

The Antarctic Sun



Published during the austral summer for the United States Antarctic Program at McMurdo Station, Antarctica.



Antarctic Discovery! Of Barbs and Antifreeze

by Alexander Colhoun

A fireproof vault deep in the heart of the Smithsonian Museum lined with darkened rows of alcohol-filled jars holds the biological encyclopedia of the planet. Inside each jar is a holotype: the first captured and identified example of thousands of marine species known to inhabit the seas of this planet.

A catalogue of life, the shelves seldom get new additions from the sub-zero waters of the Antarctic.

In July, however, the Smithsonian got a new Antarctic specimen—the barbled plunder fish or *Pogonophryne cerebro-pogon*, a discovery made by ice veteran Joe Eastman.

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Bi-Polar Connections: Linking the Arctic and Antarctic

story and photo by Alexander Colhoun

Perfect circles scribed at 66 degrees 33 minutes on both ends of the earth demark the Arctic and Antarctic circles. There, the earth tilts just enough to allow at least one full day a year without a sun set.

A map offers a different tale. Viewed from above, each region might be defined by the limit of ice pack—swimming lazily above and below 66°; the northern limit of the tree line—rising above 64° in the Arctic, but non-existent

in the Antarctic; the boundary of various treaties—a political 60° in the Antarctic; or even by the temperature of the water—the Summer Isotherm circumscribes the Antarctic at 50°.

While definitions may be vague, one thing about the polar caps is certain: half of each year is dark and half of each year is light, and that alone draws Todd Franson, a long-time Antarctic Support Associates employee, to

spend his days on the caps of the earth. “I haven’t seen a lot of darkness in the last ten years,” said Franson. “I like the daylight.”

That may be the greatest understatement of polar living. Franson, like some 30 ASA employees, alternates his home between the Arctic and Antarctic, passing the summer in each location.

With the exception of days traveling between the two, Franson spends most of his life under a shining sun, even when he sleeps. “I sleep with the blinds open, the light on my face,” says Franson. “It just doesn’t bother me.”

Franson came to the Antarctic from Denali National Park in Alaska. In time the word has spread, and today a flock of Denali seasonal workers have followed in his footsteps. “We used to call him the Toddfather,” said Kathy Soutter. “And the rest of us were the Denali mob.”

Some come for employment, others for an adventure bigger than Alaska, but for Dr.

Seasons Greetings from Antarctica



Despite being eleven thousand miles from their own kitchens in Denver, Colorado, Nancy Farrell, left, and her friend, Ellen Copeland, would not be deterred from making Christmas cookies.

INSIDE

NSTW 1998 National Science And Technology Week highlights Arctic and Antarctic research carried out by the National Science Foundation.

Landing In A Milk Bottle Landing in a complete whiteout is like landing in a bottle of milk—you only know you’ve landed when the wheels touch down.

Wasting Away in Antarctica The U.S. Antarctic Program retrogrades almost all of its waste to the continental United States. The exception to this is, by necessity, waste water.

Perspective Steve Munsell returns to Antarctica after a sixteen-year absence and reflects on the changes he sees in the program.

Profile Breaking barriers was never his intention, but with Ed Burnette’s drive and curiosity, it was inevitable.

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Polar Theme

for

National Science & Technology Week

story by Pat Olmert
NSF, Office of Legislative and Public Affairs

How can two of the most isolated, forbidding places on Earth also be among its most valuable sites for scientific research? Why do people the world over find the Arctic, with its polar bears, and the Antarctic, with its penguins, so endlessly fascinating? Yet when asked, 'Why is it polar bears don't eat penguins?' oftentimes the general public is stumped.

Well here comes an opportunity to interact with the public on polar subjects on a large scale.

Polar Connections: Exploring the World's Natural Laboratories is the theme of the National Science Foundation's 1998 National Science & Technology Week (NSTW, April 26th to May 2nd). The week will focus on Polar research and education, alerting the public to the excitement and adventure of science and engineering in both Arctic and Antarctic regions. *Polar Connections* will invite people of all ages to explore the world's natural laboratories of science and technology through events and activities designed for this year's outreach.

In its 14th year, National Science & Technology Week is a major public outreach



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Web address: <http://www.asa.org>

program produced by the National Science Foundation and supported by its corporate sponsors. Its mission is to engage the American public in the spirit of learning and adventure that is the hallmark of science and engineering.

NSTW pursues its mission through a wide variety of initiatives. The most popular is a packet of teaching activities (published in both English and Spanish) in science, mathematics, and technology, designed to inspire the imaginations of students, teachers, and parents.

This year, the *Polar Connections* activity packet has many educational activities ranging from *Polar Opposites: Getting to Know the Arctic and the Antarctic* to *Polar Protection:*

How Do Polar Animals Survive in Such a Climate? School children can investigate *What Color Is a Polar Bear?* construct protective sunglasses—first developed by Arctic Inuit natives. Educators will find that the activities include everything from simulated research voyages to one-page kitchen-counter experiments.

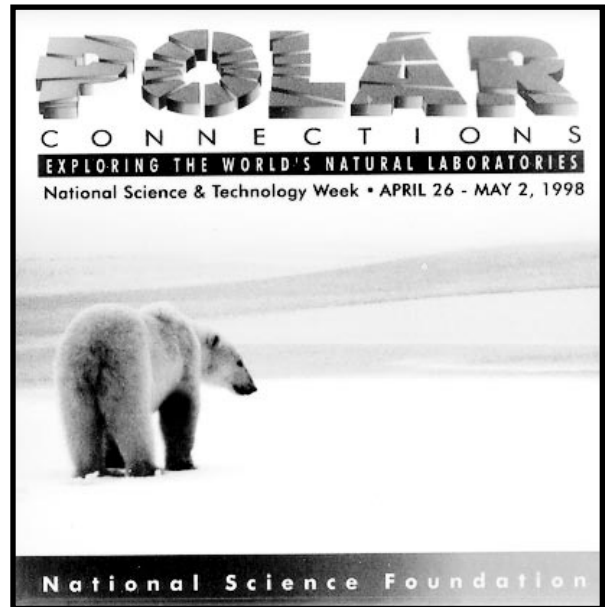
NSTW is also an opportunity for getting involved at the local level. "Arctic and Antarctic researchers along with many other program participants in extreme weather regions have an opportunity to share their experiences and knowledge of a variety of subjects with public audiences," says Mary Bullock, NSF's Office of Legislative and Public Affairs. NSTW 1998 and *Polar Connections* provides an opportunity for orchestrating local activities for public involvement such as open houses; hands-on science and technology demonstrations; lectures at libraries, museums, colleges, and universities; or visits to elementary and secondary classrooms by knowledgeable travelers to the ice.

"At NSF, we believe it is important to nurture the natural interests of children and the child in all of us about the wonders of science and technology," says Bullock.

To learn more about National Science & Technology Week 1998:

- Write: NSF Staff at NSTW, National Science Foundation, Office of Legislative and Public Affairs, Rm. 1245, 4201 Wilson Blvd., Arlington, Virginia, 22230 or e-mail at NSTW@NSF.GOV.

- Check us out on the World Wide Web at: <http://www.nsf.gov/od/lpa/nstw/start.htm>. *



Participants are Ambassadors to the U.S. Antarctic Program

by Beth Gaston,
NSF, Office of Legislative and Public Affairs

Life in Antarctica is interesting and unique, providing us with opportunities many people will never have. Because of this intrigue, the general public and news reporters are often interested in many aspects of life, death, love and work on the ice.

The National Science Foundation (NSF) believes this publicity is a good thing. We are a taxpayer supported agency. Our bosses, members of the public, deserve to know how we are spending their money. And, in tough budget times such as these, well-known agencies generally fare better than those that are obscure.

Antarctic Support Associates (ASA) also supports this publicity. "Our aim is to create public awareness of the United States Antarctic Program," said Valerie Carroll, who manages public affairs for ASA. "ASA employees are always encouraged to interact with the public and the media. We're lucky to have such an enthusiastic, knowledgeable and responsible crew. We provide materials, fact-checking, support and guidance for them as they deal with the public and the media."

Many of you are excited about being here, what you do and what the program is all about. There are many opportunities to share your experiences: talking to church or community groups, visiting classrooms or retire-

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Driving toward Scott Base at 3:15am, Bill McCormick immediately noticed the sharp contrast of a heavy fog bank curled around Williams Field to the clear, bright sky over McMurdo Station. He had been paged by search and rescue team (SAR) leader Steve Dunbar in response to a field mission.

Two LC-130s had been forced to land in the Whiteout Area, a crevasse-free landing field on the permanent ice shelf. Fog had deterred them from landing on the plotted runway, and lack of fuel had prevented them from landing at the Siple Dome or Downstream Bravo project sites.

"It was one of the thickest cloud layers I've seen in my life," said VXE-6 pilot Lt. Joe Mohnacs. "The weather was good until we got 100 miles out of McMurdo. Then observations went crappy quickly." At that point, visibility went from unrestricted skies to one-sixteenth of a mile above Williams Field.

Mohnacs and his co-pilot, Lt. Ken Hobman, each shot a precision approach, but there was no reference to the ground. After waving off two approaches to the invisible runway, and unable to see Pegasus runway either, they radioed the other plane in the air. The crews mapped out a plan to land in the whiteout area, one plane in the southern portion, the other in the northern portion.

Mohnacs descended at a rate of about 200 feet-per-minute. "My first concern was ensuring the other aircraft didn't land anywhere near us because they wouldn't be able to see us until they were on top of us," he said. "My second concern was the possibility of hitting drifting snow that could cause a propeller strike."

All VXE-6 flight crews undergo simulator training for whiteout approaches, and pilots must also perform a training landing in the Whiteout Area at the beginning of each season. You can abort a training landing, but this was for real. "It was the first time I had never seen the ground," said Mohnacs. "You can't tell from the instruments exactly when you'll land, so this time we didn't know till we felt the plane touch down."

"It was a beautiful landing. We set down gently as if we were in the middle of a milk bottle," said Eric Baker, a photographer returning from the South Pole on the same plane.

Mohnacs taxied for about 10 minutes before the skis got stuck in the deep snow. The second plane touched down 10 minutes later after it, too, had aborted two approaches to Williams Field.

Meanwhile, Dunbar and crew were en route. It was their first opportunity to put a new \$300,000 Hägglund to use. The two-cab

Landing in a Milk Bottle

story by Susie Brown

vehicle is built to go practically anywhere, and this one was equipped with technologically-advanced marine radar equipment.

"It wasn't an official SAR function. It was more of a field safety navigation exercise," said Dunbar. His team used GPS (global positioning system), a military satellite navigation system, to locate the aircraft since the planes had been able to relay their exact coordinates to MAC Center communications. Had the aircraft in the Whiteout Area not been able to give their coordinates, the Hägglund's radar technology (this time only tested, but able to pick up the Hercs in 200-foot visibility fog) would have proved invaluable.

"A few years ago, no one would have gone anywhere in this kind of situation," said McCormick. "This technology has opened up great opportunities for rescue missions. Four years ago, a person was lost on the ice 20 miles away; we had GPS, but no radar, enabling us to attempt a search, but not able to pinpoint a stationary object like the new radar tracking system in the Hägglund can do."

Looking for the aircraft in such thick fog was like searching for a needle in a haystack. "We were on the aircraft before we saw it," McCormick said. "The fog was so thick you couldn't see the sun, and I wasn't sure I was seeing the aircraft at first or just spots in my eyes."

Dunbar and his team retrieved the passengers in the bogged-down plane from South Pole first, approximately six miles from Williams Field. The two Hägglunds then ambled another 2 1/2 miles to the Christchurch plane, and delivered 28 people to Williams Field before returning for 16 more.

From the time of landing at the Whiteout Area to the time they arrived at Williams Field, six hours had passed. McCormick said the passengers from Christchurch were a little more disoriented than the ones from the Pole. "I happened to have a *Newsweek* reporter, and a couple of *Rocky Mountain News* media people onboard," said Mohnacs. "I told them they just received the five-star flight." *



photo by Mike Neckerman

VXE-6 personnel dig-out the snow surrounding skis on one of two LC-130 Hercules aircraft that were forced to land in the Whiteout Area due to ground fog on the skiway.



Wasting Away in Antarctica:

story and photo by Dave Breitenfeld



Rob Robbins, ASA's Dive Coordinator, assisted by Christian McDonald, prepares to dive in Winter Quarters Bay to inspect the waste water outfall.

Six hundred sixty-one thousand, six hundred gallons of waste water dump into Winter Quarters Bay every day. Situated on the south side of McMurdo, this location also served as the McMurdo station dump from 1956 to 1979.

Throughout this 23-year period, the seafloor was littered with derelict vehicles, broken equipment, and other miscellaneous garbage. Since 1980, however, things have changed.

The United States Antarctic Program has cleaned up its act. As a result, Winter Quarters Bay, and many other U.S. Antarctic Program sites are, while not ecologically pristine, in far better condition than they were 20 years ago.

Adopting the backpacker philosophy of 'pack-it-in, pack-it-out', the U.S. Antarctic Program now retrogrades almost all waste from Antarctica to the continental United States for recycling, processing, or disposal.

The exception to this is, by necessity, waste water generated at McMurdo Station, including sewage.

Like any small town, McMurdo uses a lot of water. Salt water is pumped in and desalinated primarily by a process of reverse osmosis. This water cycles through McMurdo for drinking, cleaning, food preparation, and sewage disposal, and is too plentiful to make retrograding practical.

Running through a spiderweb network of above-ground pipes, waste water from every sink, shower, toilet and other drain intersects at one of two masticators. The masticators break up or "delump" any solid waste as it passes through. This consists mostly of food waste from the galley as well as human feces.

After mastication, the waste water continues through a pipe to its 10-inch diameter outfall 180 feet into and 60 feet below the surface of Winter Quarters Bay. Positioned

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Did You Know...

by Brenda Joyce

A fox terrier traveled to both the Arctic and the Antarctic. A biography was written about 'Igloo', the canine companion of Richard Byrd. His tombstone in the Pine Ridge Cemetery for Small Animals in Dedham, a suburb of Boston, bears the inscription: "IGLOO. He was more than a friend."

The Terra Nova, said to be the last whaler built in Dundee Scotland (1884), was leased in 1903 to sail with *The Morning* to McMurdo Sound to relieve Scott's Discovery expedition. Returning to sealing with Bowring Brothers, she was resold in November 1909, for Scott's second journey. In 1914 Bowring Brothers bought her again for work in Newfoundland and Labrador waters. Springing a leak 38 miles off Hollander Island, Greenland, she sank without loss of life on September 12, 1943.

Fifty-one U.S. aircraft have been lost in Antarctica since 1946.

The average annual precipitation in the interior of Antarctica is less than 2 inches, drier than the Sahara desert.

Nunataks are mountains that are buried so deeply in snow that only their tips peek above the ice.

No rain has fallen in the Dry Valleys in approximately a million years and the occasional traces of snow are quickly blown away.

Scott and his companions lugged 37 lbs. of geological samples all the way to their deaths.

Apsley Cherry-Garrard, a member of Scott's expedition, in *The Worst Journey in the World* wrote: "And I tell you, if you have the desire for knowledge and the power to give it physical expression, go out and explore... You will sledge nearly alone, but those with whom you sledge will not be shopkeepers: that is worth a good deal. If you march your winter journeys you will have your reward, so long as all you want is a penguin's egg."

Herbert Pointing, Scott's photographer, pulled a one-man sledge with 400 lbs. of photographic and camping equipment.

Fish Antifreeze ...cont. from page 1

Hauled-up from the icy depths by a net trawled behind the Nathaniel B. Palmer (an icebreaker and research vessel owned by the National Science Foundation) last summer, it wasn't until a Sunday morning in February that Eastman first questioned what he had found.

Using a standard taxinomical key, Eastman discovered he was unable to identify the fish. "I was certain this fish had already been documented," said Eastman with a perplexed look. "I even cut off the barb to do tests on it."

Hours later, after discussions with a colleague in Maine, Eastman found himself reconnecting the barb with an underwater superglue. "You can hardly tell it was off," said Eastman, who proceeded to register the new species in an elaborate process that ended in an alcohol-filled jar at the Smithsonian.

Eastman's discovery, the result of a single thirty-minute trawl across the ocean floor revealed how little is known about these waters. "The Ross Sea fauna is not as well known as we thought it was," said Eastman, who explained that 19 additional species came up in that historical trawl—nearly half of the 50 species known to exist in the Southern Ross Sea. This season Eastman will make another trawl, with hopes of gathering further data.

Discovery of the barbled plunder fish is the latest in a string of ichthyological revelations that have come out of Antarctica's ocean depths in the last quarter century. It is the oceans themselves, however, that have paved the way for adaptations among marine fauna unlike any other species on the planet.

Joe Eastman likens Antarctic oceans to an ancient lake. Separated from other land masses by vast distances and low water temperatures, Antarctica is isolated from the rest of the

world, much as an inland lake. These conditions make it impossible for non-native fishes to simply swim here and survive.

It hasn't always been so inhospitable. Thirty-eight million years ago Antarctica was much closer to its neighbors, Australia and South America. Fossil records on Seymour Island in the Weddell Sea, east of the Antarctic Peninsula, indicate what Eastman describes as a cosmopolitan fauna of sharks, catfish, rays, billfish and cod. In sharp contrast, none of these species exist in Antarctic waters today.

Only one taxonomic group, the notothenioids, adapted to the cooling period that followed and persists today. These hardy fish did more than adapt, however, they flourished, and today make up 95 percent of the fish biomass in most southern parts of the Antarctic Ocean. In a community with just 274 species of fish (there are 25,000 species world-wide), that's saying something.

The mechanism that allowed the notothenioids to pull off this Houdini-like feat is the life-work of a husband and wife team, Art and Chris Devries, marine biologists from the University of Illinois; and it begins with anti-freeze.

Joining her research team on their last night of fishing for this season, Chris Devries piles into a Spryte and heads out across frozen McMurdo Sound to go fishing. Not an eccentric hobby, Devries is fishing for science, and hopes to catch a Mawsoni, better known as Antarctic Cod.

Twenty minutes later, inside fish hut number three (built by her husband nearly 20 years ago) all eyes watch with expectation as the metal fishing line reels up from the floor of the sound. In time, a lead weight

In July, the Smithsonian Museum got a new Antarctic specimen—the barbled plunder fish or Pogonophryne cerebropogon, a discovery made by ice veteran Joe Eastman. It is the first of its kind ever caught. The fish was hauled up in a net pulled behind a research vessel.

comes into view—the team has been skunked.

Fortunately, the rest of the season yielded more than 70 specimens, the pancreas of which were extracted to gather a protein substance not unlike antifreeze used in cars. Attaching itself to tiny ice crystals in water swallowed by the fish, this substance prevents crystals from growing larger and killing the fish.

"These anti-freeze proteins are important to the entire ecosystem," said Chris Devries.

"Without them, the fish fauna here would be scanty and the whole ecosystem would be quite different. An important chink of the food web would be missing."

In recent months, the Devries' have traced the molecular history of this anti-freeze protein back to a point between five and fourteen million years ago, a time that jibes with oceanographers' estimates of ocean cooling in Antarctica, as the continent shifted to its isolated position.

Beyond anti-freeze, the fish have modified other aspects of their anatomy to make life easier on themselves. Gone are the heavy bone structures normally associated with fish of this type. Instead, notothenioids have developed lighter cartilage based infrastructures and fat sacs (as opposed to swim bladders found in most fish), both of which allow the fish to move effortlessly within the water column, and hence find food where it is available.

In time, the notothenioids have accomplished what Eastman describes as an adaptive radiation. Typically a fish group will isolate to a single niche. In Antarctica, the notothenioids are everywhere. They occupy all sectors of the water column, from top to bottom.

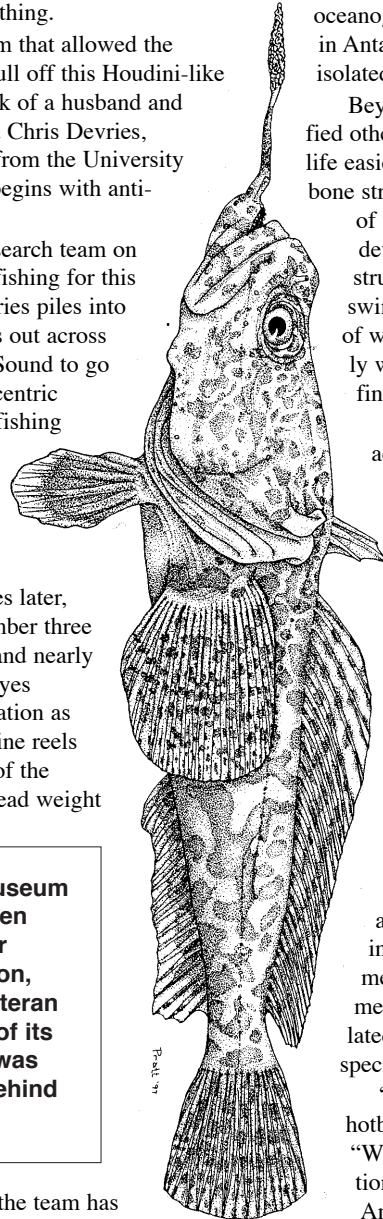
In this way, Antarctic fish have unusual links with species in other remote corners of the world, including Darwin's finches of the Galapagos, sculpin fish of Lake Baikal in Russia and cichlid fish in the great lakes of East Africa.

Like the notothenioids, these species have radiated from a single ancestor, and occupy particular niches in each of their respective environments. And like the Antarctic environment, each of these regions has been isolated from outside intervention by other species.

"Antarctica has much to offer as a hotbed of evolution," said Eastman.

"When people think of mainstream evolutionary biology, we want them to think of Antarctica for its unique adaptations and depth-related diversification of fish."

All of which revolves back to Antarctica's secluded geographic location. Surrounded by moats of cold water and far from encroaching continents, Antarctica ocean species were left to adapt and survive on their own, which lead in turn to nature's version of antifreeze and the domination of Antarctic waters by notothenioids. *





UPDATES

from Antarctic stations and ships

McMurdo Station

by Stan Wisneski

The New York Air National Guard (NYANG) redeployed 17 December 1997 and will return on 7 January 1998. Two VXE-6 aircraft were forced to land in the white-out landing area near Williams Field due to fog. The aircraft landed safely with no damage to the aircraft or injuries to the passengers or crew.

The two-day Christmas holiday was enjoyed by all personnel. Festivities started on Christmas Eve with the annual Christmas party at the VMF. On Christmas day there was another outstanding meal prepared for the community by the Galley staff and many volunteers.

South Pole Station

by David Fischer

Peak population of 196 people has been reached. This represents a constant challenge to manage the population, accomplish our tasking and planned science support, and also monitor the impact of larger populations on the station.

In tandem to science support, we are in the midst of several construction projects including the rings for the new garage arch, snow-clearing, movement of the summer camp and numerous demolition projects.

Palmer Station

by Ron Nugent

The M/V Explorer arrived last week and delivered three USAP researchers and the new NSF Representative, Dr. Sonia Ortega. Also on board were 60 tourists who visited the station.

Four members of the Argentinian Antarctic Program also visited last week. They were diving and collecting water samples near the wreck of the Argentine ship, Bahia Paraiso. The ship ran aground and sank a few miles from Palmer in 1989.

The station will most likely choose to take Christmas Day and the day after as holidays and then work through the following weekend due to the scheduled arrival of the R/V Abel-J on 27 December. Merry Christmas!

R/V Nathaniel B. Palmer

by Dawn Scarboro

The JGOFS-AESOPS process study in the Ross Sea successfully completed their research for this portion of their studies in mid-December.

The main objective during this NBP97-8 Process IV cruise was to gather time-series data on the turnover and flux of carbon in the Ross Sea. The NBP was the platform used to obtain exciting results from the SeaWIFS imagery and the pumping SeaSoar systems. With completion of this cruise, scientists from NBP97-8 disembarked while scientists for NBP97-9, ROAVERRS embarked. A successful and cost-effective ice-edge transfer of scientists, staff, and cargo took place. NBP97-9, ROAVERRS began research aboard the NBP December 21 and they plan to examine the ice and ocean response to the strong offshore winds that emanate from the Ross Ice Shelf. The cruise participants will service and redeploy current meter moorings, which will be needed to quantify the ocean response to the wind forcing, make wind observations, and provide a basic description of the hydrography.

R/V Laurence M. Gould

by Ron Koger

On Christmas Day the R/V Laurence M. Gould got underway from Louisiana on its 22-25 day journey to Punta Arenas, Chili to go on Charter it will pass through the Panama Canal. The LMG's first science project will be the multi-year Long Term Ecological Research Project in the Palmer area.

R/V Roger Revelle

by Poly Penhale

A two-ship operation is supporting the JGOFS (Joint Global Ocean Flux Study) project in the Southern Ocean this season. Joining the NBP is the R/V Roger Revelle, a research ship from Scripps Institution of Oceanography, University of California, San Diego.

The ship is currently operating at about 64 degrees South, supporting a cruise focusing on the biological and physical oceanography of the region. The ship, which was built in 1996, is owned by the U.S. Navy and operated under charter to Scripps through the Office of Naval Research.

The Southern Ocean JGOFS program is jointly supported at NSF by the Office of Polar Programs and the Division of Ocean Sciences. Broadly viewed, JGOFS aims to monitor and predict the response of the Southern Ocean to global climate change. Other national Antarctic programs, such as those of the United Kingdom, France, Japan, Germany, Australia and New Zealand have conducted JGOFS cruises in other areas of the Southern Ocean. Chief Scientist Richard Barber (Duke University) reports that six stations have been completed, with successful sampling all around. He notes that "the R/V Roger Revelle is a great platform for oceanography."

Christchurch, NZ

by Brian Stone

The Air National Guard (ANG) will be leaving four LC-130 aircraft in Christchurch over the holiday season. To save costs and reduce wear and tear on the aircraft, the aircraft are left on the USAP ramp in the two-week gap between Air National Guard (ANG) deployments. The air crews and maintenance personnel will re-deploy to the United States by commercial aircraft, leaving the aircraft for the next rotation of ANG personnel to fly south in January.

The R/V ROGER REVELLE will be arriving at Port Lyttelton on 03 January for her third JGOFS port call of the season. The ship will be in port until 08 January when she departs on the JGOFS Survey II cruise.

R/V Abel-J

by Dawn Scarboro

The ABEL-J continued to "island hop" in support of researchers (S-087 and S-097). The research involves recording GPS data and seismic techniques, respectively, to obtain information relating to the tectonics of the Scotia Arc at Elephant Island, Low and/or Smith Island, Deception Island, and other sites along the Antarctic Peninsula coast. The ABEL-J has also served to transport scientists, staff, and cargo to Palmer Station. Plans are for the ABEL-J to continue work for NSF/ASA until the LMG comes on-line.

ASA, Denver

by Ron Koger

Happy Holiday Wishes to all of the participants in the U.S. Antarctic Program. Please know that the work you do is appreciated and a vital link in the chain-of-events that occur each busy austral summer.

The M/V GreenWave is scheduled to begin loading at Port Hueneme on 4 January. Jackie Samuel at Port Hueneme continues the stow planning—trying to find space to load everything awaiting shipment.

National Science Foundation

by Guy Guthridge

Can you top these? NSF has just listed 10 Antarctic discoveries made the last five years: A meteorite contains possible evidence of life on Mars. Ozone depletion hit a low in 1993. Increased UV through the ozone hole reduced marine primary production and damaged fish. West Antarctic ice streams are changing velocity. The Vostok ice core spans 400,000 years. The southern ocean removes lots of carbon dioxide from the atmosphere. The Antarctic Peninsula region warmed significantly. El Niño may drive a four-year pattern in weather and sea ice around Antarctica. Antarctic winter water could disappear quickly, reducing global circulation of Antarctic bottom water. Neutrinos have been detected using the ice sheet as the medium. *

Ambassadors ...cont. from page 2

ment homes, and showing photos to your friends and family.

Talking to reporters is another way to reach a broad audience. It's neat for your friends and family back home to see you quoted in articles.

However, there are some things to remember when talking to any audience.

- Because of the nature of news, reporters are often looking for things that are dramatic, quirky, new or tragic. There is also a human tendency to share the more dramatic moments, rather than talking about walking from the dorms to the galley every day. It's more interesting to discuss what that the trip was like during condition one. However, it is important to provide context. For the uninitiated, a story about one unusual event can easily seem like the norm.
- When talking to reporters or the general public, explain complicated subjects in simple terms. Most news outlets are limited in time or space. If your explanations are too complicated, either your material will not be used or it will be simplified for you.
- If you are not sure about something, say so and direct the questioner to someone who does know the facts.
- And finally, be clear about whether you are speaking on your own behalf or as an official of ASA or NSF.

If you have any questions or concerns, feel free to contact Valerie Carroll at ASA, Lynn Simarski at NSF, or the NSF representative at your station. *

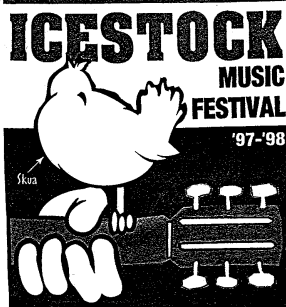


McMurdo Station Starts at Noon, January 1st


All acts are welcome!

Contact Kendra, at MWR, with the name, type of act, and contact person's phone and email address.

Donations will go toward band equipment.



Antarctica



**Chapel
of the
Snows**

Sundays:
Catholic Service 9:30 AM
Protestant Service 11:00 AM
Wednesdays:
Prayer and Praise at 7:30 PM

- EDITORIALS -

Here at The Sun we enjoy compliments and appreciate the support and interest of our readers. We welcome your thoughts at The Antarctic Sun.

To the staff of The Antarctic Sun:

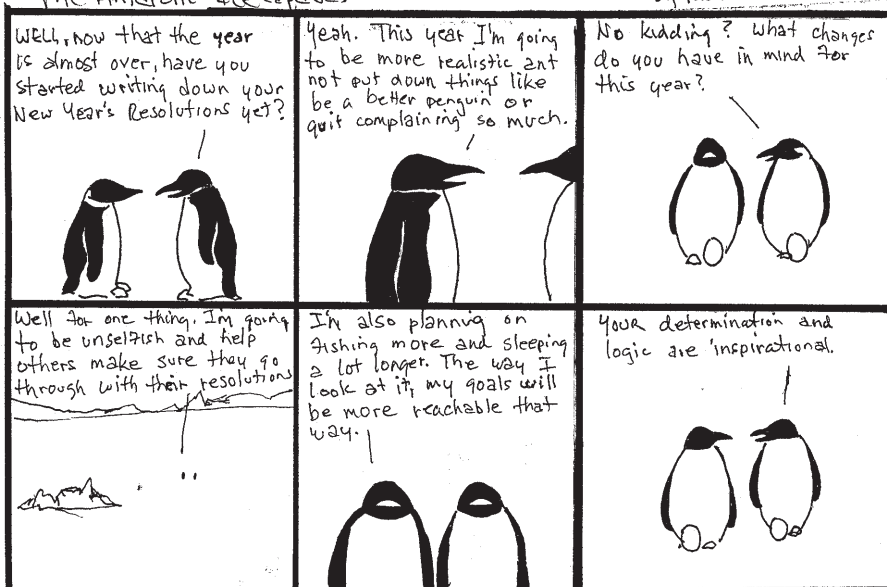
My compliments for a job well done...! The Sun is looking like a real hometown paper!

As a science writer for The New York Times I've been down to the ice five times since 1974 (when sledding down the brand-new South Pole dome and visits to Old Pole Station were still permitted) and made more lifelong friends than I can count. The Sun I see (via the internet) lets me keep up with the changes, the science and the gossip on the ice, and it's the next best thing to being there!

All the best,
Malcolm W. Browne
The New York Times

The Antarctic Ice expedes

by Richard Perales





Teachers Experience Antarctica

story by Alexander Colhoun



photo by Alexander Colhoun

Paul Jones hunts nematodes and studies glacial melt in Antarctica when he's not teaching science in Montezuma, Iowa.

He's a living, breathing Walter Mitty. Hunting for dinosaur bones, sailing through the North Sea and flying by helicopter through Antarctica's Dry Valleys sound more like the dreams of James Thurber's character than the real life experiences of an Iowa school teacher. That may be Paul Jones' message: with determination and a pinch of luck, the world is your oyster.

"I'm not a big-shot teacher," said Jones, a one-man science department. "I'm out in the trenches." For the last 36 years Jones has taught biology, chemistry and physics to the 240 students enrolled in the Montezuma Community School in central Iowa.

Jones began his Antarctic adventure with a mere thirty-two cent investment in a postage stamp. With it, he sent in his application for the National Science Foundation's Teachers Experiencing Antarctica (TEA) Program.

Teachers Experiencing Antarctica is a five-year-old National Science Foundation program originally designed to bring students to the Antarctic. In time, this program shifted emphasis from bringing students to bringing teachers, whose long-term impact in the classroom is greater.

"I saw the advertisement in *Science Teacher Magazine*," said Jones. "It sounded interesting so I applied." Jones makes it sound simple, but both entry guidelines and competition are tough. All applicants must have completed at least one National Science Foundation science enrichment course and, like all United States Antarctic Program participants, must pass a stringent physical exam.

Jones made the grade on both counts. Having par-taken in Foundation courses ranging from a visit to the Stanford Linear Accelerator to sailing a three-masted schooner from Halifax, Nova Scotia, to Woods Hole, Massachusetts, he was well-suited for this Antarctic adventure. Today, Jones finds himself transplanted to another world: Antarctica's Dry Valleys.

For one month Jones will be stationed in the Dry Valleys, working with several different research groups within the Long Term Ecological Research project. The projects include the nematode hunters (a team of researchers hunting for microscopic worms) and a group studying glacial melt run-off.

Research is the easy part for Jones; living in a remote field camp tent is something else. "We're always cleaning. There's dirt everywhere," said Jones. "But that's the lesson. People can live, and live comfortably, in extreme situations. I've used less than a gallon of water per day for many days."

When he's not working, Jones stays busy keeping in contact with his students back home via the internet. In the field, Jones sends his notes back to McMurdo with the helo pilots on a computer disc. Later, this material is entered into a home page maintained by Rice University (www.glacier.rice.edu).

Keeping in contact with students and spreading the word about Antarctica are the only requirements of the TEA program. For his part, Jones hopes to make a presentation at the Iowa Science Teachers Convention, and later at the National Science

teachers Convention. But the greatest impact may be right in his classroom, where Jones hopes to integrate his Antarctic experiences into everyday lessons.

While teaching is his job, proving that anything is possible is his legacy.

"The Dry Valleys are as close to Mars as I'll ever get," said Jones with a twinkle in his eye. With his penchant for latching onto adventure, however, no one will be surprised to see Jones strapped into the Space Shuttle, headed off on another grand experience. *

In Siple's Footsteps: A Girl Scout in Antarctica

story by Zee Evans

The typical image of a Girl Scout, a 12-year-old selling cookies door to door, isn't necessarily complete. Hannah Thomas, a 19-year old Girl Scout, breaks the mold and asks you to think again.

Every three years a Girl or Boy Scout is chosen to come to Antarctica, continuing a tradition that began with Paul Siple, a Boy Scout chosen to join Richard Evelyn Byrd's 1928-30 Antarctic expedition. This program allows 18-20 year-old scouts to travel to Antarctica for ten weeks to assist with research projects.

In 1997, 55 Girl Scouts applied for the Antarctic Research Project co-sponsored by the National Science Foundation and the Girl Scouts. Thomas received an application in the mail from her local Council and jumped at the

...cont. on page 9



photo by Alexander Colhoun

Following in Antarctic explorer Paul Siple's footsteps, Hannah Thomas, a Girl Scout from New York, joins researchers in Antarctica.

Girl Scout ...cont. from page 8

opportunity to apply. When the call came informing her that she had been accepted to 1997 Project Scholarship, Thomas was ecstatic. "I whooped and hollered and could hardly wait to tell my friends," she said.

Science has always been a dream of Thomas's. Both her parents are geologists, leading to her early dreams of becoming a park ranger or a nature center director. After taking a class in geology at Mount Holyoke College in Massachusetts, however, she decided to follow in her parents footsteps.

Thomas is a member of the Adirondack Girl Scout Council in Queensbury, N.Y. "Girl Scouting has really prepared me for this trip," said Thomas, with a gleam in her eyes. "I'm really excited about the opportunity to do scientific research and the independence of interacting with scientists in what I hope will be my field when I finish college."

Thomas has been a Girl Scout for 14 years. She received the Girl Scouts highest honor, the Gold Award, along with many other badges and honors including the Senior Girl Scout Leadership Award and the Senior Girl Scout Challenge.

Thomas arrived in Antarctica in late October and will be here through January. In the last few weeks Thomas has assisted as a dive tender; traveled to the South Pole to release balloons that measure the ozone; helped tag Adelie penguins at Cape Royds, Cape Bird and Cape Crozier; and visited Siple Dome to assist with core drillings of the snow.

"I've been very lucky to have been given this chance to go to Antarctica, especially since this kind of opportunity has not always been available to women," said Thomas.

Throughout Thomas' adventures, she's kept in contact with her friends and fellow Girl Scouts via the Girl Scouts Of America web site. Her trip to the ice and her stay while she is in Antarctica is funded by the National Science Foundation. Her local chapter of Girl Scouts funds her stay in Christchurch while she is en route.

"Everything will have a lasting impression," said Thomas of her experiences thus far. "But when I leave, I know I will miss the wonderful people here."*

Visit Hannah Thomas' web site: (www.gsusa.org/girls/go/hannah/antarcti.htm)

Wasting Away ...cont. from page 4

where passing currents can pick up and begin diluting the pollutants, most of the lighter and less dense particles form a plume that is constantly dissipating. Some of the denser pieces sink and form a mound of debris referred to as "the corn pile," or "Charmin Mountain" by divers who conduct underwater research and specimen collection in the area.

One group of divers has established a benthic ecology study to determine effects of the outfall on the flora and fauna of the bay. To date, negative effects appear minimal and are not widespread.

"The plume is really localized," said Rob Robbins, dive coordinator, as he prepared himself for a dive into the 28.4 degree Fahrenheit water to place equipment for the study. Concerned with contacting or even ingesting small amounts of waste water near the outfall, the divers must wear masks that cover their entire face and connect to their dry suit.

Though pumping over 72,000 gallons of town waste water a day into Winter Quarters Bay may seem like a less-than-ideal situation in environmental terms, actual pollutants comprise a remarkably low percentage of the outfall.

Before mastication, 280,000 gallons of sea water are added to the total outfall every day from the aquarium where live marine specimens are contained. Further diluting this is a daily total of 264,000 gallons of brine that comes from the reverse osmosis units. Totalling approximately 16.5 million gallons annually, most of the outflow consists of uncontaminated sea water.

Joe Seibert, resident ASA environmental technician, tests contaminant parameters three times a year. Levels of contamination remain within acceptable standards as set by the Antarctic Treaty. In fact, some results could even be considered beneficial to the marine life of the bay. "We're putting nutrients into the water resulting in a larger algal population," said Seibert.

In the future, McMurdo may build its own sewage plant to process the human waste generated in town, as well as the hundreds of thousands of pounds of grey water, urine, and feces that must be collected in containers at field camps and retrograded to the U.S. For now, however, the sea will have to incorporate our waste, and it is up to us to watch what we dump down drains and flush down toilets. *



photo by Alexander Collhoun

Making his way through a foot and a half of fresh powder that fell on Ross Island two weeks ago, Scott Jones earns his turns for a ski down the hill below Castle Rock.



Ask Aunt Arctica

...advice for staying healthy on the ice

Aunt Arctica is written by a clinical psychotherapist from Washington state with eight years experience working in individual counseling, specializing in cognitive and transpersonal psychologies for personal growth. Please write with any questions you may have. You need not include your name. All queries will be confidential.

Question: *I am in need of being reminded what this season means. As a child, the long anticipated Christmas morning thing was a huge let down. My father started drinking earlier in the day each year while my mother ran around frantically providing an air of festivity. As an adult, the whole thing seems to me like an expensive and tedious waste of time. I see joy and generosity on the faces of folks around me, but feel like an outsider in a strange land. Am I destined to always feel this way about the holidays?*

The “magic” of this time of year to me has always been in its ability to regress and transport each one of us into the past. It is

also the time of year when seasonal depression is most prevalent.

Be it family of origin issues, remembering a lost relationship, or the absence of friends, it can be a time for many of feeling alone and more isolated than at any

other time of year. It can also be a time of assessing what is absent in your life.

Our culture, focusing on materialism as a means to happiness, underscores this with a message of what we ought to have in our lives if we are to be happy.

The childhood scenario you describe is wrought with these messages and others including expectations of the “ideal”; disappointments in what life has dealt you; and disillusionment that it will ever be different.

The remedy for this lies in our ability to live fully and productively in the present. The way we choose to view and use the past in our present lives ultimately effects the extent to which we are depression-prone.

The past cannot be relived or changed as

you “replay” it in your mind. Actually, grieving, regretting, resenting, or keeping bitter memories of the past alive will only maintain a bridge to an unhappy past.

Instead, focus on what you would like this time of year to mean to you. Create rituals for yourself that bring a new purpose and understanding to what the holidays signify for you personally.

There may be pieces of your past that did work for you: incorporate these into the new scenario. Family may not hold for you now, or in the future, the ability to meet your expectations. With that in mind, consider how you can build a “family of choice” that will bring you a greater sense of belonging.

Take this opportunity of being removed from home, here on the ice, to reinvent what this time of year can mean. Allow yourself to relinquish expectations based on the past, and let your new experience of the holidays unfold and happen.

A good way to get started is by writing a wish list of what you would have liked the past to have been, then create a ritual of throwing it away and letting it go.



photo by Alexander Colhoun

Every season New Zealand Defense Forces personnel perform a Haka for the residents of McMurdo. This is a traditional ceremony originally used by native New Zealand Maori warriors.

Snow Jobs by Ben Mann



MILITARY NEWS:

The Little Command That Could

by Chief Jacqueline Kiel



Photo by Petty Officer 2nd Class Dave Lippman

NASU sailors honored New Zealand's fallen warriors on April 25th, 1997 by marching in the annual ANZAC Day Parade in Papanui, a Christchurch neighborhood. Navy Sailors have supported the parade for many years.

The command is small and getting smaller all the time, but the job is big and quite important to the U.S. Antarctic Program (USAP).

Someone has to transport, billet, feed and provide entertainment for all the USAP folks who pass through New Zealand. That responsibility falls to the U.S. Naval Antarctic Support Unit, Christchurch (NASU) and the ASA team based in Christchurch.

While the name has changed several times, NASU has in fact been in existence since 1962, always with the same role: support and liaison.

Everyone who goes through New Zealand comes into contact with NASU personnel. "We serve as an advance staging base for passengers and cargo bound for Antarctica," said Cdr. John Stotz, commanding officer of NASU.

Sadly, the command will be closing its doors soon, and the mission will be passed on to Detachment 13 of the New York Air National Guard and to civilian contractors.

NASU will formally close its doors in March 1998, but will have a disestablishment ceremony on Feb. 20, 1998, ending a 35-year-relationship between the command and New Zealanders. Many of NASU's civilian employees are Kiwis.

This connection has been enhanced by NASU's military members who are very active

in the Christchurch community, extensively supporting charitable activities. New Zealand Toys for Tots, the Chalmers Home (an extended care home for children), and New Zealand Special Olympics have all benefited from Sailors' time and energy.

NASU Sailors also honored New Zealand's veterans and war victims by marching in a dawn parade through downtown Christchurch on

ANZAC Day. The holiday, which falls on April 25th, is the Australian and New Zealand version of Memorial Day.

New Zealanders have fought along side Americans in every war the United States has fought since WWI, thus American participation in these parades is quite meaningful.

For now, though, the work continues. Scientists and support personnel pass through Christchurch on their way to and from Antarctica via Terminal Operations personnel. "During the summer season we will transport 3,700 passengers to and from Antarctica and ship approximately three million pounds of cargo," said Army Maj. Paul Giovino, Terminal Operations Officer for NASU. "We also assist with the New Zealand program, the Italian program and the Russian Vostok program with passengers and all air cargo."

Loading and unloading the re-supply vessel, M/V GreenWave when it transits through Lyttelton, New Zealand, on its way to and from Antarctica is another Terminal Operations task.

NASU also continues the billeting operation, using up to 120 rooms in four hotels, housing all transient military and DoD civilians, according to Luisa Magalhaes, billeting head clerk. "About 25 people per day go through billeting, Magalhaes said. "We average 5,000 to 6,000 bed-nights per month."

Food and entertainment needs for USAP

personnel are provided for at the Southern Lights restaurant, known fondly as Dot's for Dot Russell who runs the place. It's a Morale, Welfare and Recreation restaurant, club and movie theater in one.

Whether it is deployment season or not, NASU's communications division is always manned. According to Petty Officer 2nd Class Wayne McLeod, a NASU radioman, all Department of Defense (DoD) traffic goes through the communications office. "We act as a communication hub for various commands that are here in Christchurch," he said.

Those commands include Antarctic Development Squadron Six, the U.S. Air Force, and the New York Air National Guard.

NASU also cares for American civilian government employees. "We take care of the household goods for all DoD folks in New Zealand, including embassy defense attache personnel and military retirees to New Zealand," Stotz said. "We also take care of their school administration."

While March marks the end of much of the USAP activity on the ice, NASU employees would typically be still hard at work.

"Antarctic cargo comes in year-round," said Stotz. "We stage it for winter flight operations and for the regular season."

The off-season work will continue as usual and next season will roll around come the August time frame, only sadly, NASU will not be involved. *

Your Turn—

Your questions and comments are welcome here. We'll publish responses in each issue. Contact us at Sun_News.asa@asa.org.

Question: Our salaries are based on Denver incomes, or so they say. Yet a two room apartment in Denver rents for \$1,000 per month. It seems incongruent. My point is this: if our salaries are based on a Denver pay scale, why are our salaries so low? I make \$400 a week. It would be TOUGH to survive on that cash in Denver.

Our salaries are based on a number of variables, focusing on the market value for comparable positions in the Denver metro area. Most ASA employees take many factors into consideration before signing employment agreements: the room and board, gear, recreational activities, transportation, the completion bonus, and the opportunity to travel.

*Debbie Norris
Human Resource Manager, ASA*

Open-Water in McMurdo Sound?

WEATHER

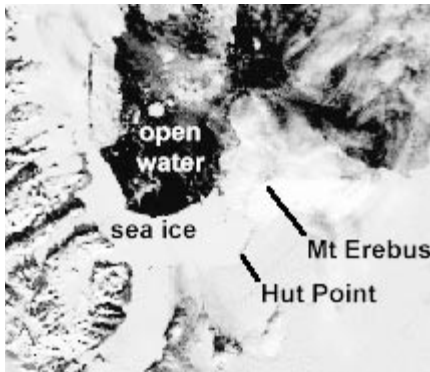
by George Howard, MAC Weather
McMurdo Station, Antarctica

For many of us, it's difficult to think of McMurdo Sound as a body of open water. More often we view it as a place to conduct scientific research or land aircraft. That's not surprising considering that for most of the summer season the sound's waters lie under a thick sheet of solid ice.

Colder than normal weather during sea ice formation this year contributed to higher than average ice thickness in McMurdo Sound. The ice, however, covers less of the sound than normal due to strong winds generated by storms early in the season. This combination of thicker ice covering less area suggests we'll see a nearly normal transition from ice to open water.

As 1997 comes to a close, the U.S. Coast Guard Icebreaker, Polar Star, will make its way through the land-fast ice of McMurdo Sound, cutting a channel through which resupply vessels can navigate. This will speed the natural process of clearing the sound of ice. Small areas of open water will be visible almost immediately. Larger areas will appear as the days pass, until the last land-fast ice at Hut Point disappears in mid-February.

For those of us living and working in McMurdo until season's end and beyond, expect an astounding transformation as the vista to our west changes from pale ice to a deep liquid blue.



The Polar Star will break through 16 miles of land-fast sea ice to reach McMurdo's ice pier. (December 17, 1997 DMSP satellite image. Resolution: one quarter mile.)



photo by Dr. Steven Kottmeier

The R/V Nathaniel B. Palmer, a research ship leased by the National Science Foundation, visited the ice edge just a few miles outside of McMurdo last week. The vessel exchanged workers and researchers before heading out on another cruise. The ship is due back in McMurdo on January 10, 1998.



Bi-Polar ...cont. from page 1

Chris Cheng Devries, the objective is research. Devries and her husband, Art, have spent a quarter century studying a protein anti-freeze found in Antarctic and Arctic fishes.

That fish on opposite ends of the earth have independently developed the exact same protein leaves Chris Devries in wonder.

"There is a lot of creativity in inventing something to serve the same function," said Devries. "You really don't see another system like this anywhere on earth. It is a very innovative system."

Innovation and adaptation are the cornerstones of bi-polar living for humans and animals alike. At the South Pole, the newest buildings are elevated off the surface to decrease snow build-up; while Weddell seal pups have adapted to survive when delivered from their mother's womb, nearly 100 degrees above zero, into an unforgiving world far below freezing.

Stark and extreme, life in the polar regions is defined by its lack of complexity. Few species of animals are hardy enough to survive the intense cold, not to mention the long winter nights. "There's a lot less interference," said Tom Gelatt, a wildlife biologist working in the Arctic and Antarctic. "In the tropics you have everything from microbes to vertebrates and everything in between. Here [in Antarctica] krill feed on phytoplankton and whales feed on krill. That's the food web in three steps."

These austere environments have drawn Tony Gow to the polar extremes for yet another reason: purity. Gow has worked the high latitudes for more than 40 years, drilling ice cores in both regions in search of undisturbed climatological records.

Arctic and Antarctic ice provide what Gow considers the most accurate and accessible climatic histories available on the planet. "Bi-polar comparisons are synchronous across two hemispheres," said Gow. "The ice record is extremely rich. Ice cores will give [a record] to you on a year-by-year

summers in Antarctica and North American summers in Denali National Park.

"Alaska is seen as the last frontier," said Needham. "The people who come to Alaska live outside the boundaries of the norm and establish their identity through that." It is only logical then, that Needham would search for the next step, and that's where Antarctica fits the bill.

"It takes a certain kind of person to go to these places," said Jerry Pratt, a world-traveling power plant technician. "Many of them are very independent, they are loners. They like themselves and are comfortable with who they are. You have to be to work here."

As independent as many bi-polar workers and researchers may be, they are at the same time inextricably linked to the small communities (often less than one or two

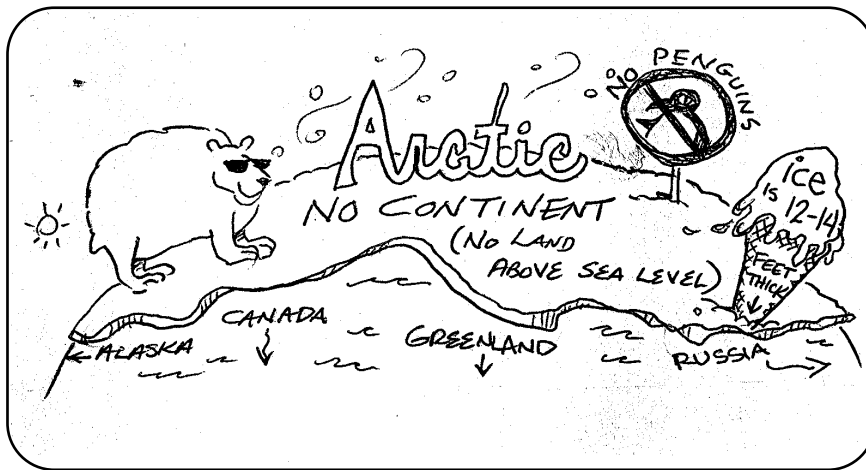
hundred people) in which they live. Andy Young has traveled between 60° North and 60° South for the last 15 years. "We depend on each other and we know each other," said Young. "It is that old time feeling of a village."

In time, the communities that Young toggles between have become his home. They are where he, and many others like him, find a sense of belonging. "It's true, adventure brought me here," said Young. "But the problem with adventure is that it only happens once. Something besides adventure pulls people back. Maybe they don't know it, but I think it is community."

A mix of community, research and adventure drive people like Young and Needham, Devries and Gelatt, and Franson and Soutter to

build their lives between the polar extremes. In these remote corners of the planet they find meaning in their lives.

In turn, these modern day explorers fulfill dreams of the multitudes who live their adventures vicariously through the challenges and rewards experienced by the brave few who live in a bi-polar world. *



basis. No other record is that precise. By making bi-polar comparisons the climates of the past can be used to understand the climate of the future."

Joining Gow in his quest for bi-polar understanding are no less than 17 major science projects, all with connections to both

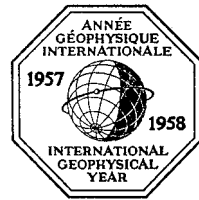


hemispheres. Some researchers are studying polar oceanography, others are interested in the super-clean air found in polar regions, and all of them are searching for similarities and differences in these two geographically distinct yet parallel ecosystems.

Dawn Needham, a bi-polar veteran, has developed a keen awareness for these similarities and differences, spending Austral



1957-1958: Heartbeat of the IGY



IGY+40

third in a five-part series by Guy G. Guthridge
Manager, Antarctic Information
National Science Foundation, Polar Programs

Forty years ago, 60,000 scientists from 66 nations took part in what has been called the greatest peacetime activity in man's history—the International Geophysical Year, from July 1, 1957 to December 31, 1958. One of the IGY's most prominent achievements was the opening of Antarctica to modern science.

With the Navy's completion of Deep Freeze II at the end of the 1956-1957 season, operational preparation for the IGY had been carried out. When the last ships and planes left in February and March 1957, 317 Americans remained behind at the seven U.S. Antarctic stations—five coastal and two inland.

On July 1, 1957, the IGY program began on schedule. A few days before, the sun began to show signs of interesting activity. Telltale spots on its surface indicated numerous gigantic explosions. The IGY started during one of the greatest of recorded magnetic storms, and scientists all over the world were ready.

The Americans were far from alone in Antarctica. The French established a base, Charcot, near the south magnetic pole in addition to Dumont d'Urville. The British Commonwealth Trans-Antarctic Expedition

set up a small station called South Ice between Shackleton Base on the coast and the South Pole, adding to another nine coastal stations. The Soviets added Vostok at the geomagnetic pole, and Oasis in an ice-free area of the Knox Coast, to existing stations at Mirny and Pionerskaya. Argentina and Chile were active in the peninsula area, and Australia had a station on the coast. Norway and Japan each built a station, as did Belgium. New Zealand set up Scott Base on Ross Island and shared Hallett with the Americans in northern Victoria Land. South Africa had a subantarctic base. All told, the 12 nations' wintering populations were close to a thousand, and in summer it exceeded 5,000.

Philip Law, who directed Australia's IGY efforts in Antarctica, estimated the total cost to all nations at \$280-million, over \$1.1-billion in today's buying power.

Like today, the U.S. Antarctic IGY relied on sealift to deliver fuel and most cargo to the continent, and airlift from McMurdo to supply South Pole, although tractor trains, not airplanes, supplied Byrd Station in West Antarctica.

Traverses were used extensively for science, mainly for sounding the ice sheet and its underlying topography. They covered an amazing amount of territory in the 1957-1958 and 1958-1959 summers. Traverses moved throughout West Antarctica and the Ross Ice Shelf (U.S.); across the Filchner Ice Shelf and across Antarctica from the Weddell Sea to Scott Base (U.K.); inland from Mirny to Vostok and to the middle of East Antarctica (USSR); and inland from Mawson (Australia) and Dumont d'Urville (France).

In addition, Soviet airplanes made 48 landings for geophysics and ice soundings on coastal areas of East Antarctica, covering nearly 180° of longitude.

Each Antarctic station and traverse had goals specific to its location but complementary to others, and most were populated by their own nationals. Even so, international cooperation was a strong component. Weather Central at Little America V, a U.S. station, collected reports from bases and ships throughout the southern hemisphere and radioed forecasts to all stations. The staff included representatives from Argentina, New Zealand, the USSR, Australia, France, and South Africa. This and other collaborative efforts truly put the I in the IGY and led to political and scientific developments undreamed of by IGY planners. *



photo by Frank Kazukaitis

Sled dogs pass in front of a Super Constellation aircraft somewhere in Antarctica, circa 1958. Sled Dogs were popularly used for long and short traverses across the ice in the early years of Antarctic exploration.

Perspectives

Out of Town

by Steve Munsell

Coming back to the Antarctic this year has been like completing a great circle in my life. The Antarctic affects us all in profound ways and I was fortunate to have an Antarctic experience that allowed me to get outdoors. I think most folks hope to experience the environment of Antarctica in some way. That was harder when I first came down. Thankfully, things are different for the community now.

From 1981-1984 I spent four summers working as a field assistant for Art Devries' project on the Freezing Avoidance of Antarctic Fishes. We spent a lot of time out on the sea ice fishing for the big, 75-pound Antarctic Cod (D. Mawsoni) for his experiments.

Art had a real commitment to sharing the fishing experience with the community as an approved way to get people off station and out into the Antarctic environment. Then, as now, people came down wanting to experience this great white desert.

People wanted to get out. They found magic staring down into the deep black of the sound through the blue-green light of the ice in the darkened hut. Back then, life on station was quite a bit more regulated with respect to travel and recreation. You certainly couldn't ride a mountain bike and people kept their skis pretty low profile. The sea ice was officially off limits. There wasn't much of a sanctioned recreation program that allowed people to get out of town.

Art's project was an opportunity to get out and we became a major tourist attraction. We had a busy schedule of folks who wanted to get out and we felt a bit like tour guides. We had to be sure people brought the right clothing and answered a lot of the same questions about our work. Still we were committed to it because it was a way of giving something back to the community.

In town, things were not as friendly as they might have been, and the community felt pretty divided into the different work groups. But the fish hut was a great equalizer: people were out of their work environment, it was more person to person. Over the years we saw everyone from distinguished visitors and the media to regular Navy enlisted guys. It was great for us because we got to know people and learned a lot from everyone. Most importantly, we got people out.

I felt risks in McMurdo were managed by trying to minimize everyone's exposure to the environment. It was an understandable approach but the resultant restrictions had an impact on people's physical and emotional health. People had to sneak off to get out into the great white and I was certainly guilty of that in a major way.

Since outdoor pursuits were not encouraged, there was more focus on social events and activities on station. There were more bars then and more focus on alcohol as a pastime. I think one kind of problem was traded for another.

Outdoor safety issues were traded for urban safety issues. There were a lot of problems and incidents that had alcohol as a contributing factor. A safety concern of the day was drunks passing out on the way home or curling up in a snowbank and freezing.

People would steal trucks and wreck them. Art would never let us leave the keys in the Spryte on a Saturday night. I

remember one guy stole a new ambulance and parked it in a snowbank.

Now, some 16 years later, I think the program has evolved a lot. Life in town is dramatically improved. It's far from perfect, of course, and there are still some gray areas. It is still easy to get in trouble if you do the wrong thing. People still need to get out but now there is more opportunity for that.

Now the outdoor recreation issue is addressed in a formal manner and a system has been created to let people get outside if they want to. The Outdoor Safety Lecture the Berg Field Center does along with the video, provides people an excellent briefing on the hazards out there and the precautions to take to travel safely. It is a good system because the National Science Foundation cannot assume that participants are going to have previous outdoor experience or know the local hazards.

The search and rescue element is quite a bit more sophisticated and professional. The whole recreation program is an investment in people's well being and now the outdoors is included. You can see this new attitude in the work centers as well. There is a conscious effort to get people into the field on work-related projects.

The gender balance on station is now quite natural and there appears to be much less sexism. Sexism and sexual harassment were a part of the cultural landscape in my memory. I'm glad that's over. Now if you look around you see a lot of really competent women in key positions. They make things happen throughout this program.

I feel fortunate to have a chance to return and see how the whole program has evolved and matured. There will always be room to improve and things to work on but today's environment is a healthier one to live and work in. We still take people out to the fish house, but it is no longer the only game in town.



photo by Alexander Colhoun

Steve Munsell takes a break from ice fishing for Mawsoni, better known as Antarctic cod. Munsell, an instructor at Prescott College in Arizona, first came to Antarctica 16 years ago.

Saturday night. I



1972 was not a good year for Americans in Vietnam, including Ed Burnette. While most Americans fought their way out of the war-torn nation, Burnette found himself fighting to get back in.

His wife and child were there, and he was determined to bring them home.

Arriving in Bangkok from Singapore where he was working, Burnette talked his way onto one of the last commercial flights into Saigon—a Cathay Pacific flight. No sooner had he stepped off the plane onto the humid tarmac in Saigon, than he turned to see the plane wheeling away. The airport was empty, abandoned, and he hurried to his wife's family home.

"Aren't you go mistah?" inquired the Vietnamese locals as he made his way through the streets. After gathering up his family, he headed for the American embassy compound, and found it surrounded by a mob.

Battling his way inward, Burnette finally slipped through the gates to explain his family situation and show papers to guards, but not before his wife passed their son over the fence. "He scratched his bare little bottom on the Concertina wire," said Burnette.

Three weeks later, with his wife and child settled in Hawaii, Burnette returned to Indonesia to continue his job with Union Oil. He had work to do and a family to support.

Burnette's family history tracks unwittingly with America's great conflicts. Between his great-grandmother, a slave born just after the Civil War; his father, killed in World War II in France; and his own experience in Vietnam, Burnette has weathered America's greatest tragedies and triumphs.

Speaking with Ed Burnette over a glass of wine at the Coffee House you'd never know it. What you will discover is a man passionate about travel and unlikely to spend more than 18 months (enough time to be tax-exempt working abroad) in any one place.

Profile

Around the World on a Generator and a Prayer

story and photo by Alexander Colhoun



To watch Ed Burnette repair a generator is to watch a master at work. A certified expatriate, Burnette has traveled the world with his trade. "I've been around the world both ways," said Burnette.

To say Ed Burnette has itchy feet is to call Antarctica cold. He simply cannot stay put. "I've been around the world both ways," said Burnette "I've lived most of my life overseas." Working as a master electrician and power plant expert, Burnette's trade has taken him as far as Saudi Arabia and Cambodia.

Watching Burnette repair a generator is to watch a master at work. In McMurdo Burnette keeps a close eye on more than 20 generators which are the lifeblood of the entire station. On a recent visit to T-site,

McMurdo's communications station, Burnette, methodically diagnosed problems in the back-up generator system.

Taking a moment to wet his fingers, Burnette slaps his thumb and forefinger across two poles, testing the circuit for juice. "Two ten [volts] is nothing," said Burnette, flashing a perfect set of pearly white teeth. "I got hit with 4,160 volts and I'm one of the few to live to tell about it. Someone upstairs likes me."

That may be true. Or it could be plain good luck. Either way, Burnette, like his great-grandmother who educated him, has never been one to sit on his laurels.

Gaining a top-flight education well before the American Civil Rights movement gained momentum, Burnette is an American anomaly. He graduated from Rochester Institute of Technology as an electrical engineer only two years after the landmark Brown versus Board of Education case that invalidated the "separate but equal" distinction in American schools.

None of this, however, seems to occur to Burnette as he describes his life. Despite a past that maps Black Americans struggle for equality, Burnette seldom indulges in race comparisons. "It doesn't make a difference what color you are," said Burnette. "Prejudice is just a crutch to get along. That goes for blacks and whites. I see it on both sides."

Open as he is to new experience, Burnette made history of his own without ever intending to. Burnette wintered at the South Pole in 1987-88 season, and

though unconfirmed, believes he may well be the first black man to do so.

Mild mannered and at ease with himself, Burnette would have been an ideal winter-over candidate. Perhaps it is his Southern Baptist upbringing, or maybe 30 years of world travel, that give him strength of character. Either way, Burnette's sixty-one years of life experience have taught him the value of patience. "And these things too shall come to pass," says Burnette. "That's an expression I live by." *

What do you think?



This season's *Antarctic Sun* has been an experiment by NSF and ASA to see if a summertime U.S. Antarctic Program newspaper is worthwhile. We have not decided how it should look next year, or how frequently it should be published, or even if it should be done at all. Your comments will be valuable in helping NSF and ASA plan what to do next season. After all, if the intended readers don't like it, why publish it? We will greatly value your comments on this season's issues. You may make them anonymously or not, as you choose, but please comment NOW.

- Readers 'on the ice' can complete this form, detach it, give it to your manager or drop it by The Sun office (if you're in McMurdo). Your input will be forwarded to ASA in Denver, Colorado.
- Internet readers can send an e-mail (numbering your responses) to Sun_News.asa@asa.org.

Your input is most important to us.

Valerie Carroll, publisher, The Antarctic Sun

1. How often do you read the Antarctic Sun?

- A) Always B) Sometimes C) Rarely D) Never

2. How long do you keep the paper?

- A) One Year B) One Month C) One week D) One Hour

3. I send copies of the Antarctic Sun home to family and friends:

- A) Always B) Sometimes C) Rarely D) Never

4. How often do you read the following stories:

Cover Stories?

- A) Always B) Sometimes C) Rarely D) Never

Science Stories?

- A) Always B) Sometimes C) Rarely D) Never

Human Interest Stories?

- A) Always B) Sometimes C) Rarely D) Never

Safety, Environment and Health Stories?

- A) Always B) Sometimes C) Rarely D) Never

Did You Know?

- A) Always B) Sometimes C) Rarely D) Never

Station and Vessel Updates?

- A) Always B) Sometimes C) Rarely D) Never

Editorials?

- A) Always B) Sometimes C) Rarely D) Never

Ask Aunt Arctica?

- A) Always B) Sometimes C) Rarely D) Never

Military News?

- A) Always B) Sometimes C) Rarely D) Never

Your Turn?

- A) Always B) Sometimes C) Rarely D) Never

Weather?

- A) Always B) Sometimes C) Rarely D) Never

Perspectives?

- A) Always B) Sometimes C) Rarely D) Never

Profiles?

- A) Always B) Sometimes C) Rarely D) Never

5. How often would you like to see the Antarctic Sun published?

- A) Weekly B) Bi-monthly C) Monthly D) Never

6. I think the content of the Antarctic Sun is:

- A) Excellent B) Average C) Below Average D) Poor

7. I think the layout of the Antarctic Sun is:

- A) Excellent B) Average C) Below Average D) Poor

8. I think the photographs in the Antarctic Sun are:

- A) Excellent B) Average C) Below Average D) Poor

9. I think the reproduction quality of the Antarctic Sun is:

- A) Excellent B) Average C) Below Average D) Poor

10. I think the Antarctic Sun is a good reflection of the entire United States Antarctic Program:

- A) Always B) Sometimes C) Rarely D) Never

11. The Antarctic Sun Gives me the information I want to know:

- A) Always B) Sometimes C) Rarely D) Never

12. I look at the on-line version of the Antarctic Sun:

- A) Always B) Sometimes C) Rarely D) Never, skip to #15

13. I have no difficulties 'opening' the on-line Antarctic Sun:

- A) Always B) Sometimes C) Rarely D) Never

14. I print the on-line version of the Antarctic Sun:

- A) Always B) Sometimes C) Rarely D) Never

15. Please circle the category of reader that best describes you:

- A) Employee of Antarctic Support Associates
B) Employee of the National Science Foundation
C) Member of the Navy
D) Member of the Air National Guard
E) Member of NASU
F) Formerly lived and worked in Antarctica
G) Have family/friend who works in Antarctica
H) Other. Please explain _____

16. Please circle the age that best describes you:

- A) 10-18 B) 19-25
C) 26-35 D) 36-45
E) 46-65 F) 66 and over

17. Your name and contact information (optional, but appreciated):

Please feel free to make any additional comments about *The Antarctic Sun* and what you'd like to see in the future.

Thank you