

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



Charlie Kaminski, a winter-over scientist, peers into SPIREX, the South Pole Infrared Explorer telescope. Located inside a white, canvas dome, the 24-inchwide telescope enables scientists to see the center of the galaxy.

## Journey to the Edge of the Universe

Story and photos by Ginny Figlar

AMUNDSEN-SCOTT STATION -- Like a bright blue dome spilling over the South Pole on all sides, the sky dominates the landscape of this white, polar desert.

It also dominates the research being done here. The thin air and lack of moisture and heat in the atmosphere at the Pole make it the ideal spot for looking deep within the universe.

"It's the next best thing to putting up a satellite," said Greg Griffin, a research associate working with Viper, a 5-ton, threestory-tall submillimeter telescope. "It's the best you can do on the ground."

Scientists, working with infrared and submillimeter telescopes at the Pole via the Center for Astrophysical Research in Antarctica, are taking full advantage of these ideal conditions. Under the common theme of "origins" astronomy, researchers are searching for answers about the formation of stars, black holes and the age-old question of whether the universe will forever expand or eventually collapse on itself. The Viper telescope, which tracks wavelengths below 1 millimeter at a frequency of 40 gigahertz, enables scientists to look back in time as far as any frequency can go -- almost to the edge of the visible universe, where objects are estimated to be 15 billion years old.

"What we're looking at is the afterglow of the Big Bang," Griffin said of his work in determining the fate of the universe.

The photons streaming through time from about 300,000 years after the Big Bang tell scientists what the universe was like when it started cooling. By measuring extremely slight temperature differences in the heat radiated by condensed regions of gas in the cosmic microwave background, or CMB, Griffin and other members of the Carnegie Mellon University team are trying to understand the distribution of matter in the early universe.

"Mass tells the whole story in cosmology," he said. "If you know what the mass density is you can pretty much derive everything else about the universe. Is it going to expand forever or is it going to crunch someday?"

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## **NSF News: Antarctic Science Turns Heads**

by Karl A. Erb Director, Office of Polar Programs, NSF

n the last three years our work in Antarctica has won support from high places -- the President's Science and

Technology Council, the Department of State and a Science Foundation external panel. Congress is showing confidence in the U.S. Antarctic Program by funding invigorated science and modernized facilities.

When I took the helm of NSF's polar office three months ago,

these renewals of the national commitment to Antarctica were much on my mind, as were comparable developments in the Arctic.

ago

These important votes of confidence have resulted, in no small measure, from successes in Antarctica. The field activities have long been recognized for their safety and effectiveness. This season, the program is pulling off a 13-ring circus of science, operations and facilities upgrades while handling the transition of flying to the Air Guard, the visit of bidders for the support contract renewal and, with Antarctica New Zealand, the visit of dozens of ministers and officials from Antarctic Treaty nations.

Worldwide attention has been brought to Antarctic accomplishments. The Viper telescope at South Pole made a crucial measurement of cosmic background radiation that will help settle whether the universe will expand forever

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or collapse back on itself. The Cape Roberts project gave first evidence of large volcanic eruptions that shook Antarctica 25 million years ago. Among much media attention, Science magazine did a seven-page Antarctic cover story on

> topics ranging from astronomy to the hidden life of Weddell seals.

Some of this year's participants are part of the Teachers Experiencing the Arctic-Antarctic program, bringing back much to share with students and other teachers. Others have the critical role of observers -- from the press

and from the realm of literature and the arts -- helping citizens at home understand what we do with the public monies entrusted to us.

Research at the ends of the Earth is important in our interdependent world. Increasingly, its findings are contributing to fundamental advances in science and also to the development of societal policy.

I am greatly encouraged by the way Antarctica has provided opportunities both in the forefront of disciplinary research and in multidisciplinary studies focusing on global issues like the response of the West Antarctic Ice Sheet to climate change. Research integration is a big initiative for NSF, which is blurring the boundaries between the traditional sciences by using increasing portions of its budget to fund research in areas like knowledge management, biocomplexity and life in extreme environments, all of which show relevance to polar science.

My task is to listen for, and act on, opportunities that the polar regions present for using science to respond to national needs for knowledge. Investigators in the U.S. Antarctic Program are a vital source of information about these opportunities. I will welcome your thoughts either directly (kerb@nsf.gov) or through my staff. Investigators might also channel comments through the facilities-users' com mittees (see www.asa.org) or the Office of Polar Programs Advisory Committee, chaired by Stephanie Pfirman (spfirman@barnard.columbia.edu).

NSF's role is not so much to see the future as to enable it. In Antarctica as elsewhere that means targeting funds and facilities to excellent science. NSF's success in promoting research and science education will, as always, be measured by yours.

#### **Donna Aldrich-Hooker and**

Roger Hooker were married at 3 p.m., Jan. 1, 1999, at the South Pole. They exchanged vows at the ceremonial pole with the station residents standing hand-in-hand around the flags in a circle of unity.

After being engaged for a year and a half, the decision to be married at the Pole was a spontaneous one. "There was no thought to it," Aldrich-Hooker said

Aldrich-Hooker, a cook, and Hooker, an electrician, are both from Walden, Vt., and are new to Antarctica this season.

With pizza as the main course for their reception dinner and their wedding night spent in a jamesway, the couple enjoyed an "all-expenses-paid honeymoon" in McMurdo -- R&R before their upcoming winter at the Pole.

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tor of the National Science Foundation's

Office of Polar Programs three months

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This value of the mass density -- omega -- has been under question for years. But, Viper, tracking the same piece of sky 24 hours a day, is starting to acquire preliminary results that are being used to "throw out models," Griffin said. Data compared to a few models seem to fit better with a value of one for omega over other proposed values.

"We've seen a maximum (cosmic microwave background radiation) that looks as if it fits with high omega models but we have to do more work," Griffin said. "It could be another month or two before we can say 'omega is plus or minus this.'"

#### Unlocking the Mystery of Black Holes

The Viper telescope is helping to unlock another mystery of the universe -- black holes.

Borrowing time on the Viper telescope beginning this month, the SPARO instrument, which measures the state of polarization of light at the center of the galaxy, will help scientists understand why matter collects there.

Giles Novak, a physics and astronomy professor at Northwestern University working on the project, said, "There is very strong evidence for a black hole at the center of our galaxy."

But, how they form and operate is what Novak and others from Northwestern are trying to learn. "It is believed that these black holes are growing from interstellar gas," he said. "This gas somehow collects itself in the center of the galaxy."

Just like the Earth has a magnetic field, space has a magnetic field. And the magnetic field of the galactic center runs the whole galaxy. "Right now no one knows what the shape of the magnetic field is in the center of the galaxy," Novak said. "Within a year, we'll know.

"We know there's a lot of mass in the center," he added. "Whatever it is, observations with SPARO should tell us how it got there."

#### A Star is Born

SPIREX, the South Pole Infrared Explorer, has the ability to cut through cocoons of clouds and dust that scatter and block light in optical telescopes to reveal how stars form within these stellar nurseries. In essence, the infrared telescope measures the heat radiated from objects.

"As you collapse, you heat up," said astrophysicist Nigel Sharp. This is the process Sharp is looking for as an indication of



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Jim Jackson points out the technical components of AST/RO, the Antarctic Submillimeter Telescope/Remote Observatory, at the South Pole.

#### star formation.

"Do certain conditions give us lots of massive stars, very small stars?" Sharp asked. "This sort of detail of looking at these wavelengths will start to answer these sorts of questions."

Just a few hundred yards away, another group of scientists, calling themselves "stellar pediatricians," is using a submillimeter telescope, AST/RO, to view stellar nurseries of other sorts.

The nurseries they're viewing are within molecular clouds -clouds several times as large as the solar system. Within them, Roopesh Ojha and Jim Jackson are locking their search on the signals emitted by carbon because it's a good tracer for activity.

"People are studying stars, but there is so much locked up in these molecular clouds about which people know so little," said Jim Jackson, a co-investigator on the project.

In essence, the birth of stars is directly related to the existence of human life. "You are made out of stuff that was inside stars," Jackson said.

South Pole astronomy is enabling scientists to view the world as it's never been seen before. "It's an exciting time because a lot of very fundamental things about the universe aren't known yet," Griffin said. "This feels like the 20-year period when cosmologists can really nail these things down."

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## IceTrek Team Abandons Roundtrip Journey

by Ginny Figlar

Just as Robert F. Scott's trek to the South Pole in 1911 fell short of its mark, so too has the team that set out to duplicate his endeavor 87 years later.

Hindered by blizzards, snow drifts and a bout of food poisoning, the IceTrek team of Peter Hillary, Eric Phillips and Jon Muir has decided to end its journey at the South Pole and not ski back to New Zealand's Scott Base as originally planned. Successfully carried out, the 1,875-mile trek would have been the longest unsupported polar expedition in history.

The decision to conclude the trip at

the halfway point came on Jan. 6, when the team was already three weeks behind schedule and tentbound due to blizzard conditions. Had they continued, their trek would have lasted well into late February, putting them in danger of missing the last flight out of Antarctica.

With just over 200 kilometers to go, the skiers are expected to reach the South Pole around Jan. 21, according to a press release issued by the team. Hillary, Phillips and Muir will then be airlifted back to Scott Base, where they started their world-record attempt on Nov. 4.

"We had been expecting some bliz-

zards, but not the run of bad luck that we've had to date," the team wrote in an online journal entry dated Jan. 6.

Conditions at the beginning of January included temperatures of minus 30 C, wind gusts of 30 to 50 knots, 2-meter snow drifts and visibility of just 5 meters. If bad weather continued, they may have been in danger of depleting their food. To ensure they had enough to make it to the Pole, a food drop was made on Jan. 11, according to spokeswoman Rachel Bell.

As far as making another attempt at history, Bell said, "Only Peter, Eric and Jon know what their future plans are."

Fishing for Neutrinos Cosmic Raiders of the Distant Past

by Alexander Colhoun

#### AMUNDSEN-SCOTT STATION --Neutrinos are suspicious characters.

Fast, independent and powerful, they zip through the atmosphere at the speed of light. Two hundred times heavier than an electron and born with extremely high energy, they emit light as they travel in the same way a plane emits a sonic wave when it travels faster than the speed of sound.

And, like cosmic aliens in the night, they are nearly impossible to detect.

Catching these wily particles, which transform themselves into muons when they interact with other matter, is a job that has brought researchers from America, Sweden, Italy and Germany to work on AMANDA, the Antarctic Muon And Neutrino Detector Array situated at the South Pole.

Walking into the AMANDA lab, housed in an elevated, spaceage building within the 'Dark Sector' at the Pole, is to enter a sea of electrical cables, computers and contemplative researchers. Lights blink and monitors flash as the team tracks data collected 24 hours a day from their array.

The array is composed of optical modules that look like a cross between a basketball and the eye of a science fiction monster. These modules are set along a long cable that is strung through the ice like a fishing line, forming a kind of neutrino net. Combined as one, 13 of these lines form the first-ever neutrino telescope.

But a set line hardly entails a caught fish.

Nick Starinsky, a researcher with the AMANDA project, is first to agree that his prey is an elusive species. "(Neutrinos) are very strange and difficult to detect," Starinsky said. "They pass through the Earth like a hot knife through butter. You'd need a lead wall between the Sun and Earth to stop them."

So unlikely is it that these scientists catch a neutrino, one researcher compared their plight to standing blindfolded in center field of Fenway Park with a baseball glove stretched in the air, waiting for a ball to land in the mitt. This Fenway Park, however, would be subjected to a nearly continual rain of baseballs.

Even so, with odds of winning the Colorado state lottery looking better than those of catching these charged particles, one wonders why researchers bother at all. The answer lies in the clues these particles, once caught, will yield.

"This is a very direct method for mapping the universe,"



explained Starinsky. "Other particless like electrons, protons and regular light deflect off other material as they travel, but a neutrino will hold its course." And if the neutrino does hold its course as it travels, it serves to reason that if this line is traced backward, it will lead directly to its origin. In time, as more and more neutrinos are caught, a dynamic new map of the universe will be created.

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But first they need to catch the neutrinos.

Perhaps it is their intergalactic origins that make them so hard to detect; but for all their sneakiness, neutrinos are nearly as common as the air we breathe. They bombard the Earth from above and below 24 hours a day. So what gives? Why are these energized bits of

matter so tough to collect?

The trouble with isolating neturinos can be traced in part to the cosmic crowd of characters they travel with. According to Starinsky, neutrinos (in the form of muons) are mixed in an enormous soup of cosmic showers. "This is the most difficult part of AMANDA's work," he explained. "To separate muons from the background showers, and then to separate muons that come from above with muons that come from below is tough."

Low-energy muons dominate the showers from above but are of little use to the AMANDA researchers. Their origin is from the decay of various particles as they enter the Earth's atmosphere.

High-energy muons generally come from underground, having traveled through the Earth's core. These muons have their origins in neutrinos, and these are the particles the team is after.

For now though, Starinsky, who will spend the winter monitoring the telescope, has one thing in mind: catching more neutrinos. "It's like watching the sky for asteroids," said Starinsky. "You blink and you've missed the most beautiful event in the sky."

Despite the challenges that face these researchers as they chase the elusive neutrino, an overwhelming sense of exploration and excitement seems to guide their work. "Every time you open a new window (to the universe), you find a new species," said Adam Bouchta, a post-doctoral student from Berlin, working on the project. "Now we're opening a new window for neutrinos. If we are lucky, like those before us, we will find new sources that emit high energy in the universe." **\*** 

Fishy Activity Moves into Ross Did You Know... Sea, Threatens Treaty



Fresh from McMurdo Sound and very much alive, an Antarctic Toothfish is examined and measured by researchers before being transfered to a holding tank.

Story and photo by Alexander Colhoun

t is an ugly fish. Its bulbous eyes and cav-Lernous mouth lend themselves more to prehistoric species than a modern-day candidate for overfishing. Appearances, however, mean nothing to fishermen hunting the Dissostichus mawsoni -- the Antarctic toothfish -- all they want is its soft, white, lucrative meat.

The hunt for Mawsoni will enter new waters in coming weeks as commercial fishermen make preparations for exploratory harvesting from the Ross Sea. Fisheries activities in this region are regulated by a commission known as CCAMLR, the Convention for the Conservation of Antarctic Marine Living Resources.

The Commission is responsible for the management of marine living resources in the Southern Ocean around Antarctica. Based on the Antarctic ecosystem, CCAMLR's boundary is defined by the Antarctic Convergence, the zone where cold waters of the Antarctic mix with the warmer waters of other oceans.

As the summer season of fishing gets underway, two New Zealand ships licensed by CCAMLR will fish these waters legally, with permits. Any additional ships harvesting the Ross sea that hail from nations that have signed on to the convention will fish in direct contravention to it.

'The information we have is that six to seven long liners, at least, have the intention to move to the Ross Sea this summer," said Stuart Prior, Minister of Foreign Antarctic Affairs, New Zealand. There is a real possibility then, that illegal and unregulated activity will move to the area South of New Zealand and the Ross Sea."

In recent years, illegal fishing of a related species, the Patagonian toothfish, has reached

alarmingly high levels. Tactics include flying flags of different nations on fishing boats and transshipping product through intermediary nations before moving it for sale, often as 'Chilean Sea Bass'in American markets.

The Patagonian toothfish fishery presents a particular challenge for regulators. It is found not only in the CCAMLR waters, but also in waters under national jurisdiction of countries that border the Southern Ocean. Since legal and illegal fishing occur both within and outside the CCAMLR area, regulation of this fishery is a complex, multilateral issue.

Market sources indicated that about 60.000 tons of Patagonian toothfish were traded last year. About 90 percent of this was exported to markets in the U.S. and Japanese, both of which are signatories of CCAMLR. Less than half of this trade could be attributed to legal fishing within the Convention area and nearby waters under national jurisdiction.

"The import of all Antarctic fishery resources, including finfish, crab, squid and krill, from CCAMLR waters to the United States is strictly regulated," said Robin Tuttle, a National Marine Fisheries Service foreign affairs specialist. "No Antarctic fishery resource may legally enter the U.S. market without an import permit."

The toothfish are not the only losers. Seabirds, including the white-chinned petrel, greyheaded albatross and the giant petrel, are at risk as well. Using catch rates of seabirds from legal vessels, researchers estimate between 50,000 and 89.000 seabirds in the convention area were decimated during unregulated fishing last year alone -a level that, according to data submitted by CCAMLR's Scientific Committee, is unsustainable ...story continued on page 8

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by Brenda Joyce

Mrs. Edith Ronne conceived her first child in Antarctica. Finn Ronne was reluctant to radio for help in removing the Beaumont from sea ice via the Burton Island and Edisto icebreakers nearby. He had planned to leave in mid-March when scientific programs were complete. Mrs. Ronne's pregnancy caused the RARE expedition to depart on Feb. 20, 1948, three weeks ahead of schedule.

The Adelie penguin is named for Adele, the wife of Jules-Sebastian Dumont d'Urville, France's early explorer. Today's French station, Dumont d'Urville, is situated on the Adelie Coast, also named for Adele.

The first duck-billed dinosaur found outside of the Americas was located in sands about 66-67 million years old on Vega Island off the eastern side of the Antarctic Peninsula. The finding of this hadrosaur gives support to the theory of a land bridge between Antarctica and South America during the Cretaceous period. It is assumed quantities of vegetation existed in Antarctica to support these large plant eaters, some of whom may have stood 20-feet tall.

Paul Siple first came to Antarctica as a Boy Scout. He was 19 years old during Byrd's 1928 expedition. His skills with dog handling persuaded Byrd to allow him to join the winter team.

The biggest earthquake in the world in 1998 was the March 25 quake just off the Balleny Islands, which registered 8.1 on the Richter Scale. By comparison, the 1995 quake in Kobe, Japan, measured only 7.2 and killed 6,000 people and injured 35,000.

October 1998 was the coldest and stormiest summer in McMurdo since 1973, breaking a 25-year old record.

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# Is the Water Safe to Drink?

### The second article in a two-part series on one of McMurdo's most valued resources

#### by Ty Milford

The warning can be unnerving. Stepping up to a water tap or fountain, your attention is caught by a sign posted above. You read on to learn that the water you rely on for survival may contain elevated levels of lead. The ultimate question then must be, is the water safe to drink?

Environmental technician Cassandra Graber unequivocally says yes. She has been bestowed the responsibility of regularly monitoring the purity of water sources for the entire U.S. Antarctic Program from Palmer Station to the vessels, from McMurdo to the South Pole and all of the seasonal field camps in between.

Fulfilling its commitment to providing all facilities with safe drinking water, the USAP has adopted the Environmental Protection Agency's U.S. water quality criteria. "The EPA

has no jurisdiction in Antarctica, but we voluntarily adhere to their criteria anyway," said Graber.

Maximum containment levels considered safe for long-term human consumption have been set at 15 parts per billion (ppb) and are aimed to protect even the most susceptible populations, such as pregnant women and growing children. Healthy adults are reported to normally pass 95 percent of ingested lead without absorbing it, thus levels in McMurdo would have to be much higher than 15 ppb to pose a threat to residents.

Warnings were posted around the station after a 1995 evaluation found elevated levels of lead in samples taken not from the large mains that flush frequently, but from smaller service lines running to individual buildings. Furthermore, the water was allowed to sit in the pipes for at least eight hours before it was tested to represent a worst-case scenario.

The problem isn't in the source of the water, which isn't hard to believe looking out across McMurdo Sound at the crystalline



Cassandra Graber takes samples from the McMurdo water plant. Photo by Ginny Figlar.

glaciers spilling out of the towering Royal Society Range. The problem is in the distribution system, which prior to the 1991-1992 season contained copper piping with lead-based solder.

"Over time very small amounts of lead are leached into the water, particularly when the water has an extended residence time in the pipes," said senior construction coordinator J.B. Freeman adding that this situation can be found in many U.S. homes constructed with these materials.

Since 1992 different materials have been in use to eradicate this problem. "Today," said Freeman, "we do not use any lead-containing solder." In addition to installing lead-free solder in new systems, renovated systems receive the updated treatment as well.

Water plant operators are also aiding in the resolution of this problem by actively adding corrosion-resistant materials to the water before it reaches the distribution system. The efforts seem to be working. "We have

seen lead levels decrease nearly every year since the monitoring program was implemented," Graber said. "Last year there were 15 suspect buildings in McMurdo and this year there are only 10."

Buildings that are still under watchful eye are 63, 107, 125, 137, 138, 155 first- and second-floor berthing areas only, 160, and dorms 203 and 204. Water used in the galley has been consistently below the EPA standards.

"In the identified problem areas," noted Graber, "we ask that people flush the taps for 90 seconds to ensure that the water is coming from the mains." After 90 seconds of flushing, she said, lead levels have consistently been shown to be insignificant.

"What we recommend here in McMurdo is the same thing that people can do to protect themselves back home," Freeman said. "The only difference here is that we are giving people a warning that they usually do not receive from their utility companies in the States."



Kim

Vargo,

Firefighter

Views From Antarctica's Main Street Q:What's the first thing you're going to do when you get off the Ice?



"I'm going to go back to the States to go skiing."



"I'm going to Disneyland."



Tom King, Paramedic

"Go to Australia. Go diving. Hope I don't get eaten by a great white."



English, USAP Cargo Supervisor

Joni

"Get a divorce."



Strapped into safety harnesses, two workers remove snow and ice from atop the Amundsen-Scott South Pole Station dome. Completed in 1975 and designed to hold 18 workers in the winter and 33 in the summer, the dome is an Antarctic landmark in an otherwise barren polar desert. Photo by Alexander Colhoun.



As an "operational meteorologist," I don't often dwell on minute details of atmospheric processes taking place all around me. I'm more interested in whether or not the flight coming in from Siple Dome will have any problem landing at Williams Field on its return to McMurdo. But with more snow falling recently than we've seen in a while, I find myself recalling the complex, but common process that generates a snowflake.

Snowflakes don't just pop into existence out of thin air. Neither do they start life as frozen water droplets. In the vast majority of cases, they begin to form around tiny airborne dust particles. But for that to happen, the relative humidity in the frigid air surrounding the dust particle has to be between 110 and 140 percent. This is one of the rare instances in nature where relative humidity can far exceed 100 percent.

Under these conditions, water vapor (water in its gaseous state) is deposited directly onto the surface of the tiny dust nucleus in the form of ice. The most difficult task in snowflake formation is now complete. From here snowflake growth can proceed surprisingly rapidly.

The shape of the initial ice crystal and resulting snowflake is dictated by the temperature and humidity of the air in which they form. Shapes range from columns to plates to dendrites (branched crystals) to combinations of these shapes. Dendritic flakes are the largest and individuals can reach one third inch in diameter. "Flakes" larger than this dimension are actually conglomerations of many flakes.

During most of the summer season in McMurdo, dendritic flakes and moderately sized conglomerations are the most common. Throughout the season at South Pole, temperatures at cold enough for individual column-shaped ice crystals to be most prevalent.

As complex as the process may be, we're fortunate snowflake formation is common enough to provide us with plenty of material for fabricating snowballs, snowmen and skiways. Ruben and the Bohemian Painters' Top 10 Things to Do After Redeployment:

- **10.** Go directly home to meet girlfriend's new boyfriend
  - **9.** Swim naked in the ponds at the Botanic Gardens
  - Return to jail after "work-release program" at McMurdo
- 7. Pick up a new set of Carhartts
- **6.** Watch the sunset, act like Chicken Little and scream, "The sky is falling."
- 5. Open a fruit and vegetable stand.
- **4.** Expose pasty, white flesh and scream, "I am a vampire."
- Start a T-shirt company that uses correct spellings
- 2. Buy a big orange truck

and the NUMBER ONE thing to do after redeployment is...

Apply for job as Top 10 writer for the David Letterman show.

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The Antarctic Sun

## Drivers Get Willies on Willy Road

#### by Ryan Luedtke

The road ahead looked bleak. As four crewmembers stood staring at their vehicle buried up to its axle on Williams Road, drivers passed by with discouraged faces, knowing full well their vehicle could be next.

"We had four vehicles stuck out there at one time," said Rebecca Shoop, supervisor for Air Terminal Operations.

Unseasonably warm temperatures and an abundance of sunny days have turned Williams Road into a sea of potholes, ruts and stuck vehicles. As of Jan. 6, the road had been limited, indefinitely, to travel only by Deltas and track vehicles, and a 'travel when necessary' warning was issued.

But, with a surplus of aircraft passengers and personnel still needing to reach Williams Field, ATO immediately began transporting people to the airfield via helicopter.

"It was the fastest and easiest way to get the people out there. I don't think the passengers minded one bit," Shoop said with a smile.

The soft snow has created what has been called an 'obstacle course' by travelers on the road. "When we bring cargo out to Willy, it was becoming more of an adventure than a job," said cargo handler Paul Jolicoeur. "The Deltas are tough vehicles, but they too can get stuck."

Traveling on the road was not only difficult, but it was becoming a safety issue. On Jan.6 a passenger was injured in a Delta while traveling on the road. "The poor definition of the road, ruts or covered-up holes could have all attributed to the accident on Wednesday," said safety engineer James Thate. Giving the road time to heal has been the strategy for fleet operations. "We've seen it coming for a couple of weeks now, and that's all we can do," said Kelly Hance, a supervisor for fleet operations. "We are very dependent on Mother Nature at this point. We drag the roads, fill in the holes and hope for cold temperatures."

While the population of McMurdo has been enjoying thewarm weather, the road has been suffering. "The amount of sunlight and limited cloud cover we've had this year has had a direct impact on the hardness of the snow," said Mary Tutza, a weather observer at Williams Field. "The radiation from the sunlight hits the ice crystals on the top layer of the snow and creates a magnifying effect. This heats up the packed snow that's underneath the top layer and makes the snow very soft."

A high volume of vehicles on the road only exacerbated the poor conditions. Traffic has been higher than normal this year as the population of McMurdo increases and major projects are underway. "We're experiencing 100 more flights this year than last year, have twice as many aircraft and are moving two million more pounds of cargo," said Ray Gabriel, supervisor of Air Terminal Operations.

On Monday last week the Williams Field Road opened once again, but Bill Haals, ASA's manager of operations, cautioned the community to travel wisely. "Traffic is restricted to essential airfield vehicles only," he said. "We stress that everyone needs to ride the shuttle at all costs."



Aircraft passengers and crew board a New Zealand helicopter Tuesday to be safely transported to Williams Field. Photo by Ginny Figlar.

Treaty

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for these bird species.

"The continued high level of illegal, unregulated and unreported fishing for Patagonian toothfish threatens the viability of the species, and exacerbates the problem of incidental mortality of albatrosses and other seabirds which are killed through long-line fishing," wrote NSF's Polly Penhale.

"The Antarctic Treaty is a complex treaty of international law," Prior said. "To work, it will require time, effort and political energy to solve the problems."

Prior's words are not empty threats. New Zealand's government has laid out plans to deploy surveillance aircraft over the Ross Sea to search for signs of illicit fishing. If enough evidence of illegal fishing is uncovered, a New Zealand naval vessel with CCAMLR inspectors will be dispatched.

Once illegal fishing is confirmed, New Zealand will report its findings to CCAMLR. The only enforcement is national, which means the responsibility for curbing illegal fishing in Antarctic waters falls back to the signatory nations that fish, market and import the fish.

CCAMLR has developed measures to combat illegal fishing including inspections of vessels fishing in CCAMLR waters, compulsory identification markings on vessels and fishing fear, and the introduction of a satellitebased tracking system for finfish fisheries.

At the recent CCAMLR meeting, the U.S. proposed measures to establish a framework for tracking the landing and trade flows of toothfish through a certificate of origin system and to provide for CCAMLR nations to deny market access unless is was demonstrated that the fish were caught legally. CCAMLR endorsed the urgency of developing such a catch certification scheme and will hold a special meeting in April 1999 to move this forward.

"Combating illegal, unreported and unregulated fishing in CCAMLR waters has no single solution," said R. Tucker Scully, director of the Office of Oceans Affairs at the U.S. State Department and head of the U.S. Delegation to CCAMLR. "Due to the vast area of the Southern Ocean, we need to go beyond the traditional surveillance techniques to include multilateral trade measures."

As the commercial fishing pressure now moves to Mawsoni, nature may help protect the species. Although very little is known about the biology and distribution of this fish, most believe that it is found mainly below the Antarctic circle. Living in waters that are often ice-covered, Mawsoni may escape the fate of the Patagonian toothfish if vessels can't navigate through the ice to set their fishing gear. **\*** 

# Gould Proves its Worth

by Tim Bjokne

It's tough being the new kid in the U.S. Antarctic Program's family of ships.

The R/V Laurence M. Gould, which joined this family in January of 1998, follows in a great tradition of Antarctic research vessels. The Gould occupies a role once filled by the R/V Hero and more recently by the Norwegian-flagged R/V Polar Duke. The Gould faced some serious operational problems early on, which had some folks dreaming of the Duke's triumphant return. However, the Gould has since won-over the hearts of many and has proven itself as a first-class science platform, meeting virtually all the contract's specifications.

"(The ship) is working great," said Mark Gisclair, NSF operations manager for Edison Chouest Offshore, a worldwide ship builder and operator headquartered in Louisiana. "I was impressed with some of the sit-reps and (other) reports coming back."

The Gould is the second Antarctic research vessel built and operated by ECO for the Antarctic program. Its older and larger sister ship, the R/V Nathaniel B. Palmer, has been operating primarily in Antarctica's Ross Sea since 1992. While the Palmer is bigger and more powerful than the Gould, the two vessels are very similar.

"There is not much science that the NBP can do that we can't," said Warren Sanamo, the captain of the Gould. "The big difference in the science between the two vessels is the different work areas that the vessels can operate in. The NBP can work anywhere. We are limited by the ice conditions in the area."

In the Gould's short career, it has already supported nine science cruises and supply runs to Palmer Station, and each one has seen improvements in the new ship's capabilities.

As with any new ship there have been kinks to straighten out. Right off the bat, a design flaw in its construction required the addition of "ice reamers" to bring the Gould up to U.S. Coast Guard standards for stability. Without them, the vessel was likely to roll enough that the safety of the ship would be at risk.

Another big hurdle during the Gould's tempestuous first year was its inability to collect depth data while underway. Scientific Solutions Inc. designed a sonar pod to be mounted at the base of the bow, and the ship now has full ocean-depth sonar capability at any speed.

While the Gould was thought of early on as "a Duke ship at a Duke price," the addition of new, enhanced technology made it much more than a replacement ship. "I don't believe anyone ever believed it would just be another Duke. The opportunity was there



The R/V Laurence M. Gould, which has served the U.S. Antarctic Program for just over a year, rests quietly at Palmer Station. Photo courtesy of Tim Bjokne.

to replace antiquated equipment and we took advantage of it," said Jim Holik, ASA marine operations manager.

For example, the Gould has a new meteorological suite of sensors, new data acquisition systems running on both Unix and Macintosh platforms, a new network server and a faster, more robust E-mail system. Also, a virtual clean sweep was done of the on-board PCs, replacing the Duke's machines with new Macintosh and IBM-compatible systems.

As the Gould was outfitted, systems that had performed well on the Palmer were installed on the Gould. Likewise, equipment on the Gould that have proved themselves over the last 12 months are now being considered for use on the Palmer.

For instance, the Knudsen sub-bottom profiling system and echosounder, a seismic research tool that allows scientists to view ocean-bottom sedimentary layers, has performed well enough on the Gould that a duplicate unit is being considered for the Palmer.

All these changes are part of ASA's overall plan to make these two vessels as compatible as possible. Compatibility will not only aid researchers who receive funding for work on both vessels, but it will also enhance the science support that ASA can provide.

"Duplication of equipment between the two ships is very helpful," said Paul Olsgaard, ASA senior marine electronics technician. "The spare parts inventory can be reduced, the data from each ship becomes identical, and the learning curve for technicians is cut in half."

Based on personal observations and grantee feedback, ASA support personnel and the ECO crew continue to add equipment and correct existing problems as they arise. But the number of these instances is becoming less and less.

"In my opinion, the Gould is a great ship and we have proven in our first year of service that the Gould is very capable of meeting and actually exceeding the expectations of the scientific community," Sanamo said. "I am very proud to be the Master of the Gould."



The Antarctic Sun 🕯

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#### **McMurdo Station**

by Hope Stout

McMurdo Station has moved forward quickly into 1999 with preparations under way for the resupply vessel offload around the first of February. The Coast Guard cutter has made it's way through the ice, slicing a path for the resupply vessel and the fuel tanker. This will bring a new view to the station, open water! Hopefully new wildlife will start to appear as well.

The recovery effort was completed for Skier 95. It was flown safely from Upstream Delta to McMurdo on Jan. 4 and then on to Christchurch on Jan. 6.

Planning meetings are underway for the upcoming Ministerial visit arriving the last week in January. There are approximately 65 people arriving with this group with delegate representation from most signatory nations of the Antarctic Treaty. The overall aim is to leave the participants with an understanding of the global importance of Antarctica and the Antarctic Treaty System.

#### **South Pole**

by David Fischer

During the past two weeks, South Pole celebrated the New Year with a party featuring the station's band, and completed the annual moving of the South Pole marker. Two separate solo skiers arrived in the first week of January, followed by a group of five French skiers and two Dutch skiers arrived the next week. ASAcontinues work on the SPSE/SM construction projects. On the Fuel Arch Project, work on tank modules A, B, and C is complete. On the Garage/Shops Project, summer work on Grids 7-2 is complete and work on Grid 1 is on schedule. New scientists began to arrive at South Pole n the last few weeks and ASAhosted a media team CBS news and a reporter from the Washington Post.

#### **R/V Nathaniel B. Palmer**

by Tim Bjokne

The Nathaniel B. Palmer continues its southbound transect line, with its ultimate destination McMurdo Station. The Palmer is sailing for the second consecutive year in support of the Martin Jeffries/Marcia Gowing group.

Like the Gould grantees, scientists aboard the Palmer are studying Antarctic sea ice as well. The difference is that they are studying the makeup of the ice itself: snow depth, ice thickness and infrared light

measurements are some of the principle tasks being undertaken by the current Palmer group of grantees. Biological research has representation as well, with co-PI Gowing's group studying viral effects on algae and other biological matter that thrive in the sea ice.

Weather that has been unusually mild and only minor equipment problems have made this cruise a success so far. The cruise ends on Feb. 7.

### **R/V Laurence M. Gould** by Tim Bjokne

The R/V Laurence M. Gould's first annniversary has a touch of Deja-Vu to it.

On Jan. 2, the Gould sailed from Punta Arenas, Chile, in support of the Long-Term Ecological Research group. The LTER cruise was also the first science cruise for the newly arrived Gould in January and February of 1998.

Based out of Palmer Station and with cruises on both the Gould and the R/V Nathaniel B. Palmer this year, the LTER cruise is part of a multi-year study of the advance and retreat of the Antarctic sea ice.

The Gould left Palmer Station on Jan. 8 after embarking several LTER scientists. Working in the Bellinghausen Sea, ASApersonnel and grantees will perform net tows, conductivity and temperature measurements, both underway and on selected stations. LTER grantees will also survey for krill using a towed sonar array.

The Gould returns to Punta Arenas on Feb. 18.

#### ASA, Denver

by Eric Juergens

The Denver headquarters office is getting back to normal after the holidays. The results of our Adopt-a-Family program showed that the Christmas spirit is alive and well. With the help of donations of \$1,000 from McMurdo, ASAwas able to provide over \$3,500 of presents to the five families with a total of 18 children. A sincere thanks to the estimated 150 ASAemployees who participated in this worthy program.

Engineering, purchasing and logistics personnel, as well as the QA office, put in some long hours to get all of the 800 tons of South Pole Station Modernization steel inspected, accepted and delivered to Port Hueneme in time to make the M/V Greenwave. Along with this critical cargo, material for Building 155 upgrades and the annual rush of last minute supplies kept both Denver and Port Hueneme staff busy. With logistics' dedication and commitment, the ship sailed on schedule with all planned cargo aboard.

#### National Science Foundation by Guy Guthridge

The last of two workshops for representatives of firms expected to bid on NSF's Request for Proposals 98-001, "Antarctic Science and Logistics Support," took place at NSF headquarters in Arlington, Va., on Friday, Jan. 15. The workshop focused on Palmer Station and the R/V Laurence M. Gould, the two major parts of the U.S. Antarctic Program that bidders did not get to see firsthand during "job walks" that NSF provided over the last several months. The first workshop, held in Virginia in September, had reviewed the entire U.S. Antarctic Program. Formal proposals are due to NSF on March 1. The new contract is scheduled to be awarded on Oct.1.

#### **NSF Planes in Mothballs**

By Mike Scheuermann, NSF

Consolidation of the U.S. fleet of skiequipped Hercules, the LC-130, into one operating unit -- the 109th Air Wing of the New York Air National Guard -- has made it possible to slim the program from 14 to 10 airplanes. Because the six LC-130s owned by the 109th are newer than eight NSF planes, flown by the Navy in the U.S. Antarctic Program, the Foundation, in March, will send four of its older F and R models to Davis-Monthan Air Force Base, the 'mothball'facility near Tucson, Ariz.

The planes will be in inviolate storage, meaning they can't be raided for parts without NSF's written permission. Since the craft have an undefined future, external ports will be sealed, windows will be covered to preclude sun damage, and major surfaces including the skis will get a thick latex skin.

This so-called cocooning is somewhat of a misnomer since some large surfaces remain uncovered. Some avionics will go into storage, and some will stay aboard. Fuel will be replaced with oil to prevent corrosion. Flight control surfaces will be immobilized using gust locks to prevent wind damage. The planes will be moored to the ground with attachments at the nose and the tail and under each wing. The tires will be on an inert surface and checked periodically for rot and flattening.

Should the time come to put a ski-Herc back in service, Davis-Monthan's Aerospace Maintenance and Regeneration Center will strip the sealants, drain the lubricants, do an inspection, incorporate any technical orders issued since the plane was stored and generally make it ready for the air. Then the new operator will arrive, inspect the regenerated craft and approve it for flight. This process takes about a week.

Christchurch, New Zealand No report available.

#### Palmer Station

No report available.

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# BEAKER NEWS • BEAKER VIEWS

Workers at the Amundsen-Scott South Pole Station gathered around the chrome-topped "barber pole," a symbolic marker at the South Pole, on Jan. 11 to witness and photograph a very unusual display of atmospheric halos, caused by the reflection and refraction of sunlight by ice crystals in the atmosphere.

For roughly 30 minutes, beginning at 2 p.m. local time, construction workers helping to rebuild the station joined researchers and other station personnel to observe and photograph at least 24 halos, or arcs that appeared.

Marko Pekkola, an expert on ice crystals stationed at the Pole, said that if all of the sighting claims are verified by photographic evidence, the phenomenon could set a new world record for the number of halos visible from a particular spot.

For reasons that are currently unknown, the Antarctic interior experiences more frequent and better developed halos than any other location on Earth.

In his own words, Pekkola, a science journalist from Finland who has become an expert in these atmospheric displays, describes the thrill of witnessing such an extraordinary event.

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by Marko Pekkola, project OO-208

It was a mixed-feelings thing.

You wait for something like that to happen for 20 years. Then it happens for half an hour and is over.

After the celestial show, I poured the film rolls on top of my suitcase and found myself staring silently at the carpet for five minutes. I couldn't move, I couldn't speak. I had waited so long and never really trusted in my heart that I would capture on film even a display coming close to such a thing that had just taken place.

About half an hour to one hour later, I met my colleagues, Jarmo Moilanen and Marko Riikonen. Once we compared our results, it was imminent that we would be looking for something between 23, 24 or 25 halos on the film rolls and in videos.

At that moment, blood circulation took a new turn since we knew we had a better-than-good chance to beat the former record claiming displays of 20 halo forms. That display, the Canada Resolute, took place on April 3, 1998.

There were two gigantic displays of 19 halo forms at the South Pole photographed by Professor Walt Tape in 1986 and 1990. They were so filled with arcs that he found one new halo in both of them. In the 1986 display, he captured Tape arcs (a completely new halo). In the 1990 display, he went on to take the world's first photographs of Hastings' anthelic arcs, which had been forecasted by American scientist C.S. Hastings in 1920 but nobody had reported or photographed since. The thing has still not been sighted outside South Pole station, regardless of observation periods in Alaska, Siberia, Northern



A possible world-record display of halos at the South Pole dazzle researchers and station personnel. Photos by Lisa Beal.



Scandinavia and Canada.

All of the halos present on those historic displays were present on Jan. 11 as well as a few more that came out of a blessed small extra stream of pyramidal crystals, giving us some extra halos.

You can get a visually great display in the Antarctic interior at least once every two years, if not once a year. But it's really difficult to have, simultaneously, the rare pyramid crystal population good enough to raise the overall number of halos so as to make a unique result.

We try to correlate the halos we see with the ice crystals we collect simultaneously from the air. After the display we photograph the ice crystals through a microscope and model the halos by using the same crystal structures in computer simulations. The computer simulation made by Riikonen of the great Jan. 11 display was so accurate that passers-by in the computer room of the South Pole dome mistook it at first as an all-sky photograph.



#### Dear Aunt Arctica,

For the past several months, I have enjoyed an online chatroom relationship with a Kiwi woman. She is clever and sweet and tells me that people say she resembles "Elaine" from Seinfeld. She wants to meet up with me on the North Island when I get off the ice. It sounds great, but I'm skeptical. I mean, how many of these types of situations ever actually work out? What if she's nothing like she is in the chat room? What if she's hideously ugly? What if she's a total psycho? What should I do?

Sincerely, Virtually Interested

#### Dear VI,

What if she's an angel with endless ebony curls, milky skin, an underwear model's body and a personality true to her online persona? What if she's all those things and she takes one look at you and becomes mortified by what she sees? What if she's the platonically ideal woman and she hates your shoes and thinks you have bad hair? Just to give yourself a little perspective on the risk she's taking in inviting you to meet her, perhaps you should consider these notions for awhile. Sure you're taking a chance, but then, so

is she, right?

While I am unable to give you a psychic reading on whether or not this woman is telling the truth, or if her friends tell her that she resembles "Elaine" only because she is a whiny, self-absorbed twit, I can relay to you the result of a story similar in content. My mother's friend from work, Juanita is a divorcee who likes to surf the Net. Much like you, VI, she found herself in one of those personal chatrooms pursuing a love connection with a fellow called Rauol. It seems that Raoul and Juanita found enough mutual interest to meet one another, and Juanita thought the perfect forum would be the barbecue that she and some of her fellow tenants were throwing at the poolside of their Florida apartment complex. "We had so much in common," said Juanita. "He told me that people say he looks like Phil Donahue. I love Phil."

Juanita is a woman without many pretenses or expectations. She did not flinch, then, when Raoul informed her that he was having problems with his bridgework, and asked her if she would be offended if he did not wear his dentures. "After all," said Juanita, "I have some false teeth myself, I know what it's like." So Raoul arrived at the afternoon fete in his best pool wear, as toothless as a baby. "He was so ugly," said Juanita. As to his claim of resembling Phil Donahue, Juanita said, "it's hard to say if he did or if he didn't. I stopped looking at him the minute he took off his dang shirt."

So you see, VI, one can never tell, but at least you may come away from the experience with an amusing anecdote to tell at parties. Personally, I'm all in favor of pursuing that which makes one more interesting.

Stay Solid, Auntie A.

You can send your questions for the preceptress of Antarctic advice to sun\_news@asa.org.

Calendar

## **Around Mactown**

**New domestic postage rates** went into effect Jan. 10. Letter mail now requires a 33 cent stamp and the priority mail, 2-pound flat rate is \$3.20.

**Don't get stuck holding the box.** The last day to mail packages off the Ice is Feb. 4.

**Put on your dancing shoes.** Ballroom Dancing lessons are held every Thursday in January at 7:30 p.m. in the Playhouse.

**Calling all rock jocks.** Sign up in the recreation office for a climbing competition -- both beginner and advanced -- to be held Sunday, Jan. 31.

**Open House.** Tour the Discovery Hut from 1 to 5 p.m. today, Jan. 17.

#### Jan. 18

Slide Show by Allen Stone 8:30 p.m., e-side Galley

Jan. 19 Poetry Reading, 8 p.m., Coffeehouse

Jan. 20 Karaoke, 8:30 p.m., Gallagher's

Jan. 21 Sarah Krall, acoustic and keyboard 8:30 p.m., Coffeehouse

> Jan. 22 Zim and the Goat 8:30 p.m., Coffeehouse

Jan. 23 Kiwi Party 8 p.m.-1 a.m., Playhouse Jan. 24 Marathon, 11 a.m.; 1/2 Marathon, 1 p.m.

> Jan. 25 Slide Show on Alaska 8:30 p.m., e-side Galley

Jan. 26 Open Mic Night, 8:30 p.m., Coffeehouse

> Jan. 27 David Harris, acoustic

Jan. 29 Casino Night, 8 p.m., Gallagher's

Jan. 30 End-of-Season Party, 7 p.m., Playhouse

Jan. 31 End-of-Season Art Show, Library

January 17, 1999

## Perspectives

## A Golden Treasure in Every Way

With less than two weeks left in Antarctica last year, the hike to Castle Rock was a quiet, contemplative walk. Sitting near the edge overlooking Mount Erebus and Razorback Island, I reflected on the season that was winding down while absorbing the view, for perhaps the last time, and locking it into my memory.

Little did I know that a special connection with the past was about to be made.

As I was rising to leave, something golden yellow peered out from behind some rocks nearby. I reached out and grasped an old yellow and orange tin Kodak film canister.

With anticipation I opened it and discovered a rock with two bits of paper inside. Five names and their home towns were jotted down on the paper.

It was dated Dec. 9, 1962. 1962 - 36 years ago!

Butterflies fluttered in my stomach and goose bumps quivered all over my body.

One piece had the name David Peterson from White Lake, Wisc., on it. He noted that it was a clear day with no wind and four ships in the bay. On the other bit of paper were the four other names: Lt. JG Bernhardt, D.E. from Kansas; Voss,

CE from Illinois; Colin Fearon from Christchurch, New Zealand; and Bill King from Townsend, Mass.

Having studied anthropology in college and worked on several archeology digs, the past has always intrigued me. However nothing found on any of those digs has ever affected me as much as this golden cannister. Although this golden treasure was unlike artifacts thousands of years old, and it only contained a paper and a rock, the discovery exhilirated and rejuvenated me. Here was a unique chance to interact with those who left it.

At once, the Agatha Christie in me came to the surface and I decided to investigate the names. I began the search in McMurdo, but with the summer season coming to an end, I found only vacant offices and locked doors.

After five months of travel, I returned home and got down to business. I started with a Yahoo internet people search. I had luck with two of the names, finding David Peterson in White Lake, Wisc., and three 'B. Kings' in the Townsend, West Townsend, Mass., area.

I wanted to call them right away, but I thought this might be too intrusive, and perhaps awkward, so I decided to send a letter to let them respond if they so desired.

by Kristy Carney

ANTICLISION MASHARDE MASHARDE MARANA BOO MIAMA BOO MIAMI

ABOVE:David Peterson of White Lake, Wisc., stands by the old South Pole marker in a photo taken in

1962.

RIGHT: One of two bits of paper that the author found in a tin Kodak film canister atop Castle Rock.



Soon after returning to the Ice, I opened a dilapidated fortune cookie and learned that "good news will be brought to you by mail." Sure enough, a few weeks later I wandered up to the mailroom where I was handed a single letter. It was from David Peterson, and I opened it right there and then. Inside were pictures of him on top of Castle Rock in 1962, and a few from the South Pole. He had summered in McMurdo and then wintered at the Pole. Returning five times in the late '60s and early '70s.

"I have often wondered if anyone ever found the canister," wrote Peterson in his letter. "My recollection is that there were some others upon Castle Rock at the same time. They may have seen me put the canister there and added their names."

He also wrote about his work as an electronic technician, installing communication equipment that allowed him to travel to several remote field camps including the South Pole, Byrd, Hallett and Siple Dome.

In recent weeks another letter arrived in McMurdo. It was from Bill King, a dairy farmer and logger in Massachusetts and cousin of the Bill King I had been searching for. It was then I learned of the King family's tragedy.

"On March 1st, 1967, (Bill) died in a tractor trailer accident. I

was born and named after him in 1968," wrote the cousin. Along with his letter, he sent a copy of a letter that Bill had written to his grandparents while he was in Antarctica.

"Boy I think that in the last few days I probably matured as much as I had in the past year," wrote Bill, describing a plane crash that had occurred. "You know what it's like for a bunch of guys sitting around talking, laughing just having a good time and then the next thing you know they're dead. It really makes you realize just how wonderful this life really is."

Bill goes on to reveal a small taste of McMurdo three decades ago. "This afternoon I'm going to try and call home we've got a ham shack on the strip so now I can get a chance to call," he wrote. "Have a Happy Thanksgiving and do pray. Love always, Bill."

King's letter makes me appreciate the luxuries of a more modern McMurdo. It doesn't seem so frustrating now when the lines are busy when all I have to do is wait in the comfort of my room for the lines to open again.

Finding this Golden Treasure atop Castle Rock from 36 years ago was a special moment. It has given me a more tangible, personal and unique connection with McMurdo's past.

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## The Boy Behind the Badges

## Profile

Story and photo by Ginny Figlar

Happy Camper School was a homecoming of sorts for 20-year-old Ben Hasse.

Chosen as this year's Antarctic Boy Scout, Hasse arrived in McMurdo in late October and was whisked away within days to the Ross Ice Shelf to learn survival skills, set up tents and cook with camp stoves -- activities similar to what he's done with scouting for nearly 10 years.

"What does this remind me of? Everything I've ever done in Boy Scouts," he said laughing. "It's almost exactly the same as snow school. And then they gave us a patch.

"That actually made me feel pretty much at home."

Every three years, Boy Scouts of America selects an Eagle Scout, the highest merit of scouting, to participate in the U.S. Antarctic Program. Following in the footsteps of Paul Siple, the first U.S. Boy Scout to come to Antarctica as part of Adm. Richard Byrd's 1928 expedition, Hasse traveled to field camps and vigorously assisted science projects throughout the continent.

"The last thing I wanted to be was a tourist," Hasse said. "I figured my goal was to be as helpful as possible. That was my number one priority."

With the work ethic of a work horse, he had no problem fulfilling that goal. "The harder I'm working the happier I am," he said.

Bright-eyed and bushy-bearded, Hasse never seems to run out of steam. It's a rare occasion for him to be down, he said, only if he's "extremely sick."

"My mom got real frustrated with me when I was a little kid because I was a little fireball. She said 'go to your room or go run around the house,'" he said, meanwhile fidgeting with a pepper shaker for close to 45 minutes.

His hyperactiveness as a child didn't equate to self confidence, however. That's something he developed through Boy Scouts. "I was real reclusive when I was a little kid," he said. "(Scouting) really gave me a lot of confidence in trying new things.

"It gave me a chance to establish my own identity," he added. "I was out on my own hiking and building trails. I wasn't establishing my identity by joining a gang."

Instead, he joined the gang of boys of Troop 510 in Kingsford, Mich., when he was 11 years old and has been a part of the Boy Scouts ever since, even during the height of peer pressure.

"In general, Boy Scouting in high school isn't something that's cool," he said. "Plus, they say the two biggest things that keep you



Ben Hasse, the ninth Eagle Scout chosen by Boy Scouts of America to come to Antarctica, holds the entire continent in his hands.

from getting Eagle Scout are cars and girls."

But Hasse resisted the distractions and is now proving that being a Boy Scout is indeed cool. Simply known as "The Boy Scout" in and around Antarctica, he knew he had a chance to influence people's views on the all-boys club.

"It's great," Hasse said of his nickname. "I have this identity, and, in general, Boy Scouts carries a positive connotation. I actually thought it was a great opportunity to try and meet people's expectations and exceed them."

Indeed, he made quite an impression wherever he went. While Hasse said his reputation of having a big appetite preceded him at most field camps, many remember him more for his neverending initiative.

"Within minutes of landing at Lake Hoare on Christmas Eve, he had helped break down a slingload, carried the gear down to the lab and was in the hut rolling out Christmas cookies," said glaciologist Karen Lewis.

New Zealand diver Ian Hawe, who met Hasse while he was helping service a stream gauge on the Onyx River, said, "Ben's enthusiasm certainly won the hearts and minds of the New Zealanders at Lake Vanda. It seemed nothing could stop him from being ready to help when needed."

Most people who come to Antarctica don't get to visit lakes Hoare and Vanda, and experience all that Hasse has during his two and a half months on the Ice. Days before heading back to Purdue University to continue undergraduate work in forestry and Spanish, he gracefully acknowledged that he was given quite a privilege.

"I had an Alice in Wonderland trip to Antarctica," he said. "Part of my work didn't include chipping (the old yellow ice) out from under (Building) 155.

"I definitely got the best of Antarctica."

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