

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

They dig the Pole

By Josh Landis
The Antarctic Sun

Nearly two miles above the nearest rock, the South Pole is one of the last places you'd expect to find miners. It's a world of snow, ice and cold, where the "ground" holds no dirt.

But it's also the place three hard-rock miners and one coal miner are living and working this summer. They're digging the tunnel that will hold the new station's water and waste systems. More than 40 feet beneath the surface, they will push through 2,000 feet of firn—snow that's as hard as wood and on its way to becoming ice.

When the corridor is finished, two pipes will run through it. One will carry fresh water up from wells melted deep into the ice cap. The other will carry sewage back down when the wells are empty.

Standing at the entrance to the tunnel, the air is numbingly cold. Insulated by layers of packed snow and chilled by eons of subzero weather, the temperature is minus 56 degrees F.

Stepping inside, all noise from the

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Mining foreman John Wright looks down an escape/service shaft for the new water and waste tunnel at the South Pole. Photo by Josh Landis.



Winging it

Erik Barnes takes a walk atop Pegasus, a U.S. Navy Super Constellation that crashed on the McMurdo Ice Shelf in 1970. All passengers and crew survived the wreck. Pegasus airstrip was named after the downed plane. Photo by Josh Landis.

High-flying science

By Jeff Inglis
The Antarctic Sun

In the next few days, a giant floating bubble will appear over Williams Field and climb high into the heavens. It will circle Antarctica for about two weeks, and return to Earth nearby.

The bubble is a helium-filled balloon 100 feet tall. It will carry a scientific payload almost 24 miles into the sky, from which altitude it will still be visible to the unaided eye.

The Flare Genesis Experiment, as the project is called, is looking at the origin of solar flares to determine what causes them. What is known at present is that flares emerge from sunspots in which the magnetic field changes, becomes unstable and erupts in a flare.

"We want to know how flares are born," said David Rust of Johns Hopkins University's Applied Physics Laboratory, the lead scientist on the project.

Using the 32-inch solar telescope, the second-largest in the world, Rust and his team can look at sunspots very closely.

By measuring the polarization and shifting wavelength of the light emitted from

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Waste not, heat not / Page 5

Writing contest winners / Page 8

Dog days of summer / Page 10

"Balloon"—From Page 1

a specific sunspot, Rust and his team can calculate the magnetic field acting on the area.

He and others have spent 25 years trying to put together a space mission to do this work. It would cost \$800 million, though it would yield years of observing opportunities from a space vehicle.

The balloon launch, on the other hand, costs \$16 million for about two

for easy recovery.

During the first 20 hours of the balloon's flight, the scientists can communicate extensively with the payload because it is within line-of-sight. They run tests to be sure everything is working properly, and collect some early data. All data is stored on board for the duration of the flight.

After those first hours, though, the balloon and its payload are only reachable for a few minutes every couple of hours. If something goes wrong, the scientists can load all of their equipment into the back of an LC-130 and fly closer to the payload, to regain line-of-sight communications.

The NSBF team at Williams Field has enough equipment to have the two balloons in the air at once, though that has never happened before in Antarctica. They can only have one at a time in line-of-sight, though, meaning a second launch

can follow the first only after a day or two.

Later this season a similar launch will lift a project run by a research team led by scientists at the University of California-Berkeley and the University of Washington, who didn't even expect to launch their project in Antarctica this season.

They had hoped to launch in Alaska last June, but were unable to. Then, in August, they got a phone call: Another group wasn't ready to come to Antarctica. They scrambled to make the trip, helped by the fact that they'd never really unpacked in June.

"It was all

still in boxes," said Robyn Millan, a graduate student at UC Berkeley's Space Sciences Laboratory.

The instruments will show them more about aurora, the ghostly lights in the sky at high latitudes. Aurora are caused by electrons from space entering the Earth's atmosphere. They release energy in the electrically-charged areas of the upper atmosphere, emitting visible light and X-rays.

The balloon's altitude allows X-rays to be observed before they are absorbed by the atmosphere. The balloon also allows a relatively heavy payload to be launched, as compared with satellites, where weight is at a premium.

Further, while a satellite moves very quickly through a large range of areas, a balloon stays relatively stationary. This permits the researchers to determine whether what they observe is related to the location of its observation or the time of the event.

Millan emphasized the academic value of a balloon-based project, which has a slower timetable than a satellite mission. The extra time lets students take a more active role in the work. They build the equipment, receive the results and analyze the data within the time frame of an advanced degree program.

Also on the X-ray payload is what is called a "piggyback" experiment, using space and weight within the allowed limits but unused by the primary research. NASA is testing shielding materials for space vehicles. Some payloads have been "fried" by the solar energy, which can be absorbed into the payload vehicle and cause overheating of components. ☀



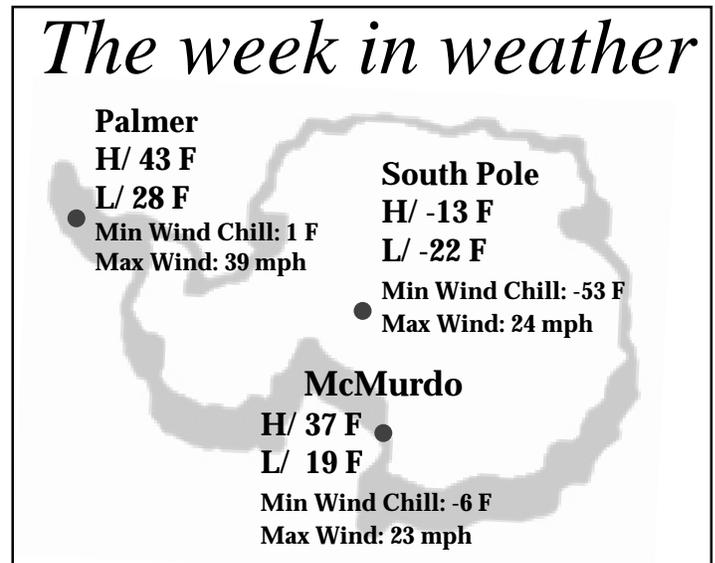
David Rust, Brigitte Schmieler, Nick Konidaris, Pietro Bernasconi and Harry Eaton test the Flare Genesis Experiment telescope before its launch. Photo by Jeff Inglis.

weeks of observing the sun. The last time the telescope went aloft, in 1997, it stayed up for 18 days.

The scientists are supported by the NASA-funded National Scientific Balloon Facility, based in Palestine, Texas. The facility takes care of elements of the project apart from the telescope and its housing.

"We provide the vehicle, we provide the telemetry system," said Steven Peterzen, the NSBF's on-site coordinator. The facility's staff also rigs the balloon, performs the launch, monitors the flight, and pops the balloon to end the flight. But even then, the job isn't done. The payload's valuable instrumentation must be recovered.

"We do this all over the world," Peterzen said. Antarctica is a good place to send up balloons because of the emptiness of the space, but more importantly because of the regular wind pattern which stabilizes over the continent in midsummer. The balloon, when launched from Williams Field, will circle the continent and most likely return nearby, to be brought down on the Ross Ice Shelf



Letter to the editors **In Brief**

Let's get priorities straight

The holidays are upon us, and the station is rejoicing in the fact that the package mail has just made it through before Christmastime. Again. I, unfortunately, am bothered by the apparent hypocrisy that encroaches upon the spirit of the season.

There had been many grumbings about the absence of package mail on the flights from Christchurch. This is, of course, understandable. ASA, in turn, reminded us that package mail was "last priority," behind science cargo, emergency supplies and a list that went on ad nauseam. This, while unfortunate, was also understandable.

According to the U.S. Postal Service, ASA does have the right to prioritize our mail right to the bottom of the list. (Believe me, I asked them.)

What bothers me is that suddenly (according to priorities that were made painfully clear to us) there must be a complete lack of priority items to be sent down to McMurdo. And so, happy day, that lowly package mail gets its trip down to the Ice. In a remarkable coincidence, this happens every year, about a week before Christmas.

Don't get me wrong. I am (as are we all) happy that the package mail is here. What I would like to say to the all-powerful prioritizers is, don't patronize us. If most of the package mail is going to be held back until Christmas, tell us! Straight out, and ahead of time, before the season. We are big boys and girls: We can take it.

But please, don't throw the priority list in our face as a reason for the delay, and then expect us to be grateful when the "miracle mail flight" comes through. Give us the credit we deserve as adults, and hard-working employees.

I wish everyone the best for this holiday season.

—Ralph Horak

Pole at the millennium

The most remote place on Earth will be bustling this New Year's. Skydivers, balloonists, skiers, tourists and TV crews plan to converge on the South Pole to ring in the new millennium.

As the 20th century gives way to the 21st, the Pole has a special significance because it's the only inhabited place on Earth that occupies every time zone.

As part of a worldwide "Millennium Broadcast" going out to a potential audience of a billion people, a four-person camera crew from WGBH public television in Boston will provide several live segments from the Pole.

Starting at the stroke of midnight, the team will interview scientists and support staff about their life and work at the station. It will be one of only a few times that live television has been broadcast from 90 degrees south.

The biggest event planned for Pole, a skydiving and hot-air ballooning extravaganza, appears to be on track. The Russian-organized operation, dubbed "The Millennium Expedition," intends to bring dozens of parachutists and balloonists to the polar plateau to usher in the New Year high in the sky.

As of early last week, the adventurers were reportedly gathering in Chile, preparing to make the flight to the privately-operated Patriot Hills runway in Ellsworth Land. The team then intends to travel in 10 six-wheeled "Snow Bug" vehicles across the polar plateau to the Pole, arriving by December 30.

That plan has raised serious concerns among U.S. Antarctic Program officials, who fear the influx of visitors may interfere with critical science and construction work, as well as imperil the visitors' own lives. The last parachute jump at Pole, two years ago, resulted in the deaths of three skydivers, whose chutes did not open.

In other millennium happenings, Adventure Network International, which offers expedition support and tourist flights in Antarctica, plans to fly up to 10 clients to the Pole from the Patriot Hills.

Various traverse parties may also achieve the South Pole by New Year's Day. A team of four Singaporeans skiing from the Patriot Hills was last week reported to be about 150 miles from the Pole.

Other expedition teams, including a nine-person Adventure Network International traverse group and a five-woman team from the United Kingdom, are also headed toward 90 degrees south, but their estimated arrival time is unknown.

First sunrise of the year 2000

After extensive calculations, the U.S. Naval Observatory has determined that the Dibble Glacier in East Antarctica will see the first sunrise of the new millennium.

According to the observatory, the headland between the glacier and Victor Bay, on the Adelie Coast at 66 degrees south, will witness sunrise at 12:08 a.m. on January 1, 2000.

The first place the sun will actually rise is along the International Date Line, and Dibble Glacier is the spot farthest south along that line, yet north of the Antarctic Circle. South of the circle, the sun will have been continuously above the horizon for months.

The first populated place where the sun will rise on January 1, local time, is at Kahuitara Point on Pitt Island in the Chatham Islands, a dependency of New Zealand.

The sun will rise there at 4:49 a.m. local time. ■

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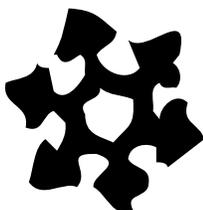
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Contributions are welcome. Contact the Sun at sun_news@mcmurdo.gov. In McMurdo, visit our office in Building 155 or dial 2407.

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



Happy Holidays from the Store Folks! 

We are open Sunday, December 26th, 11 a.m. to 4 p.m.

Holiday schedule for New Year's weekend:

Closed Saturday, January 1st

Open Sunday, January 2nd, from 11 a.m. to 4 p.m.

Speaking of Science...

Of ice and Adelies

By David Ainley
Special to the Sun

Earlier this year, using annual counts of breeding pairs of Adelie penguins at capes Bird, Crozier and Royds, plus satellite imagery of the sea ice from 1973 to 1997, we discovered that the ice extent during winter in the Ross Sea has a major effect on Adelie penguin colony growth.

We found that a lot of ice that extends far north from the continent during winter leads to colony decline; but minimal ice extent leads to colony growth.

Adelie penguins that breed at sites on Ross Island spend winter near the pack-ice edge, wherever it may lie. There, daylight is sufficient for them to see and the ice pack is open enough to permit access to the ocean. We believe extensive ice may force the penguins to winter well beyond food-rich waters. In such conditions, young, inexperienced penguins apparently starve and, subsequently, their numbers are lost to the breeding population.

These findings explain about 30 percent of the annual variation in population size at capes Bird, Crozier and Royds. Thus, other factors are important, too. A major one, we believe, is "local" ice conditions in November when the penguins are arriving to breed, having trekked hundreds of kilometers from the pack-ice edge where they spent the winter.

What likely affects the ease of this journey is how large the Ross Sea polynya has been. The polynya is the area of open water that extends north from Ross Island during the



Photo by Michael Rutz.

spring, depending on how strongly the katabatic winds have been blowing. If the winds have been strong and persistent, open water is extensive and the penguins can swim much of their journey, at about 7-8 kilometers per hour. If they have to walk over the pack ice, at 1-2 kilometers per hour, it takes them much longer. The longer trip uses up more of their precious fat stores.

What does this mean? Basically, it means sea ice conditions are critical to the well-being of Adelie penguins. Indeed, Adelies don't occur where there's no sea ice, but neither do they occur where sea ice (especially fast ice, as in southern McMurdo Sound) persists for most of the summer. Ultimately, sea-ice conditions on a local scale may explain why there are 300,000 breeding penguins at Cape Crozier—

closest to the polynya—and only 4,000 at Cape Royds, farthest from the polynya. In between are colonies at Cape Bird and Beaufort Island, with about 80,000 breeding penguins each. But why has the colony at Royds increased in size 300 percent since the 1960s; that at Bird about 150 percent; and that at Crozier only slightly, if at all? Why has the large colony, seemingly, fallen out of favor?



Photo by Michael Rutz.

To answer these questions, we are comparing the "quality of life" of penguins in a "big city" (Crozier) and a "small town" (Royds). We're interested in gathering data both in summers with little sea ice (as in 1996-97 and 1997-98) and with a lot (as in last season and this one). We've developed a computerized scale that, before weighing a penguin as it walks across, identifies it by reading a bar code each penguin in our study-group wears. The penguin's identity and weight are recorded before it feeds its chicks, then after. The difference in weight is the amount of food delivered; the identity also tells us how often the chick was fed.

We also attach tiny radios to about 15 birds at each colony and then, using triangulation, determine how far from the colonies the birds are feeding (as a function of sea-ice conditions, of course). And, to another sample, we are attaching little computers that tell us how much of foraging trips are spent traveling versus diving (and the depth to which they dive, and how often). We also measure nesting success (number of chicks fledged per breeding pair) and the growth of chicks (how fat they get before heading off to sea on their own).

To gauge the effect of winter ice conditions, we band a sample of adults and chicks each season and then look for their returns the next. The proportion that return tells us the extent of over-winter mortality (and the satellite images tell us where the ice edge has been and where the penguins likely have wintered).

Where is all this leading? Basically, we believe that with warmer air temperatures, which have been documented around Ross Island over the past several decades, the patterns of sea ice have been changing in the Ross Sea. The ice may be less compacted and less extensive now than it was in the 1950s and 1960s. From what we observe, we can predict where the Ross Sea Adelie penguin colonies are headed, growth-wise. ■

David Ainley, of H.T. Harvey & Associates, is the principal investigator of the project entitled "Factors regulating population size and colony distribution of Adelie penguins in the Ross Sea."

Heating with waste, wasting less heat

By Jeff Inglis
The Antarctic Sun

Facilities engineers are building two kinds of energy-saving networks around McMurdo Station. One network, of pipes, permits them to heat buildings at little cost. The other network, of wires, lets them centralize monitoring and control of heating systems in buildings around town.

Until recently, the power plant's engines were cooled by giant radiators sitting behind the plant. The energy, called "waste heat," escaped into the air. Last week, that changed.

Rather than transferring excess energy to the outside atmosphere, waste heat is now warming three McMurdo buildings. Facilities engineer Jim McAdam puts it another way: "We'll do all the cooling of the engines with the town," he said.

This is not the first time waste heat from the power-generation process will have been put to good use around McMurdo. When flash evaporators were used to purify seawater into drinking water, excess heat from the power plant was part of that process. As well, the water plant has been heated with waste heat since Winfly 1998.

The new system came online in Cray and buildings 155 and 165 on Monday night. Eventually, the project will include the science cargo building, the firehouse, the hospital and the dorms.

"It went real well," McAdam said of the changeover to waste heat.

It works like this: The water cooling the power plant's engines will radiate heat to a loop containing a 60-percent glycol, 40-percent water solution. That solution will be pumped to buildings heated with the waste-heat system.

The buildings' existing heating will remain in place as backup, and will automatically kick in if the primary system has problems. There is also a large boiler at the beginning of the waste-heat

loop that can substitute the engines' waste-heat supply.

With waste heat as the main heat source for major buildings around town, boiler emissions will drop by 25 percent and over 450,000 gallons of fuel will be saved each year.

"It's a win-win deal," McAdam said.

The use of waste heat effectively doubles the efficiency of the engines. At present, only 31 percent of the energy put into the machines as fuel emerges as electricity.

The remaining 69 percent is emitted in exhaust and radiation from the engine itself (39 percent), and the heat removed by internal engine coolant (30 percent). It is the energy removed by internal coolant that will now be used to heat buildings.

The plan is also to replace the existing power plant with newer, more efficient generators. At that point, heat will also be collected from the machines' exhaust and added to the waste-heat loop.

The layout of McMurdo is ideal for this type of project, McAdam said, because the power is generated close to the community it serves. Thus, it is relatively easy to move the heat around town.

The added efficiency of the waste-heat project is enhanced by other heating-system work going on around station.

As the engineers install waste-heat equipment in buildings, they are also checking for sources of potential heat loss. Changes to Cray's heat flow have cut the building's heating requirements by half.

"We're identifying key heat-wasting points," McAdam said.

Another part of the project, which is also being piloted in Cray, is a remote system by which technicians in the power plant can monitor heating equipment around the station from a computer terminal.

Instead of having to go to each

building to check equipment and temperatures, automated sensors throughout the new heating system will make those checks continuously.

One benefit of the new monitoring system will be a better understanding of how heating problems happen.

Rather than solving individual problems called in by building occupants, a technician will be able to look at a whole building at once to see where the real problem is. For example, if a building is too hot because it's not venting air properly, a repair can be made to the vent rather than to the heat supply.

The monitoring system also increases the efficiency of the waste-heat supply system. Along with variable-speed pumps, electronic monitoring permits fast response to changes in demands for heat around town.

"You just pump exactly what you need," McAdam said. "It's a little bit of new technology down here, but anywhere else it's not."

The project is ahead of schedule. Cray was the only building planned to come online this year, but buildings 155 and 165 are also being added now, rather than next year.

"We'll have the whole project paid for before we finish," McAdam said. It's a seven-year plan that will pay for itself in less than three years.

"We can put in as much energy as we need and stop wasting so much of it," McAdam said.

McAdam is very proud of the team working with him on all the changes to the heating system around McMurdo.

"Those guys have put a lot of heart into this," McAdam said of the workers who spent the winter on the project.

The bottom line, he said, is most important for the entire team. "When I leave we'll be using less energy than when I arrived." ■



Check out the Sun websites of the week:

ASA subcontractors online

<http://www.borekair.com>

<http://www.phihelico.com>

Petroleum Helicopters, Incorporated

<http://www.space-mark.com/>

Space Mark

Kenn Borek Air

Our Antarctic Week

Monday

Tobias Schunck slide show, "Trip on the Natty B", 8:30 p.m., Galley

Tuesday

Learn to skate ski, 7 p.m., signup at the Recreation Board

Wednesday

Masons gathering, 7 p.m., Coffee House
Acoustic music, "Boom Mancini," 8-10 p.m., Coffee House
Monty Python movie, 8 p.m., Southern Exposure

Thursday

Post your New Year's resolutions on the Recreation Board, Highway 1

Friday

New Year's Eve bash, 7 p.m., Scott Base

Saturday

Icestock including chili cook-off, noon

If you have an item for the weekly calendar, e-mail us at sun_news@mcmurdo.gov, call 2407, or drop by our office in Building 155.

Faces on

What's your favorite kind of Antarctic wildlife?



"My wife, the help desk chick"
Mike Keutzer
Network engineer



"The soon-to-be-extinct ASA full-time employee"
Ralph Horak
troublemaker



"Adelie penguins"
Kirsten Wade
Environmental technician

Ross Island Chronicles by Richard Perales



How about for all of mankind to get along?



And what are you asking of Santa this year, my misguided American scientist amigo?



Sorry, you can't ask for the impossible. How about an Antarctic cod with plenty of Omega 3?



surface is silenced. The only remaining sounds are breathing and the squeaky, Styrofoam crunch of snow underfoot.

Sizing up the cobalt-tinted corridor, John Wright is in his element. Foreman of the tunneling team, he takes as much pride in his men as he does his work.

"What you have here is four of the best miners there are," said the gravelly-voiced, hard rock miner. Wright has dug tunnels for decades, but he's one of very few ever to do it at the South Pole.

He put together a crew comprised of Joe Kushner, Ray Medina and Richard Clements. All career miners, they have come together at 90 degrees south for the National Science Foundation.

Their job isn't simply to dig a tunnel from point A to point B. They could do that with chainsaws and pick axes. But the NSF wants a larger tunnel than they could dig by hand, so they're using a motorized tunneling machine.

It's an electric-powered, track-mounted vehicle with a six-foot-wide face of rotating blades mounted on an arm. The arm moves up and down as the machine advances. A long vacuum duct sucks the shredded snow to the outside world.

Running the tunneler has been a challenge. It's had breakdowns. Parts are hard to replace or take a long time to arrive. It's difficult to know if the tunnel is staying true to its intended course, because the whole machine shakes and shudders as it claws its way forward.

The miners dug an initial pilot tunnel by hand. Though smaller than the path the machine cuts, Wright says in some ways it is easier to advance with chainsaws and pick axes, hauling the tailings out on banana sleds. They don't need to stop if the machine breaks and they can use tried and true mining methods, which have gotten them through countless mountains before.

But these are no polar John Henrys. They are working with, not against,

the machine and say they're getting past the obstacles.

"When we're done, you'll be able to look down tunnel and see straight as a rifle," Wright said.

Keeping the tunneler up and running was a challenge met, in large part, by Medina. A private gold- and silver-mine owner in the States, he's also an experienced machinist and mechanic.

Medina, however, left the Ice early, taking his talents with him.

The remaining men will pull through without him, but Wright said Medina was a valuable member of the team. "Ray was a top hand and we'll miss him."

In addition, the ice could provide troubles of its own. Tunneling beneath the surface of the South Pole, the miners are also digging into the past. Unknown debris, lost airdrops, old fuel depots and even forgotten vehicles may litter the subterranean landscape, waiting silently to be discovered.

"We're digging at the level of human occupancy," Wright said.

The late 1950s, to be exact. It was the beginning of the U.S. presence at the pole, and a lot of materials were undoubtedly lost to drifting snow and advancing years. The entire team is constantly on the lookout for any buried surprises. If they find any large ones, they have dynamite along to blast it loose.

All of the miners share a passion. It's one that people who have made their living on top of the Earth, rather than in it, may not completely understand.

For Medina, his livelihood and his heritage are one.

"I love mining," said the mustachioed Medina. "It has been my life since I was 12 years old. I started in Mexico, with my uncle. He taught me the old ways."

Wright and Clements echo the sentiment with their own enthusiasm.

The four men working deep beneath the surface at Amundsen-Scott Station this summer have traveled far and wide to do their work. Now, it has truly taken them to the ends of the Earth. ●



Ray Medina hauls a banana sled full of excavated ice out of a hand-dug pilot tunnel at the South Pole. The final corridor will be 2,000 feet long. Photo by Josh Landis.



Contribute to McMurdo's Millennium Time Capsule!

Seeking small mementos, images, journal entries, etc., to commemorate the millennium and to be opened in 25 years. Bring to the McMurdo Historical Society meetings, Sundays at 6:30 p.m. in the Library, or contact Ed Anderson at andersed@mcmurdo.gov. Deadline is January 20.



Living Land
By Kenda Andersen

she is an entity all to herself
but vitally connected to the whole
an indicator of change and destruction and integration
a masterpiece not many have the chance to contemplate
she is brutal in her transformations
relentless in her forgiveness
she is powerful, sacred
a continent all her own
a force quietly lingering
with a strength scarcely shared
she breathes, she sleeps, she gives birth
and provides home to a multitude of God's creatures
all seeking success in a harsh reality
nature's highest act of selection in flaming force
possessing an unfathomable beauty
she tempts
the adventurous, the unknowing, the fates
and they wind their way across her icy vastness
her stillness, her silence, her reckoning
and they come to question everything they've known of themselves
everything they've pondered or branded upon their skin
and she molds and shapes and reforms them
they lay like infants in the cold silence of her warmth
and when they are helpless
and reach for the truth
that keeps the rhythm of her seasons
you'll know antarctica has
changed you in a way
no human can comprehend



Photo by Josh Landis.

The Antarctic Sun



Poetry and Fiction Contest

Out of 15 entries, our panel of judges has selected the best poems and stories of the Antarctic Sun's 1999 Poetry and Fiction Contest. First place winners receive an Antarctic Sun T-shirt; runners-up will get a Sun mug.

This year's judges were: poet and creative writing instructor Susan Allspaw, author Lucy Jane Bledsoe, and Sun co-editor Aaron Spitzer.

Thanks to all who participated.



Untitled
By Stuart Klipper

Staging point, depot
McMurdo
Outpost, home, harbor
McMurdo
Heft and deft reckoning
McMurdo
and so forth...

Here at Ice edge,
at Life's edge,
this dirge or chantey
or litany a la
Sandburg in Chicago.

Our McMurdo, our Chicago.
A hard working town too,
cold and off,
working heavy and handily,
No hogs this Chicago, cod,
and rigor, vigor and thrust
Nor anything second,
this city,
or secondary,
just a prime moving and
well-founded first.

Fiction

Helge

By Darren Blythe

I have been following the man for some time now, for how long I don't know. He walks through the flying whiteness, away from the others. I follow and he doesn't see me. Not yet.



I have been wandering alone under the blue and white ever since I left my friends, since I left in the way that this man is doing. The air moves quickly and he leaves little trace of himself as he walks, a grayness in my eyes among the white in the air, but little else, no sound, no smell, almost completely eaten by the air swirling around us. But he walks slowly and I keep up.

I remember a time before this place, but dimly now, like a warm dream, a dream of home long unvisited. Trees and water, mud, food, companionship. I remember these things through the moving white air and wish that I might experience them again.

The man sits to rest, and I approach him slowly from behind. He is still unaware of me. I will follow for as long as it takes. Time is not among the many things that I have lost.

It was a hard pull up to this place, up the great white broken rivers, pulling as if for Valhalla. Ever upward against the burning hunger and thirst. Even water is hidden here.

The man still sits, but he has already begun to change.

There were not many of us left when my strength began to fail. I fell and was dragged more than once. But eventually we stopped for a long rest, much needed. It was cold but good to lay in the sun.

I walk around to the front of the sitting man, and he starts momentarily, but does not rise.

I was led away from the others after resting. The man with me then, eye-water freezing on his face, led me away and shot me. I watched as I was cut and fed to the others.

And now the man in front of me can see me, and smiles.

I lick his hand and he rubs the fur behind my ears and laughs. He has the sleepy smell of death; it is much stronger on him than on the unchanged companions he left behind in the tent. He stands, looking down at me with relief. The hunger and thirst and cold are gone.

We walk away together, leaving behind an outstretched dim grayness that the white is already beginning to swallow.

Luck O' The Ice By Brennen Brunner

I decided to start digging a hole. Zane Grey has done a lot for me over the years but he wasn't keeping me warm, so I put down my book, grabbed the spade shovel, and had at it. This morning we got up early and laid out two cargo lines to make sure all the important stuff, cores, sampling equipment, the science party, all ended up on the first flight; I'm trying not to take it personally that they left me here with a fuel drum and the folding chairs.

I've handled a shovel a fair bit in my life but I wasn't in any kind of hurry. It wasn't like I was trying to get to China. Real lackadaisically I drove the head in, stood on it, pried blocks out and shuffled them away. I dug wider to get in deeper. If nothing else I was nearly at the point where, when I got tired, I could drop the chair in there and read out of the wind. Imagine my surprise when I hit something solid, with a little bit of give.

I dug quicker, and not too gently, curious what this lump might be. Inside of a foot I excavated it, and threw it up to the surface to break off some of the snow. Climbing out, I was shocked to see that I'd uncovered a frozen little green man, with no apparent pulse. Knowing that you shouldn't do CPR on someone in such a state, I half unzipped my big red parka and stuck him under my armpit to try to warm him up. Within a few minutes, miraculously, he started coughing.

I pulled him out of my jacket and looked at him more closely. "You're a leprechaun," I said. The creature just stared at me. "You're supposed to be in Ireland."

"Ye find dinosaur bones 'round here," he said. "Cut me some slack."

"But then," I blurted out. "I get three wishes."

"Ye didn't find me pot of gold," the green man said. "But I'm not ungrateful. I'll give you one."

"Can I have some time to think about it?"

"From me to you," said the leprechaun, "I'd make that wish while ye still had yer hand 'round my skinny green neck."

"Sorry," I said, and relaxed my grip. The idea of a wish, any wish, was dizzying to me. Anything I wanted. But I was afraid too. These mystical creatures were a tricky lot; this one, it seemed, especially so. If I asked to be rich and loved by millions of women I'd probably just end up miserable somehow, with a withered hand. I had to keep it simple.

After some time I cleared my throat and tried to keep from shaking. "I'd like a sandwich."

"What kind of daft wish is that, dumb ass?" While the little man spoke with a charming brogue, some of the charm was beginning to wear thin.

"Whatever I wish for you'll trick me," I shouted back at him. "You'll just make everything worse!" I wanted package mail, flowers, a hug and a pizza. But all these things would come soon enough. I briefly considered making the ice turn green, but that wouldn't be a thrill; it only took about 30 seconds to get used to it being white. "I'm hungry," I said, not looking at the man but out along the sastrugi where the horizon should be. The light was getting flatter. "I just wish I could get out of here."

As soon as I said it I gasped. The leprechaun gave a little laugh; there was a blinding flash of light and I stumbled backward, only to trip on my shovel and hit my head. I lay on the snow for awhile, orange moons and yellow diamonds dancing before my eyes.

When I sat up the leprechaun was gone. I stayed like that for several minutes, listening for the sound of rotors in the wind. Finally I fished into my pocket and pulled out "Rangers of the Lone Star," and found my place. I checked my watch. If I got picked up anytime soon, I might still make lunch.





PROFILE

Running with the dogs

By Jeff Inglis
The Antarctic Sun

Dogs. Roald Amundsen sped to the South Pole behind them. Robert Scott couldn't get them to work. Shackleton's men, unable to feed them, shot them.

Peter Cleary, now Scott Base's operations manager, took care of Antarctic dog teams and worked with them for three years. One of those years, in the late 1970s, he was at Scott Base. For the other two, in the mid-1980s, he was with the British Antarctic Survey on the Antarctic Peninsula.

"My main job was field support," Cleary said. In 10 summers on the Ice, this is his second season actually stationed at a base.

He remembers the dogs fondly. He was the handler for two teams of up to 12 dogs each in the summer of 1978-1979 and the winter of 1979. The dogs were big West Greenland huskies, bred for stamina rather than speed.

Though not used as extensively in the late 1980s as they had been in earlier years, Cleary said the dogs were involved in work on the sea ice and in crevasse areas.

The dogs were slower than vehicles, which gave them a safety edge.

"Some of them became aware of things like crevasses," Cleary said. They would stop rather than go into a dangerous place. Others, he said, would fall into any hole that happened to be in front of them.

The dogs were around mainly because they always had been.

"They were a historical artifact," Cleary said. "Psychologically, they were really good on the base."

In winter, during the few days a month with constant moonlight, running the dogs was easy. In darkness, though, it was tough.

Just before Winfly, Cleary would take a team to Cape Royds, partly to get them into condition for the pulling season, but also to check out the sea ice conditions, which were sometimes treacherous.

"You can always pull a wet dog out, shake him a bit, and make him run around a while," Cleary said.

Handling dogs was a challenge for Cleary, who had some experience with farm dogs in New Zealand, but considered his work on-the-job training.

After three years, he said, "I could consider myself a mildly competent dog handler," but gave more credit to the

dogs than to himself.

The dogs, he said, were very much individuals and had to be understood. Notes from previous years' handlers were helpful, but experience was the real key.

It was a chance Robert Scott never gave himself. Dog handling, Cleary said, is a hard thing to learn.

Scott was versatile and tried dogs, ponies and motor vehicles. But he had particular problem with the dogs.

"They're not pets and never were," Cleary said. That was likely part of Scott's problem. Scott was unable to think of the dogs as workers. Instead, he thought of them as companions on the journey.

"If he'd put as much effort into maintaining his dogs as he spent maintaining the ponies, he would have had a lot more success with the dogs," Cleary said.

Cleary had a good measure of success, traveling up to 1,300 miles in a single season, over to White Island, up the Blue Glacier, and to Cape MacKay. But he stresses that those trips were low-key compared to sledging seasons in the heyday of dog teams, which saw multiple journeys of over 2,300 miles throughout the summer.

They always wanted to work, which often made for a bit of an exciting start to a trip.

"In the morning there's always this insane first half mile," Cleary said. But mostly they were slower than vehicles, which wasn't all bad. "Sometimes you need to

slow down around here," he said.

The dogs also pulled pranks, Cleary said. "Their favorite thing was to cock their leg on people's legs and piss in people's mukluks."

But the dogs became a political issue. During the summer, they ate the food waste from McMurdo and Scott Base. But during the winter they ate seal. The meat was good for its high fat content, but killing seals became unpopular.

In 1984 at a meeting in Madrid, the countries with Antarctic programs decided to phase out the use of dogs.

In 1986 New Zealand's dogs left Scott Base for good. "I think at the time we didn't really realize it was the end of an era," Cleary said. "The whole business of their removal wasn't just with the Scott Base dogs."

The British, who had used their dogs very intensively through the early 1970s, didn't take their dogs out until 1993.

When they left, Cleary said, "it was a sad day but it had a degree of inevitability. I regret they're not here."

He still misses one of his favorite times with the dogs, "listening to them in full throat on a moonlit night." ■



Betty, one of the Scott Base dogs, in October 1979.
Photo by Peter Cleary.