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The Antarctic Sun

November 29, 1997
Every Two Weeks

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Nematodes: Lions of the Dry Valley

An Ecosystem in Review

story and photos by Alexander Colhoun

Saw-toothed peaks stretching up into a breathless cobalt blue sky did not distract Amy Treonis, a blonde-haired graduate student, from her search for worms –microscopic worms. Down on her hands and knees she delicately scooped samples of arid, sandy soil into plastic bags in hopes of gathering her unlikely subject: the Scottnema lindsayae, or nematode.

Smaller than the tip of a sewing needle, the nematode is this region's African lion, the dominant organism at the top of the food chain.

Scanning the windswept Taylor Valley, an area devoid of snow and ice, the planets driest region, it is difficult to imagine anything living here, particularly in the gravel-like soil that carpets the valley floor. Mantled in darkness half of the

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INSIDE

Cross-Ice Lifelink

Fueling Willy Field

by Susie Brown

photo by Alexander Colhoun

Bob Gilmore inspects an attachment on the 7.5 mile fuel line to Williams Field. On December 6th the ice runway is scheduled to close, moving all McMurdo air operations to the permanent ice shelf.

Twenty-five seven-foot high orange reels are lined up below Observation Hill. There, two Carhart-fitted workers in wool hats guide 1800 feet of thick collapsible lay-flat hose from one reel to another.

Close to 30,000 feet of this six-inch diameter fuel hose will be laid out to Willy Field this week in preparation for moving the landing strip there from the Ice Runway. It takes four days to check the fuel hoses and six full shifts to lay the 7.5-mile line that starts at the Scott Base ice-to-land transition. The hose is connected to hard pipes at the transition and run back to a farm of fuel tanks at the pass where the AN8 aircraft fuel is stored.

"We're prefabbing," says Bob Gilmore, a second-year fuels operator. "We don't want any leaks springing out of the hose." After a few more rotations of the reel, one of the hose connections that occurs every 660 feet slides off a reel and onto the ground. Gilmore straddles it, pulls out his torque wrench, checks the torque between the hose connections, marks 'OK' and the date directly on the hose, then draws a dark line around each connection with a fat black marker. "This is to make sure the connections aren't stretching out," he said.

The hose, which holds 47,500 gallons of fuel, supplies aircraft at Willy Field, and is kept full at all times to keep it from blowing away. With the help of Fleet Ops, the "fuelies", pack each section with fuel as they lay it, testing for leaks as each reel is emptied. There haven't been any leaks in the four summers that ASA has manned the fuels Department, but some of the hose is old and some of the connections may be cracked.

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Happy Campers

story and photo by Alexander Colhoun

Using tents of the same design Scott used 100 year ago, two happy camper school students plant 'dead-man' devices to hold the tent down in strong winds.

Dave Green synched his parka hood down tight. All you could see of his face was a sharp nose and two eyes peering out from behind a tuft of coyote hair that fringed his vision. Staring out into the hollow blue expanse as a gentle wind rippled over the canvas tents behind him, Green fell into an Antarctic trance.

Lying in the hard-packed snow at 12 a.m., surrounded by a crystalline wilderness stretching out in all directions for thousands and thousands of empty miles, is just one of the intangible rewards of Antarctic survival training, or Happy Camper School.

The educational model is time-tested: learn by experience. "We can lecture all day but you just don't get as much out of it," said Vince Langmann, the instructor and mountaineering veteran. "You really learn by doing out here. We emphasize the practical, using stoves and setting up tents, that's what sticks in your memory."

Lost in a whiteout with a survival bag and a snowmobile that won't start, one hopes Langmann is right. The goal of Happy Camper school is to teach skills necessary to survive in isolated situations, when rescue is impossible.

From the start Langmann emphasized the need for vigilance in Antarctica and shared horror stories of those who had failed to heed his advice: like the scientist who left his survival bag behind as he raced by skidoo between experiment stations. A freak storm caught him off-guard and within minutes he became lost in a whiteout. The scientist survived, barely, by wrapping himself in a tarp.

Complacency and arrogance are easy to succumb to when departing for field camps or even short jaunts out of town when the sky is a booming blue and winds are mild. "In minutes the whole scene can change and you can be in a world of trouble if you're not prepared," said Langmann.

Preparation begins with a bright orange survival bag, filled with everything from a tent and ice screws to meal rations and sleeping bags. The bags hold enough gear to safeguard two people for three days and must accompany every helicopter, tracked vehicle, and snowmobile that departs McMurdo's limits.

The massive orange colored Nodwell vehicle that pulled Langmann's crew out of town to the sea ice was built in 1972 and stands 20 feet off the ground. Designed for exploratory work in Arctic oil fields, the Nodwell is well-adapted for Antarctica's titanic size, crushing over mounds of ice and snow without hesitation en route to Snow Mound City, the field camp.

Snow mound it was, city it wasn't. As far as the eye could see in all directions: nothing but snow. In an emergency, finding shelter would be all but impossible without a tent or tools to build a snow cave or igloo. Thus, one of the first assignments was tent building.

Designed to match the tents Robert Falcom Scott used on his early expeditions to Antarctica (the same one he died in), the simple canvas and pole structures happy campers learn to set up can withstand winds that gust over 100 mph.

While impressively stable, it is the tents shape that captures the imagination. The pyramid design reflects a surreal link between this ice covered desert and those of sand. Even the snow, flowing across the ice sheet in coiling waves, is reminicent of sand crossing the desert. The only difference is the cold.

Between tent building lessons the group took shelter in a one-room Jamesway tent. Solid green, covered with an insulated fabric, and concave in shape, the Jamesway tent somehow lives up to the expeditionary ring of its name. Inside, the group learned to use Whisper-Lite stoves and talked through various dangers that present themselves in a typical Antarctic expedition –from mechanical breakdowns to engine fires.

While impressively stable, it is the tents shape that captures the imagination.The pyramid design reflects a surreal link between this ice covered desert and those of sand.

All of this preparation was starting to sound fatalistic until the winds kicked up. In a matter of minutes the Jamesway was shaking so violently it seemed the seams would tear apart. And just as quickly the winds died down again, revealing blue skies above.

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Barrels of Fun at Lake Hoare

story and photo by Terri Watson

Paula Adkins' afternoon began by wrestling a 55-gallon urine-filled drum over rocky ground to a cargo net. Adkins is the Lake Hoare camp manager and the drum is part of a cargo netted slingload, one of 70 she will build this season for helicopter transport.

Everything at Lake Hoare, and all Dry Valley camps, travels by helicopter. The urine-filled drum weighs well over 400 pounds. That's a lot of weight for Adkins, a wiry 108 pounder. To assist her, Adkins uses a special bent metal tube. "This bar lets me tip over and stand up barrels by myself, which is a tremendous help since it can be hard to get someone to drop what they are doing, walk across camp and help me roll barrels of urine around."

Keeping a busy field camp well-supplied and functioning smoothly is a big job, but Adkins appears to thrive on it. Lake Hoare averages ten residents at any given time during the summer. About 28 grantees and an even larger number of support personnel are expected throughout this season, some for just a few hours, some for days.

"Everyone here eats, drinks, pees and poops," said Adkins. "Balancing that with meeting the research and living needs of the community here gets pretty complicated and labor intensive." Stringent environmental guidelines help keep human disturbance of a delicately balanced ecosystem to a minimum, but even simple necessities can entail a lot of effort, like making water.

A trip to the nearby glacier yields a harvest of basketball sized ice chunks from an icefall. Hauled by sled over the frozen lake surface, they are hand-carried up the hill to a bin next to the cookhouse door.

Inside, a five gallon pot resting atop a preway heater is fed ice chunks to keep the water level high throughout the day – much the way a homesteader might tend a fire. All of the camp's fresh water is produced this way as Lake Hoare's water is both saline and environmentally protected.

McMurdo's two-minute Navy showers are luxuries to Hoare residents. "Sunday is shower day," explains Adkins. "Saturday night we heat the lower Jamesway and put a pot of water on the preway so it is good and warm the next morning. One by one, we go on down, stand in the drip pan, and luxuriate in the hot wash. Everyone just gets one solar showerbag full so that there is enough water." As clean bodies return to the cookhouse, there are admiring comments, and the next eager bather heads down. In the end, no more than a large pot of gray-water has been collected for return to McMurdo.

Despite the use of gray-water evaporators and propane fed rocket toilets that burn human waste, sixteen 55-gallon drums of urine and graywater, plus an additional five 20-gallon containers of solid human waste were retrograded to McMurdo last season.

"Everyone loves the rocket toilets," said Adkins. "You can poop and pee in the same place. But if nature calls while you are out of range of these facilities, you still have to contain all of your liquid and solid waste in pee bottles and plastic feces bags, then bring them back with you."

Without these regulations the valley would be a mess and the ecosystem irreparably altered. Nothing decays quickly in Antarctica, particularly in the Dry Valleys. Lack of moisture and bacteria allow anything organic to last for years.

Moving waste is just one aspect of Adkins job, another is coordinating the movement of supplies. Minimizing trips and maximizing loads is the name of the game.

"Things we order from town usually get here pretty fast," observes Adkins, pausing mid-chore to prepare for the arrival of another helicopter filled with scientists and gear from nearby Lake Fryxell. "But being 30 minutes from McMurdo by helo is a mixed blessing. The helo hours we are allotted are limited. It is not that hard to get what you need, but you can spend $300 for a loaf of bread if you don't plan well."

Among other functions, Adkins serves as a central logistical clearing house for some of the other Long Term Ecological Research projects at Lakes Bonney and Fryxell.

"It can get really complex, but Paula does a great job with all the details and really makes it work smoothly," said Robin Abbott, McMurdo's senior helicopter coordinator.

With 446 helicopter missions flown to Lake Hoare last year, Paula is kept busy. "Sometimes people ask me what I do all day, and I swear, I just carry stuff around, except when I'm doing everything else that I need to get to," Adkins says with a big grin.

The demands of running an air-supported camp like Lake Hoare are myriad, yet Paula has worked in Antarctica for six seasons. "As much as I complain, I really do love my job," said Adkins with a smile as she heads away to help unload a new batch of arrivals.

Paula Adkins, Lake Hoare camp manager, moves chunks of glacial ice, collected from the Canada glacier behind the camp, inside where they will be melted for drinking, cooking and even bathing puposes.

Mass Casualty: More than a Drill:

Jim Hathaway revisits a tragedy

story and photo by Alexander Colhoun

Pat DeCory, a McMurdo firefighter, conducts a primary medical review of a victim in last weeks' mass casualty drill.

It was all an accident. Somehow the accelerator stuck to the floor sending the airporter reeling into the wing of a Hercules LC-140, the props slicing into the truck like a hot knife through butter. Within seconds a fuel spill covered the ice runway as victims clambered their way out of the wreckage.

The call came across the firehouse radio at 6:37 p.m. and 12 minutes later Jim Hathaway was standing amid the casualties. Scanning the scene, Hathaway assessed the disaster and began transmitting directions and requests for equipment to MACOPS, the communications headquarters.

By 7:04 the first ambulance was en route to the McMurdo hospital, the remaining victims were on stretchers, triaged and accounted for, and the fire was under control. As the ambulances whisked bodies away, Jim Hathaway sighed in wonder.

He'd been here before, only the last time, it was for real.

On July 19th, 1989, Hathaway was the fire chief who responded to a major disaster at the Sioux City, Iowa airport. That day a DC-10 wide body aircraft crash landed after loosing an engine mid-flight, killing 110 of 296 passengers as it cart-wheeled across the runway.

As tragic as United Airlines Flight 232's story is, a glimmer of hope managed to shine through it all: were it not for the detailed and highly organized disaster preparedness plan instituted years in advance, many more people would have died.

"Working and practicing together, that's the key," said Hathaway. "Everyone needs to work as a team, and that only comes through practice."

In McMurdo, thousands of miles and many hours away from metropolitan emergency services, disaster preparedness is exponentially as important. "We can't rely on out-

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Did You Know...

by Brenda Joyce

Frank Wild participated in five "heroic age" journeys. He was with Scott on the *Discovery,* with Shackleton on the *Nimrod, Endurance* and *Quest* and with Mawson's 1911-14 expedition. Born in 1874 in Yorkshire, he died of pneumonia in 1930 in South Africa where he was an unsuccessful cotton farmer.

Cpt. Cook's boyhood home is bi-hemispherical. The Great Navigator was born in Marton, Yorkshire. His farmhouse cottage was dismantled in 1934 and shipped to Australia where it was re-erected in Melbourne's Fitzroy Gardens.

Alaskan huskies were brought to McMurdo in 1956-57. With sleds and drivers, the dogs were to be used in case of an aircraft crash in remote areas inaccessible to air rescue. Fed on raw seal meat, the smell of the dogs permeated the clothes of their trainers. The odor was so strong the men had to be isolated from the rest of the camp –living, eating and sleeping with their dogs.

The Beardmore Glacier is over five miles wide at its mouth. If glaciers are "frozen rivers" then the Beardmore is the widest "river" in the world.

The surgeon on Ross' *Erebus* and *Terror* voyages, Robert McCormick, also served on the *Beagle*. That small surveying brig carried fellow naturalist Charles Darwin on the research journey that led to his publication of *"Origin of Species"*.

The first black man to sail to Antarctica was Peter Harvey. Working on Nathaniel B. Palmer's *Hero,* he was one of the five crewmen on the historic voyage of discovery in 1820-21.

George Bernard Shaw named the classic of Antarctica adventure stories. "The Worst Journey in the World" has been continuously in print since 1922. Apsley G.B. Cherry-Garrard was assistant zoologist on Scott's last expedition. He accompanied Bowers and Wilson to Cape Crozier to retrieve Emperor penguin eggs. G.B. Shaw was a friend living in a nearby village. Cherry reported he asked Shaw: "What shall I call this book? It was the worst journey in the world but I can't come up with a title." Shaw exclaimed: "That's it!"

Nematodes

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year, frozen and windswept without reprieve, the Dry Valleys represent the single harshest ecosystem in the world.

On a continent shrouded in ice up to three miles thick, it is a fragile oasis of life. This delicate balance of survival amidst a brutal environment has drawn researchers, like Treonis, to study this ecosystem under the umbrella of a vast National Science Foundation effort called the Long Term Ecological Research project (LTER).

Established in 1980, it is a project with vision and scope. Its goal is to better understand how ecosystems in different geographic regions function by studying them over a long period of time and later comparing and synthesizing the information.

In a more tangible sense, it is as if researchers are producing a time lapse film, created over many years, to observe how an entire ecosystem behaves. Collecting data from streams, lakes, and the soil, scientists slowly generate a multi-dimensional understanding of the ecosystem at work.

With just a handful of species exchanging carbon and other gases, researchers say the Dry Valleys represent the simplest ecosystem on earth. Understanding the Dry Valleys will help us understand more complex ecosystems.

"This place represents an end member," said Kathy Welch, a geochemical researcher. "Without plants and organisms to complicate the picture, we can study this very simple ecosystem and then make inner-site comparisons within the LTER network."

"Here we can see how life adapts on the edge," said Dr. Peter Doran, a researcher from the Desert Research Institute in Reno, Nevada. "Because the region is so sensitive to change, we see global changes and climate changes here first. It's a kind of early-warning system for the rest of the earth."

If Doran is right, the nematode may well serve as the blinking red light that warns us things aren't going well. Which may explain why Treonis, working as part of a team directed by Dr. Diana Freckman of Colorado State University, takes her worms so seriously.

"The Antarctic environment is so fragile," said Treonis. "Even simple walking kills millions of nematodes." Left undisturbed, however, the nematode is a survivor.

Entering a survival state called anhydrobiosis, the nematode stops respiration and freeze-dries itself, loosing 99 percent of its water. "They have no detectable lifesigns," said Treonis. "But you put them in water and they come back to life in 30 minutes; and they'll do it again and again throughout their lives."

So where does this precious water come from? Snowfall in the Dry Valley is so sparse it is considered almost incalculable. Instead, water for the nematode must come from glacial snowmelt, a process being documented by Keith Ligler, a United States Geological Survey volunteer. "We're looking at the water budget for the lakes: what comes in and what goes out via seasonal streams," said Ligler.

Ligler's data will eventually help Treonis and the Freckman team better understand anhydrobiosis and the life cycle of the nematode. To learn more about the nematode, Treonis's team has established several test sites on the south shore of Lake Hoare in the Taylor Valley to monitor the worms over the long term.

Boxed in on four sides, Lake Hoare is an aqua-blue jewel frozen in unparalleled silence. Standing like bookends to the fresh water lake are two glaciers, the Canada glacier on one end and the Suess on the other. Named for the Norse God's home and rising above it all is the Asgard Range, whose afternoon shadows fall across the Kukri Hills, the slopes of which are home to Treonis's experiments.

Helicopter passengers that fly above the experiment have dubbed the team 'worm herders', but Ed Kuhn, a member of Treonis's group, ignores the ribbing and focuses on the work at hand. "These worms are an indicator species to the planet, like canaries in a coal mine," said Kuhn as he lifted a plastic sun shield strapped to the ground with a bungee cord. "And this is our worm farm."

The farm looks like a something a confused hermit might erect in hopes of growing vegetables in this stark valley. The area is cordoned off with marker spikes in an area the size of a small garden. Inside there are 30 plots. Some are covered entirely, others only partially, in an effort to create varied environments for the nematode.

On this trip, Treonis, Kuhn and Dan Bumbarger are collecting samples to bring back for analysis. Filling the bags is tedious work, but no one seems to mind, particularly Treonis. "If we can fit the neamtode's 'awakening' into a cycle based on seasons or weather, then we can fit them into an ecosystem model," she said.

One theory on the nematodes life cycle centers on its food source, namely, organic biomass that develops beneath frozen lakes in the valley. In a process identified through LTER research, this biomass detaches from mats of material on the bottom and floats upwards to meet the ice. In six years time this organic material works its way up through the ice and eventually gets blown throughout the valley, feeding bacteria that the nematodes subsist on. It's not exactly a daily meal, but the nematode has adapted to survive.

The wind, Treonis's hypothesizes, does more than just move the nematodes food, it may also move the nematode. To test the theory, the team has erected a series of collection devises: Frisbees mounted on water bottles. If nematodes are found inside the bottles, washed in by the wind they were carried on, another mystery of the nematode will be solved.

For now though, secrets of the Dry Valley ecosystem remain locked in the dried out floors and rubble strewn canyon walls, awaiting freedom as the nematode awaits its magical breath of life, water. ✹

In search of nematodes (microbial worms) in the Dry Valleys, Ed Kuhn (left) and Amy Treonis take soil samples from an experiment site. "The Antarctic environment is so fragile," said Treonis. "Even simple walking kills millions of nematodes."

UPDATES

from Antarctic stations and ships

FOCUS: South Pole Station

by David Fischer

Despite South Pole's late opening this year, a 12-day delay, South Pole's crew successfully opened the station, completed transitions with the outgoing winter-overs, and ramped up close to its full population less than a week after opening.

Originally scheduled for 16 weeks, a busy season had been planned.Working with on-site NSF Representatives, ASA rescheduled major projects for the season and NSF decided to surpass its pre-season planning cap of 183 people. By bringing in additional science and support personnel throughout the season, South Pole station should be able to complete all its efforts in what has become a fourteen-week season.

One of the first projects ASA has tackled this season is the completion of the VIPER project. This is the Center for Astrophysical Research in Antarctica's latest telescope platform, a larger and more powerful replacement for the PYTHON telescope. Despite the late opening, ASA has accelerated the schedule for VIPER to go on-line. It will be ready to turn over to the scientists in early December, about two weeks early.

Along with other science projects at the Pole, The Polar Ice Coring Office (PICO) is setting up its camp to hot-water drill three more holes for the AMANDA science project. These holes will be deeper, up to 2400 meters, and wider than any of the holes previously drilled for AMANDA.

Also this year, the NSF will host a dedication ceremony in January for the new atmospheric Research Observatory. This building, replacing the old Clean Air Facility, houses not only the National Oceanic and Atmospheric Administration's climate monitory laboratory, but also a LIDAR experiment, an aerosols monitoring experiment, and a UV Monitoring experiment.

Along with an aggressive science program, this is the first year in an eight-year effort to construct a new station at South Pole. One of this year's major projects is to raise the existing garage arch and to construct a new garage arch. Last week blasters shattered compressed snow which had accumulated around the arch over the last 22 years, making it easier to remove. ASA's construction crew will work three shifts throughout most of the summer completing this arch project.

Finally, this season summer camp Jamesways will be moved. Moving Summer Camp is necessary because it drifts in every winter, requiring great efforts to clear the snow for opening. Additionally, while moving Summer Camp, ASA will construct three new Jamesways, making accommodations for up to 27 additional people. ✹

McMurdo Station

by Stan Wisneski

Now that the weather has calmed down a little, we have been able to get folks off to South Pole, Siple Dome and other areas. Everyone has settled into the summer groove and things are starting to happen around town. Many folks are participating in various sports league activities. There are a few different bands that have formed. Besides the bands, there are a handful of acoustic performers that play weekly at the Coffee House. There are many talented people and it is a pleasure to relax to live music. Preparations for the Thanksgiving feast are underway. Volunteers are being located and the menu has been planned with care. Everyone is looking forward to the two-day weekend and the chance to relax with friends on this special day.

Aurora Storealis

Hours

Sunday	11-2		
Monday	closed		
Tuesday	7-8:30	11:30-1	5:30-7:30
Wednesday	11:30-1	5:30-7:30	
Thursday	7-8:30	11:30-1	5:30-7:30
Friday	11:30-1	5:30-7:30	
Saturday	4:30-8:30	5:30-7:30	

Christchurch, NZ

by Brian Stone

Workers have completed the placement of an eight ton boulder on the lawn between the Passenger Reception and Clothing Distribution Centers. The five-foot-high boulder was procured by the US Navy and will become a memorial to US Antarctic Program personnel who lost their lives in Antarctica. Plans are underway to dedicate the memorial during the NASU decommissioning ceremony in February 1998. The R/V ROGER REVELLE will be at Port Lyttleton from 24-29 November for its second JGOFS port call. The vessel will be preparing for its four-week JGOFS Process I cruise.

ASA, Denver

by Jim Chambers

Although we are continuing to deploy personnel to Antarctica, the vast majority of the deploying ASA personnel have now departed for the southern hemisphere with departures now down to 3 or 4 personnel per week.

Denver's efforts have now turned from deploying personnel to deploying cargo with a heavy emphasis on getting cargo to Port Hueneme for vessel transport on to Antarctica. Although ASA buys materials from all over the United States, the SPSE (South Pole Safety and Environmental upgrades) materials have been a particular challenge with tanks being fabricated in New Mexico and California, steel in Arkansas and Colorado, and panels in South Dakota and Washington. These materials have been brought together for test erections in California and Arkansas to confirm the fabrication and then disassembled and shipped on to Port Hueneme.

The R/V LAURENCE M GOULD has been moved to the Gulf of Mexico for sea trials and final installation of equipment with a departure to Antarctica scheduled for early December.

National Science Foundation

by Guy Guthridge

"Things that fall from the sky" seems to be the theme of October's Library of Congress survey of Antarctic literature. Elements from the Mount Erebus plume are in snow all over Antarctica, say G. Zreda-Gostynska, Phil Kyle, and others (July 10 Journal of Geophysical Research). At South Pole the volcano may contribute as much as 14 nanograms of chlorine per gram of snow. And emissions increased from 1986 to 1991: hydrochloric acid, for one, nearly doubled to 13.3 million kilograms a year. Converting to intercontinental atmospheric transport, S. Zimmermann found that fish in the Weddell and Lazarev seas have chlorinated hydrocarbons –not enough to hurt them, but "useful as bioindicators for organochlorine contamination" (Berichte zur Polarforschung 232). Looking past the sky, Cold Regions Research and Engineering Laboratory researchers S.Taylor and others designed, built, and deployed a collector to retrieve icrometeorites from what they say is an ideal place: the floor of the South Pole water well. Their CRREL report says the collector doesn't threaten the water supply. ✹

Happy Camper

...cont. from page 2

As temperatures soared the group headed back outside to build snow walls. Stripping down to polypropylene shirts as the sun beat down it was, for a moment, almost hot.

An hour passed, clouds moved over the sun, and jackets went back on. Meanwhile our instructors packed it in, leaving the novice crew to survive the night alone. Crawling into canvas tents and wrapping up inside heavy sleeping bags atop two insulated pads, most fell asleep without trouble.

Though the sun never set, another day began with a group effort to clean up camp. Though 24 hours earlier most people were only acquaintances, today they had become a team, and the work was quickly dispatched. The group had bonded.

"This is a great way to meet people," said Leah Thompson, a red-haired 22 year-old world traveler with an alluring smile. "This is what I came for, to experience Antarctica with a diverse group of people. It's amazing."

But not every group bonds. "Any situation that forces people to work together can make them bond or diverge," said Langmann. Pulling together as a team can mean the difference between life and death, which may be the reason why Happy Camper school stresses group activities, like calling the South Pole.

"South Pole. South Pole. South Pole. This is Field Safety Training on frequency 4.770, do you copy?" The last lesson was on solar-powered VHF radio operation.

Try as they did, a solar flare over the Polar plateau blocked all radio communications to the Pole. Even so, sitting on the ice with 30 feet of Antenna stretching in either direction, the group felt like Antarctic explorers.

What the early explorers knew, and what this crew of happy campers learned, is that with the right skills and basic preparation, even the worst Antarctic scenarios become survivable. And while survival is the lesson, the strongest memory in Dave Green's mind is of sky screens in shades of blue, a desert of ice, windblown snow, and of a sun arching gently above the peaks of the Transantarctic Mountains. ✹

Gathered around a VHF radio, happy campers attempt to contact South Pole station from the field. Unfortunately, a solar flare over the pole obstructed radio communications.

Remember to take your keys with you *every* time you leave your room.

Take it to the shower!

Ice Transition

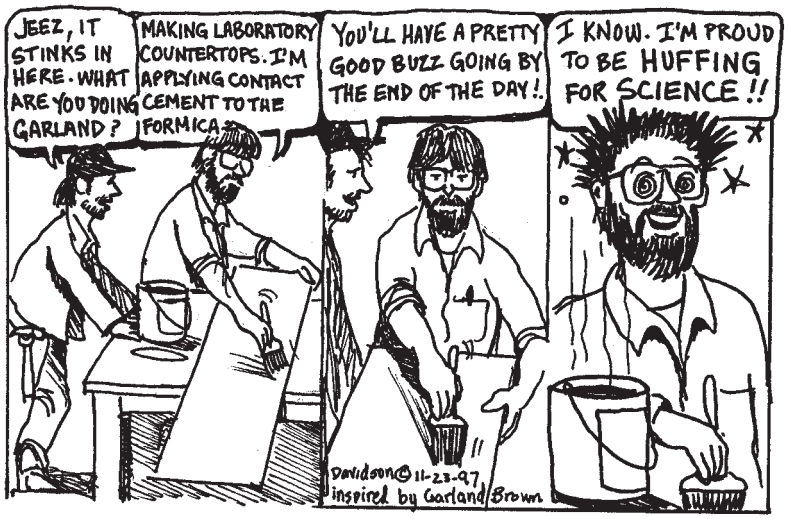
...cont. from page 1

To lay the hose, a fuelie hops on the flatbed of a Challenger trailer with four reels aboard and helps to unwind the reel as the Challenger drives forward. The female end of one hose is connected with the male fitting of another hose, sealed by a floricilian O-ring, then clamped with a band. "We create this wedding band between the hoses — the romantic side of the job," said Gilmore.

After the hose is laid, the fuelies continue their meticulous attention to possible leaks. Once a week they "strap the hose" by wrapping a canvas strap around it while the other end is pulled by a snowmobile, lifting it out of the rut caused by melting snow in order to check connections.

Laying the hose is just one part of the move from the Ice Runway to Willy Field. The fuels team also spends a day tearing down the Ice Runway fuel pits and moving them out to Willy Field. "We move the tanks, the pumps, the warming hut, the whole shabang," said Kelly Montgomery, a five season fuels veteran.

Of the 5,310,000 gallons of fuel that have been ordered by ASA this year, half is used in aviation and half is for on-station use both at McMurdo and South Pole stations. Fuel is also allotted for the *Nathaniel B. Palmer*, Scott Base, field camps, and to supply icebreakers, research vessels, and Vostok station on an as-needed basis.



Despite the fact that fuelies spend the majority of their days outside and often smell like the fuel they work with, there is a high return rate in their department. There are just three new people on a crew of 20 this year, 50% of which are women. "Fuel is the nastiest commodity in Antarctica," said Phil Parfet, Fuels and Fleet Ops Supervisor. "But because the crew really enjoys each other, they have fun and keep coming back."

✹

– EDITORIALS –

Thanks to our readers for pointing out errors in last week's story: Humor Is As Humor Does. We thought readers might like to see the real Marine Rifleman's Creed, so we included it below. Here's to all the swabbers in McMurdo! Your comments are always welcome at The Antarctic Sun.

The "Ode to the Mop" in the janitor's closet on Highway 2 of Building 155 was done in the summer '94/95 by two great janitors, Chase Malara and Chris Blue. The ode is a take-off from "Full Metal Jacket". These two young men had the Bldg. 155 run for almost five months. They did a great job. They also took pride and ownership in their work and found humor along the way. Thanks for setting the record straight. *Hope Stout*

The quote which that mop-wielding Ph.D scrawled on the interior of a wall-locker in building 155 is a parody of the "Marine Rifleman's Creed". The original is taught to young recruits during bootcamp to emphasize the importance of the weapon to Marines in battle, and the care that should be exercised in keeping them in good working order. Hope this adds a little depth to the character of "the mop-wielding Ph.D".

John Thompson

The Rifleman's Creed

by Major General W.H. Rupertus, USMC

This is my rifle.There are many like it but this one is mine. My rifle is my best friend. It is my life. I must master it as I master my life.

My rifle, without me is useless. Without my rifle, I am useless. I must fire my rifle true. I must shoot straighter than any enemy who is trying to kill me. I must shoot him before he shoots me. I will...

My rifle and myself know that what counts in this war is not the rounds we fire, the noise of or burst, nor the smoke we make. We know that it is the hits that count. We will hit...

My rifle is human, even as I, because it is my life. Thus, I will learn it as a brother. I will learn its weakness, its strength, its parts, its accessories, its sights and its barrel. I will keep my rifle clean and ready, even as I am clean and ready. We will become part of each other. We will...

Before God I swear this creed. My rifle and myself are the defenders of my country. We are the masters of our enemy. We are the saviors of my life.

So be it, until victory is America's and there is no enemy, but Peace!

McMurdo Is Like Camp...

1. Dorm rooms.
2. You wonder how they picked everyone in charge.
3. Kool-Aid.
4. Weird roommates.
5. The food sucks.
6. When you are there you want to leave. When you leave you want to go back. When you go back you wonder why.
7. Oh yeah... Kool Aid.
8. Cookies from Mom.
9. The brochure looked good.
10. Organized activities.
11. You pass lots of cool places to get there, but never stay.
12. Lots of Kool Aid.
13. Old food.
14. Your friend said it was cool, but they are not coming back.
15. Neat T-shirts and patches.
16. Buffet style eating with compartment trays.
17. Mail from home is worth its weight in Gold.
18. You miss your mom.
19. Every time you write home you give weather reports.
20. Did we mention Kool-Aid?
21. It's always your last year, you're never going back.
22. The weather is always better at home.
23. You make great friends, exchange addresses and never talk to them again.
24. The weather is always better at home.
25. You are always trying to score, but never do.
26. It's the experience of a life-time.
27. Everyone dresses the same.
28. No good TV.
29. No pets.
30. You can't get any of your friends to go with you.
31. You're always missing good things at home.
32. Arts, crafts and recreational sports.. You're always sneaking around behind the leader's backs.
33. Bad weather.
34. Your family does things while you are gone that they have never done before in their lives.
35. Your name is on your clothing.
36. Too much damn Kool-Aid.

I never learned anything while I was talking.
–Mark Twain

Casualty Drill

...cont. from page 4

side help," said Art Brown, manger of support services for the National Science Foundation. "We have to use our own resources."

McMurdo's disaster plan calls upon an array of resources one wouldn't expect to find on an isolated block of windswept ice in Antarctica. Within the fire department alone there's a 47,000 pound tanker truck, two 750 gallon first attack response vehicle, two fully equipped ambulances, four JAWS OF LIFE, five K12 saws ("They cut through anything," says Fire Captain Dave Turley), 5,000 feet of fire hose, and five airport fire vehicles equipped with foam fire-fighting capabilities. All of this equipment is managed by 39 fire-fighters, all medically trained, four dispatchers, a fire chief and two shift captains. And this is just the beginning.

The McMurdo disaster plan draws resources from nearly every sector of the community. The radio and TV station are used to communicate messages across the station; the search and rescue team mobilizes; troops from the Navy and the Air Guard can be tapped into; MACOPS, the communications center, becomes a headquarters, shuttle vans act as ambulances, and the list goes on. It is an integrated effort.

"Although the risks are low for a mass casualty to occur here, it requires a tremendous amount of coordination to handle that kind of situation," said Eric Juergens, ASA's director of safety, environment and health. "If we can prepare for the big problems, we can handle the small ones."

Though seen as a success, this season's drill was not without its flaws. "Overall it achieved its objectives and pointed to weaknesses in the system," said Brown, who hopes for improved communications within the command and control center in future efforts.

Meanwhile, in the firehouse, Jim Hathaway and the emergency response crew continue their training with hopes their disaster skills will never be tested on the ice. But if they are, McMurdo will be ready. ✹

TV and Radio Line-up

CH 2	American Forces Network, Pacific: sitcoms, soaps, drama, game shows and movies
CH 4	Weather with FM93.9 audio
CH 6	Information Scroll with FM 104.5 audio
CH 7	Transportation Updates with NPR and Sports audio
CH 9	Movie Channel
CH 11	News and Sports, CNN, ABC, NBC, CBS
CH 13	The Spectrum Channel, a variety of programs

Detailed schedules are available outside the TV station in B-155.

photo by Alexander Colhoun

Views of the Transantarctic Mountains from the window of a C-140 more than make up for the cramped ride to McMurdo.

Save the Vinyl

story by Dave Breitenfeld

Ever since Thomas Edison recorded the first words on his phonograph invention in 1877, records have been an important medium for voice and music recordings. First constructed of tin foil wrapped around elongated cylinders, records went through many changes before the disc shape became popular in 1929. Vinyl records have even outlived some more durable mediums including the now obsolete eight-track cassette, and reel to reel tapes, which today are used almost exclusively in recording studios.

Despite their success over the last 120 years, the popularity of record albums has been in decline for the past decade. Cassette tapes were the first significant threat, but the advent of compact disc and mini-disc technology will deliver the *coup de grâce*. Especially in McMurdo.

When the Armed Forces Radio and Television Service originally set up its radio studio, the medium used to play music was the vinyl record. Several thousand records were shipped in, and the collection has grown through the years to approximately 20,000 albums.

The problem is that these records are wearing out, and taking up a lot of space while doing so.

"Some of the older albums are wearing out in a big way," said Chuck Kramer, who manages the radio station. "They skip, they sound scratchy, there's dust in them; they're not a permanent medium for keeping music." Lacking not only spare parts, but also any support from the Naval Media Center, the available turntables are in jeopardy as well.

They are scheduled to be shipped out on next year's vessel. Back in the U.S., they will most likely be destroyed to protect the artists from any copyright infringements. "We have the obligation to protect the copyrights," said Chief Jackie Kiel, Public Affairs Transition Liaison.

A disc jockey in her spare time, Kiel has mixed feelings about the plight of the albums. "I found a song I haven't seen in 25 years," she stated, commenting on the extreme variety of songs found on the records. However, she also understands the practicality of transferring the music to a more permanent medium: "We need to save these albums by saving the music."

There are other people at McMurdo who also don't want to see the records go. A self-described agitator, Anna Meade, who works in hazardous materials, began the "Save the Vinyl" movement.

Meade's and several others disc jockey's goal, is to keep the records here, or, if that is not possible, at least see that they are not destroyed.

"Vinyl has an authentic feel that fits the historicality [sic] and personality of the place," said Meade, who appreciates the nostalgia and feel of working with vinyl.

One significant factor contributing to the Save the Vinyl movement was a rumor that many of the records in the collection are the same records played by Adrian Cronauer on his radio show in Saigon in 1965 and '66.

Cronauer, humorously portrayed by Robin Williams in the 1987 film "Good Morning Vietnam", played a key role in getting the new sounds of the rock'n'roll movement to troops in Vietnam while serving in the U.S. Air Force.

...cont. on page 12

Ask Aunt Arctica

...advice for staying healthy on the ice

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

Question: *As a self-respecting 90's sort of woman, I find myself in an interesting dating dilemma. While the opportunities here are plentiful, I'm concerned about the gossip in such a small town. I want to maintain the same standards I have back home and be able to retain my own self-worth and keep a sense of self-esteem in the community.*

You're right, no matter where you go on a date people will be watching, and that may include last week's date. It's regrettable that we, as a society, maintain such double standards. A woman's track record for dating is far more suspect than a man's.

Studies of women have repeatedly shown disturbing patterns: lack of self-esteem, an inability to feel powerful or in control of one's life, a tendency to see oneself as less able than one really is. Not quite as valuable as men.

That being said, know that many women identify with your concern. A relationship, romantic or otherwise, should be forged on equal terms, yet how is that possible under these circumstances?

It is possible by expanding your sense of personal power as a woman. Many folks out there feel they are worthy of judge you and your values. It's not your job to jump through their hoops.

The concept of dating is basically one of information gathering. You will be learning about yourself and your priorities all the while. If you maintain good perspective, this will far outrank the judgments of others.

Whether down here or back home, you will profit significantly by always being mindful in your relationships. That includes your relationship with yourself.

Your Turn–

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

By Brenda Joyce

Who chooses the movie selection for the TV and can we make requests?

Chuck Kramer, Armed Forces Radion and Television Service (AFRTS) Station Manager, has attempted to get requests from the community. During Winter, WinFly and the beginning of Mainbody, movie selection for Channel 9 was carried out by rotating work centers. Since Mainbody, six centers at a time were sent selection lists each week to choose movie favorites and responses were limited. AFRTS is currently choosing the movies but will try again to get group participation. There are more than 650 movies and over 200 "made for TV movies" titles listed on the LAN at G:\common\afn under NMPSLAN and TLLAN. Enter through WordPerfect or, if in Word, use "All Files" to open these documents and find your choice when your work center gets its' turn.

Thanks to Chuck Kramer

Why can't we have an ice rink down here? All we'd need to do is throw up some plywood walls around an old Jamesway cement surface and flood it. It can't be that hard.

I think that a skating rink would be a fine idea, but look at the maintenance needed to maintain a rink in the States. Unless you are from a cold northern climate in the middle of the winter and using a lake, all other ice skating rinks are refrigerated from the bottom. The Zamboni that smooths the surface actually melts the top of the surface leaving a thin trail of water that freezes due to the coldness of the ice below.

For many years it has been thought that the reason we do not have ice skating in McMurdo was due to the possibility of injuries. Not so. We most likely would have more injuries from volleyball, basketball, Sunday free bowling, walking on marble size rocks, slipping on icy flat roads and from than from ice skating. It is the maintenance, blowing snow and dirt and, last but not least, that large round yellow object in the sky that precludes McMurdo from being the ice skating capital of Antarctica.

Thanks to Bill E. Haals

I am interested in extending my summer contract to winter but not in my present position. Who do I contact?

Jill Christensen of HR keeps an "informal general file" of staff interested in wintering over and your name may be added to that file by e-mailing her at CHRISTJI. Include a list of your skills and your current position but be aware that few positions are available. For a less random search, Jill suggests you speak to supervisors in departments where your skill level might be considered. For next season, ASA accepts applications beginning April 1st for the '89 winter-over positions.

Thanks to Jill Christensen

MILITARY NEWS:

Clinical Psychologists Visits the Pole

by LT. Chris Bersani

Every year at this time a clinical psychologist or psychiatrist is sent by the US Navy to debrief the winter-over personnel at South Pole Station.

Psychological debriefings are one of two important services provided by Navy psychologists and psychiatrists to the United States Antarctic Program. The other service consists of psychological screenings of candidates prior to their winter-over duty. Unlike the psychological screenings, the debriefings are voluntary.

In the past, the debriefings have proven to be an invaluable resource for individual winter-over crew members. The primary function of the debriefing is to provide a forum for each winter-over crew member to discuss his or her experiences over the winter. An unbiased, objective professional can facilitate ones perspective on the past few months and assist the person in adjusting to their return "home".

The debriefings take place during the first week of summer, immediately after the first flight into the Pole. Despite the hectic nature of this turnover time, most winter-over personnel find the time for the debrieifing, and many view this service as invaluable.

There are many difficult stressors that accompany the winter-over experience. Isolation, confinement, lack of environmental stimulation, exposure to extreme weather conditions, and deprivation of many things (loved ones, sunlight, personal belongings, sexual gratification).

Unique problems may present themselves during the course of the winter. Relationship problems at home and the passing away of family members are some examples.

The most common psychological condition observed in winter-over personnel is a complex known simply as "winter-over syndrome." The condition consists of varying degrees of irritability, hostility, sadness, insomnia, concentration and memory problems and the occurrence of a mild hypnotic state called "long eye" or the "Antarctic stare". These symptoms often peak at midwinter, decrease over time, and may again recur towards the end of the winter-over period. Excessive use of alcohol is another problem that arises. All in all, most winter-overs find their experiences challenging, but rewarding. Many of them volunteer to winter-over again.

As part of the debriefing, each person is asked a standardized set of questions. The responses to these questions are used as part of ongoing research about working and living in confined, isolated places. For more information on this topic, you can read articles and books written by Lawrence Palinkas, Peter Sueddfeld and Frederic Glogower.

Psychological debriefings also take place at McMurdo. Usually a different mental health provider becomes available to winter-over personnel during the WinFly period, usually from late August and remains in MacTown until the beginning of October.

Navy Note

Advancement quotas for E-4/5/6 for the September exam have been announced. All Navy: 46.2% to E-4, 14.6% to E-5, 7.4% to E-6.

✹

Chapel of the Snows

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

For the Record

WEATHER

by George Howard, MAC Weather
McMurdo Station, Antarctica

photo by Alexander Colhoun

Warm temperatures last week did little to melt the Canada Glacier in the Taylor Valley, but clear skies did make for post-card views.

After enduring a relentless onslaught of storms in October, who would've expected the record-breaking heat wave we recently experienced? Answer: Steve Walton, Mac Weather's Senior Forecaster.

While examining weather records from previous years, Walton noticed that particularly lengthy stormy periods were many times followed by a month or two of unseasonably warm temperatures.

"How warm?" you say. Have a look.

New High Temperature Records

(set between November 7th and 22nd, 1997)

Date	Average High (deg C)	Previous Record (deg C)	NEW Record (deg C)
Nov 7	-9.3	-3.3 (1973)	-2.9
Nov 8	-8.5	-3.3 (1964)	-2.0
Nov 11	-7.0	-2.2 (1972)	-0.1
Nov 12	-7.4	-1.1 (1963)	-1.1
Nov 17	-5.7	-1.1 (1974)	+0.4
Nov 19	-5.2	-1.1 (1974)	+0.4
Nov 20	-5.5	+1.1 (1956)	+2.0
Nov 21	-5.4	-0.6 (1974)	+4.2*
Nov 22	-5.6	0.0 (1971)	+2.9*

* Temperature exceeded previous record high for entire month of November: +2.8 C, set in 1971.

Snow and Ice ROAD ADVISORY

The roads are soft.
We need to keep them dirt free.
Please follow these guidelines.

DON'T:
- Speed.
- Drive unless you are in 4-wheel drive.
- Switch lanes.
- Closely follow maintenance vehicles.

DO:
- Keep your tires at approximately 18 PSI.
- Follow road signs and lane indicators.
- Beat dirt and mud off vehicle tires before entering the snow road (the dirt melts the snow/ice and creates holes in the road).
- **Wave** to the operators, we need a wake-up call every once and awhile.

THANK YOU!

Vinyl

...cont. from page 10

"The 60's were on the cusp of a lot of changes in music. Motown was coming in, rhythm and blues, folk music, the British sound –the Beatles, the Stones– it was a very exciting time," said Cronauer, now living in Virginia and working as a partner in a law firm.

When asked what he thought about the change-over from vinyl records to CDs, he stated, "The medium is secondary. It's the material that's on it that's important, [however] there are different things you can do with vinyl, like run it backwards."

Although unable to confirm the rumor of the McMurdo record collection Cronauer said, "It would be a tragedy if they were thrown away."

While the records themselves may be going, much of the music contained on them will remain at McMurdo. John Booth is heading up a project to transfer music from the albums onto mini-discs. Mini-discs are the latest in digital disc technology, which not only offer recordability, but are also smaller, more durable, and can hold more music than standard compact discs.

Within the next few weeks, McMurdo will receive four mini-disc player/recorders and with a professional mixing deck to expedite the transfer. The idea is to capture as much material from the albums as possible over the next year onto mini-discs, which will then be catalogued and used indefinitely in the radio station.

To aid in this project, Booth is encouraging DJ's to write down the songs they play off the records so they can be included into the transfer. Anyone else who is interested is also welcome to help out.

According to Al Martin, the NSF station manager, anything is possible. "If we get enough people in the community who want to do it, we can transfer all the songs on all the records over," said Martin. "But it's up to the community to say, 'Well, this is what we want.' "

While it sounds ambitious, the primary goal is to make as many people happy as possible. "I think my main concern is that we provide a good cross-section of music for the community to enjoy," said Martin. "And I think that we are going to end up with that."

Mile High View

by Laura Praderio

Circling the planet every 101 minutes from a height of 830 to 850 kilometers, polar-orbiting satellites sense clouds and sea ice, and pick out subtle color changes in the ocean.

These satellites provide global coverage with half-kilometer to one kilometer resolution. The National Oceanographic Atmospheric Administration and the Defense Military Satellite Program operate several polar-orbiting satellites. And the satellite data is collected by the gigabyte in McMurdo every day.

Locally it all works using TeraScan, a digital imaging system. Look up at Building 165 and you will see a big white golf ball with SeaSpace written on it (TeraScan's maker). This new dome houses an antenna that receives multiple channels of satellite data. Andy Archer of ASA Science Support and Andy Parkins of Information Systems recently installed the new components, and with an upgrade to the processing and analysis software at MacWeather. They are already in heavy use.

"Our primary use of satellite data is to provide real-time weather imagery for MacWeather to support forecasting for flight operations. The secondary use is to archive the satellite data for the Antarctic and Arctic Research Center at Scripps Institute of Oceanography in San Diego, CA," said Andy Archer, an Imaging Applications Specialist. "The Antarctic area is a transition zone for the whole planet; with our data acquisition systems we can provide imaging for oceanic and atmospheric events that scientists can use to look for global effects." For example, researchers can use the data to track changes in sea surface temperatures and ice extent, which may or may not indicate global warming.

"The update to TeraScan improves our ability to track satellites and to capture multiple streams of satellite data. This system captures more information, manipulates large volumes of data easily, and saves a lot of work time that can be spent on forecasting," said Andy Parkins, a UNIX Administrator.

Using TeraScan, meteorologists and forecasters produce real-time imagery of the local and continental weather. "We use it as a forecast tool by piecing together unique views of weather from space," said George Howard, a MacWeather Meteorologist. "We easily manipulate the data to produce images and create movie loops of the weather moving across the continent."

Parkins and Doug Charko, another forecaster, explained that animating the data helps forecasters differentiate between variations in the ice cap, blowing snow, and clouds. Not bad for a five-hundred-mile high view.

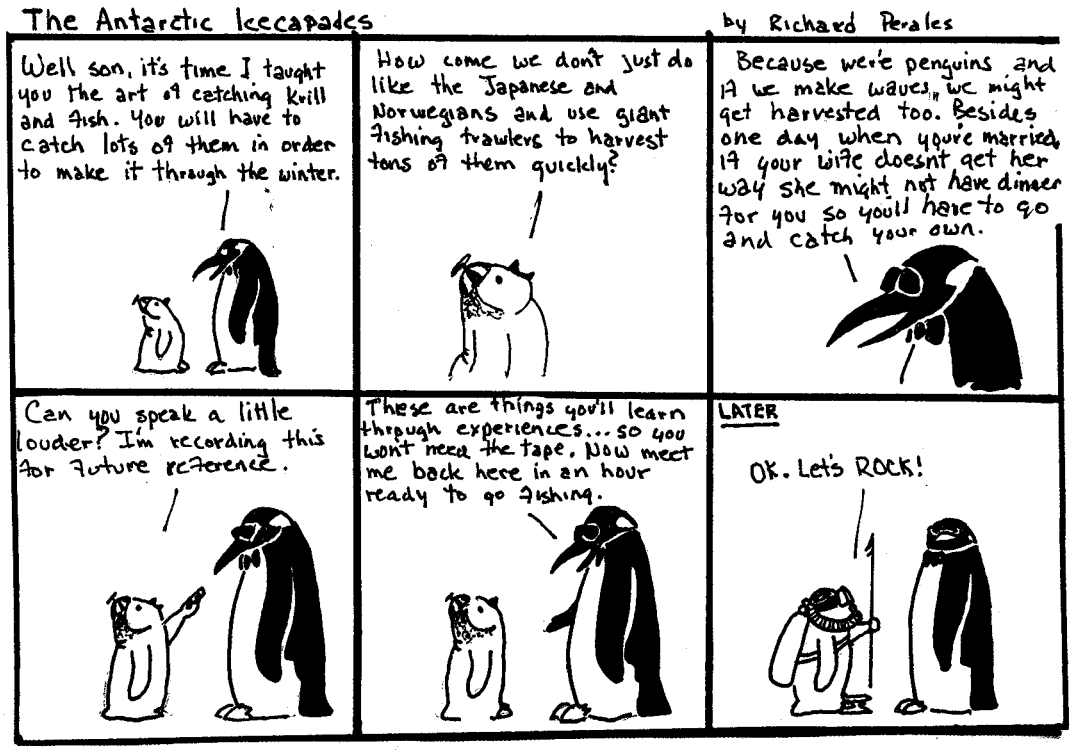
MacWeather needs the satellite imagery to forecast for Shackleton Glacier, Vostok, South Pole, McMurdo, Siple Dome, and a dozen other camps. Otherwise, the meteorological team relies on imagery downloaded from the Internet and surface observations, if someone is in the area to report them. MacWeather gets calls from everyone. "We deliver forecasts, based on satellite data, to aviators in Christchurch, pilots' briefings on station, ice huts, the runways, Joe Schmo, Scott Base, the Italians, you name it," said Ken Edele, a forecaster.

The satellite data serves another function by providing researchers with data for studying oceanic events. One of the main research efforts is NASA's Sea-Viewing Wide Field-of-View Sensor Project or SeaWiFS. Subtle variations in ocean color, picked up by the satellite sensors as changes in chlorophyll concentration, help scientists differentiate between different types of marine organisms. The abundance of phytoplankton can be derived from the concentration of plant pigments in the water. In the polar regions, sensors detect blooms of phytoplankton seasonally. As one of the primary producers on the food chain, phytoplankton are the start to bringing some fish to market.

Satellite imagery can also help scientists narrow down sites to sample in the ocean. "What we'd like to do is receive the satellite data, process it near real-time, and send the images to the principal investigator (PI) on the ship. The PI can view the image and modify the cruise plan to match the dynamics of the environment. Instead of hunting around for a hole in the sea ice (polynia), the imagery could direct them to navigate through the ice, and target blooms and areas of interest," said Archer.

TeraScan is the link between the raw satellite data and the processed imagery. It gives us that five-hundred mile high view.

For animations of Antarctic weather, go to the University of Wisconsin's web site: uwamrc.ssec.wisc.edu/amrc/realtime.html. For the SeaWiFS Project, go to the web site: seawifs.gsfc.nasa.gov. ✹



Antarctica Prepares for Science

IGY+40

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

Forty years ago 60,000 scientists from 66 nations took part in what has been called the greatest peacetime activity in history –the International Geophysical Year, from July 1, 1957 to December 31, 1958. One of the IGY's most prominent achievements was the opening of Antarctica to modern science. In this first segment of a five-part series, Guy G. Guthridge looks back at events that set the stage for today's Antarctic research.

In just two years the U.S. Navy built seven Antarctic stations for the IGY—five along the coast and two inland. While ten additional nations established 40 Antarctic stations of their own in the same period, between 1957 and 1958.

U.S. research planning began formally in November 1953 at the National Academy of Sciences. Reconnaissance of the Antarctic coast for station sites was done the next summer by the USS Atka, an icebreaker, which left Boston December 1, 1954 and returned April 12, 1955. Final award of station locations was not made until an international meeting in July 1955 at Montparnasse in Paris.

The Navy established its first beachhead the following season on December 18, 1955, when *USS Glacier,* America's newest and most powerful icebreaker, put an airstrip survey party ashore near the southern end of Ross Island. Two days later two R5D and two P2V airplanes of Air Development Squadron 6 (later renamed Antarctic Development Squadron 6 or VXE-6) landed on the fast ice of McMurdo Sound –the first such air link between Antarctica and the outside world. The planes made long-range exploratory flights before leaving for home January 18, 1956.

Cargo ships *Wyandot* and *Nespelen* tied up to the ice front on December 28, 1955, to wait for an icebreaker to break a channel to Hut Point, but then they unloaded onto sleds on the sea ice after it became clear opening the channel would take time. The *USS Glacier* finished the channel on March 9th and moored two small tankers –McMurdo's initial fuel supply– in Winter Quarters Bay.

Meanwhile Little America V, America's headquarters research station for the IGY, was established on Kainan Bay, off the Ross Ice Shelf 500 miles east of McMurdo. This site was the neighborhood of four prior Little Americas built by Richard E. Byrd, beginning in the 1920s. Little America V and McMurdo would be critical coastal support bases in 1956-1957, for the establishment of two inland stations in Marie Byrd Land and at the South Pole.

The 1955-1956 summer concluded with the departure of *Glacier* from Little America V on March 10th, leaving behind 163 men for the winter. The *USS Glacier* made a counterclockwise trip around the continent looking for future base sites before starting the long trip back to Norfolk,which it reached on May 1st that year.

In all, The Navy's Antarctic task force in 1955-1956 consisted of three icebreakers, three cargo ships, a tanker, two fuel barges, and four airplanes. From U.S. ports to Antarctica and back this deployment, named Operation Deep Freeze I, lasted 190 days.

Deep Freeze II the next season (1956-1957) was bigger and more ambitious. In addition to resupplying McMurdo and Little America, the Navy's task force of nine ships established Wilkes Station on Vincennes Bay (On the Antarctic coast south of Australia), Ellsworth on the Filchner Ice Shelf, and Hallett—in cooperation with New Zealand—on the Ross Sea south of CapeAdare. *Glacier* made a spectacular start to the season by penetrating the pack on October 20 and, after 8 days of ramming, reaching McMurdo on October 28. No ship, before or since, has matched this early-season record.

But the focus was on air operations and the South Pole. After reconnaissance flights, the first landing of an airplane at the South Pole was made by a ski-equipped R4D piloted by Lieutenant Commander Gus Shinn on October 31, 1956.

"This was a red letter day in the entire Antarctic operation because the whole concept of a pole base was predicated on the theory that such a landing would be successful, and now the theory had been proved," wrote Admiral George Dufek. The imaginative planners who recommended air had analyzed South Pole photographs made by Robert F. Scott's 1912 party—the last humans to occupy the site—to estimate the density of the snow from the depth of their footsteps in the pictures.

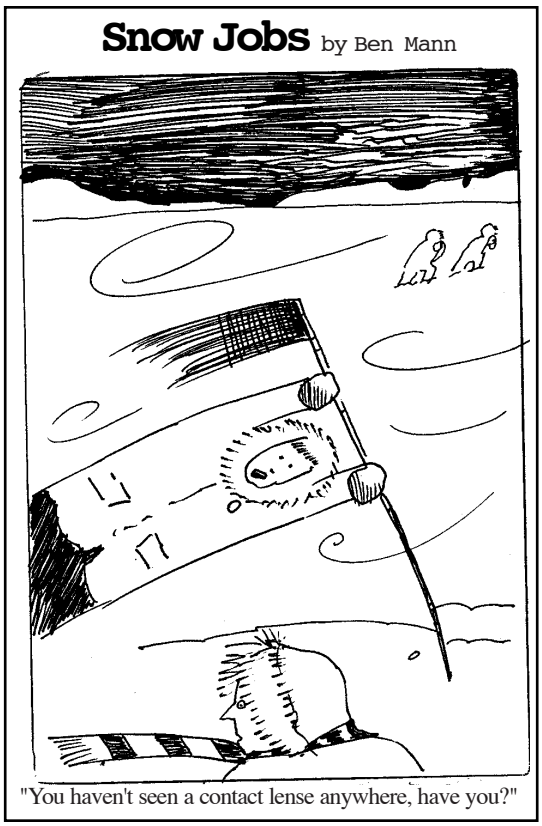
Most of the building materials for South Pole station, however, were airdropped from C-124 Globemasters, the Air Force's largest planes of the day. The C-124, with four propeller engines, was larger than our familiar C-130 Hercules and would rival today's C-141 Starlifter in airlift. Flying sorties until the Mcmurdo sea ice deteriorated in mid-December, the wheeled (non-ski) C-124s dropped 400 tons of supplies and fuel to men building the pole.

Byrd, the other U.S. inland station, also was established during the 1956-1957 summer by tractor trains from Little America.

At the end of the summer 339 scientists and support personnel were wintering at seven U.S. IGY stations, ready for the official start of the IGY on July 1st, 1957.

The Navy's effort to get America ready for the IGY in Antarctica cost $52,533,000, that's $301,000,000 in 1997 dollars.

Nine people died in aircraft and other accidents during that effort. Williams Field, McMurdo's present-day skiway, commemorates one of these men, Richard T. Williams, who lost his life on January 6, 1956, when his tractor fell through the ice on McMurdo Sound.



"You haven't seen a contact lense anywhere, have you?"

Perspectives

The Blue

by Gretchen Legler
Antarctic Artist and Writers Program grantee

photo by Lisa Beal

Bruno Nardi, a scientist from the University of Wyoming, clambers out of a Ross Island ice cave.

One Sunday, I went to visit the ice caves. The caves are part of the Erebus Glacier tongue, a long spit of ancient ice, named after Mt. Erebus, an active volcano that hovers over Ross Island and McMurdo station. The caves are about an hour drive from McMurdo by tracked vehicle. I went with a group of nine others who had signed up for the trip on a sheet of paper near the galley.

We went to two caves. One of them was very easy to get into. You climbed a hill of snow, squiggled through a rather large opening, and slid down a little slope into a large cavern –a cavern about as big as the average living room. The other cave you would miss if you didn't know it was there. You kick-stepped your way up a steep incline then squeezed your body through an opening only big enough to fit your shoulders through. Then, you slid down a thin icy tube until you landed on a shelf (if you went too far you dumped into a depression you had to climb back out of), and then, with the aid of a rope, you climbed up and around and through a maze of tight ice walls until you reached two larger caverns. A claustrophobic person would not do well in the second cave.

It was in the first cave that I had my moment. I had been lying on my back, taking notes, looking up into the crystals and into that blue that still amazes me –blue so blue it is as if your eyes have broken and don't work. Blue so blue it is like gas that fades away into more and more intense blue-violet. The first time I'd been in the cave the person who took me there said that often people who go down into crevasses are so overcome by the blue that it makes them cry. I remembered that as I lay there on my back, taking notes, trying to draw the crystals that hung like blooms of flowers above me, trying to figure out where the blue began and where it ended.

Suddenly everyone else was gone, or I thought they were. So, after a while I packed up my notebook, reluctantly, and started to get up. Once I was out of my little grotto, I realized that there was one person left in the room. It was my friend Gary Teetzel. Gary is an engineer in the laboratory building at McMurdo, and he and I had spent time together weeks earlier in the observation tube –an 18-foot tube set into the cold sea, which you could climb down to and sit in to watch creatures in the dark ocean.

"Oh, It's you," I said to Gary, jokingly, as if there was anyone left in the ice cavern still it would be HIM, and me. We are kindred spirits –lovers of quiet and contemplation. So, we stood there, quietly, at opposite ends of this ice cavern for another ten minutes, until we heard a voice calling us to come away and board the vehicle. It was during that ten minutes that I had my moment. I cupped my hands around me eyes, so that all I saw was the blue, and as I stared, my heart began to beat faster and my breath started to come faster and tears started to come to my eyes.

It was that blue that made me cry. That blue. That blue/violet that seems like it is sucking you in, that makes you feel as if you are falling into it, that compels you somehow to look into it, even though it blurs your vision and confuses you. It was that blue, so enigmatic that for a moment you lose your balance in it. You don't quite know if you are in the sky, or under water, or whether for an instant you might be in both places at once. The blue is like a frosty, vague, and endlessly deep hole in your heart. It has no edges, just color and depth. It is a color that is like some kind of yearning, some unfulfilled desire, or some constant extreme joy. It just burns there, burns violet, burns blue. ✹

Profile

Stillie's Message:
Preaching From the Heart

story and photo by Chief Jacqueline Kiel

Dave Stillie, McMurdo's minister, worked in Boulder, Colorado before coming to Antarctica. Stillie sees similarities between Boulder's community and McMurdo's, and structures his church services to reach what he calls an audience of intellectual free spirits.

It was an answer to his prayers, and it started with an advertisement in the Army Times magazine.

A few months later, comic strips began appearing as part of the church services at the Chapel Of The Snows at McMurdo Station. Davie Stillie, a pastor for over 20 years, had arrived, bringing with him an innovative program designed to capture the attention of a diverse congregation.

Stillie told Sharon, his wife of more than 30 years, that he would like to preach in Antarctica after seeing the ad for the position. He expected a protest –one that never happened, because of her knowledge of his desire to preach to a military audience. Smiling thoughtfully, he said, "She knows."

Stillie has a military background. He served in the Army for over five years on active duty, and retired out of the reserves and then worked his way up to lieutenant colonel in the infantry and served in Germany and Vietnam.

Comparing his stint in the Army to preaching, Stillie said, "The closest thing to a pastor is a small unit commander. They meet the needs and take care of people and that's really the pastor's job."

Born in Vallejo, California, Stillie, 52, is the son of a construction worker and a florist. With a full head of white-gray hair that tops off a round face, that smiles easily, and brown eyes with an ever-present twinkle, he has the appearance of a favorite grandfather.

Stillie became interested in preaching while he was attending college at Washburn University, where he earned a BA in Chemistry. He became more and more involved in pastoring as a student and started several ministries while still in college.

Before coming to Antarctica, Stillie was pastor of a church in Boulder, Colorado, a religiously diverse area. "Boulder is considered one of the New Age capitals of the world," Stillie said. "It's a very religiously diverse city. I recognized immediately that we needed to make drastic changes in the church to have any effect on our community. We had to figure how to reach this New Age kind of person."

A six-day stint on the ice during Winter Flight Operations in August, opened Stillie's eyes to the importance of his Boulder experience. "As I thought more about Antarctica, I realized that everything I was doing in Boulder was actually preparing me to come here," he reflected. "Those people, intellectual free spirits, pretty much describe McMurdo, I think," he added, laughing.

The program Stillie runs appears to be increasing in popularity. Each Sunday, numbers have increased. Stillie attributes this to his relaxed, informal, contemporary style. "I present the message in an innovative manner… Every Sunday people are used to me flashing a comic strip on the overhead projector as a sermon illustration. I use an awful lot of illustrations. Instead of expanding on scripture and getting into real depth, I'll give the scripture and then give illustrations to back it up." Stillie calls it is a non-threatening style for people who are not used to going to church.

Those who are used to going to church enjoy Stillie's refreshing presentation. "I really think ASA made a superb choice in selecting Dave," said Lt. Mike Newton, communications officer for U.S. Naval Support Force, Antarctica. "There was the potential for an interruption of the religious program with a civilian chaplain taking over at the beginning of the season, but Dave stepped right in, established himself and put together some wonderful programs and services."

Preaching is not Stillie's only talent. He is also a guitarist, singer and songwriter, hobbies he has been practicing as long as he has been preaching. Most of his songs are religious in nature. Unbeknownst to his congregation, they have been singing a new song of his every week.

A thoughtful man, Stillie misses his weekly four to five-hour hikes into the mountains in Boulder. Hiking gives him time to ponder his life and enjoy nature. Once or twice a month he usually takes a day-long excursion. "I would take my Bible and stop at points along the way and read," he said. "It's just great being out in nature; out in the mountains."

With his attitude, Stillie fits right in on the ice. "I love it here," he said. "This is just an awesome place, and I'm enjoying the ministry. This kind of ministry has been a dream of mine all of my life." ✹