the EESC, equivalent effective stratospheric chlorine). VLSL_{Cl} = very short-lived substances (less than 6 months), chlorine equivalent. DCM = dichloromethane, a VLSL. CCl₄ = carbon

tetrachloride, which lasts in the atmosphere many decades. The baselines show when an earlier study projects ozone-destroying substances to return to the 1980 level in the troposphere (upper chart) and the stratosphere (lower chart). The lower chart shows the years of delay that could result from scenarios discussed in the new study; the “Combined” scenario (red dashes) places ozone hole recovery beyond 2100. Image: *Science*, 8 December 2017, p. 1258

Basically, if societies limit climate-change gases in the troposphere, we’ll help fix the ozone hole too. That, says a NASA Goddard [study](#) in the 8 December 2017 *Science*, is because “the tropospheric equivalent chlorine (EC) abundance is the starting point for calculating the stratospheric halogen budget. . . . The equivalent effective stratospheric chlorine (EESC) in the Antarctic lower stratosphere is a key measure of stratospheric ozone depletion.” Antarctic EESC is calculated from the tropospheric EC, but a lag time is involved. Different gases have different lifetimes; the long-lived ones enter the stratosphere and contribute fully to the EESC, but only 50 to 90 percent of the short-lived ones make it to the top. Some of the short-lived ones are declining slower than expected.

Limited compliance with the Montreal Protocol is another concern. The controlled substances are projected to contribute about 56 percent to the EESC in 2050. If other emissions continue at the present rate the recovery of the Antarctic ozone hole will be delayed 10 years.

Other scenarios project recovery to be delayed 20 years. An irony is that carbon dioxide, a key greenhouse gas, helps to suppress the ozone hole.

The chemistry is vastly more complicated than presented here, but, in the end, “improved compliance and monitoring

of controlled substances and successful efforts to limit climate change are crucial” to close the Antarctic ozone hole.

Peter F. Bermel, 1928-2017



Peter F. Bermel, who was president of the Antarctic Society in 1973-1974, died on 21 October 2017. Before being president, in 1971-1972 Pete was a Director of the Society. During that time he chaired the program committee; in the 1970s many Society members lived and worked in the Washington, D.C., area, and a dynamic program of lectures and social gatherings took place throughout the year.

Following those functions, Pete remained a beloved member, contributing, for example, a 20-question trivia quiz published in a 1979 issue of the newsletter asking such questions as “3. What Chief Scientist went on an unannounced, unplanned swim in Kainan Bay?” and “19. What famous Antarctic dumped 500 fifths of Golden Wedding Whiskey through a hole drilled through the floor of his observatory?” (You can find the other 18 questions, and the answers, in the archived newsletters on the Society’s web site.)

Pete’s professional career included 47 years with the U.S. Geological Survey, where he was a civil engineer, cartographer, and leader in mapping of the United States. The 47 years includes two summers working as a rodman while in school. A 1948

engineering graduate from the Missouri School of Mines and Metallurgy, Pete spent two years in the Army, then joined the USGS at the Topographic Division’s mapping center in Rolla, Missouri. One of Pete’s memorable assignments was the plane-table mapping on Lake Superior’s Isle Royale National Wilderness Park.

In 1960-1961 he co-led a USGS party that surveyed in the Thiel Mountains of Antarctica. The next season he led another USGS survey party extending geodetic control in the Cape Hallett area and the Horlick Mountains. He was on the team that helped establish the first exact position of the geographic South Pole, 90° South. Bermel Escarpment, a snow and rock escarpment 15 nautical miles long in the Thiel Mountains, was named for him by U.S. naming authorities. Bermel Peninsula was named for him by the United Kingdom.

Pete rose from work in the field to become assistant director for plans and programs at the Geological Survey in Reston, Virginia, a position that made him one of three permanent witnesses each year before the Interior Budget Committee. He received the Meritorious Civil Servant Award from President George H.W. Bush and the Distinguished Service Award from the Department of the Interior. He was a charter member of the Senior Executive Service created by President Carter.

Pete was a member of the Explorers Club and, for 54 years, a member of the Society for the Preservation and Encouragement of Barber Shop Quartet Singing in America (aka The Barbershop Harmony Society) as well as other singing groups. He is survived by his wife of 63 years, Barbara “Bobbie” Jean Clark Bermel.

Much of this information came with thanks from the USGS Mapping Retirees Newsletter, Fall 2017, No. 149.

Thomas S. Laudon, 1932-2017

Dr. Thomas Stanzel Laudon died on 1 January 2017 at his home on Lake Winnebago in Wisconsin.



Dr. Thomas Laudon at Byrd Station 1960

He worked in Antarctica on 10 geological expeditions in the Crary Mountains, the Ellsworth Mountains, and elsewhere. He led the 1965-1966 University of Wisconsin Ellsworth Land Geology Expedition and coordinated publication of results. His Antarctic work resulted in 17 scientific papers that he wrote or co-wrote from 1962 to 1997. The U.S.-designated Mount Laudon, in southern Palmer Land, acknowledges Tom's Antarctic work.

Tom was born on 14 June 1932, graduated from high school in 1950, and received the BS, MS, and PhD in geology from the University of Wisconsin, Madison.

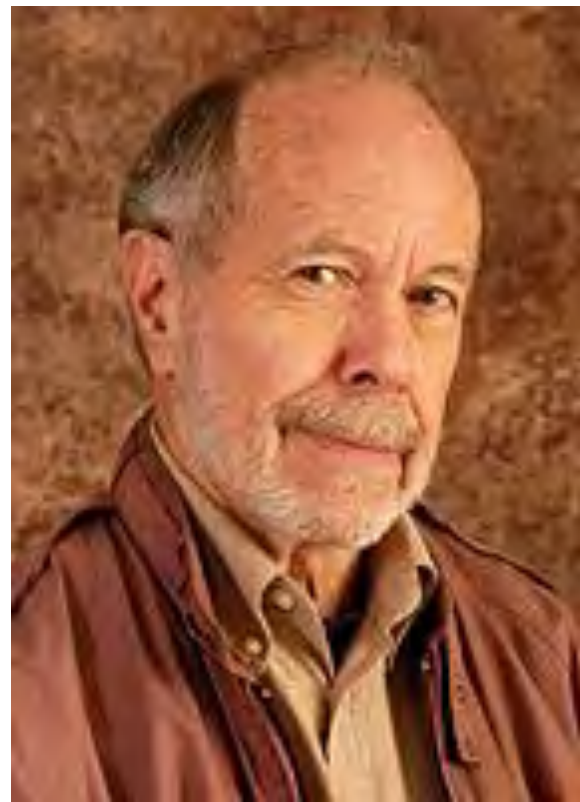
He served two years of active duty in the USAAF and 25 years in the reserves as an Air Force Academy liaison officer.

In 1963, Tom accepted a job at UW Oshkosh as the second geology professor in the department. He retired in 1999. At UW-O, Tom established a geology summer field camp. Over the course of 35 summers, he led hundreds of students through the Canadian Rockies to the Yukon Territory. He passed to his students his knowledge of geology, passion for the outdoors and mountaineering, and love of cheap whiskey, cigars, and campfire revelry.

He spent most of his career at the University of Wisconsin Oshkosh campus, but took study leave in 1994 at the University of Tasmania in Hobart.

Pat Quilty, Honorary Research Professor, University of Tasmania, contributed to this obituary.

Robert L. de Zafra, 1932-2017



Dr. Robert deZafra

Robert L. de Zafra, a Stony Brook University (New York) physicist who, with others, confirmed that the chemicals in some aerosols and refrigerants were responsible for the Antarctic ozone hole, died 10 October 2017 of respiratory complications following surgery.

He and other researchers during the McMurdo-based National Ozone Expeditions 1 and 2 in the 1986 and 1987 austral winters confirmed that chlorofluorocarbons, used worldwide in refrigerants and as propellants in aerosol cans, had entered the planet's stratosphere and were causing chemical reactions that reduce ozone. Together with natural phenomena unique to the Antarctic, the introduced chemicals nearly destroyed the region's springtime stratosphere ozone.

Susan Solomon, then of the National Oceanic and Atmospheric Administration and now at MIT, led the Antarctic expeditions. She told the *New York Times*, which published an obituary on 23 October, "Bob and his colleagues were the first to measure chlorine monoxide in the region of the ozone hole over Antarctica in 1986. They showed that this chemical was present in much larger amounts than at other latitudes. This and subsequent work established that the ozone hole is due to human production of chlorofluorocarbon chemicals."

"These chemicals are now no longer produced anywhere in the world," Dr. Solomon stated, "and the Antarctic ozone hole is expected to heal slowly over the next 50 years or so. Bob's work was key in helping save the planet's ozone layer."

Robert Lee de Zafra was born on 15 February 1932 in Scarsdale, New York. He graduated from Princeton in 1954, received the Ph.D. at the University of Maryland in 1958, and began teaching at Stony Brook in the early 1960s.

On retiring in 1999 from 38 years of teaching, Bob posted this on the Stony Brook web site: "I am a physicist who has been concerned for over three decades with

developing and applying accurate, sensitive methods for making remote measurements of stratospheric trace gases (such as those involved in ozone depletion chemistry) and stratospheric transport. I and colleagues at Stony Brook developed a unique ground-based remote sensing spectrometer, able to identify and quantitatively measure molecular rotational emission spectra from stratospheric trace gases present in as little as a few tenths of a part per billion of ambient air pressure. With this technique, we have been measuring and monitoring the destructive effects of chlorofluorocarbons on stratospheric ozone since 1981, and more recently concentrating on other aspects of stratospheric chemistry and transport."



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NO. 3

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"WE ALL HAVE OUR OWN WHITE SOUTH"

Lynne Cox swam almost every cold ocean she could think of. But, "I wanted to do so much more. An idea came to mind then": *Swimming to Antarctica*. A review in this issue, 16 years after her swim, calls attention to a remarkable book you otherwise might not have known of.

The above headline quote is attributed to Ernest Shackleton, and it is considered to refer to one's inward journey, or voyage of self-discovery. Ms. Cox's own White South was the mile-plus solo swim to shore in Neko Harbor, Antarctica, in an ordinary bathing suit. This life-challenging achievement required complex preparation and close monitoring by a support team.

Society member Henry Worsley, who attended our 2014 Gathering in Port Clyde, challenged Antarctica with an unassisted crossing of the continent. The April 2016 newsletter summarizes the attempt and his death in a hospital in Chile. His White South, the place he sought to find answers about himself, was the Antarctic. His wife Joanna thought Antarctica dreadful, but she remembered that Thomas Pynchon, in his 1963 novel *V.*, had written, "You wait. Everyone has an Antarctic," and gave her blessing. The February 12 & 19, 2018, *New Yorker* has a new 38-page article about Henry's quest. Find the article and more about Henry on the Society's web site; click on Pack Ice.

If we dare to think of organizations as having consciousness or even will, then SCAR might do. The Scientific Committee on Antarctic Research was established in 1958 with a first task of devising a continuing international program of Antarctic research. SCAR is 60 this year and will celebrate, not just itself but the science, still going strong. See "SCAR turns sixty," inside.

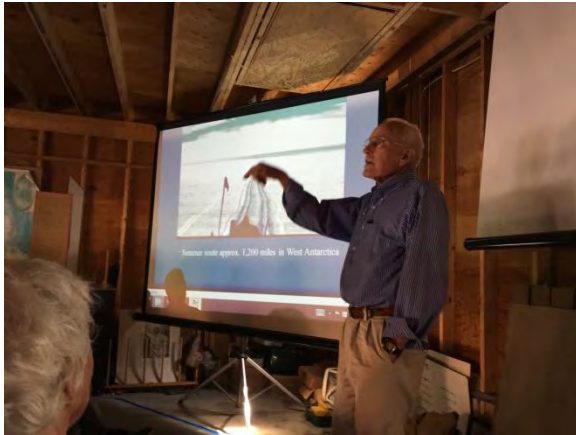
If SCAR can look inward, the Antarctic Treaty can, too. Ray Arnaudo considers it, along with comparable international arrangements in the Arctic, as inspired and relevant today. See "Peace and the Poles," below.

Guy Guthridge

Maine Gathering approaching!

The next Antarctic Gathering is at Paul Dalrymple's house in Port Clyde, Maine, Friday-Sunday, 20-22 July 2018. Friday evening: fish chowder. Saturday: Garage Theater presentations and lunch. Sunday: lobster brunch.

If you have not done so yet, please tell Treasurer Paul Dalrymple or newsletter editor Guy Guthridge you're coming; see our emails on the front page.



Honorary President Robert Rufford delivers a eulogy to John Splettstoesser in the garage theater during the 2016 Gathering. Photo: L.J. Lanzerotti.

Some attendees, as before, will tent in Paul's yard. If you're not going to do that, reserve a place to stay. Close hotels are Seaside Inn (207-372-0700) and Ocean House (207-372-6691) in Port Clyde, East Wind Inn (207-594-7644) in Tenants Harbor, and Caignair Inn (207-594-7644) at Spruce Head. The proprietors know about our event and will try to give priority to Antarctic Society members; tell them that's why you are coming.

For other hotels and cottage rentals check Airbnb.com, True Hall Real Estate (207-372-8952), or other internet.

We'll assume you're coming to all three meals unless you tell us otherwise. During the Gathering, cash or check donations to cover the cost of food and drink will be enthusiastically accepted.

This unique and wonderful event, held only once every 2 years, appears again to be shaping up for something like a hundred participants. See you there!!

SCAR is sixty



When SCAR – the international but nongovernmental Scientific Committee on Antarctic Research – met for the first time at The Hague 3-5 February 1958, it had a problem. Participants, along with colleagues still in Antarctica, had found at least a decade worth of Antarctic science to do, but their sponsor – the IGY – would be extinct in 11 months. Their task? “Prepare a plan for the scientific exploration of Antarctica in the years following the completion of the International Geophysical Year program.”

They did. SCAR had ups and downs over the decades, especially a top-to-bottom repurposing in the late 1990s and into the 2000s, but it grew from 10 to 43 member nations and will celebrate year number 60 in Davos, Switzerland, 15-27 June 2018, during the organization's 35th full meeting.

The U.S representative to that 1958 SCAR meeting in The Hague was Laurence M. Gould, head, U.S. Antarctic IGY, and President of Carleton College in Minnesota. In January 1958, on his way to The Hague, Professor Gould stopped in New York to deliver a lecture, “The polar regions in their relation to human affairs,” at the American Geographical Society. He said the poles “will play more and more important roles in

human affairs as the world becomes more crowded and mobility increases.”

The Antarctic Treaty hadn't even been written yet, much less signed, but that didn't keep Larry Gould from telling his audience, “the IGY may turn out to be a brilliant approach toward international understanding and organization.” Just over 3 years later the Treaty, signed and ratified by those 12 Antarctic IGY nations, had reserved Antarctica for peace and science.

Over time, the Treaty and SCAR (and the challenge of a vast region) have helped to raise Antarctic international collaboration to twice the world average, according to citation analyses in 2008 and 2009. IGY triggered much of that. Sixty years ago, SCAR picked up the ball and ran with it. Besides Larry, two other Society members – James Zumberge and Robert Rutford – have been President of SCAR.

Adélie numbers: up here, down there

Consider yourself, for the time it takes to read this article, to be an Adélie penguin. You live in the present, don't see the big picture, can't see the forest for the trees. If you've had food, life is good. You think, vaguely, about getting back to the rookery where you were born and finding your mate from last summer. But mainly it's a matter of eating and not being eaten. Life, though you don't think of it this way, is brutal and short.



On one of the Danger Islands, an Adélie penguin and a drone consider one another.

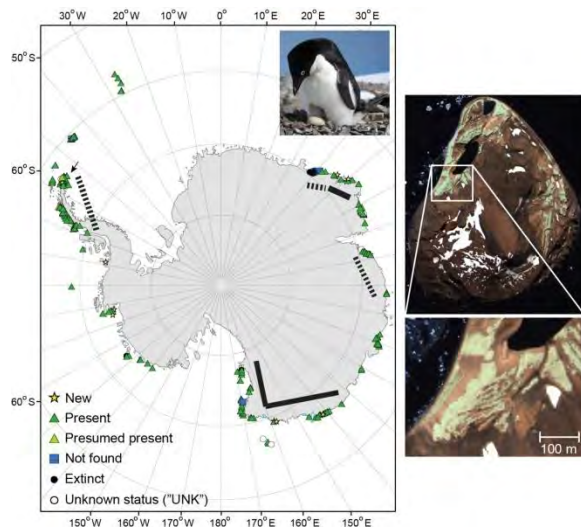


Finding your way back to Pétrél Island, on the Adélie Coast, which has 18,000 breeding pairs, you see over the course of the summer – this is the 2016-2017 austral season – that the rookery has had a “catastrophic breeding event.” All but two chicks have died of starvation. French scientists, large red creatures who do not eat you, have come by and reported this information to other humans. They say an unusual amount of sea ice has forced you and your compatriots to travel an extra 100 kilometers for food. The area around your colony has been an exception to the experience elsewhere in Antarctica, which has had a record low amount of sea ice. And the rain! Adélie chicks are built for cold, but they are not waterproof.

In 2010 the Mertz Glacier tongue lost a piece the size of Luxembourg: 40 by 80 kilometers. It's 250 kilometers away from the rookery, but one of the red creatures, Yan Ropert-Coudert of France's National Centre for Scientific Research, has told *The Guardian*, “The Mertz glacier impact on the region sets the scene in 2010 and when unusual meteorological events, driven by large climatic variations, hit in some years this leads to massive failures.”

A distant relative of yours – you've never met and never will – halfway 'round

Antarctica is in a different circumstance. On Danger Island, near the tip of the Antarctic Peninsula, she's one of 750,000 breeding pairs in an area where the sea ice is just right: not disappearing, which is bad for Adélies, but not too extensive either. Heather Lynch of SUNY Stony Brook says in the 2 March 2018 *Scientific Reports* that this is one of the largest Adélie colonies anywhere. Satellite imagery revealed the colony, previously unknown to science!



Adélie penguin colonies. Solid bars: populations generally increasing. Dashed lines: generally decreasing. Arrow on map shows location of high-resolution imagery (right). Guano areas are light green. Imagery © 2014 by DigitalGlobe, Inc. Courtesy *The Auk*.

What you don't know, since you're just a penguin, is that a 2014 survey of all Antarctica has found that, since 1993, the breeding population is up 53 percent. You are one of the world's 3.79-million breeding pairs living in 251 breeding populations. And 30 percent of your colleagues are in East Antarctica, where you are. Heather Lynch, who found those long-lost colleagues of yours on Danger Island, with M.A. LaRue told other humans about it in "First global census of the Adélie penguin" in a 2014 issue of *The Auk*.

And you're entirely unaware that your ancestors have pulled off a breeding explosion you might only dream of. In East

Antarctica – your home – the Adélie penguin population has exploded 135-fold in the last 14,000 years. The population now numbers 1.14-million breeding pairs, report Younger et al. in *BMC Evolutionary Biology* in 2015.

You're the beneficiary of the following two changes, both having to do with ice. Since the end of the last Ice Age, 14,000 years ago, land ice in Antarctica has retreated sufficiently to expose coastal area of bare ground on which Adélie penguins can breed. And, in the more recent past, sea ice has stayed at about the right level to support krill and other species at the ice edge that are your main diet.

Being a penguin, you don't know or care about these larger considerations. You just hope to live through the coming winter, at the ice edge, and get fat enough to make it back to Pétrel Island, where you may once again find your dear mate and make an egg, or two, and see a chick, or two, through the summer alive.

"Antarctic Exploration Timeline"

Society member Art Ford calls our attention to an animated web site, http://www.thingsmadethinkable.com/item/antarctic_exploration_timeline.php.

The site depicts, on a map of Antarctica, the establishment of stations and camps from 1898 to 2012. The creator of the site, Mark Jeffery, has done field work in Ellsworth Land and states that his depiction "is by no means exhaustive."

It does, however, list sources and stations and can be handy for checking your memory or simply to watch the timeline sweep by to show, according to the site, "in broad sweeps how the last continent was revealed to humanity."

Our webmaster, Tom Henderson, has seen better: "Time Trek, which was a feature of our website for a number of years. Unfortunately, Google decided to discontinue the Google Earth plugin and has not replaced it

with something of equal capability. Therefore, we were forced to take Time Trek off our website. We could show bases (a more complete set than this application), events (again a more complete set), geographic names and photographs for any time span. And it used Google Earth as the backdrop so you could zoom in to see incredible detail of the continent. I hope that we can resurrect it one day.”

U.S. Antarctic Program funding assured in fiscal 2018



A planned modernization will result in fewer and newer buildings at McMurdo. Credit: Peter Rejcek, *Antarctic Sun*.

The omnibus appropriations bill that the President signed into law on 23 March 2018 funds the U.S. Government through the rest of the current (2018) fiscal year, which ends 30 September. Of the \$1.3-trillion total, \$7.8-billion is for the National Science Foundation, an increase of \$300-million over its fiscal 2017 appropriation.

The bill provides up to \$544 million for polar research and operations, including the U.S. Antarctic program, states the American Institute of Physics. The Senate report encourages NSF to prioritize research into the stability of Antarctic ice sheets and the impacts of future instability.

The statement includes \$1.8 million for the \$350-million Antarctic Infrastructure Modernization for Science (AIMS) project to replace old facilities at McMurdo. The

administration wants to ramp up funding for AIMS to \$104 million in fiscal year 2019.

The fiscal 2017 appropriation for NSF’s polar programs (Arctic and Antarctic) was \$467.85-million; the new appropriation provides a welcome and needed increase.

Swimming to Antarctica

The phone call came around the year 2000, when I still was working for the National Science Foundation. Lynne Cox needed support for her next project, which was to swim in the Antarctic. She had broken the record for swimming the English Channel, was the only person known ever to swim across Beagle Channel in southern South America, was the only woman to swim from the North Island to the South Island of New Zealand, and made history swimming from the United States to the Soviet Union in Bering Strait.

With each swim, the water was colder. Now *my* idea of an ocean swim is coastal South Carolina in August, but it wasn’t just cold that had my attention. Before the end of our conversation, her swift and professional presentation convinced me that, one way or another, this determined soul was going to accomplish her goal. And I convinced Lynne Cox that the Foundation’s U.S. Antarctic Program was not going to have anything to do with it.

By chance I recently read Lynne Cox’s 2006 book *Grayson*, which describes her swim off California with a baby gray whale that had lost its mother. I recalled that phone call 18 years ago and got a copy of her 2004 book *Swimming to Antarctica*. A hundred thousand copies have been bought, and it has been translated into six languages. *Sports Illustrated* says it’s more than the story of the greatest open-water swimmer: “*Swimming to Antarctica* is a portrait of rare and relentless drive.”

Indeed. Lynne’s saga begins at the age of eight, training in Manchester, New Hampshire. The boys wanted out of that

day's unusually cold pool, but Lynne stayed in. Alone in the pool after a hailstorm, "I felt as if I were swimming through a giant bowl of icy tapioca. I had experienced something different, beautiful, and amazing."

Alone, but not a loner. Her parents moved the family to California so Lynne could train with Don Gambrell, head coach for the U.S. Olympic team. Lynne outgrew Don's pool and started training in the Pacific. Off Seal Beach at the age of seventeen is where she met the baby whale as told in *Grayson*.

Swimming to Antarctica is what's reviewed here, but "Swimming to Antarctica" is just the last, and longest, chapter. The book is about the development of Lynne as an exceptional cold-water swimmer. It is a page turner. It positions Antarctica as the end goal, the ultimate challenge, true for this swimmer and true for other global challenges such as "last continent" or the ozone hole.

Following the grueling swims mentioned above, and others including a crossing of Muir Inlet in Glacier Bay, Alaska, where a rower ahead broke ice and Lynne broke more with her arms, she did "a series of swims simply for fun" across lakes in Italy. But "I wanted to do so much more. An idea came to mind then, one that was bigger, more complex, and more challenging than any I had ever contemplated."

Hence the call to NSF.

All her swims, including the Antarctic one, followed rules set by the English Channel Swimming Association. You wear an ordinary sleeveless, legless bathing "costume" with no thermal protection or buoyancy, you enter and leave the water on your own, must not touch any person or boat, and take food or drink only if tossed to you. You are "permitted to grease the body before a swim, use goggles, wear one cap [not thermal], nose clip, ear plugs." Flippers are beyond consideration.

Lynne and her support crew caught a lift aboard *Orlova*, a Russian icebreaker used by both Marine Expeditions and Quark Expeditions for Antarctic tourism. In 33-degree water, she did a "practice" swim in Admiralty Bay from the ship to the Polish Antarctic station Arctowski; her core temperature dropped from 99.5 to 97.7 during the 22-minute swim covering 0.92 mile.



Photo courtesy of lynnecox.com.

For the "real" swim, into Neko Harbor (adjoining the Antarctic continent) from a mile offshore, water 32 F, Lynne started down the gangway. She was in a bathing suit, everybody else in parkas.

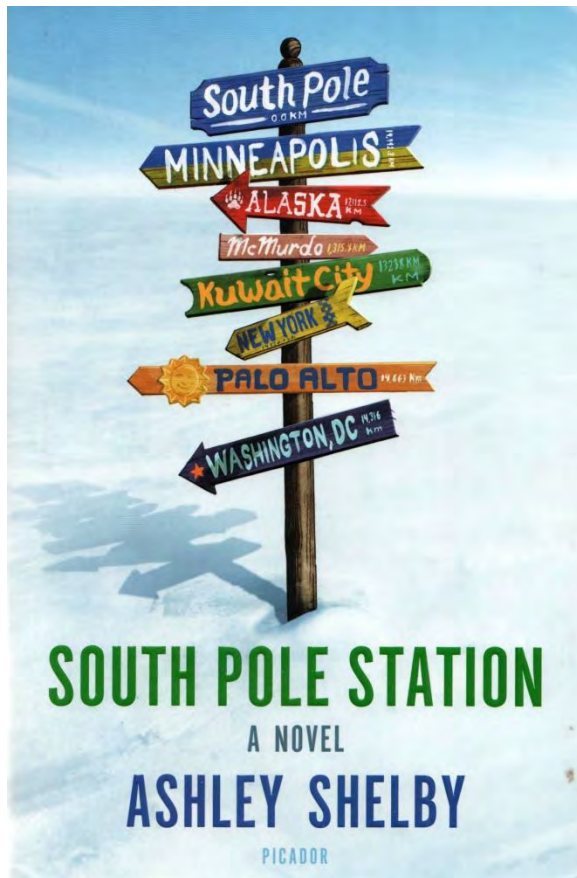
"When I hit the water, I went all the way under. I hadn't wanted to immerse my head, which could overstimulate my vagus nerve and cause my heart to stop beating. I felt like I was swimming through slush. My arms were thirty-two degrees, as cold as the sea. I was in oxygen debt, panting, gasping. The intensity of the cold was as sharp as broken glass. I'd thought that swimming across the Bering Strait in thirty-eight-degree water had been tough, but there was a world of difference between thirty-eight degrees and thirty-two."

She completed the 1.06-mile swim in 25 minutes. "I had been able to do what had seemed impossible because I'd had a crew who believed in me and in what we as human beings were capable of. It was a great dream, swimming to Antarctica."

This 359-page book is an amazing read. I recommend it to anyone interested in realization of the human potential.

South Pole Station by Ashley Shelby

review by Tom Henderson



Ashley Shelby has written an entertaining and mostly accurate novel set at my favorite place in the world: Amundsen-Scott South Pole Station. She writes about a fictional 2003-04 season in which her heroine, Cooper Gosling, has been selected for an NSF Artists and Writers grant to paint her impressions of the geographic bottom of the world. The story is told through the eyes of the main character and several of the supporting characters using the effective technique of a nonlinear timeline; that is, events take place in generally chronological order but with historical side-trips to fill in the background explaining why the characters did what they did.

Shelby gets most of the facts right. But for those of us who have spent time in Antarctica – and specifically South Pole

Station – some of the mistakes are irritating. She has the “lingo” right from my recollection, and many of the technical details of Operation Deep Freeze and the dome South Pole Station are spot on. However, some details are just wrong. For example, there was never an Artists and Writers Annex at Pole, and A&W grantees never wintered there during this time. Reference to C-17 Globemasters landing at Pole will be grating for Pole vets (C-17s are wheeled aircraft that can only land on hard runways, not on the soft snow of the Pole skiway). To her credit, she admits in the Acknowledgments that she took some liberties, and there is “stuff here that will drive some veteran Polies crazy.”

The story is timely in that it revolves around the clash between climate change scientists and climate change deniers. Physicist Sal Brennan is a member of the former group who is very vocal in his criticism of the latter, particularly of Frank Pavano who is a scientist assigned a NSF grant (through political pressure) to look for proof that climate change is not real. As friction mounts, there is an unfortunate accident at the West Antarctic Ice Sheet (WAIS) drilling camp that precipitates an official shutdown of the science program at Pole. The scientists at Pole do not take this lying down, however, which leads to a dramatic conclusion. Cooper Gosling is caught in the middle and tries to understand both sides. Eventually, she pays a price for this.

Shelby’s characters are three-dimensional. It is a sign of her skillful writing that the reader will develop an understanding of, if not empathy for, their motives. I found myself seeing parallels with the real “characters” that I came to know during my own winter at Pole. For someone who has never been there, she manages to paint a familiar picture of the unique people who gravitate to the Last Place on Earth. It turns out that her sister Lacy Shelby wintered at Pole in 2003, and

she credits Lacy for providing insights and descriptions that helped flesh out these fictional Polies and the station environment.

South Pole Station is not destined to be a classic in Antarctic literature, but it is a good read, even for those who have been there and done that.

Peace at the Poles

Ray Arnaudo's 1 December 2017 op/ed in the *Wall Street Journal*, [Peace at the Poles](#), reminds us of the success of diplomacy in the polar regions. If you are not a WSJ subscriber, drop Ray a line at arnaudorv@yahoo.com and he'll send you a copy. In global diplomacy, where conflict and failures seem the norm, Ray sees the polar regions as examples for cooperation in other places.

Ray's article starts with the First International Polar Year (1882-3), when scientists began to plan research in the unknown continent. Arctic experts were added to the Second International Polar Year (1932-3). The third one, the International Geophysical Year of 1957-58, led to the Antarctic Treaty. Thoughts for the frozen continent had included using it for nuclear tests or a dump site for wastes or weapons. The Treaty, now 57 years old, reserves the region for peace and science.

The original signatories (**Argentina**, **Australia**, Belgium, **Chile**, **France**, Japan, **New Zealand**, **Norway**, South Africa, the Soviet Union, the **United Kingdom**, and the United States), include seven (in bold) that had staked territorial claims to sectors of the continent. The Treaty defers claims and bans military fortifications. Now over fifty countries, representing almost seventy percent of the world's population, have signed, and almost thirty maintain research stations, sharing plans and information.

In the op/ed Ray describes a sister in the Antarctic Treaty System, the Convention for the Conservation of Antarctic Marine Living Resources. Negotiated in 1980, it

oversees management of marine resources. Krill and fish are monitored and harvested sustainably by the 36 signatories. There have been disputes over Soviet bloc overfishing excesses in the 1980s, and some poaching and underreporting recently, but the convention has led to cooperation and sustainable catches.

In the North, the eight countries with land or waters above 60 degrees North began discussing regional cooperation in the mid-1980s. In 1996, the eight agreed to create the Arctic Council, focused on environmental protection, sustainable development, and inclusion of native organizations in decisions. The Council now has its original members (Canada, Denmark, Finland, Iceland, Norway, Russia, Sweden, and the United States), 13 observing countries, and participation by the six major indigenous groups (Aleut, Athabaskan, Gwich'in, Inuit, Russian Indigenous Peoples, and Saami).

Unlike the Antarctic Treaty, the Arctic Council excludes military matters and fisheries, covered by other agreements. But the bulk of regional problems are discussed, and new agreements focus on the increasing ship traffic and access to northern waters.

Both the Antarctic Treaty and the Arctic Council were built on scientific cooperation, coordinated by the Scientific Committee on Antarctic Research (SCAR) in Antarctica and the International Arctic Science Committee (IASC) in the Arctic.

These accords have helped to sustain peace at the poles. New Antarctic research stations are planned with oversight by all parties, insuring environmentally sound management. In the Arctic, new regional agreements in the last three years focus on the maritime and navigation issues of search and rescue, oil pollution prevention, and scientific access.

Ray argues that the polar solutions might be looked at when considering problem areas like the South China Sea. Scientific cooperation in the South, and maritime navigation successes of the North,

might be a starting point. A regional scientific body could coordinate research, like SCAR and IASC do for polar regions.

Maybe E. William Colglazier, editor-in-chief of *Science & Diplomacy*, read Ray's op/ed. Looking at the tension with North Korea, he argues in *Science* (9 February 2018) that "diplomacy by scientists might be one step toward a more lasting rapprochement. . . . I propose bringing together North Korea's science leaders and a group of prominent U.S. science and security experts outside of government."

Ray notes that at a 1985 diplomatic conference held on the Beardmore Glacier, Antarctica, Professor William F. Budd, University of Tasmania, suggested that by raising the northern boundary of the Antarctic Treaty by ten degrees of latitude a year, in no time at all we would have world peace! Banning military activities, like the Antarctic Treaty does, is maybe a bridge too far. But recalling the principles that have helped keep the Arctic and Antarctica calm, global cooperation perhaps can prosper if we don't forget that peace prevails at the ends of the Earth.

Society member Raymond V. Arnaudo is a current member of NSF's Advisory Committee for Polar Programs. He is a retired diplomat with a career in international environmental and science policy affairs at the State Department where, among other assignments, he was Director of the Office of Oceans and Polar Affairs.

Scott's coldest March was preceded by a damagingly warm December

Modern science continues to shed light on how unusually extreme the weather was that hit both Robert F. Scott and Roald Amundsen during their separate South Pole expeditions in the 1911-1912 summer season.

The temperatures of March 1912 were so far below what was expected that

they contributed to the deaths of Scott and his party during their attempted return from the South Pole, which they had reached in January.

This information has been available since 1999, when Susan Solomon and Charles R. Stearns published "On the role of weather in the deaths of R.F. Scott and his companions" in *Proceedings of the National Academy of Sciences*. Their analysis of the 1919 observations by British meteorologist George Simpson, along with contemporary automatic weather station data on the Ross Ice Shelf, led to their conclusion that the weather in March 1912, when Scott and his two remaining companions perished, was much colder and persistent than average and that it was a primary cause of the deaths.

Susan provided additional information and context in her book *The Coldest March: Scott's Fatal Antarctic Expedition*, which Yale University Press published in 2001.

Now, new analyses – again, based on examination of the historical record in conjunction with modern data – establish that the 1911-1912 austral summer had exceptionally high temperature and pressure anomalies. Both Scott and Amundsen, despite their different routes taken between the Antarctic coast and 90°S, experienced these anomalies.

In a March 2017 paper, "An exceptional summer during the South Pole race of 1911/12" (*Bulletin of the American Meteorological Society*), Ryan L. Fogt, Megan E. Jones, Susan Solomon, and others state that the unusual summer warmth "places an even more dramatic change in the weather coming down from the south polar plateau to the Ross Ice Shelf and therefore might have also caused these cold spells to be perceived as more intense by comparison."

The authors show that in the period 1979-2015 the temperatures only rarely changed as sharply as Scott and his men experienced. A multiyear variation called the southern annular mode, or SAM, had

one of the strongest negatives in 1911-1912 since 1850.

The warm December produced lots of wet, sticky snow that made for hard sledging. The cold March gave the snow so much more friction that Scott's party might almost as well have been sledging on sand.

"The period of warmth, consistent with another period of exceptionally high pressures at Cape Evans, may have lulled Scott's party into slowing down, and it is possible that they would have reached their key next depot if they had not done so."

When Scott and his party died in March 1912 they were still far inland. Amundsen's crew had reached its coastal base, thus finishing its northward trek, on 26 January.

Read the 2017 paper online for free. <https://journals.ametsoc.org/doi/pdf/10.1175/BAMS-D-17-0013.1>

1958 C-124 crash near Hallett Station

by William Highlands, CWO4 USN (Ret)

In 1958 I was at Hallett Station, near Cape Adare, a joint base of the United States and New Zealand usually staffed with 16 people. From its establishment in 1956 to 1964, Hallett operated year-round. From the 1964-1965 season until the end of the 1972-1973 season, it was used only during the summer. The party then included seven wintering research scientists.

We arrived at Hallett in January 1958 and stayed mostly isolated from outside contact, except for a visit from the icebreaker *USS Glacier* around mid-February, until October 1958. Then people and materials began flowing south from New Zealand, destination McMurdo Sound. Even though Hallett was a way station on the flight path, we seldom knew about or heard from the aircraft flying the route. Still, we readied the emergency ice runway on the bay ice should a plane need to land.

Early in the season, McMurdo became "socked in," and planes returning from South Pole station and other areas that could not land there were diverted to Hallett. This emergency caused our population to skyrocket to 52 people. Luckily, this overcrowding lasted only a short time. Because we had assisted and because we had not received mail since February, it was decided that an Air Force C-124 would deliver mail, fresh vegetables, eggs, and other perishable foods to Hallett. Needless to say, we were looking forward to this delivery.

On 14 October we received word that the next day a C-124 would parachute mail and other items. We waited for the appointed hour to arrive and heard nothing from the aircraft. Around 1730, McMurdo radioed us that the aircraft had crashed on a mountain north of Hallett.



C-124 crash north of Cape Hallett. Photo by Tim Timmerman, U.S. Navy

We met in the mess hall to talk about what to do. Most favored sending land vehicles to look for and assist survivors, even though our ability to do so was limited. We had had only three tracked vehicles: two weasels and an unreliable Snocat that Edwards, the Construction Driver Chief Petty Officer, did not want to use. We gathered items we thought would be useful such as first aid kits, food for both rescuers and survivors, and extra fuel.

A team was chosen to head for the crash site from those who were not only willing, which was pretty much everyone,

but had some skills that might come in handy. Also, some duties were considered essential to the International Geophysical Year; for safe operation of the base, those people could not be spared from their jobs. All hands loaded the weasels, and the two vehicles headed out. Most watched until we could only make out small dark spots on the ice, and then we retreated inside.

We could communicate with the rescue party over shortwave radio, but the unit in the weasel was battery powered and had a limited lifespan, so transmissions were kept to a minimum. It was mid-October, so sunset was late in the evening. The rescue party made slow progress towards the mountain on which the plane had crashed. Drifting snow from winter storms on the frozen bay ice made it rough going. Finally, we heard from the rescue party. They had reached the base of the mountain, but when they tried to go farther they were hindered by high ledges and deep crevasses. To make matters worse, they had lost one weasel and were fearful of losing the second one.

Meanwhile, McMurdo had sent a P2V airplane to the Hallett area to see if they could assist. It arrived shortly after the rescue party reported it could not go any farther. The P2V flew over the crash area and spotted the wreckage, but it was unable to do anything more. After landing at Hallett, the pilot of the P2V radioed McMurdo with his report, and the decision was made to send an Otter and a helicopter to Hallett to conduct search and rescue. By this time, darkness had fallen, so the SAR flight would have to wait until dawn.

At first light, the aircraft made their way north to Hallett and landed. The Otter landed on the runway, and the helicopter landed among some penguins. Along with the Otter and the helo came other aircraft with fuel bladders and pumps to refuel any aircraft that required it.

Immediately after topping off its tanks, the helo departed for the crash site. We soon learned they had found survivors

among the wreckage, some injured. The wounded were flown back to Hallett, and subsequent trips were made to the crash site until everyone was evacuated. Also during this time, the weasel crews made it back to the station. They were fine, but exhausted from the journey.

The injured airmen were loaded on a waiting C-124 and transported to New Zealand. After the SAR mission was complete, all aircraft were refueled and departed for either New Zealand or McMurdo.

Eventually, we did receive our mail, but the excitement of its arrival was tempered by sadness about the accident that had occurred.

This is my recollection of the events. That was nearly 60 years ago, and my memory may not be at its best.

A history of Hallett Station is in the December 1983 Antarctic Journal, p 1-8, at <http://www.coldregions.org/vufind/Content/ajus-home>. Aircraft losses in the early years were grim; see "United States aircraft losses in Antarctica," by Peter J. Anderson, Antarctic Journal, Jan.-Feb. 1974, 1-21.

Dee Lewis Breger, 1943-2016



Dee Breger in Antarctica

In 2014, as the Antarctic Society prepared for that July's Antarctic Gathering in Port Clyde, Maine, we were especially pleased to receive an offer from Dee Breger

to give a presentation about her work as a scientific illustrator. Her emphasis had been Antarctic oceanography, starting as early as 1968 with a voyage in the Southern Ocean aboard the ice-strengthened USNS *Eltanin*.

With sadness, we learned that Dee was unable to give the presentation owing to sickness. She died 8 September 2016. Dee Lewis Breger was born 12 March 1943.

In 2017 Dee's sister Lois Breger compiled a short biography of Dee and provided it to the Society. We draw from this and other material to provide the following commemoration.



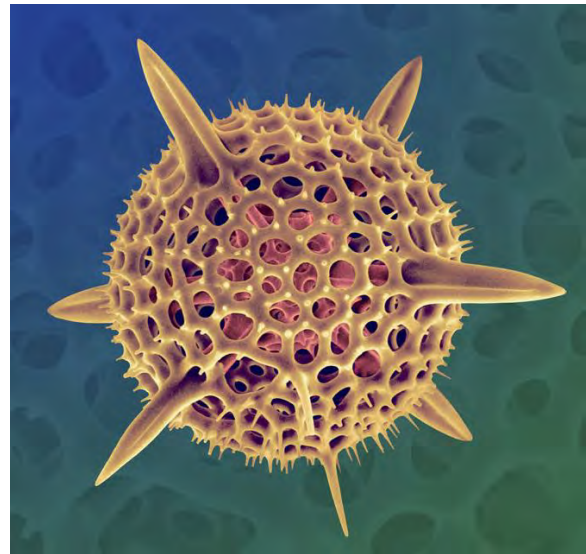
Dee on pyrite rocks

With a degree in art from the University of Wisconsin, Dee Breger began her career as a scientific illustrator at Columbia University's Lamont-Doherty Earth Observatory. After Lamont acquired one of the first scanning electron microscopes, she began specializing in SEM imaging.

In 1982, Dee founded Lamont-Columbia's first professional SEM and X-ray microanalysis facility, which she directed for 22 years. In 1995 her book of images, *Journeys in Microspace*, was featured in *The New York Times Magazine*. Her work also was featured in the 1998 BBC documentary *Hidden Visions*. Dee relocated to Philadelphia in 2004 to serve as Director of Microscopy and Research Professor at Drexel University's College of Engineering. In

2007, she participated in a History Channel documentary as the analytical microscopist for a project investigating meteorite impacts.

In addition to specializing in the SEM, Dee led or participated in research programs on over 30 expeditions ranging from Siberia to the South Pacific, with an emphasis on Antarctic oceanography. She was on Lamont's Alumni Association Board of Directors as well as a Fellow with the Explorers Club, served as a Field Associate for Liberty Science Center, and was a Council Member at the New York Hall of Science. She was active with the Holocene Impact Working Group, researchers dedicated to uncovering evidence of cosmic impacts during the last 12,000 years.



Fossil Antarctic Radiolarian

In 2009 Dee created Micrographic Arts, a website to promote her images, and moved to the Saratoga, New York, area. Throughout her career, Dee encouraged an interest in the world of science through visual presentations at schools and other venues. Her award-winning images have been displayed in national and international exhibitions, science centers, corporations, and various media.

Lamont continues to maintain a web site, [Dee Breger's Microworld: The Sublime Side of Science](#).



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ANTARCTIC SCIENCE MAY BE RECENT, BUT IT DOES CHANGE

Ninety percent of all the geologists who ever worked in Antarctica can email each other. That comment, made some years back by a National Science Foundation program manager, is a way of saying we have come to know the Ice well only in recent decades. Society member Art Ford illustrates the point in "The road to Gondwana" in this issue.

Art brings his Antarctic half-century to life in a talk at the 21 July Garage Theater in Port Clyde, Maine. Paul Dalrymple, another living Antarctic history lesson, has hosted these Antarctic Gatherings every other summer for the last decade. Art's article below is based on one of the presentations; summaries of others will show up in future newsletters.

Movement of the continents was of high interest following the 1957-1958 IGY. As Art explains, the Antarctic was a key place to study it. Among scientists worldwide, the most highly cited Antarctic paper of the 1960s and 1970s was by J.R. Heirtzler on motions of the ocean floor and continents, published in the *Journal of Geophysical Research* (JGR) in 1968.

Another field of high interest then that's farther down on today's list of Antarctic priorities was magnetospheric physics. Donald Carpenter published two highly cited JGR papers, in 1963 and 1966, about the "knee," a region of the plasmopause where the stratosphere meets the magnetosphere, that then was studied best from Antarctica.

Antarctic science answered big, worldwide questions of the time. Those earlier research areas have yielded top billing in recent years to other fields. Steven Chown, president of SCAR, lists understanding the future of the ice sheets and what it means for sea level rise as one, and ways the region's systems will respond to global and local challenges as another.

Guy Guthridge

The road to Gondwana: the Cape Town SCAR meeting in 1963

by Art Ford

SCAR, the Scientific Committee on Antarctic Research, an outgrowth of the landmark 1957-58 International Geophysical Year (IGY), functions in part to encourage scientific research activities among the 50-some Antarctic Treaty nations by helping organize periodic meetings in the various research disciplines.

The Potsdam, Germany, organizing committee for the 9th International Symposium of Antarctic Earth Sciences (ISAES-9), of September 2003, asked me for its plenary lecture reviewing earlier symposia as I was the only one still extant who'd been to them all. Fifteen years later I am still around, to talk about how the first two such symposia closely reflected the rapid Earth science paradigm transformation from continental drift to the new plate tectonics, which occurred between the first two SCAR symposia, *i.e.*, Cape Town-1963 and Oslo-1970. (The pivotal societal transformation from the apartheid we witnessed to the Mandela freedom would unfortunately take much longer.)

Gondwana, that ancient southern hemisphere supercontinent of Paleozoic age, some 550 to 300 million years ago, was iconic for proponents of continental drift, but its rock and fossil evidence was virtually all in southern lands. Controversy raged between the “drifters” of the South – the likes of Tasmanian professor S. Warren Carey and South Africa’s Alexander du Toit with his 1937 classic text *Our Wandering Continents* – and the continental “stablists” of the north, namely, everyone in academia but for two notables: Edinburg’s Arthur Holmes and Germany’s Alfred Wegener, who perished tragically in 1930 on the Greenland ice sheet. At the time of Cape Town’s 1963 ISAES-1, professors of the

South had led Earth science research into the Renaissance of continental mobility long before plate tectonics theory arrived, leaving those of us of the North still in the Dark Age. Cape Town would be a most appropriate site for this first Antarctic meeting.

South Africans made a tiger’s leap at the chance to educate those Northerner skeptics by showing us their drift evidence. It was impressive to the continental “stablists” of the North. I’d been mapping Antarctica’s rocks since soon after IGY. I worked in areas where du Toit in his 1937 book had clairvoyantly predicted that mountains (*e.g.*, the Ellsworths) at the head of the Weddell Sea would someday be found to contain rocks like those of the Cape Town region. A 1962-1963 University of Wisconsin field party indeed found them.

At SCAR-Cape Town, little credence was shown to Gondwana, except for two South African speakers: the world expert on the ancient Gondwana forests Edna Plumstead, and the University of Durban professor Lester King. Neither had been to Antarctica.

Most of the others talked only of their postage stamp-size areas, with little reference to the bigger picture of connections beyond the shores.

The chief organizer of this meeting, and editor of its resulting book volume, was Raymond J. Adie, geologist of the U.K.’s Falkland Islands Dependency Survey, forerunner to today’s British Antarctic Survey. And now we know the how and why Cape Town was chosen: Ray was a South African émigré. For geology, there could not have been a more appropriate site!

The high point of this meeting was the field trip around the country to show those skeptical Northerners evidence of fossils and rock sequences of the Table Mountain sandstone and overlying Dwyca, Ecca, Beaufort, and Drakensberg sequences – all so similar to what we’d been studying in the Ellsworth, Pensacola, and Transantarctic mountains.

Little question remained on du Toit's brilliant story on that supercontinent, Gondwana. By the 1970 Oslo ISAES-2, Vine and many others had developed the North Atlantic and northeastern Pacific ocean-floor magnetic patterns that led to today's theories of sea-floor spreading and moving tectonic crustal plates.

Antarctic field studies increasingly were fitted into these theories at succeeding SCAR symposia. Cape Town 1963 was where it began.

***The Stowaway*: book review**

by Alfred J. Oxtou

The Stowaway: A Young Man's Extraordinary Adventure to Antarctica, by Laurie Gwen Shapiro (Simon & Shuster, 2018) arrived finally in the post, delivered of the same sort of persistence evinced by the book's 17-year-old protagonist Billy Gawronski. More of the same persistence was required of me to get started with the reading. I'm in over my head with reading; books are in piles around my pillow.

Once started, this tale of Antarctic adventure moved right along. From Billy's first attempt to stow away on Richard E. Byrd's ship by swimming the murky Hudson River at night to his finally hitchhiking to Virginia for another attempt is a tale that rivals Paul Siple's pursuit of all the Boy Scout Merit Badges that underpinned his quest for a berth in Byrd's first (1928) Antarctic expedition.

Once Gawronski (who pointed out that he was 18 now and therefore an adult) was given free reign by his father and was accepted by Byrd as "mess boy," the story sails along: through storms at sea, the Panama Canal, the ritual of crossing the Equator, provisioning at Tahiti, layover in New Zealand... Been there, done that, was my initial response to some of those vignettes. But Billy Gawronski's was different to what I did, and so I had to look

again through his eyes and see a different experience.

And of course his adventure was at an earlier time: telegraph vs internet, the bark *Bolling* vs the NOAA ship *Surveyor*, the crowds of anticipation surrounding this incredible expedition into the unknown vs the business as usual of my time on ice.

Overall, I found *The Stowaway* to be well worth the read. Too bad Gawronski, for all his persistence, went on to obscurity while Siple went on to greatness. There should have been room for both of them.

James McClintock receives SCAR Education and Communication award

by Polly Penhale



James McClintock

SCAR in 2018 presented its first Education and Communication Award to James McClintock, Professor at the University of Alabama, Birmingham, USA. The Scientific Committee on Antarctic Research presents annual medals to recognize excellence in research and outstanding service to the international Antarctic community.

The award citation highlights Dr. McClintock's focus on Antarctic climate change and impacts on the unique shallow-water benthic marine ecosystem. It acknowledges Dr. McClintock's understanding of the Antarctica environment, the protection of its ecosystems, and the inherent value of sustaining it. Throughout his career,

Dr. McClintock has been committed to communicating the understanding of Antarctic issues to both peers and the public.

Interviewed about this prestigious award, Dr. McClintock said, “The support I have received over my three-decade Antarctic research career from the United States Antarctic Program (USAP) has been instrumental to my developing a growing focus on both studying and communicating the impacts of climate change. This has particularly been the case over the past 18 years as my marine biological research program supported by USAP took me, my co-principal investigators, and our students to Palmer Station on the central western Antarctic Peninsula. Here, I found myself surrounded by climate change playing out in real time, and the realization that there was an urgency and a responsibility for scientists such as myself to inform the general public about the increasing impacts of global climate change.”

Dr. McClintock’s book *Lost Antarctica: Adventures in a Disappearing Land* (Saint Martin’s Press, 256 p., 2012) describes the unique world in Antarctica with its stark beauty, harsh environment, and fascinating ecosystem made up of organisms ranging from microbes to whales. As climate change progresses, Dr. McClintock sees changes in a world that he has studied for over 30 years.

A rock from the Antarctic

Art Ford gets around. Yes, he goes to familiar places like Cape Town (see his article starting on page 2). If you read “Incident in the Crary Mountains” in this issue, you will notice that Art was aboard the airplane that clipped a mountain and flew home to tell about it. Art also was with Peter Rowley (another Society member) in Palmer Land in 1987.

Your editor is aware of Art’s Palmer Land trip because one day in February 1988 a wood box showed up in the mail at the

National Science Foundation, where I worked, with my name on it. Inside was a rock and a letter. Here’s the letter:

“This sample is from outcrop 4329, a nunatak in the center of the Guthridge Nunataks. The rock is a fine-grained glassy, volcanic rock, probably an ash-flow tuff, of probable Jurassic age. It is typical of most other nunataks in the area, which define the axis of a volcanic arc running the length of the Antarctic Peninsula. Art Ford and I collected your samples on 10 January 1987, during a long, cold day. By the time we turned the snowmobile south to outcrop 4329, the wind was at mach 1 and we were running at almost that speed! Thus we did the geology of that nunatak in about 10 minutes, grabbing your samples in the process!”

The letter is signed, “Peter D. Rowley, U.S. Geological Survey.”

The rock to this day occupies a bookshelf in the house where I live in Old Town, Alexandria, Virginia. Pete’s letter is alongside. I have never been to Guthridge Nunataks.

Art and I wondered if Pete might be coming to the 2018 Antarctic Gathering in Port Clyde, Maine. “Thanks for the invite,” Pete wrote, “but must decline. My wife Dawna still works (for BLM) and I am the stay-at-home manager of our mini ranch (6 horses, 2 dogs, 4 cats, chickens) in rural SW Utah. All those animals would really miss me if I were to go visit you guys. Plus, I always seem to have some geology to map around here, whenever I can get away! And today I put in 2 hours of work in my consulting business, which still limps along.”

Pete continued, “I do not remember sending that rock to Guy but I made it a policy to do that a lot when I visited areas named after geologists or other people I knew. I tried to get large (football size) rocks, then send them.”

For his part, Art told Pete the e-mail exchange “brought back fantastic memories

of a memorable season with you and BAS on the Black Coast of Palmer Land.”

Incident in the Crary Mountains, 22 November 1960

by John C. Behrendt

I could see nothing through the clouds from the right-hand seat in the cockpit of the plane, where I was recording the altimeter readings. Our height had been varying between 2200 and 2300 feet above the surface of the West Antarctic ice sheet. “Hooch” Clark, who was operating radar and radio, reported on the intercom that there was “a target 13 [nautical] miles ahead.”

A radar target meant only one thing: mountains! I got nervous, but said nothing. Lou Helms, the copilot at the controls in the left seat, began to climb fast. Two minutes later we were at 8300 feet but still only 2250 feet above the snow level. There was no visibility. A minute later we had pulled up to 8640 feet elevation above sea level, but the snow surface was also coming up and was still only 2300 feet below. Then the radar altimeter [which measured the height of the plane above the snow using a radar pulse] began to unwind. Thirty seconds later we had climbed to 8680 feet, but the ground was now only 1500 feet below.

For the next 30 seconds I could only stare at the radar altimeter which dropped with terrifying rapidity to less than 50 feet (a red light came on). Meanwhile, Lou was pulling the nose up until we began to stall. The air speed dropped below 80 knots.

The plane would stall at 77 knots and fall toward the ice below.

Of course all hell broke loose throughout the aircraft. Joe Walker, the pilot, who had been dozing in a seat on the port side across from the navigator, was startled by a can of orange juice falling off a shelf onto his lap. Andy Holzener, the plane captain (crew chief), had come forward into the aisle between Lou and me. Lou was yelling for Andy to “Get Joe!”

Tom Laudon was hanging onto the ropes in the main cabin and could see a rock outcrop just to starboard; the wing of the plane was perpendicular to the cliff. Pete Bermel had been standing directly behind the navigator in the aisle observing how he plotted our positions and saw him put on his helmet and tighten his seat belt. Pete started to run for a seat and was thrown through the air. Art Ford was hanging on and saw an outcrop to starboard. Dick Wold, who had been operating the magnetometer and listening to the intercom, was struggling to keep the geophysical equipment from tipping over. He could see that the magnetic field had been coming up very fast during the preceding minute and he finally saw the garbled signal from the magnetic sensor (called the “bird”) as it bounced along the snow or rock 60 feet or less below. Suddenly, the bird broke off.

About this time the trailing edge of our starboard wing hit a rock.

Meanwhile, Joe had rushed forward, pushed Andy aside and took a half-kneeling position between Lou and me. The plane was shuddering violently in repeated progressive stalls.

Joe was yelling at Lou to “Get the nose down! Get the nose down!” Joe finally reached with his left hand and did this himself, by yanking the controls from Lou’s hands. We made a vertical bank to the left and dove. With his right hand Joe started to pull the throttles all the way back to kill the two engines. He figured it would be better to crash sliding forward along the surface than flipped over on our back. With the fuel off, we were slightly less likely to burn. He was sure the three of us in the cockpit would go through the windshield, but possibly those in the cabin might survive. Miraculously(? [sic]) we picked up air speed, and did not plow in! The radar altimeter showed 200 feet.

Through much of this action, I could see the sun glowing feebly through the fog directly in front of us. It was swinging violently from the port side to the starboard and back. We all had complete vertigo. We had been flying almost true north, with the

sun to our south at this time of day. Obviously, we somehow had turned completely around. I wished fervently that this would end soon.

There were a few seconds respite, during which I dove out of the cockpit seat and Joe scrambled in. I went charging back to strap myself into a seat, but could not find the belt. (I also had not had my seat belt fastened in the cockpit.) I dropped the data book and felt guilty about it. A note at this time in my data book reads: "Amongst mountains we cannot see and trying to get the hell out. Barely clearing tops."

The plane staggered around like a drunken man and finally began to climb. We went up to 13,500 feet and could catch glimpses of mountains apparently as high on either side. I felt giddy and exhilarated from the lack of oxygen at this elevation (I thought).

The sun was now shining, and it felt very good to be alive!

I was a 28-year old graduate student and was leading my first Antarctic field party. We were flying over the West Antarctic Ice Sheet in the late evening in a ski-wheel Navy R4D8 (DC-3). Marine Capt. Joe Walker, the aircraft commander, was 29.

Art Ford, John Aaron, and Pete Bermel, USGS, Dick Wold, Tom Laudon, and I (University of Wisconsin) were the USARP scientific personnel. Later, Wold and I spent many years with the USGS. Bermel, Laudon and Wold died in 2017.



John Behrendt (left) and Dick Wold at Byrd Station in 1960 (photo by Tom Laudon)

We had headed toward the Toney Range on a course north-northwest from Byrd Station with nothing visible below but the featureless, sastrugi-covered ice sheet. I recorded the barometric and radar altimeter readings to measure the snow surface elevations every 5 minutes.

Andy, the plane captain, ran around just after takeoff checking on each wing for fuel leaks, letting the magnetometer bird out, and monitoring the twin propeller engines. A Navy photographer and six civilian scientists of the United States Antarctic Research Program (USARP) were observing and operating a magnetometer. They were crammed into the main cabin, which also was crowded with our survival gear, JATO bottles (used for jet assisted takeoff) and a 500-gallon internal fuel tank full of aviation gasoline. We planned to land and do several hours of field geology in the unexplored area toward which we were flying.

In reconstructing the incident later, it became clear that this is what happened:

At 2310 (local Byrd Station time), an hour and a half out of Byrd, we entered clouds and did not come out. We had drifted off course to the left by 20 miles and into the volcanic Crary Mountains. This range had been discovered, mapped, and named three years earlier by Charles Bentley's oversnow traverse party, as had the Toney Mountains about 90 miles farther on, so they were on the latest edition of the air navigation chart SP5. However, the Navy air navigation chart the air crew was using was obsolete. It showed no mountains in this area.

We had tried to fly through a 10,000-ft pass between two 12,000-ft peaks at an aircraft altitude of less than 9000 ft.

Later, Andy and Joe both said they thought they felt the wing hit the mountain, during the stalls. We were shuddering and banging around so violently that the rest of us thought they were mistaken; we were probably feeling "stall buffet" – the airflow over the plane beginning to break down

before the airflow breaks down completely and the wings have no lift.

We had made four stalls, first one wing stalling and dropping, then the pilot recovering control, only to stall again to the other side, each stall more extreme. During this time we turned about 180 degrees and headed to the south, away from the mountains. However, at one point an outcropping came so close on the right that our wing hit the rock. The magnetometer sensor – encased in a fiberglass “bird” normally towed about 60 feet below and slightly behind the plane – dragged along the ground for 17 seconds before it broke off.

When Joe, the pilot, grabbed the controls and dove, we picked up air speed, and because we had turned away from the peaks, we did not crash. All this time the engines were running at full takeoff power. As we tried to clear the hidden mountains, Joe circled, and slowly we climbed to the level of the tops of the peaks in our unpressurized plane.

During the incident everyone was doing his job, not because of bravery or duty, but because no one had time to think. Lou and Joe flew the plane. The radar man, who did not know the pilot had no forward visibility, watched the radar target ahead split into two peaks as we apparently (to him) proceeded between them. The navigator tried to plot the rapid course and elevation changes. Dick operated the magnetometer. I recorded times and elevations in a data book. The incident lasted about 3 minutes after the snow surface started to rise fast.

When the crisis was over, Joe called me forward and asked if I wanted to go on. “Sure, if you’re willing,” I replied. We got the rear door off, reeled in the old magnetometer cable, and put the spare bird out.

We civilian scientists barely understood what we had gone through and were quite shaken. Joe, however, was surprised that we carried a spare cable and bird, as though these were normal

occurrences. Actually, we had the spare in case of an electronic breakdown.

At 2352 Joe called me forward and noted that the whole area was clobbered in by clouds. He suggested we go home and try again another day. I heartily agreed. We landed at Byrd, 4½ hours after we had left it, a somewhat chastened group, at 0130 (23 November) Byrd time.

We climbed slowly out of the plane, walked over, and examined the right wing. There was a fist-sized dent in the tip. Joe and Andy had been right. Dick and I examined the end of the magnetometer cable where the bird had pulled off after dragging on the ground. I still have this end as a grim memento of the luck that prevailed that day.

We all agreed that this was the closest call any had ever been in or heard of. There is no doubt that we all would have been killed if we had crashed.

I got together with Fred, the navigator, and plotted our track last night. I found that we were in amongst the Crary Range during the trouble. These mountains are shown on the 5th edition of the SP5 map which I have, but not on the 3rd edition which is all Fred had to go on. Just this error could have killed us all.



Dented Wing Tip on R4D *Semper Shaftus*
(photo by Tom Laudon)

My outlook was permanently changed. A minor example; since that near-death experience, I have never to this day ridden in a car or flown in a plane without putting on a seat belt.

This incident in the Crary Mountains, although the most dramatic of my life, characterized the United States Antarctic Research Program and Navy Operation Deep Freeze in the early days of the “Scientific Age.” I only gradually came to that realization, while writing this account describing my third and fourth seasons as a geophysicist in Antarctica.

From 1955 at the start of Deep Freeze through 1961 there were 19 deaths in aircraft accidents, or 3.8 per year. Since 1970 there have been two fatal aircraft accidents. The aircraft death rate during the early years was 38 times the rate in the past three decades.

We took for granted the “routine” aircraft and crevasse incidents. From the International Geophysical Year beginning in 1957 until 1966, we Americans (with others from the Soviet Union, France, Australia, Argentina, New Zealand and the United Kingdom) made a successful geophysical reconnaissance of the Antarctic ice sheet. But our accomplishment had a grim price.

—

From: Behrendt, John C., 2005, *The Ninth Circle; a Memoir of Life and Death in Antarctica, 1960-1962*, University of New Mexico Press, 240 p. The italicized sans serif text is from my journal, written at the time. Note the names of people aboard the plane who are or were members of the Antarctic Society.

Stephen DenHartog, 1933-2018

“With great sadness,” writes Dorcas DenHartog, “I relate to you that my father passed away April 23rd. Before he left, I know he was able to read the most recent Antarctic Society newsletter – it was on the bar where he stood to read his mail and do the crossword puzzle.”

Denny was beloved by many in the Society. Our treasurer Paul Dalrymple

attended a celebration of his life on 24 May in Norwich, Vermont, and provided remarks on behalf of the Society and as a longtime friend.



Stephen "Denny" DenHartog

Stephen Ludwig DenHartog died unexpectedly at his home in Hanover, New Hampshire.

He attended Phillips Exeter Academy, class of 1951, and went on to study geology at Harvard University. In 1954 he found himself in the Army, testing ordinance at the cold weather testing facility at Fort Churchill, on Hudson Bay. He returned to Harvard, graduating with the class of 1957. He was first in the Antarctic during the International Geophysical Year (IGY), 1957-1958. He went on to get a masters in geology at the Montana School of Mines.

In 1967 his Arctic and Antarctic experience led him to Hanover to work for the Army's Cold Regions Research and Engineering Laboratory. There he helped design, build, and then work for the ice engineering department until his retirement in 1993. His kids said that dad blew up ice jams for a living.

Denny was the sole or lead author of 19 papers regarding cold regions and a coauthor on another dozen. Antarctic papers on which he was lead or sole author were

published between 1959 and 1993 and ranged from analyses of snow pit samples taken during the 1958-1959 Little America to Victoria Land traverse to a field survey of potential airstrip locations at Mount Howe.

Chris Elfring, 1955-2018



Chris Elfring

Chris Elfring was the director of the Polar Research Board, National Academy of Sciences, from 1996 to 2013, a period that included planning for, and follow-up on, the 2007-2008 International Polar Year, which was the largest and most ambitious focused undertaking in polar regions since the 1957-1958 International Geophysical Year.

The Polar Research Board during the years of Chris's tenure was – other than the funding agencies – the critical U.S. organization integrating scientists of different disciplines, research organizations, and nationalities to develop a program of research that was necessary, collaborative, and achievable. This focused undertaking enabled – or emboldened – organizational and scientist-to-scientist collaborations that, example after example, would not have happened without strong ties that the commitments of organizations like the PRB made possible.

Chris's hand is all over the Academy's 2012 publication *Lessons and Legacies of International Polar Year 2007-2008*, nap.edu.

Chris, of Takoma Park, Maryland, died from brain cancer on 7 June. She received a B.A. from Denison University and an M.S. from the University of Wisconsin. In 1979, she moved to Washington, D.C., as a AAAS Science Fellow working at the Office of Technology Assessment. Summers in the early 1980s, Chris was a park ranger at Acadia National Park in Maine.

Chris began her career with the National Academies of Sciences, Engineering, and Medicine, in 1988. Most recently she was executive director of the Gulf Research Program. Previously, she directed the Board on Atmospheric Sciences and Climate as well as the PRB. In 2012, the American Meteorological Society awarded her the Cleveland Abbe Award for Distinguished Service to the Atmospheric Sciences, and she was elected an AMS Fellow.

Chris had a long interest in the policy dimensions of science and in communicating science to nonscientists.

A celebration of her life will be held Sunday, 5 August 5, at 10:30 a.m. at Woodend Sanctuary, 8940 Jones Mill Road, Chevy Chase, Maryland.



The Antarctic Society

VOLUME 18-19

OCTOBER

NO. 1

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A NEW ERA FOR THE ANTARCTICAN SOCIETY

The reason the Antarctic Society exists today is Paul Dalrymple. A member almost since its beginning, he was voted a director in 1976 and president in 1978. He immediately became editor of this newsletter, revealing himself as such only after a reader wrote wanting to know who the 'I' was. "I' is Paul Dalrymple," he wrote in Bergy Bits, "and I am your current outspoken, candid president who is trying to get you all to read the newsletters and to support your Antarctic Society."

After he completed his 2 years as President, his successor – Meredith F. Burrill – told members that under the Society's constitution "Paul could not have been reelected, else he surely would have been." Paul became treasurer (a post he still holds) and continued as the newsletter's editor.

He became more: the Society's voice and guiding light, sustaining a robust lecture series in Washington, D.C., doubling membership, and securing a financial base that lasts today. Retiring in 1985 from over 30 years of Federal service, Paul continued as editor because, he wrote, "someone has to tell it as it is and I'm afraid my replacement might be a cop out." The cop out turned out to be me. Paul bestowed this honor and responsibility in 2014.

In 1988 the Society's center of activity moved to Port Clyde, Maine, when Paul relocated there. An unforgettable feature for many became Antarctic Gatherings, held every other year at Paul's house because of his untiring commitment to keeping the ties alive. The most recent was in July, and Paul provides his own assessment of it and others below.

Read also below Paul's decision to pass along the privilege and pleasure of hosting the next Antarctic Gathering. A following article discusses an opportunity in 2020 in Orono, Maine, and another in 2021 at Mystic Seaport Museum, Connecticut, during its coming major Antarctica exhibition, planning for which is described in this issue.

Guy Guthridge

The 2018 Antarctic Gathering

Some 130 Antarctic Society members, their families, and friends gathered, per invitations published in recent quarterly newsletters of the Society, at Paul Dalrymple's home in Port Clyde, Maine, 20-22 July 2018 for a weekend of conversation, exchange of ideas and information, and coastal Maine seafood.

The middle day of the gathering, Saturday, was devoted to talks in Paul's Garage Theater as listed below.

Articles describing these talks are appearing in issues of the newsletter. Art Ford's was the first – in the July 2018 issue. This issue contains a summary of the presentation by Steve White about Mystic Seaport's planned Antarctica exhibition.

Photographs by some attendees – especially Mark Leinmiller and Millie Eidson – were made available for us to share, and some of them appear on the Antarctic Society web site [HERE](#).

Society members, whether or not they attended the Gathering, may be interested in resources brought to bear to make the weekend happen.

Spending by the Society for the tents, chairs, tables, portable toilets, food, drink, and paper plates and the like totaled \$6,418. Financial donations by participants – including more than a thousand dollars spent for donated items auctioned on Sunday morning – totaled \$6,471. The surplus \$53 was put in the Society's bank account.

In addition, several Society members arrived early and/or stayed after the gathering to help prepare for the meeting and to clean up. They and others brought consumables or provided services during the meeting on their own to supplement the items acquired by the Society.

Paul Dalrymple, as he did for prior gatherings, generously made his house and grounds available for this special event. Neighbors Nadine and Greg Mort allowed the parking of cars on their field. The

Tenants Harbor American Legion lent its sound system for speakers to use, and the Saint George School lent projection equipment. The weather cooperated, giving us mostly dry days and mild temperatures.

Morning talks, Saturday 21 July

Introductions – Society Treasurer Paul Dalrymple pcdal@roadrunner.com

Welcome – Society President Tony Gow petprotector@comcast.net

Mystic Seaport and Antarctica 2020 – Steve White, CEO, Mystic Seaport steve.white@mysticseaport.org

Charles Bentley (1929-2017) commemoration – Richard Cameron polar57dick@cs.com

The Antarctic Eye: Landscape Photography on the Ice – Lynn Teo Simarski chesapeakewinter@yahoo.com

Fifty years of ice drilling in Antarctica and Greenland – Tony Gow petprotector@comcast.net

Where Glaciers Meet: The Ross Ice Shelf – John Clough cluffermon@gmail.com

Afternoon talks, Saturday 21 July

The Road to Gondwana: Cape Town SCAR meeting 1963 – Art Ford abford@aol.com. See Art's article in the July 2018 newsletter

Deception Island, Antarctica's industrial center – Steve Dibbern victoriadibbern@aol.com

Ten thousand phone patches from Antarctica – Julius Madey hillfox@fairpoint.net

A memorable Drake Passage crossing by R/V Hero – Dick Wolak wolak66@gmail.com

My Grandfather Richard E. Byrd – Eleanor Byrd ebyrd246@gmail.com

Swimming to Antarctica – Lynne Cox lynnecox@aol.com. See a book review in the April 2018 newsletter.

Repowering South Pole Station: alternatives – Steve Theno stevetheno@pdceng.com

The above news item, with photographs, was posted on the Society's web site in August and remains there now.

Thoughts about the Antarctic Gatherings

by Dr. Paul Dalrymple

On reaching 62 years of age, I retired from a position in the Corps of Engineers at Fort Belvoir in Alexandria, Virginia. I remained in Virginia until my mother's health began to fail in the late 1980s; I decided to move to coastal Maine (Port Clyde) to more or less monitor her wellbeing.

I found many Antarcticans in the immediate vicinity. At the turn of the century, with help from Charles Lagerbom and John Spletstoesser, we started holding Antarctic gatherings every other year at my house in Port Clyde. They became popular, growing from about 25 to well over 100. The last one, this past July, attracted 127. The largest we ever had (2014) was 177, when we included Antarctic artists and writers.

Now I am 94 years of age, soon to be 95, and even though I have enjoyed all the gatherings, the last one was somehow different. For the past decade I have said, "No more," but somehow I always seem to go "One more time," mainly because of the fine support from Lagerbom, Dick Cameron, Tony Gow, and other friends.

Now we have Mystic Seaport Museum, in Connecticut, on the horizon as a possible venue for the next gathering, and a couple of our other members standing by willing to continue what Bert Crary once

called me for "creating a monster." It is time for me to hand lead responsibility for future gatherings to other Society members.

In retrospect I would like to recall some of our highlights. Certainly having Charles Swithinbank become a faithful attendee for many gatherings was a blessing. He was our greatest, most beloved member. Oh how I enjoyed him. He occupied a bedroom in my house which will forever be called "The Swithinbank Room."

What became our biggest achievement was when Dr. Ed Williams videotaped 30 of our most prominent Antarcticans in attendance, creating, "Antarctica Calling," a three-DVD set you still can buy on the Antarctic Society website by clicking [HERE](#). What a joy, what a success!

Another great joy was having Lou Lanzerotti as an active member. He was the brain of our outfit. Once upon a time, one of our Presidents appointed Lou as a member of the U.S. National Science Board, and he still kept coming to our theater in the garage as if we were important.

We had many other Antarcticans greats. A darling was one of Bernt Balchen's widows, Bess. Another was the daughter of the architect of the Antarctic Treaty, Jean Portel. Another female of note was the widow of Bert Crary, Mildred, who loved every moment of our gatherings, especially the oysters!

Among my many favorites was Dr. Will Silva, a medical doctor who served with distinction at several Antarctic stations. He was nonpareil in my book. One who graced many of our gatherings was Ed Robinson, a geophysicist, who came with bagpipes and entertained us at several gatherings. Thank you, Ed.

Nearly half our original attendees have passed along. One of the last was geophysicist Charles Bentley, who departed the scene in the last year. Last but not least, the parker of our cars, Stephen "Denny" DenHartog, died in a recent month.

The 2020/2021 Antarctic Gatherings: U. Maine/Orono; Mystic Seaport

The Society has begun looking into where to hold its next one, or two, Antarctic Gatherings. Leading candidates are (a) a three-day weekend in 2020 (ideally Friday-Sunday, 17-19 July) at the University of Maine in Orono and (b) a long weekend at Mystic Seaport Museum in Connecticut during its planned Antarctica exhibition in the summer of 2021.

Both places offer advantages and new experiences. The obvious negatives are that neither is Paul Dalrymple's house.

First, Orono. Society member Hal Borns, an emeritus professor at Maine, obtained proposals from the university's conference services group for hosting and catering us. That was in August 2016, when the Society also was looking at alternative locations. Because the facilities are underused in summer, we would be able to both meet and sleep at the university.



The University of Maine at Orono

What about cost? If you attended any of the gatherings at Paul Dalrymple's house – staying in a local hotel and dining out – the overall cost to you (and to the Society) if we were to meet at Orono possibly could be less. We would have to pay for meeting facilities, whereas Paul's was low cost (the big tents, portapotties, etc.), but we could stay in the dorms, which cost less than a hotel room on the coast, and the university would supply all meals from Friday evening through Sunday lunch.

Here is a big change from past gatherings. The Society would have to require financial commitments in advance from members who decide they will attend. This is because we'd have to sign on to money obligations that the Society on its own is not in a position to meet.

Another significant change is that we will have an implied obligation to invite the university and Orono community to attend the Saturday lectures. This condition seems a positive in that it is likely to increase the size of the audience. Also, the university's Climate Change Institute, headed by Society member Paul Mayewski, is heavily involved in Antarctic research.

Now for 2021 at Mystic Seaport Museum on the Mystic River in Connecticut. Many of you know that the museum is planning a major Antarctica exhibition that will start in November 2020 (see the following article). The exhibit is to continue into the 2021 summer. If that works out, the Museum has expressed interest in hosting a Society gathering at Mystic.

Comments from Society members we have heard from to date are that meeting at Mystic during the exhibition is the priority. Some like the idea of a 2020 gathering as well, some not so much.

Whatever is to happen, member comments now, and commitments later, will be critical. We solicit your answers – before 1 December 2018 and preferably earlier – to these questions.

1. Given the possibility of a gathering in summer 2021 at Mystic Seaport while its Antarctica exhibition is open, do you also want to meet in 2020?
2. If yes, are you happy to gather at the University of Maine in summer 2020?
3. Tentatively (at this stage), would you plan to attend the Orono gathering, and how many would be in your party?

4. If you plan to attend the 2020 gathering, are you willing to make a firm financial commitment by – say – July 2019? (This date could change depending on negotiations with the university.)

Contact me: gguthrid@yahoo.com or 703-258-4320 (mobile phone).

Expressions of interest from members will be critical in determining the Antartican Society decision to move forward, or not, with planning for an Antarctic Gathering the weekend of 17-19 July 2020 at the University of Maine, Orono. We also are keen to get going on the 2021 gathering at Mystic, but first things first.

Mystic Seaport Museum and Antarctica



Thompson Exhibition Building

As shown on page 2, the first presentation of the Garage Theater in Port Clyde on 21 July 2018 was made by Stephen C. White, President, [Mystic Seaport Museum](#).

The museum, founded in 1929, covers 19 acres along the Mystic River in Connecticut and is home to 500 watercraft, including four National Historic Landmark vessels, most notably the 1841 whaleship *Charles W. Morgan*, America's oldest commercial ship still in existence.

Of special significance to the Antartican Society, and the reason Steve came to Port Clyde to give his talk, is the museum's Thompson Exhibition Building, a new 14,000-square-foot facility that was

opened in 2016. The building includes 5,000 square feet of exhibition area and an adjacent conference room that can seat 200.

This facility is to be the location of a major exhibition about Antarctica to open in November 2020, the 200th anniversary of the first sightings of Antarctica, and to continue at least through the summer of 2021.

Nathaniel B. Palmer in particular was in the Antarctic in 1820 aboard *Hero* and recorded his sighting of what we know now is the Antarctic continent.

Here is where coincidence comes into play. Palmer's historic voyage started from Stonington, Connecticut, just 3 miles from Mystic. There, the [Captain Nathaniel B. Palmer House](#), which Nathaniel and his brother Alexander built in 1852-1854, is now a museum owned by the Stonington Historical Society. It contains information and artefacts relating to Nathaniel's Antarctic voyages and the two brothers' lives as ship captains and builders.

Steve told the Antarctic Gathering in Port Clyde about planning for the Mystic exhibition as it now stands. To be titled *Discovering Antarctica 1820-2020*, it indeed will include Palmer's sighting of the Antarctic Peninsula, but the overall intent is to mark Palmer's achievement as well as to demonstrate and celebrate the 200 years since of America's relationship with Antarctica.

The Antartican Society already is involved in the planning. In June 2017 the museum invited two dozen specialists to meet in Mystic in order to discuss the scope of the exhibition. Two participants were the Society's secretary, Joan Boothe, and newsletter editor Guy Guthridge.

To attendees at the Garage Theater, Steve described six sections of the exhibition as now envisioned:

- 1 Antarctica as imagination (before 1820 and now): Antarctica as a subject of imagination of the ancient and contemporary culture.

2 Moment of discovery (in 1820): the story of Nathaniel B. Palmer as a beginning of local to national and international history.

3 Voyages for profit; sealing and whaling in Antarctica: importance of economic factors in the early expeditions to the Antarctic.

4 Life in Antarctica: Lives of early explorers during the Heroic Age and now.

5 Politics of science; geopolitics and international cooperation in the Twentieth Century: claims, then the change of mood after the International Geophysical Year along with the rise in the importance of scientific research.

6 Remote but connected; Antarctica and climate change: Antarctica as a dynamic continent where the impact of climate change is obvious.

In addition to the exhibition in Connecticut, Mystic Seaport is considering activities in the field, including potentially a joint expedition with the Cambridge University Archaeological Unit to South Georgia in 2019 and a collaboration with Abercrombie & Kent to conduct a 15-day voyage from Ushuaia, Argentina, as far south as Marguerite Bay along the Antarctic Peninsula.

After his visit to Port Clyde, Steve White sent the following communication:

Dear Antarctic Society Gathering participants,

First of all, many thanks for so warmly welcoming me to your Port Clyde gathering. I learned a great deal in a short period of time, and I am still trying to make sense of all the notes I took from conversations with so many of you. I very much appreciated your interest in our plans for the *Discovering Antarctica 2020* exhibition. Attached is a short version of my slide presentation, as some of you had asked for a copy of the exhibition plan and its themes.

As I said at the end of the presentation, we are looking to extend our reach to

partners, both national and international. We need help and guidance with respect to:

1. Curatorial support: knowledge of the 6 themes...perhaps one guest curator per theme,

2. Content: objects that support the themes, and

3. Funding: contacts with individuals and foundations that might support the initiative.

We look forward to following up with many of you, especially those who shared their information with us regarding our needs. If you didn't have a card to give me but want to share ideas and/or interest with us, please be in touch with us.

It was good to be home and in a place so important to my family, as well as to meet so many wonderful and interesting people. Thank you.

Regards, Stephen C. White
President, Mystic Seaport Museum
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SCAR held its 35th meeting in June



SCAR delegates at Davos

The international Scientific Committee on Antarctic Research, which turned 60 years old this year, held Open Science Meeting Number XXXV in June in Davos, Switzerland. The event was done in

collaboration with the International Arctic Science Committee.

The scope was research progress in those two regions and in what the combined event (named “Polar 2018”) termed the Third Pole, meaning the mountains of the Himalayas and Hindu Kush. Except for the Arctic and the Antarctic, those two places hold more permanent snow and ice than anywhere else on Earth.

The assembled 2,500 people presented 1,600 posters and a thousand oral papers.

As is normal for such large events, which tend to focus more on process than on breakthroughs, no one seems to have tried to identify to the public the most important outcomes of Polar 2018. But the four scientific plenary sessions – on ice cores, Southern Ocean circulation, the West Antarctic Ice Sheet, and the Southern Ocean’s global importance – may indicate topics of higher than average interest.

While SCAR is nongovernmental, it identifies its adhering organizations (for the United States it’s the National Academy of Sciences Polar Research Board) by nation, and it ranks the 44 as being at one of four levels. Russia and the United States are the only “special contributors.” Sixteen others fall in the “well-developed programs” category. Fourteen are at the level of “initial-stage programs.” The remaining dozen are associate members. SCAR has nine honorary members – individuals, not countries – and two are Americans: Chuck Kennicut II and our Society’s Honorary President, Robert Rutherford.

It seems important to heed the fact that SCAR held this big meeting. International organizations like SCAR are important for scientific progress, and the Antarctic is well endowed with them. Besides SCAR and the Antarctic Treaty, the national governments’ program managers have a group that meets every year.

A result, maybe because of these groups or maybe because polar science is

hard to do, or maybe both, is that international collaboration in Antarctica (the Arctic, too) is at twice the level as occurs with research conducted elsewhere in the world.

This assertion is backed by specialists who analyze the characteristics of published research papers. If the authors of a paper are from more than one nation, it’s international science. And citation rates – how often later papers cite earlier ones, a measure of their impact on research progress – are higher for international science papers than for papers produced by scientists of just one country.

So international science is a good thing, and not just for the science. Consider the history of the USA and the USSR, throughout the Cold War, exchanging scientists every winter in the Antarctic.

D.W.H. Walton, in a recent issue of *Antarctic Science*, says it this way: “Inclusive community meetings like Davos are hard to organize, yet they provide the basis on which we can build our future efforts in science, advice, and outreach. These efforts really matter.” To sense the direction of Antarctic science today, you might spend an hour or two prowling the abstracts at <https://www.polar2018.org>.

William Nordhaus gets Nobel award

When, in 2000, the National Academies of Science assembled an 11-person panel to evaluate the likelihood and impact of abrupt climate change, it recruited mainly geophysicists. Richard Alley of Penn State, who analyzes the detailed climate record contained in ice cores from Greenland and Antarctica, chaired the group. Nine of the other ten also were physical scientists.

William Nordhaus was the standout participant from another discipline. A professor of economics at Yale, his research focuses on economic growth and natural resources, the extent to which resources

constrain economic growth, and the economics of global warming. His book *The Economic Impacts of Abrupt Climatic Change* had just been published when the Academy's panel was formed.



Dr. William D. Nordhaus
Credit: Yale University

The result of the group's work was *Abrupt Climate Change: Inevitable Surprises*, which the National Academies Press published in 2002. Before the 1990s, the report states, the dominant view of past climate emphasized slow, gradual swings of the ice ages tied to features of the earth's orbit or occurring with continental drift. But "unequivocal geologic evidence" shows that climate can change abruptly. Changes of up to 16°C and a factor of 2 in precipitation have occurred in some places in periods as short as decades to years.

Chapter 5 of the six-chapter, 238-page, book is "economic and ecological impacts of abrupt climate change." A footnote states, unsurprisingly, "This section draws heavily on Nordhaus (2000)." The chapter points out that ecosystems are vulnerable to abrupt climate change: they tend to be long-lived and unmanaged (e.g., coral reefs), unable to anticipate future events, and slow to migrate or adapt.

People can be smarter. The report quantifies instances how being smart or dumb can save money or cost you. For example, under perfect foresight a property owner optimizes the depreciation schedule in light of the need to abandon when sea-

level rise makes the structure uninhabitable. The myopic owner operates the dwelling assuming no sea-level rise until forced to abandon. Without adaptation – that is, if every property owner is myopic – a sea-level rise of 1 meter could add 50 percent to the cost of coastal structures damaged by sea-level rise. "Adaptive capacity is diminished by myopia," is the dry conclusion. While climate change inevitably has impacts, "Abruptness increases those impacts."

The strength of the chapter is its quantitative evaluations of empirical data.

On 8 October 2018 the *Washington Post* and other sources announced that Nordhaus and another American, Paul Romer (New York University), received the Nobel Memorial Prize in Economic Science for their work (done independently) on the relationship of climate change and technological innovation to economics, which has profoundly shaped policy around the world. The prize is a million dollars.

The Royal Swedish Academy of Sciences, which administers the prize, said, "William D. Nordhaus and Paul M. Romer have designed methods for addressing some of our time's most basic and pressing questions about how we create long-term sustained and sustainable growth."

A lot of that 2002 National Academy report to which Nordhaus contributed is based on research done in the Antarctic. It is worth noting that a talent with the insight and stature of William Nordhaus has been acknowledged for paying attention to polar regions.

Ozone hole update

During four seasons lecturing on an Antarctic cruise ship, a talk your editor gave about the ozone hole was popular even though the hole and its cause were discovered more than 30 years ago. These findings, many say, are Antarctica's most important scientific accomplishment.

Actions and research taken since the discovery have been significant, too.

The 1987 Montreal Protocol (with later, even more stringent, agreements) limiting production of ozone destroying chemicals is “perhaps the single most successful international agreement,” stated Kofi Annan, former UN secretary general.

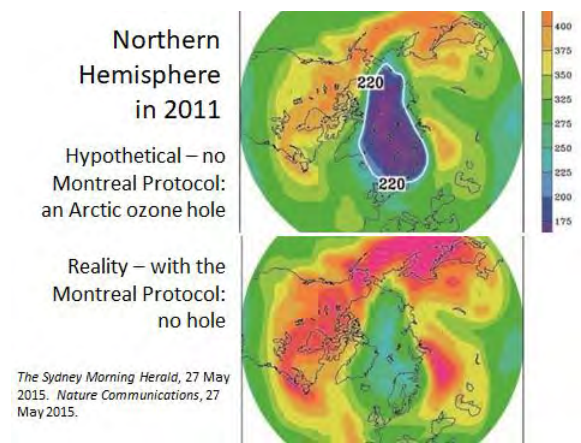
Here is a rundown on some other advances since the 1980s.

The Antarctic ozone hole is getting smaller. The process is uneven because factors such as volcanic eruptions and varying temperatures of the Antarctic stratosphere influence the size, but NASA figures that by 2070 stratospheric chlorine (the main destroyer of ozone) will be back to 1970s levels, when the ozone hole started to form each austral spring.

fatalities. The U.S. EPA figures the Protocol from 1990 to 2065 will save 6.3-million human lives and, by 2075, avoid a 7.5-percent decrease in American crop harvests.

Susan Solomon, the scientist who in 1986 and 1987 had led the U.S. research teams at McMurdo that showed chlorine from CFCs causes the ozone hole, published (with others) a paper in the 15 July 2016 *Science* confirming the emergence of healing in the Antarctic ozone layer.

Not all the news is good. The 9 February 2018 *Science* says at midlatitudes, where most people live, “the ozone layer in the lower stratosphere is growing more tenuous – for reasons that scientists are struggling to fathom.” William Ball, the study leader, says very short lived substances may be the culprit.



If the Montreal Protocol had not been implemented, an ozone hole would have formed over the Arctic by 2011, according to a 27 May 2015 paper in *Nature Communications*. By 2064, the stratosphere over the United States and other mid-latitude regions would have been as ozone-depleted as the Antarctic ozone hole (NASA, 13 May 2009).

Environment Canada calculated that in the period 1987-2060 we will have \$224-billion in reduced damage to fisheries, agriculture, and materials, 129-million fewer cataracts, 21-million fewer cases of skin cancer, and 333,500 fewer skin cancer



The Antarctic Society

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JANUARY

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IN ANTARCTICA FOR THE LONG HAUL

Scientists long ago recognized the flaws in doing Antarctic research by means of discrete expeditions that began and ended, leaving gaps between. Still, it is impressive to watch some of the continuing national programs as they design and install permanent installations with a verve and an efficiency that you'd envy anywhere, not just on the polar frontier.

Antarctic (Issue 246, 2018), our Society's sister publication in New Zealand, summarizes what the Australians are up to. In addition to building a 525-foot icebreaker for science and resupply, they are replacing the Macquarie Island station, setting up long-haul tracked vehicles for deep field work, developing a drill for 3,000-meter-deep ice cores, and making a year-round ice-free paved runway near Davis Station.

China's notable advances are described in the October 2017 issue; an innovation this season will be to start on a runway for wheeled planes. India has two modern, low-footprint research stations with fiber-optic and wireless connections and more than a decade of failure-free field operations.

While each of the countries extends its national cultural signature to Antarctica, international collaboration is more and more common in science and logistics. Many projects these days are more than a single nation could handle. Think International Polar Year (2007-2009), when discoveries were made that otherwise wouldn't have happened.

We Americans remain preeminent in the Antarctic, but others are giving us a run for the money. From 1981 to 2007 our fraction of Antarctic research publications dropped from more than a third to less than a quarter: not because our output went down, but because other nations ramped up.

Our field program is among those beefing up. South Pole Station is up to date, a new Palmer Station pier is on the books, and McMurdo is beginning a multiyear modernization. We may yet see a new icebreaker by 2023.

Guy Guthridge

Next Antarctic Gathering(s)

Mark your calendar: 16-18 July 2021.

Mystic, Connecticut, is where members have told us they are enthusiastic about holding an Antarctic Society gathering in the summer of 2021. Mystic Seaport Museum then will be displaying a major Antarctic exhibition celebrating the 200th anniversary of first sightings of the ice continent and exhibiting Antarctic developments up to the present.



Charles W. Morgan, built 1841, is the world's last remaining wood whaleship. It is the central attraction of Mystic Seaport Museum

The exhibition is to open in November 2020 and be open through most of 2021.

Nearby Stonington, Connecticut, has the Palmer House museum commemorating Nathaniel B. Palmer's historic 1820 sealing voyage to the Antarctic.

Fewer Society members say they would plan to attend a Gathering at the University of Maine, Orono, in the 2020 summer.

As a result of articles in the last (October 2018) newsletter, we heard from 30 members about these options. All but one who responded to our request for comments gave an enthusiastic yes to the Mystic gathering.

Just 20 said yes to the Orono gathering. Eleven members either said no to the Orono meeting or were not enthusiastic about it. The sense was that if we decide to do both some may come to both even though they are not so keen on Orono.

Most who responded said spouses would attend, too. So we potentially have more than 50 people already planning to come to the 2021 Mystic gathering, but fewer to the 2020 Orono one, if we hold it.

Attendance at whichever place is bound to be much higher than these early numbers suggest. This assertion is based on the pattern that emerged as the date for the recent 20-22 July 2018 Antarctic Gathering (in Port Clyde, Maine) approached. As late as May 2018, only about 50 people had said they would come. Then, in the following weeks, more and more told us they would be there. The actual attendance – as reported by Paul Dalrymple in the last newsletter – was 127.

Again, at this time the Society's next planned Antarctic Gathering will be 16-18 July 2021. We may be able to secure block arrangements with one or more hotels. The Whaler's Inn, 20 East Main Street in Mystic, is a 12-minute walk to the Mystic Seaport Museum. Many more hotels are nearby, also. It's not too early to reserve a room!

Burlington, Vermont, 2022 or 2023?



Burlington Waterfront. Proposed venue for a gathering is in the lower left corner.

Another future Antarctic Gathering venue is on the table: Burlington, Vermont. After the October newsletter was published, our wise webmaster Tom Henderson – ear to the ground as always – proposed the location for a future year (2022 or later).

Here's what Tom says:

“I would like to throw the Burlington, Vermont, hat into the ring for the future. We have lived here for almost 2 years now, and we love it.

“A meeting place on the Lake Champlain waterfront has two theaters and lobby space for socializing. The larger theater seats 200, which I think would be ideal for our group. Across the street are Marriott and Hilton hotels. Other hotels or motels are within walking distance or a short drive.

“Pay parking near the venue is ample and reasonably priced. The nearby Church Street pedestrian mall has restaurants and shopping and is active year around.

“Camping is available about a mile north of the harbor, and it connects to the venue by a beautiful bike and walking path. A tour boat at the harbor takes people and groups out on the lake between April and November; it could be reserved exclusively for our group. You can rent a canoe or a kayak at the new Sailing Center, which is two blocks north of the venue. “The Leahy ECHO Center is adjacent to the venue. This environmental museum focuses on the history and the ecology of Lake Champlain as well as on Vermont wildlife conservation.

“We would need at least 2 years lead time to make arrangements. Burlington is not Port Clyde, but it is a worthy second!”

This note from Tom brings to mind the flaw in the University of Maine Orono proposition for a 2020 Gathering: it has no champion amongst our members. For the Port Clyde meetings we had the tireless, and vitally important, onsite support from Paul Dalrymple and Gracie Machemer.

Burlington, Vermont, has Tom. He writes, “I fully realize what I am getting into. In my working days, I coordinated a national conference attended by over 400 people, so I know what details need to be attended to. I am also currently the Reunion Coordinator for the Old Antarctic Explorers Association and created a Reunion Planning Guide for them which details what a local organizer needs to

do. I have no misconceptions about the work involved, and I am happy to do it.”

If you don’t drive, you can get there by public transportation. Amtrak stops at Port Kent across the lake; the Vermonter’s Essex Junction is a cab ride away. Ferries cross the lake from Essex and Plattsburgh.

Burlington airport connects to many major cities. Montreal’s Pierre Trudeau airport serves many airlines and is a 2-hour drive from Burlington. Or one can take a train from Montreal to Plattsburgh and then the ferry to Burlington. The ferry docks about two blocks from the potential venue.

Arriving on your own boat? Use the Hudson River and Champlain locks, and rent a slip a block away.

Tom adds, “Burlington has a dozen or so microbreweries and – not coincidentally – five colleges or universities.”

A hill and a hole

A map with a caption in *On Wisconsin*, the University of Wisconsin alumni magazine, came to our attention. The university’s cartography lab and its geology and geophysics library collaborated to create the feature, “58 Frozen Landmarks” – the centerfold of the Winter 2017 issue.



The 58 places in Antarctica named for University of Wisconsin personnel.

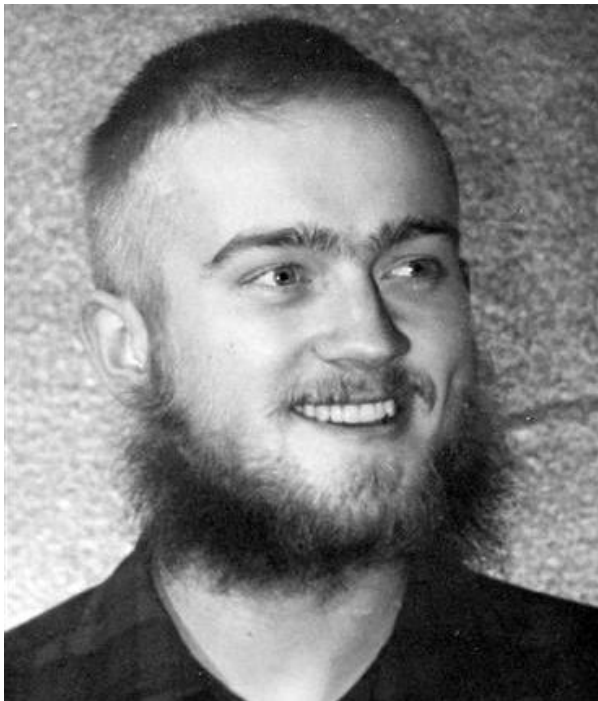
“Badgers have made their mark on Antarctica,” it reads, “thanks to the UW’s long history of research and exploration of the continent.” The two-page map plots 58

natural features in Antarctica named for UW-Madison faculty, staff, and students.

Charles R. Bentley, who died in 2017 (see our Society's October 2017 newsletter), gets special mention. The *On Wisconsin* spread says he spent 25 consecutive months in Antarctica beginning in 1957 and made at least 15 trips to the Ice over seven decades. Mount Bentley and Bentley Subglacial Trench are named in his honor. In a 2008 interview Charlie said, "I claim to be the only person with a hill and a hole named after him."

Eighteen crazy men and a dog

Society member Bob Benson, who reminisces in our July 2016 newsletter about the first Midwinter spent by humans (he was one) at the South Pole, wrote to our treasurer Paul Dalrymple that he and his wife Marilyn have moved to an independent-living retirement community, but remain near NASA's Goddard Space Flight Center in Maryland.



Bob just out of college and at South Pole.

Bob is still an emeritus astrophysicist with Goddard's Geospace Physics Laboratory. NASA has kept him busy since 1964, and his most recent paper was published in *Radio*

Science in December 2018. His main research interests are in plasma wave phenomena, ionospheric and magnetospheric physics, and planetary radio emissions. He uses the terrestrial ionosphere and magnetosphere as a space plasma laboratory. These research interests were stimulated in 1957 while at Pole, age 21 and straight out of the University of Minnesota geophysics department.

We thought about asking Bob to write a reminiscence about his long career with its Antarctic start for this newsletter. A brief look at NASA's web site showed we didn't have to; Bob had already done that. Read *Science in a Dark Freezer: a tale of icy beards, frozen tools, and wintering over at the South Pole*, by Joel Shurkin, on the space agency's [Earth Observatory](https://earthobservatory.nasa.gov/features/Benson/page1.php) web page, <https://earthobservatory.nasa.gov/features/Benson/page1.php>

Bob was one of the youngest of the 18 "crazy men and a dog" who did the science and ran the station back in the 1957 winter. He took pictures, too. The National Geographic published one of them – a long exposure of the Moon's path through the sky over several winter nights – as a two-page spread in its magazine.



Bob used a pinhole camera at Pole to make this long-exposure shot of the Moon over several nights.

Bob says the winter at Pole is a high point of his life, but he's never been back. Even crazy men, concludes Joel Shurkin in his writeup, become wiser with age.

2018 Amundsen Memorial Lectures

by Tom Henderson

I attended the 2018 Amundsen Memorial Lectures annual meeting in Oslo, Norway. This event is held on the first weekend in December at the Fram Museum to commemorate Roald Amundsen's expedition to the geographic South Pole in 1911. This memorable and enjoyable experience was well worth the \$220 registration fee.

The Fram Museum has been voted the best museum in Norway for 5 years running. Director Gier Klover's dedication to preserving and presenting history in an accurate and accessible way is evident in the layout and displays in the museum. Fridtjof Nansen's famous polar ice ship *Fram*, the ship that Amundsen borrowed and used for his South Pole expedition, is at the heart of the museum – literally. The entire ship is housed beneath an A-frame building where visitors can view it at all levels and walk through it. A recent addition is the ship *Gjoa*, which Amundsen sailed through the Northwest Passage in 1904-06, becoming the first to do so. Both ships have been meticulously restored to their original condition using the shipbuilding techniques of their day.

A third attraction is the reed raft *Kontiki* constructed and sailed across the Pacific Ocean to Polynesia from South America by Thor Heyerdahl in the 1950s. Heyerdahl thus proved that Polynesia could have been populated from the east rather than the west. Interspersed among these major exhibits are many smaller but very informative exhibits.

The reception and registration on Friday evening, 30 November, featured the opening of a new exhibit on the Swedish polar balloonist S.A. Andree, who perished on an attempted flight over the North Pole in 1897. The reception was attended by descendants of Andree. It was followed by screening of a 1954 documentary on the life of Roald Amundsen.

The next day featured presentations (in English) by five excellent speakers in the museum's modern and spacious theater, primarily on Arctic topics. One was a sneak preview of a new film on the life of Amundsen. Both the director and lead actor participated in a Q&A session about the making of the movie. The film is produced by Norwegians to Hollywood standards. If the excerpts shown are an indication, this film will be popular among Antarctic enthusiasts and general audiences. Amundsen's life story is heroic and, in hindsight, it begs the question as to why it wasn't redone until now. "Amundsen" will be released in Norway later this year, and syndication in the U.S. is being negotiated.



Amundsen Memorial Dinner in the *Gjoa* Building

The highlight of the Memorial Lectures was the dinner on Saturday night. Each year, a historical dinner is recreated accurately from the menu to the speeches given. The 2018 dinner was a recreation of the state dinner given for Amundsen and his crew upon returning to Oslo from the 1911-12 expedition to conquer the South Pole. Guests at that time included King Haakon VII of Norway. Following a reception on the deck of the *Fram*, each course of the original nine-course dinner was faithfully recreated and served with fine wine in the *Gjoa* building.

Each dinner attendee was also served a small amount of a superb \$800 bottle of 1912 Madeira. Gier Klover confided to me that his cost for the dinner alone exceeded the cost of registration. Several of the speeches over the 5-hour dinner were given by descendants of the original speakers from 1912. At the end of the night, everyone was sated, and perhaps a bit tipsy, but also appreciative of a very memorable experience.

I highly recommend the Amundsen Memorial Lectures. The quality of the presentations, the social interactions, the food, and the venue were beyond my expectations. For the 2019 version, keep watch on the Fram Museum website: <http://framuseum.no/>. They should begin registration in September 2019. Be diligent: seating is limited to 180, and this event is becoming understandably popular!

Memorable passage aboard R/V *Hero*

by Richard Wolak



Hero at Palmer Station. Photo by Dick Wolak.

The 2018 Antarctic Gathering at Port Clyde, Maine, evoked memories of research vessel *Hero*, the 125-foot wooden side trawler launched 50 years ago at nearby South Bristol, Maine. Upon her retirement from the U.S. Antarctic Program in 1984, she closed the era of wooden working ships in Antarctic waters.

With her small size and ice-friendly rounded hull, *Hero* was not designed for the tempestuous waters south of Cape Horn. In heavy seas, she had the disquieting ability to incorporate all three motions of rolling, pitching, and yawing with little to no predictability (and at times, she'd go altogether still – a bewildering variation).

I've crossed the Drake Passage on ten other ships in varying conditions, but none of those crossings compares to those experienced aboard *Hero*. One in particular stands out. Its memory is 40 years old, but I found the deck log entries and summary for Cruise 78-1C, signed and submitted by legendary Captain Pieter Lenie.



Hero under sail. Photo by Dick Wolak.

The story begins in late summer at Palmer Station. I was the summer station manager, then leaving with 12 other summer residents upon the start of winter. *Hero*'s crossing to Ushuaia, Argentina, was expected to take the usual 69 to 72 hours. We departed Tuesday, 28 March 1978, notably the 10th anniversary of *Hero*'s launching. We hoped to be in the United States by the upcoming weekend.

Hero was typically the last ship to depart the Peninsula each summer. Accordingly, Captain Lenie enjoyed short calls at wintering stations to wish them well. After a brief stop at the nearby Almirante Brown Station (operated by Argentina), we set out to cross Bransfield Strait to the South Shetlands.

LOG: 29 Mar – 0130 Enter Bransfield Strait – short choppy swells – pitching sharply

LOG: 29 Mar – 0600 Switched to lower bridge – Rolling and pitching violently

These observations did not bode well; Bransfield Strait is reasonably well protected and rarely difficult. We were in heavy weather, and more ice than usual was slowing our navigation at night. We ran for shelter, choosing Whalers Bay at Deception Island. That anchorage is perhaps the best in Antarctica; we encountered gale force winds, the vessel was “icing from spray whipping aboard,” and *Hero* was dragging anchor. A day later “with moderating weather,” *Hero* set course for King George Island to visit the wintering crew at Poland’s Arctowski Station.

It was 2½ days since leaving Palmer. The serious business of crossing the Drake was at hand.

LOG: 31 Mar – 0210 Set course for Tierra del Fuego – 320 true – vessel pitching sharply in headseas

LOG: 31 Mar – 1612 Engineer reports the starboard engine off line until alongside a dock – No head gasket, and the turbocharger aftercooler is leaking

Fourteen hours into the Drake, the starboard engine had a serious problem. The engineer suspected a bad head gasket, but we later learned it was failure of the turbocharger aftercooler core. This heat exchanger recently had been replaced at drydock – with a core designed for fresh water! Running on the port engine alone reduced our ability to make headway. The log entries became alarming:

LOG: 31 Mar – 1900 Winds increasing – vessel starting to leak badly

LOG: 31 Mar – 2345 No relief from the weather – Rolling and pitching heavily in headwinds

LOG: 01 Apr – 2300 All day tacked all over the ocean trying to make some headway – most personnel in bad shape from the constant violent motion

LOG: 02 Apr – 2300 All day trying to get the best course for easier riding, but getting set gradually to the East – salt water entering galley at rapid rate endangering the stove and other wiring

LOG: 03 Apr – 0300 Heavy squalls continue without break – Vessel almost at standstill and getting set Eastward at great rate – best guess ahead is 2 knots.

LOG: 03 Apr – 0930 Engineer reports that the Port engine has the same problem as the Starboard with a leaking turbocharger aftercooler – they are now making a bypass line for the cooling water

The aftercooler core in the port engine also had failed, and the cooling seawater was rerouted around the aftercooler – consequently, the engine was operable, but at much reduced efficiency. Our powerless drift was later described in the captain’s report:

“...vessel was stopped and hove to in center of Drake Passage while temporary repairs were made. After drifting for more than two hours, resumed course...at slow speed...barely making headway”

Wanting to know more about our progress, I went to the satellite navigator, knowing that a midnight printout would detail the last 24 hours. I was taken aback at one line:

SatNav Log - 2400: Distance made good - 25 Nautical Miles

If I could get off the ship, I thought, I could walk faster! As we started into day 8, we had been pushed well east of our intended course, and *Hero* needed to turn northwest to enter the Beagle Channel. Conditions severely limited our options.

LOG: 04 Apr – 0400 Due to violent seas, unable to change course for the Beagle Canal – Swly winds setting vessel to the North towards Staten Island (Isla de Los Estados)

LOG: 04 Apr – 0915 Giving up – winds 45 to 50 knots – seas 35 to 40 feet and breaking – cannot keep control and vessel setting towards Staten Island – Change course and make for shelter

With few options, we ran for Staten Island, finding entry to the fjord-like Bahia Capitan Canepa. There, *Hero* tucked as far into protection as possible, and the engineers began work on our powertrain. After a day's relief, *Hero* set out across the Lemaire Strait for Tierra del Fuego. Though we managed only 3 to 4 knots, progress was steady. The Beagle Canal (Channel) was a welcome sight as day 10 unfolded. With relief we read the ultimate log entry at Ushuaia:

LOG: 06 Apr – 1400 All secure at dock....



Sunken *Hero* at Bay Center, Washington. Photo by Bill Spindler.

This article summarizes Dick's talk at the Garage Theater during the July 2018 Antarctic Gathering. – Ed.

Prestigious award for *Ice Eagles*

Webmaster Tom Henderson's documentary *Ice Eagles: American Aviation in Antarctica* has won a 2018 Award of Merit from *The Impact DOCS Awards Competition*.

This excellent 2017 film recounts U.S. aviation in Antarctica from the 1928 start to the present. It has archival film and photos plus interviews of people, some dating back to the 1939-41 U.S. Antarctic Service Expedition, who made the history.

Tom produced and directed the film. [Impact DOCS](#) recognizes film, television, videography and new media professionals who demonstrate exceptional achievement and produce standout entertainment or contribute to profound social change. Entries for the 2018 competition, received from 30

countries, were judged by professionals in the film and television industry.

For more about *Ice Eagles* or to get a copy, call Tom at 518-888-0387 or visit his Graceful Willow Productions website, www.gwillow.com.

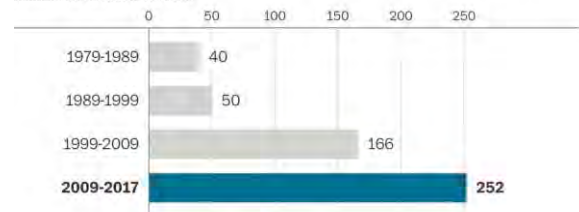
Antarctic ice has new attention

“Antarctic ice loss is up sixfold since the 1970s” headlines a story in the 19 January 2019 *Washington Post*. It's among recent articles in popular media acknowledging that glaciologists are onto something affecting nearly everybody.

The headlines are coming out because new research is being published. The new studies exist because *new data* are resulting from both existing and new observational tools.

The escalating pace of Antarctic ice loss

Annual Antarctic losses, in billion metric tons. Every 360 billion tons equals one millimeter of sea level rise.



Source: Rignot et al, 2019, *Proceedings of the National Academy of Sciences*

CHRIS MOONEY/THE WASHINGTON POST

The research paper behind the *Post's* report is “Four decades of Antarctic Ice Sheet mass balance from 1979 to 2017,” by Eric Rignot and others, issued 14 January in *Proceedings of the National Academy of Sciences*.

This paper uses a comprehensive, precise satellite record and a regional atmospheric climate model to document Antarctic ice loss and its impact on sea-level rise. The ice loss is dominated by “enhanced glacier flow in areas closest to warm, salty, subsurface circumpolar deep water.”

West Antarctica contains many of these areas, as known for some time. The paper asserts that East Antarctica, thought for so long to be stable, has been a major

contributor over the entire period. These coastal areas are likely to dominate sea-level rise from Antarctica in decades to come, the authors state, as polar westerlies push more circumpolar deep water toward the outlet glaciers.

“The places undergoing changes in Antarctica are not limited to just a couple places,” Rignot told the *Post*. “They seem to be more extensive than what we thought. That, to me, seems to be reason for concern.”

It’s hard to be an optimist when nearly every new study seems to make things look worse. Temperatures during the Eemian, 125,000 years ago, were barely higher than today, but sea levels were 6 to 9 meters higher than now. The source of all that water was a collapse of the West Antarctic Ice Sheet, Anders Carlson of Oregon State told the AGU Fall Meeting in December. The discovery was “teased out of a sediment core,” reports the 21 December 2018 *Science*.

As an analogy for the present, the Eemian is “probably the best there is, but it’s not great,” says Jacqueline Austermann of Columbia University.

Nevertheless, the big uptick in mass loss that Rignot and others have documented in the last few decades is perhaps the start of the West Antarctic collapse “rather than a short-term blip,” says Jeremy Shakun, Boston College.

More certainty is on the way, regarding the Eemian, anyway. *Joides Resolution*, the deep sea drilling ship, is on IODP Expedition 379 (18 January to 20 March 2019) taking at least five ocean bottom cores off West Antarctica. “That’s going to be a great test,” Carlson says.

Back to Eric Rignot and the present, that warm, salty ocean water causing much of the melting of the bottoms of outlet glaciers is not so much because the whole ocean is warmer, although it is, but because the wind is nudging existing warm currents closer to Antarctica.

Now, Lijing Cheng, Chinese Academy of Sciences, and others in the 11 January 2019 *Science* confirm that warming of the whole ocean is accelerating. If global warming keeps going at its present rate, we’ll get a 0.78 K rise in ocean temperature by 2100, yielding thermal expansion equal to a sea level rise of 30 centimeters. Cheng *et al.* write, “This is in addition to increased sea level rise caused by land ice melt.”

And here’s another new angle. A paper in the 14 January 2019 *Nature Geoscience* examines the link over geologic time between Earth’s axial tilt – the angle between the planet’s axis of rotation and the Sun – and the presence or absence of sea ice around Antarctica.

“Linking those cycles to a detailed chemical record,” notes the online *Science-Daily*, “suggests that elevated carbon dioxide in the atmosphere and the resulting loss of sea ice around the Antarctic played a big role in amplifying the effect of changes in the Earth’s astronomical motions on the durability and stability of the Antarctic Ice Sheet.”

The authors of the *Nature Geoscience* paper note that 2017 and 2018 saw reduced Antarctic sea ice after decades of growth.

High-energy-neutrino source found

Most of what we write about in these newsletters has to do with something going on in Antarctica. The most expensive experiment (\$280-million) ever fielded there – the IceCube neutrino detector built on, and deep within, the ice sheet at South Pole Station – is investigating things about as far away from the Antarctic as you can imagine.

The IceCube project, using a hot water drill, has hung 5,160 light detectors in a cubic kilometer of the extremely clear and deep ice that’s typical throughout the Antarctic interior. The array was completed in 2010.

Almost since then, the detectors have been seeing Cherenkov radiation, blue light that results, once in a while, from a neutrino hitting the nucleus of an ice molecule.

Neutrinos go almost as fast as light and have almost no mass. A few million of them passed through the end of your nose as you read this sentence. Notice that you didn't feel them. That's the problem with detecting neutrinos. They're so small that nearly all of them fly by without hitting anything.



IceCube Neutrino Observatory on cover of 13 July 2018 *Science*. The 5,160 spherical digital optical modules are each 35 cm in diameter and as deep as 2.5 km in the ice. Image: Jamie Yang and Savannah Guthrie, IceCube, NSF.

Garden-variety neutrinos, and that's nearly all of them, are spawned by cosmic rays hitting Earth's upper atmosphere. IceCube researchers have figured out how to distinguish them. But what they're looking for in particular are very high energy neutrinos: above 30 trillion electron volts.

They've found a few: a dozen or so a year. When one of those rare hits leaves a clean track with a well-defined direction, other telescopes scramble to look for an obvious cosmic source.

On 22 September 2017, IceCube plotted a neutrino that, working backward, the

orbiting Fermi Gamma-Ray Space Telescope figured came from a far off blazar, a hugely bright source of radiation powered by a supermassive black hole. The blazar is 4 billion light-years out; it happens to shoot a relativistic jet of plasma in the direction of Earth.

Daniel Clery, a *Science* staff writer, says in the 13 July 2018 issue that, if the astronomers are right, the finding "could mark the founding event of neutrino astronomy." His "In Depth" article introduces two research papers. The cover shows a painting of four detectors suspended in the ice; "Neutrinos from a Blazar" is the issue's cover story.



IceCube surface lab at South Pole Station.

Why are we spending \$280-million trying to find neutrinos, and why did this discovery make the cover of America's most prestigious scientific journal?

The Antarctic parallel is poignant. When Captain James Cook almost saw the continent in the 1770s and doubted anyone would find a use for it, he kicked off a couple centuries of investigation that is not over yet. Neutrinos are "high-energy astronomical messengers," says the IceCube web site. They provide information to probe "the most violent astrophysical sources: events like exploding stars, gamma-ray bursts, and cataclysmic phenomena involving black holes and neutron stars."

After the new finding sunk in, IceCube researchers went back through the data to see if high-energy neutrinos had come from the same location before. They found 150 days in 2014-2015 when the in-ice detectors saw more

neutrinos than normal from the spot. Whether or not the blazar was flaring at the time, “the archival event was much more interesting” than the 2017 detection, says PI Francis Halzen of the University of Wisconsin – Madison.

U.S. Antarctic Program upgrades

On 17 December, NSF issued a “sources sought” notice seeking firms that could replace the 50-year-old pier at Palmer, the U.S. year-round research station by the Antarctic Peninsula. The notice is not a request for proposals; it asks for information about organizations that could demolish the old sheet-pile bulkhead pier and replace it with a larger one.



Information Technology and Communications building going up at McMurdo. Photo by Ferraro Choi.

Across the continent, the first step in upgrading the whole of McMurdo Station – the coastal logistics hub for much of America’s field program in the Antarctic – will begin in February 2019 with construction of an 11,000-square-foot [information technology and communications building](#). Work, over two austral summers, is scheduled to be finished in 2020.

USCG new-icebreaker update

Coast Guard news in the 15 January *Washington Post* about possible new polar icebreakers is discouraging: “Funding is no

longer a certainty.” A Senate appropriations bill passed last year had \$750-million for the first of three ships, but the House version did not include the money.

A design contract is under way for what’s now designated a Polar Security Cutter. Read a 78-page Congressional Research Service update at <https://fas.org/sgp/crs/weapons/RL34391.pdf>



RSV *Nuyina* icebreaker under construction. Image: Damen/DMS Maritime/Knud E Hansen A/S.

“The U.S. Coast Guard’s funding for a polar icebreaker is set to be postponed yet again,” wrote the U.S. Naval Institute on 19 December 2018, “after Congress and President Donald Trump again failed to reach an agreement on fiscal 2019 funding for the Department of Homeland Security.

A Homeland Security budget expert is confident the Coast Guard will be able to start the icebreaker program without lasting damage due to wide support on Capitol Hill.

The need for new polar icebreakers is National, with operational and security implications in both polar regions. For the U.S. Antarctic Program, as you likely know, annual breakout of the channel to McMurdo is a critical requirement for resupply. We rely on the Coast Guard’s *Polar Star* for this task now, and the ship is 40 years old.

Australian Antarctic infrastructure

Antarctic, publication of the New Zealand Antarctic Society, reports in Issue 246 (2018) that the Australian Antarctic Division is expanding its activities and

capabilities and developing Hobart as an Antarctic hub and gateway.

A 2016 [strategy and action plan](#) is driving the developments.

Chief among them is a new 160-meter (525-foot) icebreaker being built for Australia at Damen Shipyards on the Danube River in Galati, Romania. (U.S. icebreaker *Healy* is 420 feet. USCGC *Polar Star*, which breaks open the McMurdo channel, is 399 feet.)

The Australian ‘breaker, RSV *Nuyina* (a Tasmanian Aboriginal word meaning Southern Lights), has been launched and is to arrive in Hobart in 2020. The once-in-a-generation commitment – \$1.9-billion Australian to design, build, and operate the ship for 30 years – is the single biggest investment in the history of Australia’s Antarctic program.

The new ship, to replace the aging *Aurora Australis*, will be the main lifeline to Australia’s Antarctic stations as well as the central platform of the nation’s Antarctic and Southern Ocean science.

The new paved runway at Davis Station mentioned on page 1 of this newsletter will be 2,700 meters (8,900 feet) in length, capable of landing large commercial planes, and able to operate year-round. The site is in the Vestfold Hills, 6 kilometers from the station. Construction is to start subject to completion of environmental approval.

The heavy tractor capability with construction of a [deep corer](#) is intended to reach million-year-old ice.

New Society members in 2018

With pleasure the Antarctic Society welcomes 23 new members who joined in 2018. Some have been attentive to the Antarctic for some time. For others the Ice is a fresh experience. Members receive the Society’s newsletters and get full access to the information-rich web site.

You’ll find more information about our new members, and existing ones, too, on the Members list on the web site.

An unfortunately underused feature is the “Bio” section for each of us. We hope more members (new and existing) will choose to take advantage of this feature by posting biographical information about themselves. A guide on how to do this appears at the top of the “Members List” section of the site. Hearty welcomes to:

- Joanna Kafrowski of Ontario.
- Kenneth Solomon of LaCrosse, Florida.
- Richard Smith of Haymarket, Virginia.
- Morgan Seag of Nyack, New York.
- William Highlands of Shrewsbury, Massachusetts.
- Merlyn Paine of Carson City, Nev.
- E. Susan Bartlett of Bloomington, Indiana (deceased).
- Dorcas DenHartog* of Hanover, New Hampshire.
- Charles Jos Biviano of Richmond, Virginia.
- Irma Hale of West Palm Beach, Fla.
- Albert Lozano of Dallas, Pennsylvania.
- Carlo Facchino of San Jose, Calif.
- Philip Kyle* of Santa Fe, New Mexico.
- Ruth and David Kraner of Palmetto, Florida.
- Henry Hamilton of Otisfield, Maine.
- Russell White of West Boylston, Massachusetts.
- Kenneth G. Russell of Montpelier, Vermont.
- Jack Long¹ of Livermore, California.
- Ian Howatt of Worthington, Ohio.
- Haofeng Tang of Washington, D.C.
- Eric Dietrich-Berryman of Virginia Beach, Virginia.
- Robert Taylor of East Millinocket, Maine.
- Tina King of Mount Juliet, Tennessee.

¹ Especially long Antarctic involvement.



The Antarctic Society

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IT TAKES GUTS

When the geodesic dome station at the South Pole was opened in January 1975, the director of the National Science Foundation, H. Guyford Stever, said, "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."

The remark is an understatement. The heroics that go into keeping the U.S. Antarctic Program running seem never-ending. In January (see story below), personnel wore dive gear *inside* the bilge of the icebreaker *Polar Star* to repair a leak caused when ice struck a propeller shaft and broke a seal. In 1986, when a small team of civilians dug a Navy LC-130 out of East Antarctic ice 15 years after it had crashed there, the one mechanic worked days at a time, outdoors, repairing broken equipment. He changed the track on a bulldozer alone, a task that usually required a team in a heated building.

After 22-year-old Russell Robinson in September 1933 convinced his mom to let him join *Bear of Oakland* supporting Richard E. Byrd's second expedition (see the story below), the ship hit a hurricane off North Carolina. Wet coal dust clogged the pumps. Crew (perhaps young Russell being one) crawled into the bilges to scrape the coagulated coal dust away from the pumps with their hands. "It must have been a terrible night, especially for a green crew," Byrd wrote in *Discovery* (1935), his book about the expedition.

In June 1994, McMurdo personnel set 32 foundation blocks weighing 584,000 pounds for a new satellite earth station at Black Island. The thickest shim needed was the width of a computer keyboard key. "I hope the eventual users of this radome have some appreciation for the effort involved in setting the foundation in the dead of winter," wrote engineer Douglas Brinkman.

People grow when they commit themselves to a cause larger than themselves. The Antarctic, as probably every member of this Society would agree, has proved itself to have produced more than its share of heroes, even if all they did was scoop coal dust away from a bilge pump in a hurricane.

Guy Guthridge

The family side: Richard E. Byrd and his wife Marie

by Eleanor Byrd



Marie and Richard Byrd in front of their cabin in Maine

What most people do not understand is that there is a cost to fame. The enormous hullabaloo surrounding a famous figure may seem quite exciting. In truth, it is extremely difficult on the family of the celebrity.

Marie was a petite lady, a true lady, taught to be so by her Ames family as well as in finishing school in France. In the wake of Richard's North Pole flight, she dedicated herself to remaining behind the scenes, so much so that most people never recognized her. She rarely had her picture taken; she did not want to be known due to her efforts in protecting their four children from the public. This is why there are so few pictures of her.

After the North Pole flight, reporters camped out at Richard and Marie's house in Boston hoping to get a glimpse of one or the other and an interview. Members of the public, so enthralled, also were there. This went on for days and was frightening for the children. The family found themselves prisoners in their own home. Having no experience with this, the question was, what to do?

Marie would have none of it and Richard in full support agreed with her and asked the media not to approach his family. They did not stop. One day when Richard was away, a reporter came to the house and threatened to print a lie about Richard and Marie if she did not grant him an interview. The reporter was not able to gain access to the house but the threat would be carried out if she did not do anything about it.

So she called all the newspapers in Boston and asked that a reporter from each be sent to the house at a specific time. She met them all, invited them into the living room, had them sit, and told all of the reporters about the threat. There was complete silence in the room. The reporter who had made the threat looked somewhat sheepish as all turned to look at him. Marie, a soft spoken woman, in the ladylike calm but firm manner in which she had been taught, cut right to the chase. She looked at each and said, "I think it quite disgraceful to print a lie in order to get a story. It shows a great lack of integrity."



Marie and Richard Byrd and their four children at their 9 Brimmer Street home in Boston. Photo courtesy of Ohio State University.

The reporters looked chastised but remained quiet. "This is the only time you will see me. I hope that you all will understand my need to protect my children, as I am sure you would want to protect yours in a situation like this. Exposure will potentially put the children in harm's way.

They too will have no photographs taken of them or interviews. My husband is the one to seek out and he is happy to talk to you. This is our decision and it is firm. I hope to never see any of you at this house again.” With that, she quietly showed the reporters to the door.

Richard was proud of his wife and said in an interview, “Marie is averse to publicity, and I must say that the reporters have been fair. However much they beg her and however provoked they may become over her steadfast refusal to be interviewed or, as one said, ‘humanized,’ they nevertheless respect her attitude; she and the children now bear an almost charmed freedom from the camera. Her protection of the family is absolute.”

Marie, the smart, quiet, petite little wife of Richard E. Byrd, was a powerhouse in her own right. Never one to yell or be nasty in any way, she handled kidnapping threats to her children, keeping them safe and unknowing of the threats while allowing them independence.

She also awoke one morning to a female reporter in her bedroom who had climbed the ivy to the second story to get an interview. She dealt with people breaking into their summer vacation cabins and stealing not only adult items but her children’s toys and stuffed animal for memorabilia.

There is so much more to this woman and the love story between Richard and Marie, one that started when they met at 8 years old, which will be told in my upcoming book, *My Compass and Anchor to Windward*.

Eleanor (Lee) Byrd lectured about her famous grandfather at the Society’s Antarctic Gathering in Port Clyde, Maine, 21 July 2018.

The City of New York visit to Washington, D.C., in 1931

After Richard E. Byrd and his crew completed the scientific work and historic South Pole flight of their 1928-1930 sojourn in Antarctica, the expedition ships got back to New York on 19 June 1930. Articles were published, awards received, and a major motion picture released. Byrd, already thinking about a second expedition, was touring the country lecturing.

The expedition’s ship *City of New York*, a 147-foot three-masted barque with auxiliary engine, did its part, promoting appreciation of the 1928-1930 trip while building public support.



The *City of New York* alongside the Ross Ice Shelf in the Bay of Whales. Photo: Byrd Antarctic Expedition.

Three Washingtonians had been on the Antarctic expedition: Pete Demas, an airplane mechanic, and Malcolm P. Hanson, radio engineer, both with the wintering party, and Charles I. Kessler, aboard the expedition’s second ship, the *Eleanor Bolling*.

John Kelly, *Washington Post*, responding to a reader’s query, wrote on 18 May 2018 that in April 1931 the *City of New York* tied up at the Seventh Street wharf in Washington. Admission to the vessel was 50 cents (25 cents for children). Kelly, quoting from the then other Washington paper, the *Evening Star*, wrote that the ship was on a “tour of the seaport cities to raise sufficient funds to make good the deficit incurred by

the costly exploration of the South Pole regions.”

A 1931 ad in the *Post* promised members of the Byrd expedition would “tell you their own personal experiences in the Antarctic, thrilling tales that will make the two years of struggle and achievement loom in your mind as a living, graphic picture.”

Kennels along the dock held a half-dozen sled dogs. Descending into the ship, visitors passed sleds, tools, photographs, and stuffed seals. Every type of foot and leg covering was to be seen.

A detailed scale model of Little America (Byrd’s coastal wintering station on the Ross Ice Shelf) portrayed “every wireless antennae, every subterranean entrance, and every small building constructed for the year’s residence,” wrote the *Star*.

Thousands of Washingtonians visited the *City of New York* during its month-long stay. It was open daily, 10 a.m. to 10 p.m.

But, as an expedition ship, the *City* was finished. She was “reduced to the state of a floating museum,” Byrd wrote, “towed ignominiously from one exhibition mart to another.”

For BAE II, he found a replacement: the *Bear of Oakland*.

Leaving home for Antarctica in 1933 on the *Bear of Oakland*

Much of the Antarctic story happens not in Antarctica, but back home both before and after an expedition does the glamor work down south.

Society member Margaret McClure writes to tell us she has been putting her Antarctica items into yet another and bigger notebook. Doing so, she found a late September 1933 clip from the *Newark News*.

“BAYONNE—Finally having overcome his mother’s objections,” it starts, “Russell Robinson, 22, of 52 Clark Street, Glen Ridge, sailed today as a seaman aboard the barkentine *Bear of Oakland*, which will carry Rear Admiral Richard E. Byrd, retired,

on his second exploration trip of the Antarctic wastes.”

The voyage had originated in Boston on 25 September. In Bayonne, fresh water, fuel oil, and other oils were loaded. Coal was loaded for the ship’s main boilers.

As the ship left Bayonne, states the article, it sailed down the Kill van Kull into New York Bay and “was given a royal sendoff by the harbor craft. Boat whistles were sounded while hundreds of workmen at oil refineries waved their farewells.”

Bear of Oakland next stopped in Norfolk, Virginia, “to have our bunkers topped with 360 tons of largely crushed coal,” Robinson wrote.

In a hurricane off North Carolina, dust from that crushed coal almost did them in by clogging the bilge pump strainers. Robinson, a recent graduate of MIT, wrote that “we were a sinking sailing ship caught in a hurricane.” They lost power, were able to anchor off Frying Pan Shoals, the weather eventually abated, they restarted the boilers, and the ship made it back to Newport News for repairs before heading south.

Why was Maggie McClure intrigued by that clip from 85 years ago? Robinson had been a childhood friend of her mom, Peggy Royall (Hinck). Finding a letter that he mailed her mom from *Bear of Oakland* started Maggie’s lifelong interest in Antarctica.

History of R/V *Hero*

Society member Charles H. Lagerbom, after reading Richard Wolak’s article in the January newsletter about a memorable passage aboard R/V *Hero*, told us that, in 2015, he wrote and published a 36-page history of the ship in *The New England Journal of History* (volume 71, nos. 1-2, Fall/Spring 2015).

“An Antarctic hero: the history and fate of the NSF research vessel *Hero*” begins by describing the U.S. Antarctic Program’s need for the ship. The National Science

Foundation in 1965 had built a research station, Palmer, off the west coast of the Antarctic Peninsula. The surveyors who selected the site said a dedicated, shallow-draft research ship would be needed for the marine biology that was to be a big part of the research suite.



Research Vessel *Hero* at the Palmer Station pier during the 1968-69 summer. Photo courtesy of NOAA.

The Harvey F. Gamage yard in South Bristol, Maine, built the sail-equipped trawler, delivering it in 1968. The hull was wood, for both resilience in ice and nonmagnetic operations.

“John H. Dearborn [University of Maine] recalled that Harvey Gamage was brutally blunt to visiting dignitaries from Washington, D.C., who came to consult on the construction,” Lagerbom wrote. “‘You can’t do that’ or ‘we don’t build it that way,’ and ‘we’re going to do it right’ are phrases that Dearborn fondly recalled the old shipbuilder repeating in his thickly accented Down East voice.”

Hero served the Antarctic program until its decommissioning in 1986. The government sold the ship to the high bidder, the Port of Umpqua, Oregon, which planned to make it into a museum. The port set up a *Hero* Foundation to make that happen.

But, Lagerbom writes, “as time went by, interest in the vessel waned, and the *Hero* Foundation dissolved.”

Ownership of *Hero* changed hands more than once after that, and by 2008 the ship was tied to a pier in Bay Center, Washington. The new owner “did not appear to have resources” to maintain the old vessel.

“So what is to become of her?” is the first sentence in Lagerbom’s last paragraph written in 2015. The “vessel is in decrepit condition, and the owner has considered scrapping her. This would be a sad fate for such an important piece of Maine maritime history, New England shipbuilding history, National Science foundation history, polar history, and the history of science at large.”

Readers of the online version of Richard Wolak’s article in the January issue will suspect the answer to Chips’s question. In March 2017, *Hero* sank at its pier. To protect nearby oyster beds, the Coast Guard mobilized a \$25,000 oil spill liability trust fund, according to *WorkBoat* magazine (<https://www.workboat.com/news/coastal-inland-waterways/longtime-research-vessel-hero-sinks-washington-state/>).

In Antarctica, *Hero* was replaced by a larger ship, *Polar Duke*, which in turn was succeeded by the current vessel, the *Laurence M. Gould*. Neither vessel has sails, and neither is made of wood.



The *Harvey Gamage* observed in the Gulf of Maine July 2018. Photo by Lynn Teo Simarski

Back in Maine, just 5 years after *Hero* was put into service – in 1973 – the Harvey F. Gamage yard built the *Harvey Gamage*, a 131-foot wood gaff rigged topsail schooner, to honor the old craftsman who had built *Hero*. The *Harvey Gamage* still plies Maine waters.

Remembering Antarctica by acquiring archival material

by Bill Fox

I spent the 2001-2002 field season on the Ice to examine how artists, architects, writers, and scientists deploy visual imagery, data visualization, design, and stories to interact with a continent writer Barry Lopez finds indifferent to human presence.

My book *Terra Antarctica: Looking Into the Emptiest Continent* (Trinity University Press, 2005, 312 p.) talks about the importance of their work and how it is vital to the collections of the Center for Art + Environment, Reno, Nevada.

“How the human mind transforms space into place, or land into landscape,” I wrote, “is the line of inquiry that I have been following through several books.”

Our center holds Antarctic archives of artists who have travelled to the Ice from the United States, Australia, New Zealand, France, and the United Kingdom. Our Research Library holds titles in Antarctic art, science, and exploration published since the early twentieth century.

We want to expand this area with donations, in particular of rare and historical 19th century accounts. (We also have titles regarding Arctic exploration and art, as well as archives from artists working in the northern polar regions.)

The Center has received donations of Antarctic archive materials, and we are on the lookout for more. We’re interested in exploration artists, military artists, and other professional artists who have worked in the Antarctic. In turn, scholars and artists come from around the globe to study our archives

and books as they write their own books and articles, or prepare to visit the Antarctic.

The Center for Art + Environment at the Nevada Museum of Art in Reno is the only research institute of its kind in the world. The Museum, founded in 1931, has as its overarching theme creative human interactions with natural, built, and virtual environments. The evidence we humans leave behind in those processes includes art, architecture, and narratives.

We collect that evidence. The Center opened its doors in the Museum in 2009. It has in excess of a million archive items from more than 1,000 artists working on all seven continents, including the Antarctic. Archive materials include photographs, paintings, grant applications, press coverage, exhibition announcements, manuscripts, notes, and more—all things that contextualize and make possible the creation of works of art.

Art and environment projects—which include landscape painting and photography, outdoor sculpture, and land art, up to contemporary eco-art projects meant to address environmental problems—are part of a long history of human endeavors to change space into place, land into landscape, or terrain into territory, depending on the context.

Where that process is the most difficult, and therefore the most revealing, is in extreme environments, in particular both hot and cold deserts, in particular Antarctica.

William L. Fox is Director, Center for Art + Environment, Nevada Museum of Art, Reno, Nevada 89501. art@nevadaart.org.

SouthPole-sium in Dublin, June 2019

Member Robert Stephenson has announced the fourth upcoming SouthPole-sium will take place in Dublin, Ireland, 7-9 June 2019. The meeting is “for those who collect, write, publish, buy, sell, and love books relating to Antarctica and the South Polar regions.”

Thomas, editor in chief of that journal, wrote the *EOS* summary, which was published 29 January 2018.

Black hole image uses data from South Pole Telescope

The largest telescope ever deployed at Amundsen-Scott South Pole Station – the South Pole Telescope (SPT) – was one of the eight telescopes at six locations worldwide that contributed data to development of the first image of a black hole that made headlines around the world in early April.

SPT was built in 2006 and 2007 to study the cosmic microwave background; it explores dark energy, the mysterious phenomenon that may be causing the universe to accelerate.

For the black hole investigation, astronomers used it and the seven other instruments to create a planet-scale array of ground-based radio telescopes. The collaboration resulted in a virtual telescope with unprecedented resolution and sensitivity.

Assembly of what is termed this Event Horizon Telescope, which took years, offers a new way to study the most extreme objects in the universe. It provides an angular resolution of 20 micro-arcseconds, equivalent to reading a newspaper in New York from a sidewalk café in Paris.

SPT is one of several astrophysical instruments located in what is termed the Dark Sector adjacent to South Pole Station. The extremely dry air makes the atmosphere exceptionally transparent for a millimeter-submillimeter telescope such as SPT.

But they don't only look up at the South Pole. An array of photomultiplier tubes buried in the extremely clear ice beneath the station looks at cosmic background radiation coming all the way through Earth to collide with ice particles and, on rare occasion, to produce what's called Cherenkov radiation that the instrument array, called IceCube, can see.

This project is not part of the Event Horizon Telescope.

Icebreaker *Polar Star* completes 105-day McMurdo mission, limps home

The U.S. Coast Guard icebreaker *Polar Star* returned 11 March 2019 to its homeport of Seattle following a 105-day deployment to open a channel through sea ice so the annual cargo ship could resupply McMurdo Station.

The channel breakout, and resupply by sea, are critical to the large fraction of the overall U.S. Antarctic Program that uses McMurdo as operational base.

This year is the 63rd iteration of the annual operation. *Polar Star* left Seattle 27 November, traveled 11,200 nautical miles to Antarctica, and broke through 16.5 nautical miles of ice, 6 to 10 feet thick, to open a channel to the McMurdo pier.

On 30 January, the icebreaker escorted the containership *Ocean Giant* through the channel, enabling a 10-day offload of 499 containers with 10 million pounds of goods that will resupply McMurdo, Amundsen-Scott South Pole, and field camps for the coming year. *Ocean Giant* is ice-strengthened, but not able to break ice.

Unusually this year, an annual tanker resupply was not required since an adequate supply for another winter is in McMurdo Station tanks.

As in years past, the 43-year-old 'breaker had engineering casualties. Commissioned in 1976, it is beyond its expected 30-year service life and is scheduled for a service life extension project starting in 2021.

During the transit to Antarctica, an electrical system began to smoke, damaging wiring, and one of the two evaporators used to make drinkable water failed. Crew repaired the wiring at sea. The evaporator was repaired after parts were received during a port call in Wellington, New Zealand.



At McMurdo, divers repair a leaking shaft seal on the *Polar Star*.

During ice operations, the cutter’s centerline propeller shaft seal was impacted, allowing water to flood into the ship. Divers applied a patch outside the hull, then the ship’s engineers repaired the seal from inside, donning dry suits and diver’s gloves to enter the 30-degree water of the still slowly flooding bilge. They used special tools fabricated onboard. Amazingly, the leak was fixed, and the vessel resumed icebreaking.

Shipwide power outages while breaking ice forced crew members to spend 9 hours shutting down the power plant and rebooting the electrical system.

On 10 February the crew spent 2 hours putting out a fire in the incinerator room. The fire damaged the incinerator, and firefighting water damaged some of the electrical wiring.

Polar Star is the United States' only heavy icebreaker. By contrast, notes the Coast Guard, Russia operates more than 50 icebreakers.

Reserved for Operation Deep Freeze each year, *Polar Star* spends the Southern Hemisphere summer breaking ice near Antarctica. When the mission is complete, the ship returns to dry dock for maintenance and repairs in preparation for the next Operation Deep Freeze mission. Out of dry dock, the ship returns to Antarctica, and the cycle repeats.

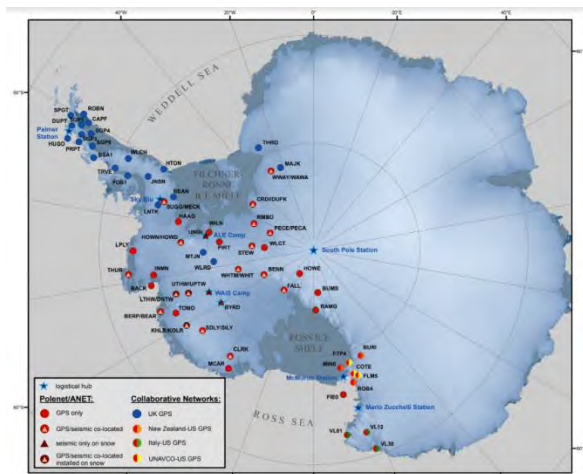
The Coast Guard is seeking to increase its icebreaking fleet with six new polar icebreakers. It has not yet determined whether the first new polar security cutter (PSC) being procured (schedule still not firm – see the January newsletter) will replace *Polar Star* on Antarctic runs or take on ice in the Arctic.

“TBD,” said Vice Adm. Daniel B. Abel, the Coast Guard’s deputy commandant for operations, when *Seapower Magazine* asked to which polar region would the first PSC deploy.

Thanks to the Coast Guard and to *Seapower Magazine* for this information, and greater thanks to the enterprise and guts of the crew of *Polar Star* for remarkable service in keeping the old vessel operational. Society member Bruce Dewald unflinchingly keeps us abreast of this continuing drama involving a critically important component of the U.S. Antarctic Program.

Good news (sort of) and bad news from West Antarctica

Polenet, short for the Polar Earth Observing Network, collects GPS and seismic data from remote autonomous systems on the Greenland and Antarctic ice sheets. The intent is to answer questions about ice sheet behavior.



Polenet locations in the Antarctic. Courtesy polenet.org.

It's humbling, the scientists say. They "work from tiny field camps incongruously airdropped onto a vast plain of kilometers-thick glacial ice. It is initially difficult to conceive that this vast polar desert could drastically change over the course of a human lifetime."

While study after study has shown that the West Antarctic Ice Sheet is losing mass at an accelerating rate, Polenet provides a "rare bit of good news." The data show that the bedrock is lifting faster than previously thought. "This rebound effect – the land underneath the ice uplifting as the ice melts – is a result of a newly recognized Earth structure, and can possibly slow melting."

The relatively warm and hydrated mantle beneath the ice sheet is less viscous than cold and dry mantle that is common throughout much of the world. Instead of occurring on time scales of millennia, the uplifting response "can occur over just decades to centuries."

The Polenet work, reported last June in *Science*, establishes that this glacial isostatic adjustment uplift in West Antarctica is among the fastest ever measured: up to 41 millimeters a year. The investigators predict that the rate should accelerate in coming decades.

If society succeeds in limiting greenhouse concentrations of the atmosphere enough to slow the expected rate of ice loss caused by global change, the bedrock uplift may slow ice retreat enough for it to stabilize at a smaller volume rather than disintegrate.

But: if we don't limit emissions and warming, the uplift, even if rapid, will be "insufficient to stabilize the West Antarctic Ice Sheet grounding line and, ultimately, insufficient to stabilize the ice sheet."

Turning to the bad news, researchers have known for some years that West Antarctica is losing ice not just because the atmosphere overhead is warming. The region's ice shelves – floating glacial extensions into the ocean – also are losing

mass at their bottoms because shifting ocean currents are pushing warmer water closer to the continent.

Now, 2 years of mooring observations at the edge of the continental shelf, deployed at depths of 600 to 800 meters, show that on frequent occasions Circumpolar Deep Water as warm as 1.5°C reaches the western front of the Getz Ice Shelf front. This is some of the warmest ever observed at an ice shelf front in Antarctica. And the Getz Ice Shelf is a big one, stretching 650 kilometers along the West Antarctic coast.

The authors of the paper, in *Geophysical Research Letters*, 4 January 2019, caution that the paucity of data from the region limits their ability to draw robust conclusions. But an 11 April summary article in *EOS* says the work "is likely to be of great interest to oceanographers and climate scientists."

Shorts

Ozone hole. Last May a paper in *Nature* documented that emissions of CFC-11, which destroys ozone in the stratosphere and is prohibited by the Montreal Protocol, increased during the 2014-2016 period by 25 percent over the average measured from 2002 to 2012. Someone, probably in China, was emitting the chemicals illegally, scientists suspected. In November last year, the parties to the protocol, responding to the unexpected rise, strengthened the agreement. Then China reported its discovery of sites illegally producing the CFCs. [*EOS*, 22 January 2019.]

South Pole traverse. "Thor's Trail Notes" reported on 10 January that the South Pole Oversnow Traverse "is in the books," having completed its delivery of fuel and cargo from McMurdo to South Pole and returned to the coast. Total miles: 2,027. Total days: 45. Fuel burned: 43,066 gallons. Fuel delivered: 110,058 gallons. Cargo delivered: two 20-foot shipping containers. Recycle brought back to McMurdo: 40,000

pounds of scrap steel. Internet data used: 275 mb (via Iridium). “More desserts consumed than is healthy. Too many laughs to count.”

Member Dave Bresnahan reminds of us of the advantage of using tractors instead of airplanes to do these deliveries: “LC-130 delivered 5.47 pounds of cargo per gallon of fuel burned. Traverse delivered 19.73 pounds of cargo per gallon of fuel burned.”

Warm again in 2018. NASA and NOAA have documented that 2018 is the fourth hottest year on record. It was cooler only than 2015, 2016, and 2017. The El Niño pattern suggests that 2019 is likely to be warmer. For 2018 (actually the 2014-2018 average), the most conspicuously warmer region in the entire Southern Hemisphere is the Antarctic Peninsula and the coast of West Antarctica.

Send in the clown. This year’s annual meeting, in Washington, of the American Association for the Advancement of Science looked into personal problems that could come up during a trip to Mars. Reporting on the several sessions devoted to that topic, *The Economist* (23 February) writes, “Understanding how teams function, how they go wrong, and how to prevent social problems will be a critical element of any successful mission to Mars.”

Researchers have figured out that a good group needs a leader, a social secretary, a storyteller, and both introverts and extroverts. But “by far the most important role seems to be that of the clown.”

Enter Jeffrey Johnson, an anthropologist at the University of Florida who studies relations among crews wintering at the South Pole. The clown is not just funny, he observes. He or she is smart, knows each member of the group well enough to defuse tensions, and is the bridge between different groups. At Pole, the clown links scientists with the tradesmen who also work there. In groups that tended to fight most or to lose coherence, Dr. Johnson found, “there was usually no clown.”

Mildred Rodgers Crary, 1925-2018

The Antarctic Society has dwindled in recent years from over six hundred members to only three hundred and twenty-two, two-thirds of whom are electronic members. The Society started in the 1960s with a framework of International Geophysical Year scientists, most of whom have now perished.

A recent loss was Mildred Rodgers Crary. Mildred was the widow of the famed polar scientist Albert “Bert” Crary, who was the first person to have set foot on both North and South poles.



Albert P. Crary and Mildred Rodgers Crary

Mildred was one of four daughters born and raised in North Carolina. She graduated from the University of North Carolina at Greensboro. She then moved to Vienna, Austria, where she studied physics, philosophy, and German, and worked for the International Atomic Energy Agency. She later received her M.A. in English and an M.F.A. in creative writing from the University of Maryland.

Upon returning to the States, she settled in the Washington, D.C., area and was a writer/editor for four major scientific organizations. She was also a phenomenal and gifted photographer and traveled extensively throughout her life, going over

the Khyber Pass on a camel at age 85 and traveling to China shortly before that with her sister, Suzanne.

Mildred married the love of her life, Bert Crary, late in life and had their only child, Dr. Frank Judson Crary. Frank is a noted astrophysicist and researcher who works at the University of Colorado in Boulder. Mildred and Bert lived a diverse and quiet life in their house on New Mexico Avenue in Washington, D.C., while they raised their son. Bert died from cancer in his late seventies. Mildred mourned him deeply and spent many years editing a book by him, which even today awaits publication.

Mildred continued to travel, and she wrote many short stories and a novel. One of her most satisfying diversions was visiting the Cosmos Club, where she found many friends who shared her scientific life. She also visited her son at Berkeley, University of Michigan, and University of Colorado, and went skiing in her seventies while visiting her niece in Colorado. As do all of us, she had some health issues as she got older and moved to North Carolina late in life. She died in October 2018 in Greensboro, North Carolina, after living a full and bold life that began in 1925.

The Antarctican Society is pleased that Mildred had some happy days when she attended several Antarctic gatherings at the house of Paul Dalrymple in Port Clyde, Maine, where hundreds of Antarcticans appeared every other year for celebrations of their halcyon Antarctic days. Here she joined many of Bert's Antarctic colleagues for gala reunions. Mildred herself became famous for her heavy consumption of oysters! She loved to meet with friends and hear them tell stories about her beloved Bert. Mildred lost one of her dearest friends with the passing of geologist Charlie Bentley in 2017.

Paul C. Dalrymple provided this obituary. Jeanne Regh, Mildred's niece, very kindly added factual information derived from family records and recollections.



The Antarctic Society

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OCTOBER

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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 Antartican 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 (12,200 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

VOLUME 18-19

OCTOBER

NO. 1

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A NEW ERA FOR THE ANTARCTICAN SOCIETY

The reason the Antarctic Society exists today is Paul Dalrymple. A member almost since its beginning, he was voted a director in 1976 and president in 1978. He immediately became editor of this newsletter, revealing himself as such only after a reader wrote wanting to know who the ‘I’ was. “‘I’ is Paul Dalrymple,” he wrote in Bergy Bits, “and I am your current outspoken, candid president who is trying to get you all to read the newsletters and to support your Antarctic Society.”

After he completed his 2 years as President, his successor – Meredith F. Burrill – told members that under the Society’s constitution “Paul could not have been reelected, else he surely would have been.” Paul became treasurer (a post he still holds) and continued as the newsletter’s editor.

He became more: the Society’s voice and guiding light, sustaining a robust lecture series in Washington, D.C., doubling membership, and securing a financial base that lasts today. Retiring in 1985 from over 30 years of Federal service, Paul continued as editor because, he wrote, “someone has to tell it as it is and I’m afraid my replacement might be a cop out.” The cop out turned out to be me. Paul bestowed this honor and responsibility in 2014.

In 1988 the Society’s center of activity moved to Port Clyde, Maine, when Paul relocated there. An unforgettable feature for many became Antarctic Gatherings, held every other year at Paul’s house because of his untiring commitment to keeping the ties alive. The most recent was in July, and Paul provides his own assessment of it and others below.

Read also below Paul’s decision to pass along the privilege and pleasure of hosting the next Antarctic Gathering. A following article discusses an opportunity in 2020 in Orono, Maine, and another in 2021 at Mystic Seaport Museum, Connecticut, during its coming major Antarctica exhibition, planning for which is described in this issue.

Guy Guthridge

The 2018 Antarctic Gathering

Some 130 Antarctic Society members, their families, and friends gathered, per invitations published in recent quarterly newsletters of the Society, at Paul Dalrymple's home in Port Clyde, Maine, 20-22 July 2018 for a weekend of conversation, exchange of ideas and information, and coastal Maine seafood.

The middle day of the gathering, Saturday, was devoted to talks in Paul's Garage Theater as listed below.

Articles describing these talks are appearing in issues of the newsletter. Art Ford's was the first – in the July 2018 issue. This issue contains a summary of the presentation by Steve White about Mystic Seaport's planned Antarctica exhibition.

Photographs by some attendees – especially Mark Leinmiller and Millie Eidson – were made available for us to share, and some of them appear on the Antarctic Society web site [HERE](#).

Society members, whether or not they attended the Gathering, may be interested in resources brought to bear to make the weekend happen.

Spending by the Society for the tents, chairs, tables, portable toilets, food, drink, and paper plates and the like totaled \$6,418. Financial donations by participants – including more than a thousand dollars spent for donated items auctioned on Sunday morning – totaled \$6,471. The surplus \$53 was put in the Society's bank account.

In addition, several Society members arrived early and/or stayed after the gathering to help prepare for the meeting and to clean up. They and others brought consumables or provided services during the meeting on their own to supplement the items acquired by the Society.

Paul Dalrymple, as he did for prior gatherings, generously made his house and grounds available for this special event. Neighbors Nadine and Greg Mort allowed the parking of cars on their field. The

Tenants Harbor American Legion lent its sound system for speakers to use, and the Saint George School lent projection equipment. The weather cooperated, giving us mostly dry days and mild temperatures.

Morning talks, Saturday 21 July

Introductions – Society Treasurer Paul Dalrymple pcdal@roadrunner.com

Welcome – Society President Tony Gow petprotector@comcast.net

Mystic Seaport and Antarctica 2020 – Steve White, CEO, Mystic Seaport steve.white@mysticseaport.org

Charles Bentley (1929-2017) commemoration – Richard Cameron polar57dick@cs.com

The Antarctic Eye: Landscape Photography on the Ice – Lynn Teo Simarski chesapeakewinter@yahoo.com

Fifty years of ice drilling in Antarctica and Greenland – Tony Gow petprotector@comcast.net

Where Glaciers Meet: The Ross Ice Shelf – John Clough cluffermon@gmail.com

Afternoon talks, Saturday 21 July

The Road to Gondwana: Cape Town SCAR meeting 1963 – Art Ford abford@aol.com. See Art's article in the July 2018 newsletter

Deception Island, Antarctica's industrial center – Steve Dibbern victoriadibbern@aol.com

Ten thousand phone patches from Antarctica – Julius Madey hillfox@fairpoint.net

A memorable Drake Passage crossing by R/V Hero – Dick Wolak wolak66@gmail.com

My Grandfather Richard E. Byrd – Eleanor Byrd ebyrd246@gmail.com

Swimming to Antarctica – Lynne Cox lynnecox@aol.com. See a book review in the April 2018 newsletter.

Repowering South Pole Station: alternatives – Steve Theno stevetheno@pdceng.com

The above news item, with photographs, was posted on the Society's web site in August and remains there now.

Thoughts about the Antarctic Gatherings

by Dr. Paul Dalrymple

On reaching 62 years of age, I retired from a position in the Corps of Engineers at Fort Belvoir in Alexandria, Virginia. I remained in Virginia until my mother's health began to fail in the late 1980s; I decided to move to coastal Maine (Port Clyde) to more or less monitor her wellbeing.

I found many Antarcticans in the immediate vicinity. At the turn of the century, with help from Charles Lagerbom and John Spletstoeser, we started holding Antarctic gatherings every other year at my house in Port Clyde. They became popular, growing from about 25 to well over 100. The last one, this past July, attracted 127. The largest we ever had (2014) was 177, when we included Antarctic artists and writers.

Now I am 94 years of age, soon to be 95, and even though I have enjoyed all the gatherings, the last one was somehow different. For the past decade I have said, "No more," but somehow I always seem to go "One more time," mainly because of the fine support from Lagerbom, Dick Cameron, Tony Gow, and other friends.

Now we have Mystic Seaport Museum, in Connecticut, on the horizon as a possible venue for the next gathering, and a couple of our other members standing by willing to continue what Bert Crary once

called me for "creating a monster." It is time for me to hand lead responsibility for future gatherings to other Society members.

In retrospect I would like to recall some of our highlights. Certainly having Charles Swithinbank become a faithful attendee for many gatherings was a blessing. He was our greatest, most beloved member. Oh how I enjoyed him. He occupied a bedroom in my house which will forever be called "The Swithinbank Room."

What became our biggest achievement was when Dr. Ed Williams videotaped 30 of our most prominent Antarcticans in attendance, creating, "Antarctica Calling," a three-DVD set you still can buy on the Antarctic Society website by clicking [HERE](#). What a joy, what a success!

Another great joy was having Lou Lanzerotti as an active member. He was the brain of our outfit. Once upon a time, one of our Presidents appointed Lou as a member of the U.S. National Science Board, and he still kept coming to our theater in the garage as if we were important.

We had many other Antarcticans greats. A darling was one of Bernt Balchen's widows, Bess. Another was the daughter of the architect of the Antarctic Treaty, Jean Portel. Another female of note was the widow of Bert Crary, Mildred, who loved every moment of our gatherings, especially the oysters!

Among my many favorites was Dr. Will Silva, a medical doctor who served with distinction at several Antarctic stations. He was nonpareil in my book. One who graced many of our gatherings was Ed Robinson, a geophysicist, who came with bagpipes and entertained us at several gatherings. Thank you, Ed.

Nearly half our original attendees have passed along. One of the last was geophysicist Charles Bentley, who departed the scene in the last year. Last but not least, the parker of our cars, Stephen "Denny" DenHartog, died in a recent month.

The 2020/2021 Antarctic Gatherings: U. Maine/Orono; Mystic Seaport

The Society has begun looking into where to hold its next one, or two, Antarctic Gatherings. Leading candidates are (a) a three-day weekend in 2020 (ideally Friday-Sunday, 17-19 July) at the University of Maine in Orono and (b) a long weekend at Mystic Seaport Museum in Connecticut during its planned Antarctica exhibition in the summer of 2021.

Both places offer advantages and new experiences. The obvious negatives are that neither is Paul Dalrymple's house.

First, Orono. Society member Hal Borns, an emeritus professor at Maine, obtained proposals from the university's conference services group for hosting and catering us. That was in August 2016, when the Society also was looking at alternative locations. Because the facilities are underused in summer, we would be able to both meet and sleep at the university.



The University of Maine at Orono

What about cost? If you attended any of the gatherings at Paul Dalrymple's house – staying in a local hotel and dining out – the overall cost to you (and to the Society) if we were to meet at Orono possibly could be less. We would have to pay for meeting facilities, whereas Paul's was low cost (the big tents, portapotties, etc.), but we could stay in the dorms, which cost less than a hotel room on the coast, and the university would supply all meals from Friday evening through Sunday lunch.

Here is a big change from past gatherings. The Society would have to require financial commitments in advance from members who decide they will attend. This is because we'd have to sign on to money obligations that the Society on its own is not in a position to meet.

Another significant change is that we will have an implied obligation to invite the university and Orono community to attend the Saturday lectures. This condition seems a positive in that it is likely to increase the size of the audience. Also, the university's Climate Change Institute, headed by Society member Paul Mayewski, is heavily involved in Antarctic research.

Now for 2021 at Mystic Seaport Museum on the Mystic River in Connecticut. Many of you know that the museum is planning a major Antarctica exhibition that will start in November 2020 (see the following article). The exhibit is to continue into the 2021 summer. If that works out, the Museum has expressed interest in hosting a Society gathering at Mystic.

Comments from Society members we have heard from to date are that meeting at Mystic during the exhibition is the priority. Some like the idea of a 2020 gathering as well, some not so much.

Whatever is to happen, member comments now, and commitments later, will be critical. We solicit your answers – before 1 December 2018 and preferably earlier – to these questions.

1. Given the possibility of a gathering in summer 2021 at Mystic Seaport while its Antarctica exhibition is open, do you also want to meet in 2020?
2. If yes, are you happy to gather at the University of Maine in summer 2020?
3. Tentatively (at this stage), would you plan to attend the Orono gathering, and how many would be in your party?

4. If you plan to attend the 2020 gathering, are you willing to make a firm financial commitment by – say – July 2019? (This date could change depending on negotiations with the university.)

Contact me: gguthrid@yahoo.com or 703-258-4320 (mobile phone).

Expressions of interest from members will be critical in determining the Antartican Society decision to move forward, or not, with planning for an Antarctic Gathering the weekend of 17-19 July 2020 at the University of Maine, Orono. We also are keen to get going on the 2021 gathering at Mystic, but first things first.

Mystic Seaport Museum and Antarctica



Thompson Exhibition Building

As shown on page 2, the first presentation of the Garage Theater in Port Clyde on 21 July 2018 was made by Stephen C. White, President, [Mystic Seaport Museum](#).

The museum, founded in 1929, covers 19 acres along the Mystic River in Connecticut and is home to 500 watercraft, including four National Historic Landmark vessels, most notably the 1841 whaleship *Charles W. Morgan*, America's oldest commercial ship still in existence.

Of special significance to the Antartican Society, and the reason Steve came to Port Clyde to give his talk, is the museum's Thompson Exhibition Building, a new 14,000-square-foot facility that was

opened in 2016. The building includes 5,000 square feet of exhibition area and an adjacent conference room that can seat 200.

This facility is to be the location of a major exhibition about Antarctica to open in November 2020, the 200th anniversary of the first sightings of Antarctica, and to continue at least through the summer of 2021.

Nathaniel B. Palmer in particular was in the Antarctic in 1820 aboard *Hero* and recorded his sighting of what we know now is the Antarctic continent.

Here is where coincidence comes into play. Palmer's historic voyage started from Stonington, Connecticut, just 3 miles from Mystic. There, the [Captain Nathaniel B. Palmer House](#), which Nathaniel and his brother Alexander built in 1852-1854, is now a museum owned by the Stonington Historical Society. It contains information and artefacts relating to Nathaniel's Antarctic voyages and the two brothers' lives as ship captains and builders.

Steve told the Antarctic Gathering in Port Clyde about planning for the Mystic exhibition as it now stands. To be titled *Discovering Antarctica 1820-2020*, it indeed will include Palmer's sighting of the Antarctic Peninsula, but the overall intent is to mark Palmer's achievement as well as to demonstrate and celebrate the 200 years since of America's relationship with Antarctica.

The Antartican Society already is involved in the planning. In June 2017 the museum invited two dozen specialists to meet in Mystic in order to discuss the scope of the exhibition. Two participants were the Society's secretary, Joan Boothe, and newsletter editor Guy Guthridge.

To attendees at the Garage Theater, Steve described six sections of the exhibition as now envisioned:

- 1 Antarctica as imagination (before 1820 and now): Antarctica as a subject of imagination of the ancient and contemporary culture.

2 Moment of discovery (in 1820): the story of Nathaniel B. Palmer as a beginning of local to national and international history.

3 Voyages for profit; sealing and whaling in Antarctica: importance of economic factors in the early expeditions to the Antarctic.

4 Life in Antarctica: Lives of early explorers during the Heroic Age and now.

5 Politics of science; geopolitics and international cooperation in the Twentieth Century: claims, then the change of mood after the International Geophysical Year along with the rise in the importance of scientific research.

6 Remote but connected; Antarctica and climate change: Antarctica as a dynamic continent where the impact of climate change is obvious.

In addition to the exhibition in Connecticut, Mystic Seaport is considering activities in the field, including potentially a joint expedition with the Cambridge University Archaeological Unit to South Georgia in 2019 and a collaboration with Abercrombie & Kent to conduct a 15-day voyage from Ushuaia, Argentina, as far south as Marguerite Bay along the Antarctic Peninsula.

After his visit to Port Clyde, Steve White sent the following communication:

Dear Antarctic Society Gathering participants,

First of all, many thanks for so warmly welcoming me to your Port Clyde gathering. I learned a great deal in a short period of time, and I am still trying to make sense of all the notes I took from conversations with so many of you. I very much appreciated your interest in our plans for the *Discovering Antarctica 2020* exhibition. Attached is a short version of my slide presentation, as some of you had asked for a copy of the exhibition plan and its themes.

As I said at the end of the presentation, we are looking to extend our reach to

partners, both national and international. We need help and guidance with respect to:

1. Curatorial support: knowledge of the 6 themes...perhaps one guest curator per theme,

2. Content: objects that support the themes, and

3. Funding: contacts with individuals and foundations that might support the initiative.

We look forward to following up with many of you, especially those who shared their information with us regarding our needs. If you didn't have a card to give me but want to share ideas and/or interest with us, please be in touch with us.

It was good to be home and in a place so important to my family, as well as to meet so many wonderful and interesting people. Thank you.

Regards, Stephen C. White
President, Mystic Seaport Museum
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SCAR held its 35th meeting in June



SCAR delegates at Davos

The international Scientific Committee on Antarctic Research, which turned 60 years old this year, held Open Science Meeting Number XXXV in June in Davos, Switzerland. The event was done in

collaboration with the International Arctic Science Committee.

The scope was research progress in those two regions and in what the combined event (named “Polar 2018”) termed the Third Pole, meaning the mountains of the Himalayas and Hindu Kush. Except for the Arctic and the Antarctic, those two places hold more permanent snow and ice than anywhere else on Earth.

The assembled 2,500 people presented 1,600 posters and a thousand oral papers.

As is normal for such large events, which tend to focus more on process than on breakthroughs, no one seems to have tried to identify to the public the most important outcomes of Polar 2018. But the four scientific plenary sessions – on ice cores, Southern Ocean circulation, the West Antarctic Ice Sheet, and the Southern Ocean’s global importance – may indicate topics of higher than average interest.

While SCAR is nongovernmental, it identifies its adhering organizations (for the United States it’s the National Academy of Sciences Polar Research Board) by nation, and it ranks the 44 as being at one of four levels. Russia and the United States are the only “special contributors.” Sixteen others fall in the “well-developed programs” category. Fourteen are at the level of “initial-stage programs.” The remaining dozen are associate members. SCAR has nine honorary members – individuals, not countries – and two are Americans: Chuck Kennicut II and our Society’s Honorary President, Robert Rutford.

It seems important to heed the fact that SCAR held this big meeting. International organizations like SCAR are important for scientific progress, and the Antarctic is well endowed with them. Besides SCAR and the Antarctic Treaty, the national governments’ program managers have a group that meets every year.

A result, maybe because of these groups or maybe because polar science is

hard to do, or maybe both, is that international collaboration in Antarctica (the Arctic, too) is at twice the level as occurs with research conducted elsewhere in the world.

This assertion is backed by specialists who analyze the characteristics of published research papers. If the authors of a paper are from more than one nation, it’s international science. And citation rates – how often later papers cite earlier ones, a measure of their impact on research progress – are higher for international science papers than for papers produced by scientists of just one country.

So international science is a good thing, and not just for the science. Consider the history of the USA and the USSR, throughout the Cold War, exchanging scientists every winter in the Antarctic.

D.W.H. Walton, in a recent issue of *Antarctic Science*, says it this way: “Inclusive community meetings like Davos are hard to organize, yet they provide the basis on which we can build our future efforts in science, advice, and outreach. These efforts really matter.” To sense the direction of Antarctic science today, you might spend an hour or two prowling the abstracts at <https://www.polar2018.org>.

William Nordhaus gets Nobel award

When, in 2000, the National Academies of Science assembled an 11-person panel to evaluate the likelihood and impact of abrupt climate change, it recruited mainly geophysicists. Richard Alley of Penn State, who analyzes the detailed climate record contained in ice cores from Greenland and Antarctica, chaired the group. Nine of the other ten also were physical scientists.

William Nordhaus was the standout participant from another discipline. A professor of economics at Yale, his research focuses on economic growth and natural resources, the extent to which resources

constrain economic growth, and the economics of global warming. His book *The Economic Impacts of Abrupt Climatic Change* had just been published when the Academy's panel was formed.



Dr. William D. Nordhaus
Credit: Yale University

The result of the group's work was *Abrupt Climate Change: Inevitable Surprises*, which the National Academies Press published in 2002. Before the 1990s, the report states, the dominant view of past climate emphasized slow, gradual swings of the ice ages tied to features of the earth's orbit or occurring with continental drift. But "unequivocal geologic evidence" shows that climate can change abruptly. Changes of up to 16°C and a factor of 2 in precipitation have occurred in some places in periods as short as decades to years.

Chapter 5 of the six-chapter, 238-page, book is "economic and ecological impacts of abrupt climate change." A footnote states, unsurprisingly, "This section draws heavily on Nordhaus (2000)." The chapter points out that ecosystems are vulnerable to abrupt climate change: they tend to be long-lived and unmanaged (e.g., coral reefs), unable to anticipate future events, and slow to migrate or adapt.

People can be smarter. The report quantifies instances how being smart or dumb can save money or cost you. For example, under perfect foresight a property owner optimizes the depreciation schedule in light of the need to abandon when sea-

level rise makes the structure uninhabitable. The myopic owner operates the dwelling assuming no sea-level rise until forced to abandon. Without adaptation – that is, if every property owner is myopic – a sea-level rise of 1 meter could add 50 percent to the cost of coastal structures damaged by sea-level rise. "Adaptive capacity is diminished by myopia," is the dry conclusion. While climate change inevitably has impacts, "Abruptness increases those impacts."

The strength of the chapter is its quantitative evaluations of empirical data.

On 8 October 2018 the *Washington Post* and other sources announced that Nordhaus and another American, Paul Romer (New York University), received the Nobel Memorial Prize in Economic Science for their work (done independently) on the relationship of climate change and technological innovation to economics, which has profoundly shaped policy around the world. The prize is a million dollars.

The Royal Swedish Academy of Sciences, which administers the prize, said, "William D. Nordhaus and Paul M. Romer have designed methods for addressing some of our time's most basic and pressing questions about how we create long-term sustained and sustainable growth."

A lot of that 2002 National Academy report to which Nordhaus contributed is based on research done in the Antarctic. It is worth noting that a talent with the insight and stature of William Nordhaus has been acknowledged for paying attention to polar regions.

Ozone hole update

During four seasons lecturing on an Antarctic cruise ship, a talk your editor gave about the ozone hole was popular even though the hole and its cause were discovered more than 30 years ago. These findings, many say, are Antarctica's most important scientific accomplishment.

Actions and research taken since the discovery have been significant, too.

The 1987 Montreal Protocol (with later, even more stringent, agreements) limiting production of ozone destroying chemicals is “perhaps the single most successful international agreement,” stated Kofi Annan, former UN secretary general.

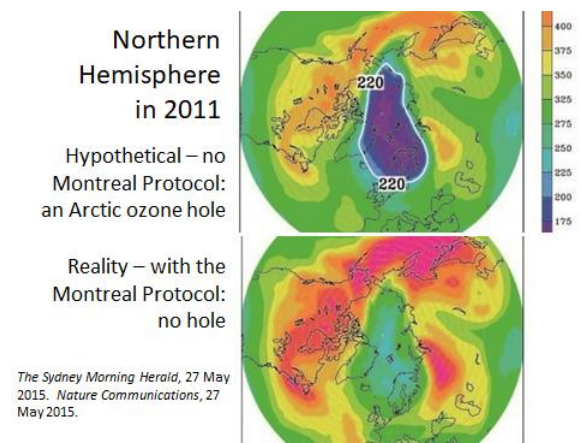
Here is a rundown on some other advances since the 1980s.

The Antarctic ozone hole is getting smaller. The process is uneven because factors such as volcanic eruptions and varying temperatures of the Antarctic stratosphere influence the size, but NASA figures that by 2070 stratospheric chlorine (the main destroyer of ozone) will be back to 1970s levels, when the ozone hole started to form each austral spring.

fatalities. The U.S. EPA figures the Protocol from 1990 to 2065 will save 6.3-million human lives and, by 2075, avoid a 7.5-percent decrease in American crop harvests.

Susan Solomon, the scientist who in 1986 and 1987 had led the U.S. research teams at McMurdo that showed chlorine from CFCs causes the ozone hole, published (with others) a paper in the 15 July 2016 *Science* confirming the emergence of healing in the Antarctic ozone layer.

Not all the news is good. The 9 February 2018 *Science* says at midlatitudes, where most people live, “the ozone layer in the lower stratosphere is growing more tenuous – for reasons that scientists are struggling to fathom.” William Ball, the study leader, says very short lived substances may be the culprit.



If the Montreal Protocol had not been implemented, an ozone hole would have formed over the Arctic by 2011, according to a 27 May 2015 paper in *Nature Communications*. By 2064, the stratosphere over the United States and other mid-latitude regions would have been as ozone-depleted as the Antarctic ozone hole (NASA, 13 May 2009).

Environment Canada calculated that in the period 1987-2060 we will have \$224-billion in reduced damage to fisheries, agriculture, and materials, 129-million fewer cataracts, 21-million fewer cases of skin cancer, and 333,500 fewer skin cancer



The Antarctic Society

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JANUARY

NO. 2

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IN ANTARCTICA FOR THE LONG HAUL

Scientists long ago recognized the flaws in doing Antarctic research by means of discrete expeditions that began and ended, leaving gaps between. Still, it is impressive to watch some of the continuing national programs as they design and install permanent installations with a verve and an efficiency that you'd envy anywhere, not just on the polar frontier.

Antarctic (Issue 246, 2018), our Society's sister publication in New Zealand, summarizes what the Australians are up to. In addition to building a 525-foot icebreaker for science and resupply, they are replacing the Macquarie Island station, setting up long-haul tracked vehicles for deep field work, developing a drill for 3,000-meter-deep ice cores, and making a year-round ice-free paved runway near Davis Station.

China's notable advances are described in the October 2017 issue; an innovation this season will be to start on a runway for wheeled planes. India has two modern, low-footprint research stations with fiber-optic and wireless connections and more than a decade of failure-free field operations.

While each of the countries extends its national cultural signature to Antarctica, international collaboration is more and more common in science and logistics. Many projects these days are more than a single nation could handle. Think International Polar Year (2007-2009), when discoveries were made that otherwise wouldn't have happened.

We Americans remain preeminent in the Antarctic, but others are giving us a run for the money. From 1981 to 2007 our fraction of Antarctic research publications dropped from more than a third to less than a quarter: not because our output went down, but because other nations ramped up.

Our field program is among those beefing up. South Pole Station is up to date, a new Palmer Station pier is on the books, and McMurdo is beginning a multiyear modernization. We may yet see a new icebreaker by 2023.

Guy Guthridge

Next Antarctic Gathering(s)

Mark your calendar: 16-18 July 2021.

Mystic, Connecticut, is where members have told us they are enthusiastic about holding an Antarctic Society gathering in the summer of 2021. Mystic Seaport Museum then will be displaying a major Antarctic exhibition celebrating the 200th anniversary of first sightings of the ice continent and exhibiting Antarctic developments up to the present.



Charles W. Morgan, built 1841, is the world's last remaining wood whaleship. It is the central attraction of Mystic Seaport Museum

The exhibition is to open in November 2020 and be open through most of 2021.

Nearby Stonington, Connecticut, has the Palmer House museum commemorating Nathaniel B. Palmer's historic 1820 sealing voyage to the Antarctic.

Fewer Society members say they would plan to attend a Gathering at the University of Maine, Orono, in the 2020 summer.

As a result of articles in the last (October 2018) newsletter, we heard from 30 members about these options. All but one who responded to our request for comments gave an enthusiastic yes to the Mystic gathering.

Just 20 said yes to the Orono gathering. Eleven members either said no to the Orono meeting or were not enthusiastic about it. The sense was that if we decide to do both some may come to both even though they are not so keen on Orono.

Most who responded said spouses would attend, too. So we potentially have more than 50 people already planning to come to the 2021 Mystic gathering, but fewer to the 2020 Orono one, if we hold it.

Attendance at whichever place is bound to be much higher than these early numbers suggest. This assertion is based on the pattern that emerged as the date for the recent 20-22 July 2018 Antarctic Gathering (in Port Clyde, Maine) approached. As late as May 2018, only about 50 people had said they would come. Then, in the following weeks, more and more told us they would be there. The actual attendance – as reported by Paul Dalrymple in the last newsletter – was 127.

Again, at this time the Society's next planned Antarctic Gathering will be 16-18 July 2021. We may be able to secure block arrangements with one or more hotels. The Whaler's Inn, 20 East Main Street in Mystic, is a 12-minute walk to the Mystic Seaport Museum. Many more hotels are nearby, also. It's not too early to reserve a room!

Burlington, Vermont, 2022 or 2023?



Burlington Waterfront. Proposed venue for a gathering is in the lower left corner.

Another future Antarctic Gathering venue is on the table: Burlington, Vermont. After the October newsletter was published, our wise webmaster Tom Henderson – ear to the ground as always – proposed the location for a future year (2022 or later).

Here's what Tom says:

“I would like to throw the Burlington, Vermont, hat into the ring for the future. We have lived here for almost 2 years now, and we love it.

“A meeting place on the Lake Champlain waterfront has two theaters and lobby space for socializing. The larger theater seats 200, which I think would be ideal for our group. Across the street are Marriott and Hilton hotels. Other hotels or motels are within walking distance or a short drive.

“Pay parking near the venue is ample and reasonably priced. The nearby Church Street pedestrian mall has restaurants and shopping and is active year around.

“Camping is available about a mile north of the harbor, and it connects to the venue by a beautiful bike and walking path. A tour boat at the harbor takes people and groups out on the lake between April and November; it could be reserved exclusively for our group. You can rent a canoe or a kayak at the new Sailing Center, which is two blocks north of the venue. “The Leahy ECHO Center is adjacent to the venue. This environmental museum focuses on the history and the ecology of Lake Champlain as well as on Vermont wildlife conservation.

“We would need at least 2 years lead time to make arrangements. Burlington is not Port Clyde, but it is a worthy second!”

This note from Tom brings to mind the flaw in the University of Maine Orono proposition for a 2020 Gathering: it has no champion amongst our members. For the Port Clyde meetings we had the tireless, and vitally important, onsite support from Paul Dalrymple and Gracie Machemer.

Burlington, Vermont, has Tom. He writes, “I fully realize what I am getting into. In my working days, I coordinated a national conference attended by over 400 people, so I know what details need to be attended to. I am also currently the Reunion Coordinator for the Old Antarctic Explorers Association and created a Reunion Planning Guide for them which details what a local organizer needs to

do. I have no misconceptions about the work involved, and I am happy to do it.”

If you don’t drive, you can get there by public transportation. Amtrak stops at Port Kent across the lake; the Vermonter’s Essex Junction is a cab ride away. Ferries cross the lake from Essex and Plattsburgh.

Burlington airport connects to many major cities. Montreal’s Pierre Trudeau airport serves many airlines and is a 2-hour drive from Burlington. Or one can take a train from Montreal to Plattsburgh and then the ferry to Burlington. The ferry docks about two blocks from the potential venue.

Arriving on your own boat? Use the Hudson River and Champlain locks, and rent a slip a block away.

Tom adds, “Burlington has a dozen or so microbreweries and – not coincidentally – five colleges or universities.”

A hill and a hole

A map with a caption in *On Wisconsin*, the University of Wisconsin alumni magazine, came to our attention. The university’s cartography lab and its geology and geophysics library collaborated to create the feature, “58 Frozen Landmarks” – the centerfold of the Winter 2017 issue.



The 58 places in Antarctica named for University of Wisconsin personnel.

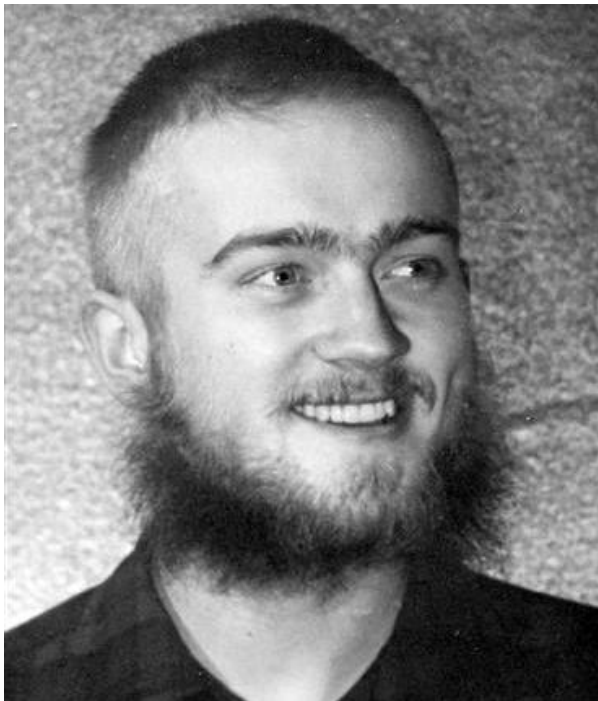
“Badgers have made their mark on Antarctica,” it reads, “thanks to the UW’s long history of research and exploration of the continent.” The two-page map plots 58

natural features in Antarctica named for UW-Madison faculty, staff, and students.

Charles R. Bentley, who died in 2017 (see our Society's October 2017 newsletter), gets special mention. The *On Wisconsin* spread says he spent 25 consecutive months in Antarctica beginning in 1957 and made at least 15 trips to the Ice over seven decades. Mount Bentley and Bentley Subglacial Trench are named in his honor. In a 2008 interview Charlie said, "I claim to be the only person with a hill and a hole named after him."

Eighteen crazy men and a dog

Society member Bob Benson, who reminisces in our July 2016 newsletter about the first Midwinter spent by humans (he was one) at the South Pole, wrote to our treasurer Paul Dalrymple that he and his wife Marilyn have moved to an independent-living retirement community, but remain near NASA's Goddard Space Flight Center in Maryland.



Bob just out of college and at South Pole.

Bob is still an emeritus astrophysicist with Goddard's Geospace Physics Laboratory. NASA has kept him busy since 1964, and his most recent paper was published in *Radio*

Science in December 2018. His main research interests are in plasma wave phenomena, ionospheric and magnetospheric physics, and planetary radio emissions. He uses the terrestrial ionosphere and magnetosphere as a space plasma laboratory. These research interests were stimulated in 1957 while at Pole, age 21 and straight out of the University of Minnesota geophysics department.

We thought about asking Bob to write a reminiscence about his long career with its Antarctic start for this newsletter. A brief look at NASA's web site showed we didn't have to; Bob had already done that. Read *Science in a Dark Freezer: a tale of icy beards, frozen tools, and wintering over at the South Pole*, by Joel Shurkin, on the space agency's [Earth Observatory](https://earthobservatory.nasa.gov/features/Benson/page1.php) web page, <https://earthobservatory.nasa.gov/features/Benson/page1.php>

Bob was one of the youngest of the 18 "crazy men and a dog" who did the science and ran the station back in the 1957 winter. He took pictures, too. The National Geographic published one of them – a long exposure of the Moon's path through the sky over several winter nights – as a two-page spread in its magazine.



Bob used a pinhole camera at Pole to make this long-exposure shot of the Moon over several nights.

Bob says the winter at Pole is a high point of his life, but he's never been back. Even crazy men, concludes Joel Shurkin in his writeup, become wiser with age.

2018 Amundsen Memorial Lectures

by Tom Henderson

I attended the 2018 Amundsen Memorial Lectures annual meeting in Oslo, Norway. This event is held on the first weekend in December at the Fram Museum to commemorate Roald Amundsen's expedition to the geographic South Pole in 1911. This memorable and enjoyable experience was well worth the \$220 registration fee.

The Fram Museum has been voted the best museum in Norway for 5 years running. Director Gier Klover's dedication to preserving and presenting history in an accurate and accessible way is evident in the layout and displays in the museum. Fridtjof Nansen's famous polar ice ship *Fram*, the ship that Amundsen borrowed and used for his South Pole expedition, is at the heart of the museum – literally. The entire ship is housed beneath an A-frame building where visitors can view it at all levels and walk through it. A recent addition is the ship *Gjoa*, which Amundsen sailed through the Northwest Passage in 1904-06, becoming the first to do so. Both ships have been meticulously restored to their original condition using the shipbuilding techniques of their day.

A third attraction is the reed raft *Kontiki* constructed and sailed across the Pacific Ocean to Polynesia from South America by Thor Heyerdahl in the 1950s. Heyerdahl thus proved that Polynesia could have been populated from the east rather than the west. Interspersed among these major exhibits are many smaller but very informative exhibits.

The reception and registration on Friday evening, 30 November, featured the opening of a new exhibit on the Swedish polar balloonist S.A. Andree, who perished on an attempted flight over the North Pole in 1897. The reception was attended by descendants of Andree. It was followed by screening of a 1954 documentary on the life of Roald Amundsen.

The next day featured presentations (in English) by five excellent speakers in the museum's modern and spacious theater, primarily on Arctic topics. One was a sneak preview of a new film on the life of Amundsen. Both the director and lead actor participated in a Q&A session about the making of the movie. The film is produced by Norwegians to Hollywood standards. If the excerpts shown are an indication, this film will be popular among Antarctic enthusiasts and general audiences. Amundsen's life story is heroic and, in hindsight, it begs the question as to why it wasn't redone until now. "Amundsen" will be released in Norway later this year, and syndication in the U.S. is being negotiated.



Amundsen Memorial Dinner in the *Gjoa* Building

The highlight of the Memorial Lectures was the dinner on Saturday night. Each year, a historical dinner is recreated accurately from the menu to the speeches given. The 2018 dinner was a recreation of the state dinner given for Amundsen and his crew upon returning to Oslo from the 1911-12 expedition to conquer the South Pole. Guests at that time included King Haakon VII of Norway. Following a reception on the deck of the *Fram*, each course of the original nine-course dinner was faithfully recreated and served with fine wine in the *Gjoa* building.

Each dinner attendee was also served a small amount of a superb \$800 bottle of 1912 Madeira. Gier Klover confided to me that his cost for the dinner alone exceeded the cost of registration. Several of the speeches over the 5-hour dinner were given by descendants of the original speakers from 1912. At the end of the night, everyone was sated, and perhaps a bit tipsy, but also appreciative of a very memorable experience.

I highly recommend the Amundsen Memorial Lectures. The quality of the presentations, the social interactions, the food, and the venue were beyond my expectations. For the 2019 version, keep watch on the Fram Museum website: <http://framuseum.no/>. They should begin registration in September 2019. Be diligent: seating is limited to 180, and this event is becoming understandably popular!

Memorable passage aboard R/V *Hero*

by Richard Wolak



Hero at Palmer Station. Photo by Dick Wolak.

The 2018 Antarctic Gathering at Port Clyde, Maine, evoked memories of research vessel *Hero*, the 125-foot wooden side trawler launched 50 years ago at nearby South Bristol, Maine. Upon her retirement from the U.S. Antarctic Program in 1984, she closed the era of wooden working ships in Antarctic waters.

With her small size and ice-friendly rounded hull, *Hero* was not designed for the tempestuous waters south of Cape Horn. In heavy seas, she had the disquieting ability to incorporate all three motions of rolling, pitching, and yawing with little to no predictability (and at times, she'd go altogether still – a bewildering variation).

I've crossed the Drake Passage on ten other ships in varying conditions, but none of those crossings compares to those experienced aboard *Hero*. One in particular stands out. Its memory is 40 years old, but I found the deck log entries and summary for Cruise 78-1C, signed and submitted by legendary Captain Pieter Lenie.



Hero under sail. Photo by Dick Wolak.

The story begins in late summer at Palmer Station. I was the summer station manager, then leaving with 12 other summer residents upon the start of winter. *Hero*'s crossing to Ushuaia, Argentina, was expected to take the usual 69 to 72 hours. We departed Tuesday, 28 March 1978, notably the 10th anniversary of *Hero*'s launching. We hoped to be in the United States by the upcoming weekend.

Hero was typically the last ship to depart the Peninsula each summer. Accordingly, Captain Lenie enjoyed short calls at wintering stations to wish them well. After a brief stop at the nearby Almirante Brown Station (operated by Argentina), we set out to cross Bransfield Strait to the South Shetlands.

LOG: 29 Mar – 0130 Enter Bransfield Strait – short choppy swells – pitching sharply

LOG: 29 Mar – 0600 Switched to lower bridge – Rolling and pitching violently

These observations did not bode well; Bransfield Strait is reasonably well protected and rarely difficult. We were in heavy weather, and more ice than usual was slowing our navigation at night. We ran for shelter, choosing Whalers Bay at Deception Island. That anchorage is perhaps the best in Antarctica; we encountered gale force winds, the vessel was “icing from spray whipping aboard,” and *Hero* was dragging anchor. A day later “with moderating weather,” *Hero* set course for King George Island to visit the wintering crew at Poland’s Arctowski Station.

It was 2½ days since leaving Palmer. The serious business of crossing the Drake was at hand.

LOG: 31 Mar – 0210 Set course for Tierra del Fuego – 320 true – vessel pitching sharply in headseas

LOG: 31 Mar – 1612 Engineer reports the starboard engine off line until alongside a dock – No head gasket, and the turbocharger aftercooler is leaking

Fourteen hours into the Drake, the starboard engine had a serious problem. The engineer suspected a bad head gasket, but we later learned it was failure of the turbocharger aftercooler core. This heat exchanger recently had been replaced at drydock – with a core designed for fresh water! Running on the port engine alone reduced our ability to make headway. The log entries became alarming:

LOG: 31 Mar – 1900 Winds increasing – vessel starting to leak badly

LOG: 31 Mar – 2345 No relief from the weather – Rolling and pitching heavily in headwinds

LOG: 01 Apr – 2300 All day tacked all over the ocean trying to make some headway – most personnel in bad shape from the constant violent motion

LOG: 02 Apr – 2300 All day trying to get the best course for easier riding, but getting set gradually to the East – salt water entering galley at rapid rate endangering the stove and other wiring

LOG: 03 Apr – 0300 Heavy squalls continue without break – Vessel almost at standstill and getting set Eastward at great rate – best guess ahead is 2 knots.

LOG: 03 Apr – 0930 Engineer reports that the Port engine has the same problem as the Starboard with a leaking turbocharger aftercooler – they are now making a bypass line for the cooling water

The aftercooler core in the port engine also had failed, and the cooling seawater was rerouted around the aftercooler – consequently, the engine was operable, but at much reduced efficiency. Our powerless drift was later described in the captain’s report:

“...vessel was stopped and hove to in center of Drake Passage while temporary repairs were made. After drifting for more than two hours, resumed course...at slow speed...barely making headway”

Wanting to know more about our progress, I went to the satellite navigator, knowing that a midnight printout would detail the last 24 hours. I was taken aback at one line:

SatNav Log - 2400: Distance made good - 25 Nautical Miles

If I could get off the ship, I thought, I could walk faster! As we started into day 8, we had been pushed well east of our intended course, and *Hero* needed to turn northwest to enter the Beagle Channel. Conditions severely limited our options.

LOG: 04 Apr – 0400 Due to violent seas, unable to change course for the Beagle Canal – Swly winds setting vessel to the North towards Staten Island (Isla de Los Estados)

LOG: 04 Apr – 0915 Giving up – winds 45 to 50 knots – seas 35 to 40 feet and breaking – cannot keep control and vessel setting towards Staten Island – Change course and make for shelter

With few options, we ran for Staten Island, finding entry to the fjord-like Bahia Capitan Canepa. There, *Hero* tucked as far into protection as possible, and the engineers began work on our powertrain. After a day's relief, *Hero* set out across the Lemaire Strait for Tierra del Fuego. Though we managed only 3 to 4 knots, progress was steady. The Beagle Canal (Channel) was a welcome sight as day 10 unfolded. With relief we read the ultimate log entry at Ushuaia:

LOG: 06 Apr – 1400 All secure at dock....



Sunken *Hero* at Bay Center, Washington. Photo by Bill Spindler.

This article summarizes Dick's talk at the Garage Theater during the July 2018 Antarctic Gathering. – Ed.

Prestigious award for *Ice Eagles*

Webmaster Tom Henderson's documentary *Ice Eagles: American Aviation in Antarctica* has won a 2018 Award of Merit from *The Impact DOCS Awards Competition*.

This excellent 2017 film recounts U.S. aviation in Antarctica from the 1928 start to the present. It has archival film and photos plus interviews of people, some dating back to the 1939-41 U.S. Antarctic Service Expedition, who made the history.

Tom produced and directed the film. [Impact DOCS](#) recognizes film, television, videography and new media professionals who demonstrate exceptional achievement and produce standout entertainment or contribute to profound social change. Entries for the 2018 competition, received from 30

countries, were judged by professionals in the film and television industry.

For more about *Ice Eagles* or to get a copy, call Tom at 518-888-0387 or visit his Graceful Willow Productions website, www.gwillow.com.

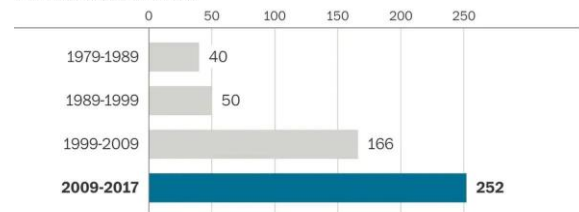
Antarctic ice has new attention

“Antarctic ice loss is up sixfold since the 1970s” headlines a story in the 19 January 2019 *Washington Post*. It's among recent articles in popular media acknowledging that glaciologists are onto something affecting nearly everybody.

The headlines are coming out because new research is being published. The new studies exist because *new data* are resulting from both existing and new observational tools.

The escalating pace of Antarctic ice loss

Annual Antarctic losses, in billion metric tons. Every 360 billion tons equals one millimeter of sea level rise.



Source: Rignot et al, 2019, Proceedings of the National Academy of Sciences

CHRIS MOONEY/THE WASHINGTON POST

The research paper behind the *Post's* report is “Four decades of Antarctic Ice Sheet mass balance from 1979 to 2017,” by Eric Rignot and others, issued 14 January in *Proceedings of the National Academy of Sciences*.

This paper uses a comprehensive, precise satellite record and a regional atmospheric climate model to document Antarctic ice loss and its impact on sea-level rise. The ice loss is dominated by “enhanced glacier flow in areas closest to warm, salty, subsurface circumpolar deep water.”

West Antarctica contains many of these areas, as known for some time. The paper asserts that East Antarctica, thought for so long to be stable, has been a major

contributor over the entire period. These coastal areas are likely to dominate sea-level rise from Antarctica in decades to come, the authors state, as polar westerlies push more circumpolar deep water toward the outlet glaciers.

“The places undergoing changes in Antarctica are not limited to just a couple places,” Rignot told the *Post*. “They seem to be more extensive than what we thought. That, to me, seems to be reason for concern.”

It’s hard to be an optimist when nearly every new study seems to make things look worse. Temperatures during the Eemian, 125,000 years ago, were barely higher than today, but sea levels were 6 to 9 meters higher than now. The source of all that water was a collapse of the West Antarctic Ice Sheet, Anders Carlson of Oregon State told the AGU Fall Meeting in December. The discovery was “teased out of a sediment core,” reports the 21 December 2018 *Science*.

As an analogy for the present, the Eemian is “probably the best there is, but it’s not great,” says Jacqueline Austermann of Columbia University.

Nevertheless, the big uptick in mass loss that Rignot and others have documented in the last few decades is perhaps the start of the West Antarctic collapse “rather than a short-term blip,” says Jeremy Shakun, Boston College.

More certainty is on the way, regarding the Eemian, anyway. *Joides Resolution*, the deep sea drilling ship, is on IODP Expedition 379 (18 January to 20 March 2019) taking at least five ocean bottom cores off West Antarctica. “That’s going to be a great test,” Carlson says.

Back to Eric Rignot and the present, that warm, salty ocean water causing much of the melting of the bottoms of outlet glaciers is not so much because the whole ocean is warmer, although it is, but because the wind is nudging existing warm currents closer to Antarctica.

Now, Lijing Cheng, Chinese Academy of Sciences, and others in the 11 January 2019 *Science* confirm that warming of the whole ocean is accelerating. If global warming keeps going at its present rate, we’ll get a 0.78 K rise in ocean temperature by 2100, yielding thermal expansion equal to a sea level rise of 30 centimeters. Cheng *et al.* write, “This is in addition to increased sea level rise caused by land ice melt.”

And here’s another new angle. A paper in the 14 January 2019 *Nature Geoscience* examines the link over geologic time between Earth’s axial tilt – the angle between the planet’s axis of rotation and the Sun – and the presence or absence of sea ice around Antarctica.

“Linking those cycles to a detailed chemical record,” notes the online *Science-Daily*, “suggests that elevated carbon dioxide in the atmosphere and the resulting loss of sea ice around the Antarctic played a big role in amplifying the effect of changes in the Earth’s astronomical motions on the durability and stability of the Antarctic Ice Sheet.”

The authors of the *Nature Geoscience* paper note that 2017 and 2018 saw reduced Antarctic sea ice after decades of growth.

High-energy-neutrino source found

Most of what we write about in these newsletters has to do with something going on in Antarctica. The most expensive experiment (\$280-million) ever fielded there – the IceCube neutrino detector built on, and deep within, the ice sheet at South Pole Station – is investigating things about as far away from the Antarctic as you can imagine.

The IceCube project, using a hot water drill, has hung 5,160 light detectors in a cubic kilometer of the extremely clear and deep ice that’s typical throughout the Antarctic interior. The array was completed in 2010.

Almost since then, the detectors have been seeing Cherenkov radiation, blue light that results, once in a while, from a neutrino hitting the nucleus of an ice molecule.

Neutrinos go almost as fast as light and have almost no mass. A few million of them passed through the end of your nose as you read this sentence. Notice that you didn't feel them. That's the problem with detecting neutrinos. They're so small that nearly all of them fly by without hitting anything.



IceCube Neutrino Observatory on cover of 13 July 2018 *Science*. The 5,160 spherical digital optical modules are each 35 cm in diameter and as deep as 2.5 km in the ice. Image: Jamie Yang and Savannah Guthrie, IceCube, NSF.

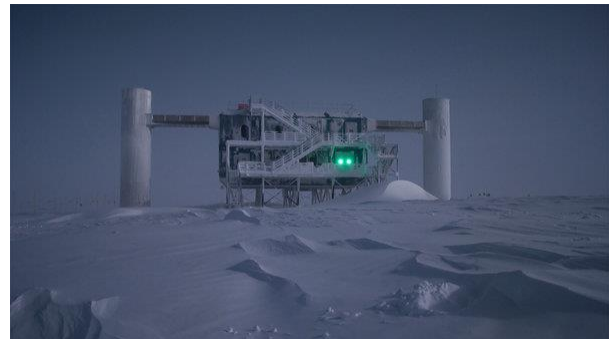
Garden-variety neutrinos, and that's nearly all of them, are spawned by cosmic rays hitting Earth's upper atmosphere. IceCube researchers have figured out how to distinguish them. But what they're looking for in particular are very high energy neutrinos: above 30 trillion electron volts.

They've found a few: a dozen or so a year. When one of those rare hits leaves a clean track with a well-defined direction, other telescopes scramble to look for an obvious cosmic source.

On 22 September 2017, IceCube plotted a neutrino that, working backward, the

orbiting Fermi Gamma-Ray Space Telescope figured came from a far off blazar, a hugely bright source of radiation powered by a supermassive black hole. The blazar is 4 billion light-years out; it happens to shoot a relativistic jet of plasma in the direction of Earth.

Daniel Clery, a *Science* staff writer, says in the 13 July 2018 issue that, if the astronomers are right, the finding "could mark the founding event of neutrino astronomy." His "In Depth" article introduces two research papers. The cover shows a painting of four detectors suspended in the ice; "Neutrinos from a Blazar" is the issue's cover story.



IceCube surface lab at South Pole Station.

Why are we spending \$280-million trying to find neutrinos, and why did this discovery make the cover of America's most prestigious scientific journal?

The Antarctic parallel is poignant. When Captain James Cook almost saw the continent in the 1770s and doubted anyone would find a use for it, he kicked off a couple centuries of investigation that is not over yet. Neutrinos are "high-energy astronomical messengers," says the IceCube web site. They provide information to probe "the most violent astrophysical sources: events like exploding stars, gamma-ray bursts, and cataclysmic phenomena involving black holes and neutron stars."

After the new finding sunk in, IceCube researchers went back through the data to see if high-energy neutrinos had come from the same location before. They found 150 days in 2014-2015 when the in-ice detectors saw more

neutrinos than normal from the spot. Whether or not the blazar was flaring at the time, “the archival event was much more interesting” than the 2017 detection, says PI Francis Halzen of the University of Wisconsin – Madison.

U.S. Antarctic Program upgrades

On 17 December, NSF issued a “sources sought” notice seeking firms that could replace the 50-year-old pier at Palmer, the U.S. year-round research station by the Antarctic Peninsula. The notice is not a request for proposals; it asks for information about organizations that could demolish the old sheet-pile bulkhead pier and replace it with a larger one.



Information Technology and Communications building going up at McMurdo. Photo by Ferraro Choi.

Across the continent, the first step in upgrading the whole of McMurdo Station – the coastal logistics hub for much of America’s field program in the Antarctic – will begin in February 2019 with construction of an 11,000-square-foot [information technology and communications building](#). Work, over two austral summers, is scheduled to be finished in 2020.

USCG new-icebreaker update

Coast Guard news in the 15 January *Washington Post* about possible new polar icebreakers is discouraging: “Funding is no

longer a certainty.” A Senate appropriations bill passed last year had \$750-million for the first of three ships, but the House version did not include the money.

A design contract is under way for what’s now designated a Polar Security Cutter. Read a 78-page Congressional Research Service update at <https://fas.org/sgp/crs/weapons/RL34391.pdf>



RSV *Nuyina* icebreaker under construction. Image: Damen/DMS Maritime/Knud E Hansen A/S.

“The U.S. Coast Guard’s funding for a polar icebreaker is set to be postponed yet again,” wrote the U.S. Naval Institute on 19 December 2018, “after Congress and President Donald Trump again failed to reach an agreement on fiscal 2019 funding for the Department of Homeland Security.

A Homeland Security budget expert is confident the Coast Guard will be able to start the icebreaker program without lasting damage due to wide support on Capitol Hill.

The need for new polar icebreakers is National, with operational and security implications in both polar regions. For the U.S. Antarctic Program, as you likely know, annual breakout of the channel to McMurdo is a critical requirement for resupply. We rely on the Coast Guard’s *Polar Star* for this task now, and the ship is 40 years old.

Australian Antarctic infrastructure

Antarctic, publication of the New Zealand Antarctic Society, reports in Issue 246 (2018) that the Australian Antarctic Division is expanding its activities and

capabilities and developing Hobart as an Antarctic hub and gateway.

A 2016 [strategy and action plan](#) is driving the developments.

Chief among them is a new 160-meter (525-foot) icebreaker being built for Australia at Damen Shipyards on the Danube River in Galati, Romania. (U.S. icebreaker *Healy* is 420 feet. USCGC *Polar Star*, which breaks open the McMurdo channel, is 399 feet.)

The Australian ‘breaker, RSV *Nuyina* (a Tasmanian Aboriginal word meaning Southern Lights), has been launched and is to arrive in Hobart in 2020. The once-in-a-generation commitment – \$1.9-billion Australian to design, build, and operate the ship for 30 years – is the single biggest investment in the history of Australia’s Antarctic program.

The new ship, to replace the aging *Aurora Australis*, will be the main lifeline to Australia’s Antarctic stations as well as the central platform of the nation’s Antarctic and Southern Ocean science.

The new paved runway at Davis Station mentioned on page 1 of this newsletter will be 2,700 meters (8,900 feet) in length, capable of landing large commercial planes, and able to operate year-round. The site is in the Vestfold Hills, 6 kilometers from the station. Construction is to start subject to completion of environmental approval.

The heavy tractor capability with construction of a [deep corer](#) is intended to reach million-year-old ice.

New Society members in 2018

With pleasure the Antarctic Society welcomes 23 new members who joined in 2018. Some have been attentive to the Antarctic for some time. For others the Ice is a fresh experience. Members receive the Society’s newsletters and get full access to the information-rich web site.

You’ll find more information about our new members, and existing ones, too, on the Members list on the web site.

An unfortunately underused feature is the “Bio” section for each of us. We hope more members (new and existing) will choose to take advantage of this feature by posting biographical information about themselves. A guide on how to do this appears at the top of the “Members List” section of the site. Hearty welcomes to:

- Joanna Kafrowski of Ontario.
- Kenneth Solomon of LaCrosse, Florida.
- Richard Smith of Haymarket, Virginia.
- Morgan Seag of Nyack, New York.
- William Highlands of Shrewsbury, Massachusetts.
- Merlyn Paine of Carson City, Nev.
- E. Susan Bartlett of Bloomington, Indiana (deceased).
- Dorcas DenHartog* of Hanover, New Hampshire.
- Charles Jos Biviano of Richmond, Virginia.
- Irma Hale of West Palm Beach, Fla.
- Albert Lozano of Dallas, Pennsylvania.
- Carlo Facchino of San Jose, Calif.
- Philip Kyle* of Santa Fe, New Mexico.
- Ruth and David Kraner of Palmetto, Florida.
- Henry Hamilton of Otisfield, Maine.
- Russell White of West Boylston, Massachusetts.
- Kenneth G. Russell of Montpelier, Vermont.
- Jack Long¹ of Livermore, California.
- Ian Howatt of Worthington, Ohio.
- Haofeng Tang of Washington, D.C.
- Eric Dietrich-Berryman of Virginia Beach, Virginia.
- Robert Taylor of East Millinocket, Maine.
- Tina King of Mount Juliet, Tennessee.

¹ Especially long Antarctic involvement.



The Antarctic Society

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NO. 3

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IT TAKES GUTS

When the geodesic dome station at the South Pole was opened in January 1975, the director of the National Science Foundation, H. Guyford Stever, said, "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."

The remark is an understatement. The heroics that go into keeping the U.S. Antarctic Program running seem never-ending. In January (see story below), personnel wore dive gear *inside* the bilge of the icebreaker *Polar Star* to repair a leak caused when ice struck a propeller shaft and broke a seal. In 1986, when a small team of civilians dug a Navy LC-130 out of East Antarctic ice 15 years after it had crashed there, the one mechanic worked days at a time, outdoors, repairing broken equipment. He changed the track on a bulldozer alone, a task that usually required a team in a heated building.

After 22-year-old Russell Robinson in September 1933 convinced his mom to let him join *Bear of Oakland* supporting Richard E. Byrd's second expedition (see the story below), the ship hit a hurricane off North Carolina. Wet coal dust clogged the pumps. Crew (perhaps young Russell being one) crawled into the bilges to scrape the coagulated coal dust away from the pumps with their hands. "It must have been a terrible night, especially for a green crew," Byrd wrote in *Discovery* (1935), his book about the expedition.

In June 1994, McMurdo personnel set 32 foundation blocks weighing 584,000 pounds for a new satellite earth station at Black Island. The thickest shim needed was the width of a computer keyboard key. "I hope the eventual users of this radome have some appreciation for the effort involved in setting the foundation in the dead of winter," wrote engineer Douglas Brinkman.

People grow when they commit themselves to a cause larger than themselves. The Antarctic, as probably every member of this Society would agree, has proved itself to have produced more than its share of heroes, even if all they did was scoop coal dust away from a bilge pump in a hurricane.

Guy Guthridge

The family side: Richard E. Byrd and his wife Marie

by Eleanor Byrd



Marie and Richard Byrd in front of their cabin in Maine

What most people do not understand is that there is a cost to fame. The enormous hullabaloo surrounding a famous figure may seem quite exciting. In truth, it is extremely difficult on the family of the celebrity.

Marie was a petite lady, a true lady, taught to be so by her Ames family as well as in finishing school in France. In the wake of Richard's North Pole flight, she dedicated herself to remaining behind the scenes, so much so that most people never recognized her. She rarely had her picture taken; she did not want to be known due to her efforts in protecting their four children from the public. This is why there are so few pictures of her.

After the North Pole flight, reporters camped out at Richard and Marie's house in Boston hoping to get a glimpse of one or the other and an interview. Members of the public, so enthralled, also were there. This went on for days and was frightening for the children. The family found themselves prisoners in their own home. Having no experience with this, the question was, what to do?

Marie would have none of it and Richard in full support agreed with her and asked the media not to approach his family. They did not stop. One day when Richard was away, a reporter came to the house and threatened to print a lie about Richard and Marie if she did not grant him an interview. The reporter was not able to gain access to the house but the threat would be carried out if she did not do anything about it.

So she called all the newspapers in Boston and asked that a reporter from each be sent to the house at a specific time. She met them all, invited them into the living room, had them sit, and told all of the reporters about the threat. There was complete silence in the room. The reporter who had made the threat looked somewhat sheepish as all turned to look at him. Marie, a soft spoken woman, in the ladylike calm but firm manner in which she had been taught, cut right to the chase. She looked at each and said, "I think it quite disgraceful to print a lie in order to get a story. It shows a great lack of integrity."



Marie and Richard Byrd and their four children at their 9 Brimmer Street home in Boston. Photo courtesy of Ohio State University.

The reporters looked chastised but remained quiet. "This is the only time you will see me. I hope that you all will understand my need to protect my children, as I am sure you would want to protect yours in a situation like this. Exposure will potentially put the children in harm's way.

They too will have no photographs taken of them or interviews. My husband is the one to seek out and he is happy to talk to you. This is our decision and it is firm. I hope to never see any of you at this house again.” With that, she quietly showed the reporters to the door.

Richard was proud of his wife and said in an interview, “Marie is averse to publicity, and I must say that the reporters have been fair. However much they beg her and however provoked they may become over her steadfast refusal to be interviewed or, as one said, ‘humanized,’ they nevertheless respect her attitude; she and the children now bear an almost charmed freedom from the camera. Her protection of the family is absolute.”

Marie, the smart, quiet, petite little wife of Richard E. Byrd, was a powerhouse in her own right. Never one to yell or be nasty in any way, she handled kidnapping threats to her children, keeping them safe and unknowing of the threats while allowing them independence.

She also awoke one morning to a female reporter in her bedroom who had climbed the ivy to the second story to get an interview. She dealt with people breaking into their summer vacation cabins and stealing not only adult items but her children’s toys and stuffed animal for memorabilia.

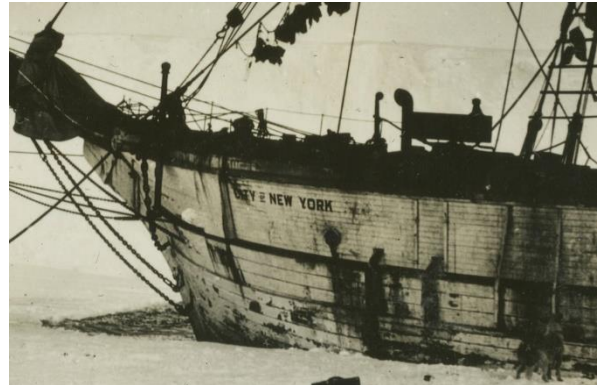
There is so much more to this woman and the love story between Richard and Marie, one that started when they met at 8 years old, which will be told in my upcoming book, *My Compass and Anchor to Windward*.

Eleanor (Lee) Byrd lectured about her famous grandfather at the Society’s Antarctic Gathering in Port Clyde, Maine, 21 July 2018.

The City of New York visit to Washington, D.C., in 1931

After Richard E. Byrd and his crew completed the scientific work and historic South Pole flight of their 1928-1930 sojourn in Antarctica, the expedition ships got back to New York on 19 June 1930. Articles were published, awards received, and a major motion picture released. Byrd, already thinking about a second expedition, was touring the country lecturing.

The expedition’s ship *City of New York*, a 147-foot three-masted barque with auxiliary engine, did its part, promoting appreciation of the 1928-1930 trip while building public support.



The *City of New York* alongside the Ross Ice Shelf in the Bay of Whales. Photo: Byrd Antarctic Expedition.

Three Washingtonians had been on the Antarctic expedition: Pete Demas, an airplane mechanic, and Malcolm P. Hanson, radio engineer, both with the wintering party, and Charles I. Kessler, aboard the expedition’s second ship, the *Eleanor Bolling*.

John Kelly, *Washington Post*, responding to a reader’s query, wrote on 18 May 2018 that in April 1931 the *City of New York* tied up at the Seventh Street wharf in Washington. Admission to the vessel was 50 cents (25 cents for children). Kelly, quoting from the then other Washington paper, the *Evening Star*, wrote that the ship was on a “tour of the seaport cities to raise sufficient funds to make good the deficit incurred by

the costly exploration of the South Pole regions.”

A 1931 ad in the *Post* promised members of the Byrd expedition would “tell you their own personal experiences in the Antarctic, thrilling tales that will make the two years of struggle and achievement loom in your mind as a living, graphic picture.”

Kennels along the dock held a half-dozen sled dogs. Descending into the ship, visitors passed sleds, tools, photographs, and stuffed seals. Every type of foot and leg covering was to be seen.

A detailed scale model of Little America (Byrd’s coastal wintering station on the Ross Ice Shelf) portrayed “every wireless antennae, every subterranean entrance, and every small building constructed for the year’s residence,” wrote the *Star*.

Thousands of Washingtonians visited the *City of New York* during its month-long stay. It was open daily, 10 a.m. to 10 p.m.

But, as an expedition ship, the *City* was finished. She was “reduced to the state of a floating museum,” Byrd wrote, “towed ignominiously from one exhibition mart to another.”

For BAE II, he found a replacement: the *Bear of Oakland*.

Leaving home for Antarctica in 1933 on the *Bear of Oakland*

Much of the Antarctic story happens not in Antarctica, but back home both before and after an expedition does the glamor work down south.

Society member Margaret McClure writes to tell us she has been putting her Antarctica items into yet another and bigger notebook. Doing so, she found a late September 1933 clip from the *Newark News*.

“BAYONNE—Finally having overcome his mother’s objections,” it starts, “Russell Robinson, 22, of 52 Clark Street, Glen Ridge, sailed today as a seaman aboard the barkentine *Bear of Oakland*, which will carry Rear Admiral Richard E. Byrd, retired,

on his second exploration trip of the Antarctic wastes.”

The voyage had originated in Boston on 25 September. In Bayonne, fresh water, fuel oil, and other oils were loaded. Coal was loaded for the ship’s main boilers.

As the ship left Bayonne, states the article, it sailed down the Kill van Kull into New York Bay and “was given a royal sendoff by the harbor craft. Boat whistles were sounded while hundreds of workmen at oil refineries waved their farewells.”

Bear of Oakland next stopped in Norfolk, Virginia, “to have our bunkers topped with 360 tons of largely crushed coal,” Robinson wrote.

In a hurricane off North Carolina, dust from that crushed coal almost did them in by clogging the bilge pump strainers. Robinson, a recent graduate of MIT, wrote that “we were a sinking sailing ship caught in a hurricane.” They lost power, were able to anchor off Frying Pan Shoals, the weather eventually abated, they restarted the boilers, and the ship made it back to Newport News for repairs before heading south.

Why was Maggie McClure intrigued by that clip from 85 years ago? Robinson had been a childhood friend of her mom, Peggy Royall (Hinck). Finding a letter that he mailed her mom from *Bear of Oakland* started Maggie’s lifelong interest in Antarctica.

History of R/V *Hero*

Society member Charles H. Lagerbom, after reading Richard Wolak’s article in the January newsletter about a memorable passage aboard R/V *Hero*, told us that, in 2015, he wrote and published a 36-page history of the ship in *The New England Journal of History* (volume 71, nos. 1-2, Fall/Spring 2015).

“An Antarctic hero: the history and fate of the NSF research vessel *Hero*” begins by describing the U.S. Antarctic Program’s need for the ship. The National Science

Foundation in 1965 had built a research station, Palmer, off the west coast of the Antarctic Peninsula. The surveyors who selected the site said a dedicated, shallow-draft research ship would be needed for the marine biology that was to be a big part of the research suite.



Research Vessel *Hero* at the Palmer Station pier during the 1968-69 summer. Photo courtesy of NOAA.

The Harvey F. Gamage yard in South Bristol, Maine, built the sail-equipped trawler, delivering it in 1968. The hull was wood, for both resilience in ice and nonmagnetic operations.

“John H. Dearborn [University of Maine] recalled that Harvey Gamage was brutally blunt to visiting dignitaries from Washington, D.C., who came to consult on the construction,” Lagerbom wrote. “‘You can’t do that’ or ‘we don’t build it that way,’ and ‘we’re going to do it right’ are phrases that Dearborn fondly recalled the old shipbuilder repeating in his thickly accented Down East voice.”

Hero served the Antarctic program until its decommissioning in 1986. The government sold the ship to the high bidder, the Port of Umpqua, Oregon, which planned to make it into a museum. The port set up a *Hero* Foundation to make that happen.

But, Lagerbom writes, “as time went by, interest in the vessel waned, and the *Hero* Foundation dissolved.”

Ownership of *Hero* changed hands more than once after that, and by 2008 the ship was tied to a pier in Bay Center, Washington. The new owner “did not appear to have resources” to maintain the old vessel.

“So what is to become of her?” is the first sentence in Lagerbom’s last paragraph written in 2015. The “vessel is in decrepit condition, and the owner has considered scrapping her. This would be a sad fate for such an important piece of Maine maritime history, New England shipbuilding history, National Science foundation history, polar history, and the history of science at large.”

Readers of the online version of Richard Wolak’s article in the January issue will suspect the answer to Chips’s question. In March 2017, *Hero* sank at its pier. To protect nearby oyster beds, the Coast Guard mobilized a \$25,000 oil spill liability trust fund, according to [WorkBoat](http://www.workboat.com/news/coastal-inland-waterways/longtime-research-vessel-hero-sinks-washington-state/) magazine (<https://www.workboat.com/news/coastal-inland-waterways/longtime-research-vessel-hero-sinks-washington-state/>).

In Antarctica, *Hero* was replaced by a larger ship, *Polar Duke*, which in turn was succeeded by the current vessel, the *Laurence M. Gould*. Neither vessel has sails, and neither is made of wood.



The *Harvey Gamage* observed in the Gulf of Maine July 2018. Photo by Lynn Teo Simarski

Back in Maine, just 5 years after *Hero* was put into service – in 1973 – the Harvey F. Gamage yard built the *Harvey Gamage*, a 131-foot wood gaff rigged topsail schooner, to honor the old craftsman who had built *Hero*. The *Harvey Gamage* still plies Maine waters.

Remembering Antarctica by acquiring archival material

by Bill Fox

I spent the 2001-2002 field season on the Ice to examine how artists, architects, writers, and scientists deploy visual imagery, data visualization, design, and stories to interact with a continent writer Barry Lopez finds indifferent to human presence.

My book *Terra Antarctica: Looking Into the Emptiest Continent* (Trinity University Press, 2005, 312 p.) talks about the importance of their work and how it is vital to the collections of the Center for Art + Environment, Reno, Nevada.

“How the human mind transforms space into place, or land into landscape,” I wrote, “is the line of inquiry that I have been following through several books.”

Our center holds Antarctic archives of artists who have travelled to the Ice from the United States, Australia, New Zealand, France, and the United Kingdom. Our Research Library holds titles in Antarctic art, science, and exploration published since the early twentieth century.

We want to expand this area with donations, in particular of rare and historical 19th century accounts. (We also have titles regarding Arctic exploration and art, as well as archives from artists working in the northern polar regions.)

The Center has received donations of Antarctic archive materials, and we are on the lookout for more. We’re interested in exploration artists, military artists, and other professional artists who have worked in the Antarctic. In turn, scholars and artists come from around the globe to study our archives

and books as they write their own books and articles, or prepare to visit the Antarctic.

The Center for Art + Environment at the Nevada Museum of Art in Reno is the only research institute of its kind in the world. The Museum, founded in 1931, has as its overarching theme creative human interactions with natural, built, and virtual environments. The evidence we humans leave behind in those processes includes art, architecture, and narratives.

We collect that evidence. The Center opened its doors in the Museum in 2009. It has in excess of a million archive items from more than 1,000 artists working on all seven continents, including the Antarctic. Archive materials include photographs, paintings, grant applications, press coverage, exhibition announcements, manuscripts, notes, and more—all things that contextualize and make possible the creation of works of art.

Art and environment projects—which include landscape painting and photography, outdoor sculpture, and land art, up to contemporary eco-art projects meant to address environmental problems—are part of a long history of human endeavors to change space into place, land into landscape, or terrain into territory, depending on the context.

Where that process is the most difficult, and therefore the most revealing, is in extreme environments, in particular both hot and cold deserts, in particular Antarctica.

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SouthPole-sium in Dublin, June 2019

Member Robert Stephenson has announced the fourth upcoming SouthPole-sium will take place in Dublin, Ireland, 7-9 June 2019. The meeting is “for those who collect, write, publish, buy, sell, and love books relating to Antarctica and the South Polar regions.”

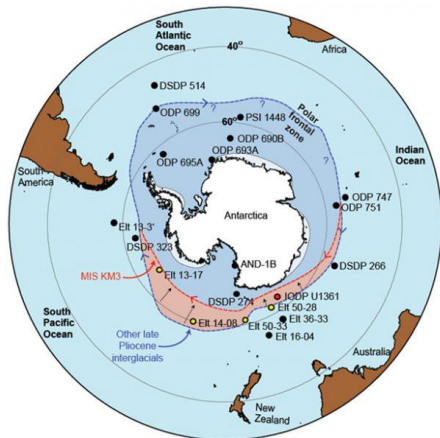
Prior meetings have been held since 2012 in New Hampshire, Scotland, and Norway.

For information about the meeting, please check the Antarctic Circle web site, www.antarctic-circle.org.

The site itself is a noncommercial forum and resource on historical, literary, bibliographical, artistic and cultural aspects of Antarctica and the South Polar regions.

Rob says the meeting will bring together an informal international group of scholars and knowledgeable amateurs interested or involved in nonscientific Antarctic studies.

Plotting the Pliocene Polar Front



Likely position of the “polar front” where cold Antarctic waters meet the warmer waters of the Subantarctic during the late Pliocene interglacial intervals. Source: *Paleoceanography and Paleoclimatology*.

Society member Art Ford called our attention a year ago to an article in *EOS*, the news publication of the American Geophysical Union, “Plotting the Pliocene Polar Front.” He thought member Hal Borns could say something interesting about the topic.

Hal wrote to us (also last year) that the paper is a bit out of his field as a land-based glacial geologist, but “I’ve learned something from it! It’s one answer to the question I was often asked, ‘Why waste your time working on the glacial history of

Antarctica, when that continent plays no role in our modern environmental problems?’”

With climate seeming to get even more attention, even in the political sphere, it seems useful to give attention to how scientists are thinking things through from the basic research point of view. Hal provided the following perspective:

The Polar Front, which encircles Antarctica, is defined by the joining of cold Antarctic waters with the relatively warmer waters of the Subantarctic. Its ever shifting north/south position is primarily driven by global climate change.

In Earth history, late Pliocene time (3.3 to 3.0 million years ago) is the most recent time when global temperatures rose to the range predicted for our 21st Century. At that earlier time, CO₂ levels in the atmosphere reached 400 parts per million, which is the most recent time in Earth’s history that that level has been reached. It is a value that we have now exceeded!

During that earlier warm time the Polar Front was closer to Antarctica, and sea ice was less extensive than today. That fact, and the tracking of the southern movement of the Polar Front, were determined from diatoms recovered from deep sea sedimentary cores collected in the Southern Ocean.

Climate models, and resulting global climate reconstructions using these data, indicate that summer sea surface temperatures of the late Pliocene were, on average, 2°C warmer relative to those of the present. This conclusion indicates that analysis of the late Pliocene warm period is crucial to testing the current ice sheet’s stability in light of our current and predicted even higher levels of near future anthropogenic atmospheric warming.

Hal’s primary source was Taylor-Silva, B.I., and Riesselman, C.R., 2018, “Polar frontal migration in the warm late Pliocene: diatom evidence from the Wilkes Land margin, East Antarctica,” *Paleoceanography and Paleoclimatology*, 33. Ellen

Thomas, editor in chief of that journal, wrote the *EOS* summary, which was published 29 January 2018.

Black hole image uses data from South Pole Telescope

The largest telescope ever deployed at Amundsen-Scott South Pole Station – the South Pole Telescope (SPT) – was one of the eight telescopes at six locations worldwide that contributed data to development of the first image of a black hole that made headlines around the world in early April.

SPT was built in 2006 and 2007 to study the cosmic microwave background; it explores dark energy, the mysterious phenomenon that may be causing the universe to accelerate.

For the black hole investigation, astronomers used it and the seven other instruments to create a planet-scale array of ground-based radio telescopes. The collaboration resulted in a virtual telescope with unprecedented resolution and sensitivity.

Assembly of what is termed this Event Horizon Telescope, which took years, offers a new way to study the most extreme objects in the universe. It provides an angular resolution of 20 micro-arcseconds, equivalent to reading a newspaper in New York from a sidewalk café in Paris.

SPT is one of several astrophysical instruments located in what is termed the Dark Sector adjacent to South Pole Station. The extremely dry air makes the atmosphere exceptionally transparent for a millimeter-submillimeter telescope such as SPT.

But they don't only look up at the South Pole. An array of photomultiplier tubes buried in the extremely clear ice beneath the station looks at cosmic background radiation coming all the way through Earth to collide with ice particles and, on rare occasion, to produce what's called Cherenkov radiation that the instrument array, called IceCube, can see.

This project is not part of the Event Horizon Telescope.

Icebreaker *Polar Star* completes 105-day McMurdo mission, limps home

The U.S. Coast Guard icebreaker *Polar Star* returned 11 March 2019 to its homeport of Seattle following a 105-day deployment to open a channel through sea ice so the annual cargo ship could resupply McMurdo Station.

The channel breakout, and resupply by sea, are critical to the large fraction of the overall U.S. Antarctic Program that uses McMurdo as operational base.

This year is the 63rd iteration of the annual operation. *Polar Star* left Seattle 27 November, traveled 11,200 nautical miles to Antarctica, and broke through 16.5 nautical miles of ice, 6 to 10 feet thick, to open a channel to the McMurdo pier.

On 30 January, the icebreaker escorted the containership *Ocean Giant* through the channel, enabling a 10-day offload of 499 containers with 10 million pounds of goods that will resupply McMurdo, Amundsen-Scott South Pole, and field camps for the coming year. *Ocean Giant* is ice-strengthened, but not able to break ice.

Unusually this year, an annual tanker resupply was not required since an adequate supply for another winter is in McMurdo Station tanks.

As in years past, the 43-year-old 'breaker had engineering casualties. Commissioned in 1976, it is beyond its expected 30-year service life and is scheduled for a service life extension project starting in 2021.

During the transit to Antarctica, an electrical system began to smoke, damaging wiring, and one of the two evaporators used to make drinkable water failed. Crew repaired the wiring at sea. The evaporator was repaired after parts were received during a port call in Wellington, New Zealand.



At McMurdo, divers repair a leaking shaft seal on the Polar Star.

During ice operations, the cutter’s centerline propeller shaft seal was impacted, allowing water to flood into the ship. Divers applied a patch outside the hull, then the ship’s engineers repaired the seal from inside, donning dry suits and diver’s gloves to enter the 30-degree water of the still slowly flooding bilge. They used special tools fabricated onboard. Amazingly, the leak was fixed, and the vessel resumed icebreaking.

Shipwide power outages while breaking ice forced crew members to spend 9 hours shutting down the power plant and rebooting the electrical system.

On 10 February the crew spent 2 hours putting out a fire in the incinerator room. The fire damaged the incinerator, and firefighting water damaged some of the electrical wiring.

Polar Star is the United States' only heavy icebreaker. By contrast, notes the Coast Guard, Russia operates more than 50 icebreakers.

Reserved for Operation Deep Freeze each year, *Polar Star* spends the Southern Hemisphere summer breaking ice near Antarctica. When the mission is complete, the ship returns to dry dock for maintenance and repairs in preparation for the next Operation Deep Freeze mission. Out of dry dock, the ship returns to Antarctica, and the cycle repeats.

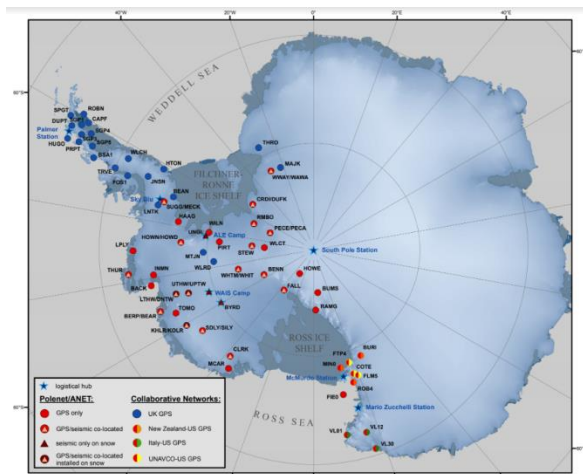
The Coast Guard is seeking to increase its icebreaking fleet with six new polar icebreakers. It has not yet determined whether the first new polar security cutter (PSC) being procured (schedule still not firm – see the January newsletter) will replace *Polar Star* on Antarctic runs or take on ice in the Arctic.

“TBD,” said Vice Adm. Daniel B. Abel, the Coast Guard’s deputy commandant for operations, when *Seapower Magazine* asked to which polar region would the first PSC deploy.

Thanks to the Coast Guard and to *Seapower Magazine* for this information, and greater thanks to the enterprise and guts of the crew of *Polar Star* for remarkable service in keeping the old vessel operational. Society member Bruce Dewald unflinchingly keeps us abreast of this continuing drama involving a critically important component of the U.S. Antarctic Program.

Good news (sort of) and bad news from West Antarctica

Polenet, short for the Polar Earth Observing Network, collects GPS and seismic data from remote autonomous systems on the Greenland and Antarctic ice sheets. The intent is to answer questions about ice sheet behavior.



Polenet locations in the Antarctic. Courtesy polenet.org.

It's humbling, the scientists say. They "work from tiny field camps incongruously airdropped onto a vast plain of kilometers-thick glacial ice. It is initially difficult to conceive that this vast polar desert could drastically change over the course of a human lifetime."

While study after study has shown that the West Antarctic Ice Sheet is losing mass at an accelerating rate, Polenet provides a "rare bit of good news." The data show that the bedrock is lifting faster than previously thought. "This rebound effect – the land underneath the ice uplifting as the ice melts – is a result of a newly recognized Earth structure, and can possibly slow melting."

The relatively warm and hydrated mantle beneath the ice sheet is less viscous than cold and dry mantle that is common throughout much of the world. Instead of occurring on time scales of millennia, the uplifting response "can occur over just decades to centuries."

The Polenet work, reported last June in *Science*, establishes that this glacial isostatic adjustment uplift in West Antarctica is among the fastest ever measured: up to 41 millimeters a year. The investigators predict that the rate should accelerate in coming decades.

If society succeeds in limiting greenhouse concentrations of the atmosphere enough to slow the expected rate of ice loss caused by global change, the bedrock uplift may slow ice retreat enough for it to stabilize at a smaller volume rather than disintegrate.

But: if we don't limit emissions and warming, the uplift, even if rapid, will be "insufficient to stabilize the West Antarctic Ice Sheet grounding line and, ultimately, insufficient to stabilize the ice sheet."

Turning to the bad news, researchers have known for some years that West Antarctica is losing ice not just because the atmosphere overhead is warming. The region's ice shelves – floating glacial extensions into the ocean – also are losing

mass at their bottoms because shifting ocean currents are pushing warmer water closer to the continent.

Now, 2 years of mooring observations at the edge of the continental shelf, deployed at depths of 600 to 800 meters, show that on frequent occasions Circumpolar Deep Water as warm as 1.5°C reaches the western front of the Getz Ice Shelf front. This is some of the warmest ever observed at an ice shelf front in Antarctica. And the Getz Ice Shelf is a big one, stretching 650 kilometers along the West Antarctic coast.

The authors of the paper, in *Geophysical Research Letters*, 4 January 2019, caution that the paucity of data from the region limits their ability to draw robust conclusions. But an 11 April summary article in *EOS* says the work "is likely to be of great interest to oceanographers and climate scientists."

Shorts

Ozone hole. Last May a paper in *Nature* documented that emissions of CFC-11, which destroys ozone in the stratosphere and is prohibited by the Montreal Protocol, increased during the 2014-2016 period by 25 percent over the average measured from 2002 to 2012. Someone, probably in China, was emitting the chemicals illegally, scientists suspected. In November last year, the parties to the protocol, responding to the unexpected rise, strengthened the agreement. Then China reported its discovery of sites illegally producing the CFCs. [*EOS*, 22 January 2019.]

South Pole traverse. "Thor's Trail Notes" reported on 10 January that the South Pole Oversnow Traverse "is in the books," having completed its delivery of fuel and cargo from McMurdo to South Pole and returned to the coast. Total miles: 2,027. Total days: 45. Fuel burned: 43,066 gallons. Fuel delivered: 110,058 gallons. Cargo delivered: two 20-foot shipping containers. Recycle brought back to McMurdo: 40,000

pounds of scrap steel. Internet data used: 275 mb (via Iridium). “More desserts consumed than is healthy. Too many laughs to count.”

Member Dave Bresnahan reminds of us of the advantage of using tractors instead of airplanes to do these deliveries: “LC-130 delivered 5.47 pounds of cargo per gallon of fuel burned. Traverse delivered 19.73 pounds of cargo per gallon of fuel burned.”

Warm again in 2018. NASA and NOAA have documented that 2018 is the fourth hottest year on record. It was cooler only than 2015, 2016, and 2017. The El Niño pattern suggests that 2019 is likely to be warmer. For 2018 (actually the 2014-2018 average), the most conspicuously warmer region in the entire Southern Hemisphere is the Antarctic Peninsula and the coast of West Antarctica.

Send in the clown. This year’s annual meeting, in Washington, of the American Association for the Advancement of Science looked into personal problems that could come up during a trip to Mars. Reporting on the several sessions devoted to that topic, *The Economist* (23 February) writes, “Understanding how teams function, how they go wrong, and how to prevent social problems will be a critical element of any successful mission to Mars.”

Researchers have figured out that a good group needs a leader, a social secretary, a storyteller, and both introverts and extroverts. But “by far the most important role seems to be that of the clown.”

Enter Jeffrey Johnson, an anthropologist at the University of Florida who studies relations among crews wintering at the South Pole. The clown is not just funny, he observes. He or she is smart, knows each member of the group well enough to defuse tensions, and is the bridge between different groups. At Pole, the clown links scientists with the tradesmen who also work there. In groups that tended to fight most or to lose coherence, Dr. Johnson found, “there was usually no clown.”

Mildred Rodgers Crary, 1925-2018

The Antarctic Society has dwindled in recent years from over six hundred members to only three hundred and twenty-two, two-thirds of whom are electronic members. The Society started in the 1960s with a framework of International Geophysical Year scientists, most of whom have now perished.

A recent loss was Mildred Rodgers Crary. Mildred was the widow of the famed polar scientist Albert “Bert” Crary, who was the first person to have set foot on both North and South poles.



Albert P. Crary and Mildred Rodgers Crary

Mildred was one of four daughters born and raised in North Carolina. She graduated from the University of North Carolina at Greensboro. She then moved to Vienna, Austria, where she studied physics, philosophy, and German, and worked for the International Atomic Energy Agency. She later received her M.A. in English and an M.F.A. in creative writing from the University of Maryland.

Upon returning to the States, she settled in the Washington, D.C., area and was a writer/editor for four major scientific organizations. She was also a phenomenal and gifted photographer and traveled extensively throughout her life, going over

the Khyber Pass on a camel at age 85 and traveling to China shortly before that with her sister, Suzanne.

Mildred married the love of her life, Bert Crary, late in life and had their only child, Dr. Frank Judson Crary. Frank is a noted astrophysicist and researcher who works at the University of Colorado in Boulder. Mildred and Bert lived a diverse and quiet life in their house on New Mexico Avenue in Washington, D.C., while they raised their son. Bert died from cancer in his late seventies. Mildred mourned him deeply and spent many years editing a book by him, which even today awaits publication.

Mildred continued to travel, and she wrote many short stories and a novel. One of her most satisfying diversions was visiting the Cosmos Club, where she found many friends who shared her scientific life. She also visited her son at Berkeley, University of Michigan, and University of Colorado, and went skiing in her seventies while visiting her niece in Colorado. As do all of us, she had some health issues as she got older and moved to North Carolina late in life. She died in October 2018 in Greensboro, North Carolina, after living a full and bold life that began in 1925.

The Antarctican Society is pleased that Mildred had some happy days when she attended several Antarctic gatherings at the house of Paul Dalrymple in Port Clyde, Maine, where hundreds of Antarcticans appeared every other year for celebrations of their halcyon Antarctic days. Here she joined many of Bert's Antarctic colleagues for gala reunions. Mildred herself became famous for her heavy consumption of oysters! She loved to meet with friends and hear them tell stories about her beloved Bert. Mildred lost one of her dearest friends with the passing of geologist Charlie Bentley in 2017.

Paul C. Dalrymple provided this obituary. Jeanne Regh, Mildred's niece, very kindly added factual information derived from family records and recollections.