



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 Schernthanner, 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 base-line 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, Edgeworth 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.