www.polar.org/antsun
November 12, 2000

The Antarctic Sun

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Tug of SAR

Justin Reese, Joe Harrigan and M.K. Fortune test a snow anchor during tryouts for the secondary search-and-rescue team. The so-called "dead man" device is buried in the snow to secure a crevasse rescue line. Twenty-eight people tried out for the team, which has 12 spots. Photo by Tobias Schunck.

quote of the week

"This is my kingdom, you are my slaves!"

- lone hiker on Observation Hill, overlooking McMurdo Station.

INSIDE

A timeless machine returns

descendant of DC-3

The Basler BT-67

By Josh Landis
Sun staff

In the next few weeks, don't be surprised if you look up in the sky and see what looks like a vintage plane flying overhead. The shape of the twin-engine, low wing aircraft you see may date back to the 1930s, but the BT-67 represents the newest addition to the U.S. Antarctic Program's air fleet.

See DC-3 on page 4

Wasting away in Antarctica

By Josh Landis
Sun staff

There's a paradox of human habitation in Antarctica: The continent that has the most brutal and forbidding environment on the planet also has one of the most fragile ecosystems. A footstep will remain visible in the Dry Valleys for decades. A seal population can be thrown off-kilter by the introduction of a simple, yet foreign, microorganism.

And the refuse of a human population that's very small by U.S. standards can mar this beautiful land for centuries.

The evolution of waste management on Ross Island has gone from no concern for the environment in the early days of the explorers to U.S. Antarctic Program standards that are approaching zero-impact. Days of open-pit burning and open-water dumping are long gone. They've been replaced by a system that returns nearly four million pounds of waste to the States each year.

And much of it gets recycled.

Wednesday is America Recycles Day, but for Tom Vinson, manager of waste operations, it will be business as usual.

"Antarctica recycles every day," he said. "It's the best option we have."

Recycling starts at the garbage cans, as anyone who's been to McMurdo knows. Categories range from burnables to biowaste, clothing to construction debris. There are 19 different varieties of solid waste here, and 18 categories of hazardous waste.

The most-recycled item by weight is heavy metal, adding up to 341,000 pounds last year. Light metal and paper products come next.

The National Science Foundation's commitment to recycle materials such as solvents, paper and aluminum sometimes costs more than regular disposal.

"They're commodities, and the price we get depends on what the market's paying," Vinson said. "It's more of an environmental decision."

Technically, recycling doesn't occur here, but the sorting ensures that once the refuse returns to the States the process is easily handled.

Some methods of reusing waste, however, do take place at a local level. For example, furnaces that burn waste oil and fuel to create heat account for the disposal of almost a third of the hazardous waste stream – 341,000 pounds last season. The furnaces also conserve new fuel that would otherwise have to be used for the same purpose.

Not all burning efforts have been successful.

In the early 1990s the NSF built a multi-million dollar incinerator to dispose of some of its solid waste at McMurdo Station. Believing Antarctica did not fall under federal regulations that would cover such a facility in the U.S., the foundation didn't prepare an environmental impact statement for the project. After losing a court battle with environmental groups, the NSF decided to abandon the incinerator approach and ship the waste home.

It was an event that probably increased the program's recycling rate. Now waste such as paper and cardboard that might have been burned gets turned into post-consumer products.

As the largest presence on the continent, the U.S.'s evolving approach to waste is becoming a standard for other programs.

"Other nations are starting to look to us for guidance with their plans," said Vinson.

The simplest Antarctic recycling method can't be beat. It's the "skua" system. No transport, processing, manufacturing or distribution is involved. Everything from clothing to chairs to televisions to teapots can be reused without having to go anywhere.

And the only hazard involved is looking out-of-style. ■

What happens to our trash

- 3.9 million pounds of waste went north from McMurdo Station at the end of the 1999-2000 season
- Largest shares: wood (651,000 pounds) and construction debris (650,000 pounds)
- Food waste made up 494,000 pounds
- That averages out to more than 400 pounds per person (population 1,200)
- 58 percent of all waste was recycled or reused

Discovery in the snow
Scott's Discovery hut was besieged by snow earlier this week. According to Art Cayette of Mac Weather, more than 20 inches fell in the area between Monday and Friday. The heaviest snowfall recorded in a single month was 28 inches in October 1971. Photo by Jeff Inglis.

South Pole poll: Nader for president

By Tracy Sheeley
Sun contributor

While the U.S. populace waits for the final results of the 2000 presidential election, summer residents of the South Pole have already picked their winner.

Victory goes to the Green Party.

In the mock poll, Ralph Nader led all other nominees with 32 votes, squeaking out a narrow victory over democrat Al Gore, who received 30 votes. Other major party candidates fared considerably worse. Seven Polies voted for republican George W. Bush, and reform party candidate Pat Buchanan received zero votes.

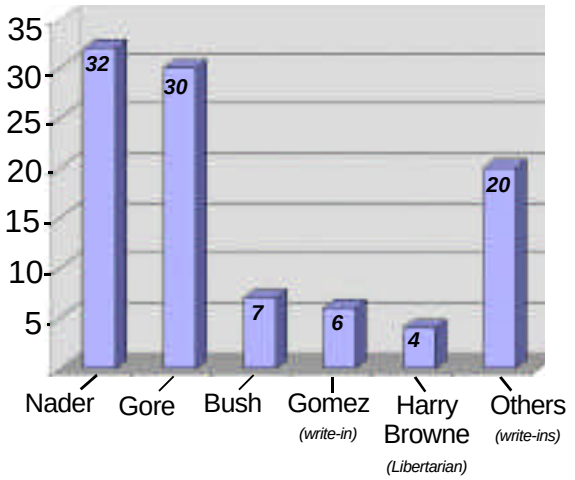
George Bush narrowly beat out Michael Gomez, a South Pole winter-over pipe fitter. Gomez was the preferred write-in candidate with 6 votes, and the local winner.

Unfortunately, Gomez left Pole on Nov. 9 for greener pastures, so there was no time to arrange a lift from Air Force One.

The write-in campaign was a lively one, with the vast majority of nominations receiving just one vote. Being alive was not a prerequisite, as ballots for candidates ranging from Ralph Waldo Emerson to Bill the Cat were submitted. Anti-government sentiment was detected in one ballot which read, "They're all crooks!"

Ninety-nine eligible voters participated in the South Pole election, which translated to a 50 percent turnout. Things are settling down once more at Amundsen-Scott Station, and the ballot box has returned to its original role - a materials inbox. ■

How the candidates ranked



If Polies were in charge, Ralph Nader would be our next president. Ninety-nine people – about half the station's residents – submitted ballots in a mock poll.

CORRECTION

Last week the photo that accompanied the article, "The skua: A bird for the ages," was incorrectly credited to Walter Clark. Irma Hale took the picture.

BACK BY POPULAR DEMAND

Morning Coffee House

TUES. - SAT. 6 TO 10 A.M. AT THE LATEST
(depending on business)

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Contributions are welcome. Contact the Sun at AntSun@polar.org. In McMurdo, visit our office in Building 155 or dial 2407.

Web address: www.polar.org/antsun

the week in weather

around Antarctica

McMurdo Station
High: 32F/0C
Low: -10F/-18C
Windchill: -36F/-38C
Wind: 56 mph/91 kph

Palmer Station (last week)
High: 42F/6C
Low: 13F/-11C
Wind: 53 mph/85 kph

South Pole Station
High: -33F/-28C
Low: -45F/-47C
Avg. temp: -39F/-39C
Wind: 37 mph/60 kph

around the world

Saturday's numbers

Cape Town, South Africa
High: 71F/22C
Low: 56F/13C

Perth, Australia
High: 81F/27C
Low: 57F/14C

Baku, Azerbaijan
High: 58F/14C
Low: 46F/8C

Pleasantville, N.Y.
High: 54F/12C
Low: 42F/6C

Natchez, Miss.
High: 66F/19C
Low: 49F/9C

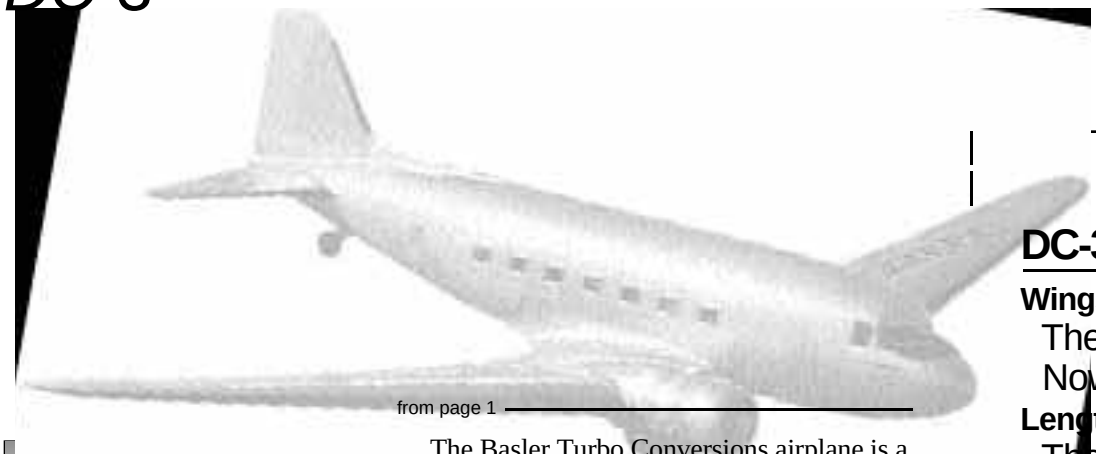
Nome, Alaska
High: 34F/1C
Low: 25F/-4C

web sites of the week

Voice your opinion on national and global issues

- www.planetproject.com
  Make your thoughts known on many topics. Actual polling Nov. 15-18, 2000.
- www.opinioncenter.com
  Express your opinion on myriad subjects.
- www.kcweb.com/vote/votemain.htm
  Voice of the Internet. Aggregate opinion-poll results are sent to lawmakers and media organizations on a regular basis.

DC-3



from page 1

The R4D-5 "Charlene" sits with engines running on the Liv Glacier. Eddie Frankiewicz and Jim Waldron spent hours waiting there, prepared to help Gus Shinn if he ran into any trouble on his historic flight to the Pole. Photo courtesy of Jim Waldron.

The Basler Turbo Conversions airplane is a modernized version of the Douglas DC-3, one of the most popular airframes in history. It's also a close relative of the types of planes that helped build the foundation of today's U.S. Antarctic Program.

The National Science Foundation plans to contract the plane for a month of service this season. It's currently delayed in Punta Arenas, Chile, but could arrive within days.

The Basler would fill a niche with mission requirements that fall between the LC-130 transports and the smaller Twin Otters. The plane can land on short, rough surfaces that might be too risky for the 130s, while still hauling more cargo than the Otters.

The BT-67's frame was built in 1944, but it's been modernized by Basler Turbo Conversions to meet current aviation requirements. The Wisconsin company extended the fuselage, lengthened the wingspan, replaced the cylinder engines with turboprops, installed state-of-the-art navigational equipment (including two GPS systems) and made extra room inside for a larger payload.

"The beauty of the DC-3 has always been its rugged reliability."

- Tom Weigt, president of aircraft manufacturing company

As far as aircraft design goes, the DC-3 is one of the most popular planes ever made. Since its debut in the 1930s it's been modified and transformed into dozens of different incarnations. It has flown on all seven continents and is still relied upon by operations ranging from the Bolivian military to the Royal Thai Air Force to smoke jumpers in the States and all kinds of deep-field workers around the world.

see DC-3 on page 9

DC-3: 1930S AND 2000

Wingspan
Then: 95 ft
Now: 8 inches longer

Length
Then: 64 ft 5 in
Now: 40 inches longer

Height
Then: 16 ft 4 in
Now: Slightly taller because of length extension

Max takeoff weight
Then: 26,900 lbs
Now: 28,750 lbs

Max useful payload (includes fuel)
Then: 9,085 pounds
Now: 13,000 pounds

Cruise speed at 10,000 feet
Then: 155 knots / 178 mph
Now: 210 knots / 242 mph

Interior cabin volume (excluding cockpit)
Then: 905 cubic feet
Now: 1225 cubic feet

Range
Then: 1,025 miles
Now: 2,140 miles

Engines
Then: Two nine-cylinder, radial air-cooled engines, providing 1,200 hp each
Now: Two Pratt & Whitey turboprops, delivering 1,424 max hp each

Cost
Then: $138,000
Now: $4.5 million

Ice Skate

A ray's rare appearance

By Teri McLain
Special to the Sun

In Greenlandic legend the skate is the sister of the shark. She was created as a companion for her brother by the Mother of the Sea, who saw that the shark was lazy and thought he might be bored. When Kim Praebel, fisherman and researcher here on the Ice, pulled up his long line at Fish Hut Three last week he found a large skate among the fish he caught. He thought nothing of it. "Asister of the shark," he said to himself. He catches them in Greenland all the time.

Not realizing that he was looking at the first specimen ever caught in McMurdo Sound, Kim put the skate aside and returned to the task at hand. Nine colossal *mawsonii* fish were also caught on the long line, and needed to be taken to the aquarium before they died.

In Antarctic waters, skates are abundant in both the Atlantic and Indian oceans. Only a handful of records indicate their presence in the Ross Sea, and no one has ever reported taking one in McMurdo Sound.

> There is a small possibility that it is a previously undescribed species.

Skates belong to a large group of boneless fishes known as elasmobranches, which includes both sharks and rays. They comprise just one family in the order Batoidei, which means all skates are rays, but not all rays are skates. Found from the Arctic to the Antarctic, their habitat ranges from shallow coastal regions to depths exceeding 9,800 feet (3,000 meters).

Late in the evening when all the fish were circling in the tanks, Art DeVries, principal investigator of the fish antifreeze project and a 39-year veteran of the McMurdo fishing scene, stood looking down at the skate.

"Hmmmph," he mused. "I wonder why I've never caught a skate."

The answer may lie in the old fishing proverb: It's not how deep you fish, it's how

see Skate on page 11

Above: Art DeVries draws a blood sample from the skate's tail. Because there were no antifreeze proteins present, he determined the animal stays alive in sub-freezing water by chemically lowering the freezing point of its blood. Photo by Teri McLain.

Left: The first skate caught in McMurdo Sound swims in a tank in the old aquarium. Photo by Josh Landis.

A long journey for three little planes

By Jeff Inglis
Sun staff

Two Kenn Borek Air Twin Otters fly over the southern Andes Mountains north of Puerto Montt, Chile. Photo courtesy of Sean Loutitt.

Nine people and three small planes recently arrived at McMurdo Station after a journey of over 11,000 miles (17,700 km) from Canada to spend four months flying in the Antarctic.

Each year, three de Havilland Twin Otter airplanes owned and operated by Kenn Borek Air travel from the company's base in Calgary, Alberta, through North and South America and across Antarctica to support the U.S. and Italian programs on the Ice.

This year the planes left Calgary on Oct. 23 and flew to Boise, Idaho, where two were inspected before continuing on to Houston, Texas, where they spent the night before flying to Grand Cayman Island for the second night of the journey. The trip affords them a luxury they don't have in Antarctica.

"Every night we go out for dinner and relax," said Kenn Borek's chief Antarctic pilot Sean Loutitt.

Leaving Grand Cayman, they flew the three planes over Panama and on past the Equator to Guayaquil, Ecuador.

Though government procedures in that area of the world can be difficult to deal with, three similarly-painted planes get friendly attention.

"They're pretty smooth for us," Loutitt said, though he noted that Ecuadorian officials inspect the planes carefully with drug dogs.

After a night in Ecuador, they leave the next morning for Arica, Chile, just over the border from Peru.

"We don't land in Peru," Loutitt said. "It's hard to get landing permits."

But they do just fine in Chile, with help from a few locals, including an air traffic controller who assists with paperwork.

"We seem to have built a good network of friends in Chile," Loutitt said.

After a night in Arica, they normally fly halfway down the length of Chile to Puerto Montt.

This year the pilots were in a bit of a hurry to make it to McMurdo as soon as possible to start work. They continued to Punta Arenas, an extra 800 miles (1,200 km).

In Punta Arenas, they changed into their cold-weather clothes. They learned the weather was bad at Rothera, the British Antarctic Survey base on Adelaide Island, their next stop.

After a day's layover, strong headwinds made what is normally a six-hour flight take eight hours. The winds, Loutitt said, included a 50 mph (80 kph) direct headwind, and crosswind gusts of over 80 mph (129 kph).

The gravel runway at Rothera is normally covered with snow in October, but this year it was not. Instead of just changing landing gear from wheels to skis on the snow-covered gravel runway, they had to shuttle planes one by one to a glacier runway for the conversion.

"Nine of us were working on this for 12 hours," Loutitt said.

After Rothera, the usual flight path calls for the planes to refuel at Patriot Hills before continuing to the South Pole. This year, though, two of the three went directly to the Pole, while one stopped at Patriot Hills to refuel and check the fuel cache the U.S. Antarctic Program maintains there.

All three made it to the Pole that day, Nov. 1, but then the weather came in.

"The next morning we woke up and couldn't even see the airplanes," Loutitt said.

Two days later the fliers were able to make it to McMurdo to begin the season's work, which will include flying over 100 hours per month, supporting deep-field camps and aerial surveying projects. One plane continued north to the Italian station at Terra Nova Bay.

At the end of the season, the planes will fly back to Canada again to work during the boreal summer before coming back down again next year.

"It's a trek," Loutitt said. "It's actually kind of fun." ■

Heads in the clouds

Sampling the skies with scientific balloons

speaking of science...

A team of scientists and engineers has conducted ozone research at McMurdo Station since the late 1980s. Our work relies upon a sophisticated array of instruments that is carried aloft by balloons to measure ozone and nacreous clouds.

After repeated attempts beginning at Winfly this season, we successfully flew a balloon into the Antarctic "ozone hole."

It was starting to get embarrassing. We just kept missing the hole with our balloons, which is about like missing the broad side of a barn with a shotgun.

The successful measurements, however, have provided a wealth of information concerning the processes that affect polar ozone loss, and how the seasonal ozone holes are changing over time.

We now know that ozone loss is a direct result of man-made chlorine in the atmosphere, and that ozone holes will disappear if the nations of Earth will comply with proposed bans of chlorofluorocarbons, the primary compounds responsible for chlorine buildup in the upper atmosphere.

In hitting the hole with a balloon, the really tough thing was lining it up right, and getting everybody to let go at the same time.

It sounds like a bad movie, but I just couldn't get everyone to "go on three." Someone would always say something like, "did you mean go on three, or one-two-three, then go?"

The team is now considering a more sophisticated system involving GPS-based guidance coupled with real-time satellite imaging of ozone hole location and movement.

I don't know how I feel about this, buying into sophisticated military technology to conduct our decidedly peaceful research, it kind of feels like a sell-out, but we want to stand back after every balloon launch and say "it's in the hole."

While important in its own right, the understanding of polar ozone loss has also provided valuable insight into ozone loss that occurs on a global scale, which directly affects the populated regions of Earth as well as penguins and people of Antarctica. ■

Speaking of Science is a column in which scientists describe their work in Antarctica. Mark Hervig is a research scientist at the University of Wyoming's department of atmospheric science.

Ozone holes will disappear if nations comply with proposed bans of chlorofluorocarbons.

- Mark Hervig, atmospheric researcher

A team of scientists and engineers launch a balloon loaded with instruments that measure ozone. Photos courtesy of Terry Deshler.

Answers to last week's crossword

Across
1. Home base of 109th Expeditionary Airlift Squadron - SCOTIA
4. South Pole's MAPO: Martin A. __ Observatory - POMERANTZ
5. The leader of the first expedition to reach the South Geographic Pole - AMUNDSEN
6. Captain of the Erebus - ROSS
8. New England sailing captain after whom a U.S. research vessel is named - PALMER
12. Small lake in Barwick Valley - VASHKA
15. Shackleton's last pony on his trek to reach the furthest south - SOCKS
17. Great Lake closest in size to Lake Vostok - ONTARIO
18. Wife of Sir Clements Markham, as in __ Bluff - MINNA
21. Oft-used mode of transport for early Antarctic explorers - SKIS
24. Captain of the first ship to cross the Antarctic Circle - COOK
25. Wind __ Hill, above Cape Evans - VANE
26. Cape __, site of smallest hut on Ross Island - ROYDS
27. The ship which first brought Scott to the Antarctic - DISCOVERY

Down
1. This enduring leader is buried on South Georgia Island - SHACKLETON
2. Number of Air National Guard LC-130H aircraft in use this season (as of last week) - FOUR
3. Island on which Palmer Station sits - ANVERS
7. Man who was "going out and may be some time" - OATES
9. He crossed most of George V Land alone, after the deaths of two companions - MAWSON
10. The leader of the first expedition to the South Magnetic Pole - DAVID
11. Coldest place on Earth - VOSTOK
12. Highest mountain in Antarctica - VINSON
13. Shape of the Sun's path around the South Pole - CIRCLE
14. With 5-Across, the man after whom South Pole Station is named - SCOTT
16. This year's icebreaker - POLAR SEA
19. Adm. Byrd's dog - IGLOO
20. Author of The Worst Journey in the World: Apsley Cherry-__ - GARRARD
22. Common gulls in the Ross Sea region - SKUAS
23. Two of Scott's party members bore this last name - EVANS

OUR ANTARCTIC WEEK

Sunday Nov. 12

• Veterans Day Ceremony, 2 p.m., galley. Everyone is invited, uniform optional.

• Science lecture: "Science On the Move: U.S. Contribution to the International Trans Antarctic Scientific Expedition," by Paul Mayewski, 8:15 p.m., galley

Monday Nov. 13

• Slide show: "High with Thai," traversing Denali and climbing in Nepal, 8 p.m., galley

Tuesday Nov. 14

• Trivia night at Scott Base, 7:30 p.m. Sign up with Recreation.

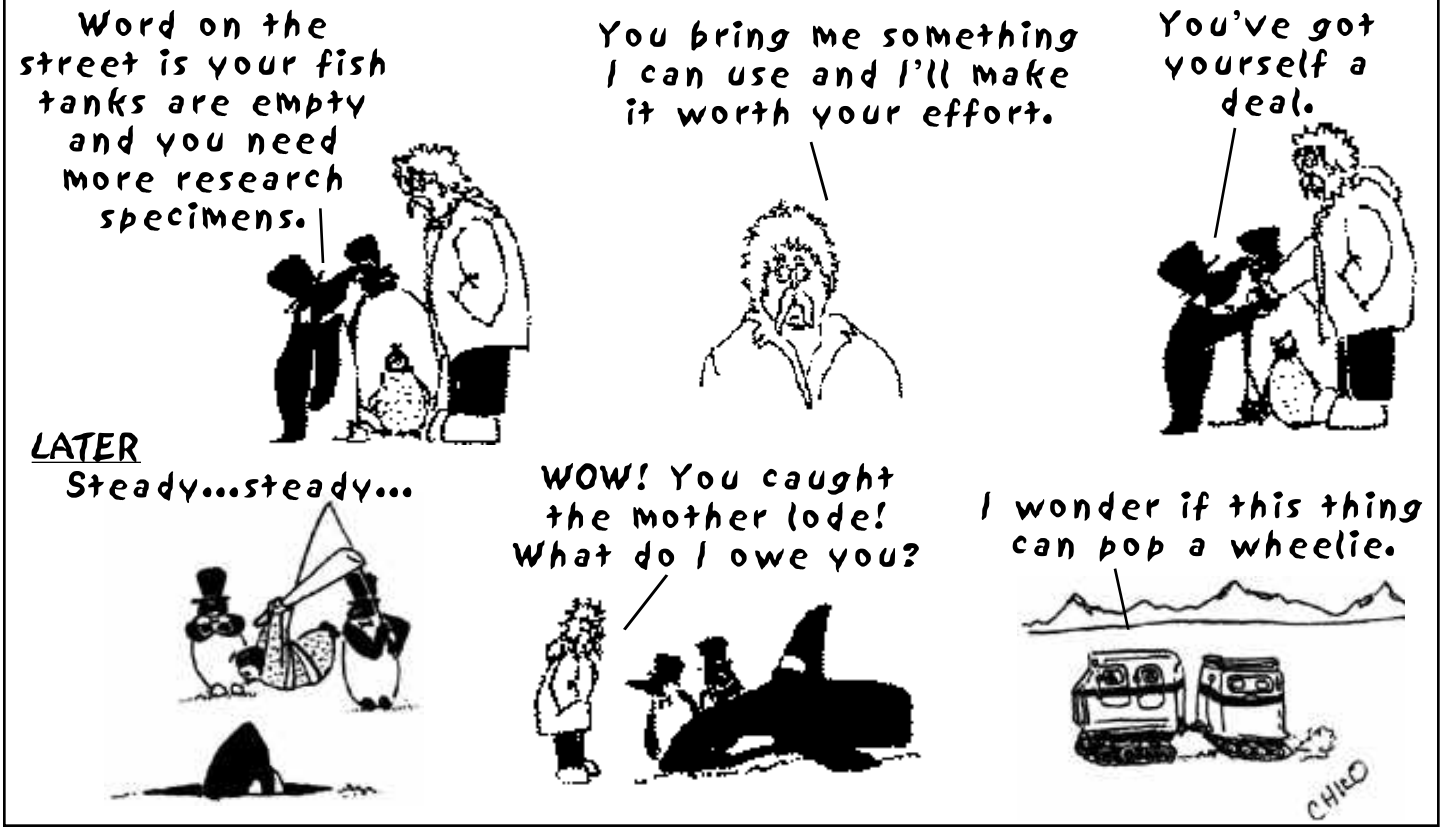
Thursday Nov. 16

• Movie night, "Truman Show," 8 p.m., Coffee House. Free pop - corn.

Saturday Nov. 18

• Chaplain's movie night, movie to be announced, 8 p.m., galley.

Ross Island Chronicles By ChicO



DC-3

from page 4

"The beauty of the DC-3 has always been its rugged reliability," said Tom Weigt, president of Basler Turbo Conversions. "Overall it is unmatched by anything in the market today."

It's unmatched in Antarctic history, too.

On Oct. 31, 1956, Lt. Cdr. Gus Shinn landed the first plane at the South Pole. It was a ski-equipped R4D-5 (a Navy version of the DC-3) named "Que Sera Sera." With temperatures hovering near minus 60 F, Shinn kept the engines running while Adm. George Dufek stepped out of the plane and became the first person to stand at the Pole since Robert Scott's party, more than four decades earlier.

For every milestone like this there are people behind the scenes who play a large part, too. Pilots Eddie Frankiewicz and Jim Waldron were the rescue crew who waited in the wings that day, and they too relied upon the same model.

They landed their R4D "Charlene" on the Liv Glacier as Shinn and Dufek flew overhead. "Charlene's" engines were kept running for the better part of a day, to be ready at a moment's notice in case the historic flight to Pole needed help.

Waldron remembers the aircraft fondly.

"It was a very reliable airplane. We put it through a lot of terrible weather and cold but it was always stable and had very few failures. It was terrific for what it could do," he said.

An aircraft commander at Little America Five digs the "Que Sera Sera" out from under a winter's worth of snow in August, 1957. The previous summer Gus Shinn landed the plane at the South Pole, becoming the first person ever to do so. Photo courtesy of Jim Waldron.

"It was a magnificent airplane," Frankiewicz said. "It could carry a great load of ice on its wings. And with a great big barn door for a rudder it made for easy cross-wind landings," he said.

Another pilot, E.D. "Buz" Dryfoose, explained the reasons it's as good as a mid-weight aircraft in Antarctica.

"For open snow landings at the reduced weight of the R4Ds, they could land where there were possible snow bridges over crevasses that could not be seen," Dryfoose said. "The 130s would not fare as well under those circumstances with 100,000 pounds more weight."

The R4D proved its worth time and again. On the other side of the Ross Ice Shelf at an encampment called Little America the planes would be left to winter on their own. Upon returning, the aircrew would dig the machines out of the snow, fire them up and fly away.

Nicknamed the "Gooney Bird," the last Navy R4D was taken out of service in the mid-1970s.

The Basler version of the plane will be new to the U.S. program, but it has been to Antarctica before. Last summer was its first season on the Ice. Adventure Network International (ANI) used the aircraft for tourist trips on the other side of the continent.

Leading Edge, a company under ANI, would be operating the BT-67 for the NSF.

If the deal happens, it would be a unique relationship. Government programs and private adventure companies are often at odds when it comes to activities on the Ice. An operation like the USAP would be morally obligated to help an adventurer in mortal danger, but typically isn't consulted when expeditions are planned.

Still, NSF station representative Dave Bresnahan says there is a lot of common ground between the two operations.

"There's been a lot of cooperation between us and ANI," Bresnahan said. "They keep us informed about what they're doing, and (the relationship) may evolve in the future."

But it's the past that will be brought to life when the latest reincarnation of the DC-3 flies the skies of Antarctica again this season. ■

Cold hard facts

SOLIDS

Pounds of cargo planned for South Pole this year (including fuel): 7,258,827
Sheets of paper distributed by Central Supply last summer: 830,000
Pounds of Antarctic Cod expected for Thanksgiving: 180
Pounds of freshies brought in last week: 15,000
Pounds of southbound package mail waiting in Christchurch: 23,750
Pounds per survival bag: single 40, double 60
Number of pagers issued at McMurdo Station (as of Nov. 7): 326

- compiled by Beth Minneci and Jeff Inglis

What's in a name?

By Jeff Inglis
Sun staff

The seventh continent bears the names of heroic explorers and heavy equipment operators alike

When explorers first set eyes on Antarctica, "Terra Incognita" wasn't just an unknown land, it was an unnamed land, too.

They soon took care of that, naming prominent geographic features after themselves, their ships and those who gave them financial backing.

In 1841 Capt. James Clark Ross named the Ross Ice Shelf in his own honor; he named mounts Erebus and Terror for his ships. Capt. Robert Scott, 60 years later, named Cape Armitage for his second-in-command and Minna Bluff for the wife of Sir Clements Markham, one of Scott's primary sponsors.

But Antarctica is a big place. There are still a lot of points, bluffs, peaks, glaciers, nunataks and other formations that need labeling. Since 1947, the U.S. Board on Geographic Names and its Advisory Committee on Antarctic Names have handled that task.

To decide on designations names are first categorized as personal or non-personal.

The latter include commemoration of events (for instance, Jubilee Peak), ships (Glacier Bight), Antarctic-related organizations (USARP Mountains) and descriptions of features (Turtle Rock).

People's names are, of course, also used. They are assigned based on the level of a person's contribution to Antarctic research or history, and on the type of geographic feature.

First-order features are large, such as regions of land, large glaciers, ice shelves and large mountain ranges. They are named after leaders of major expeditions, towering figures in Antarctic history and donors to Antarctic research.

Second-order features include peninsulas, significant mountains, prominent coastal features and islands. They are named for people who have played significant but lesser roles.

Third-order features include nunataks, cliffs, rocks and anchorages. They are named for people who have supported Antarctic endeavors.

Various people in the U.S. Antarctic Program have been immortalized on the Ice, from top dogs at the National Science Foundation to long-term program employees (see sidebar). NSF director Rita Colwell was once an Antarctic field researcher; a mountain now bears her name. NSF representative Dave Bresnahan and his boss Erick Chiang both have mountains named for them.

Chuck Gallagher served in the U.S. Naval Support Force, Antarctica and then worked for Antarctic Support Associates before dying at McMurdo Station on May 1, 1997. A ridge bears his name. ■

In alphabetical order, here are some Antarctic geographic features named after some members of the U.S. Antarctic Program who will be on the continent this season. Their accomplishments are listed in brief. For a complete list and searchable database, visit the U.S. Geological Survey's Antarctic names web site at http://mapping.usgs.gov/www/gnis/antform.html.

Ainley Peak is named for David Ainley, penguin and skua researcher.
Alcorta Rocks is a nunatak named for Jesse Alcorta, hazardous waste specialist and cryogenic technician.
DeVries Glacier is named for Art DeVries, long-time biologist at McMurdo Station.
Guthridge Nunataks are named after Guy Guthridge, director of polar information services for the NSF and chair of the Advisory Committee on Antarctic Names.
Joyce Peak is named for Karen Joyce, who has worked in computer science support for 10 years.
Kennedy Ridge is a ridge named for Nadene Kennedy, NSF's polar coordination specialist.
KottmeierMesa is named after Steve Kottmeier, who's been a scientist and administrator with the program since 1988.
Krall Crags is a pair of summits named for Sarah Krall, who has worked in the program for over 10 years.
Kyle Hills is a group of hills on Ross Island named for Phil Kyle, who has studied Mount Erebus for 28 years.
Lettau Peak is named for Bernhard Lettau, ocean and climate sciences pro-

continued on next page

Highway One

If you could have any type of Antarctic geographic feature named after you, what would it be and why?

"The ceremonial pole, because it's bright and shiny and everybody would have their picture taken standing next to me."
Susan Sawtelle
South Pole winter-over safety coordinator

"It'd have to be a peak, because it'd give me something to look forward to climbing."
Peter Bevan
Electrical foreman

"An iceberg, because it floats along so gently."
Susan Lee
Finance

"Aglacier, because it's slow-moving and old."
Bill Haals
McMurdo operations manager

Skate from page 5

you wiggle your worm. Both DeVries and Praebel set their lines at 1,600 feet (500 meters) and both use 20 hooks. But where Art employs the standard hook, line and sinker, Praebel is the McMurdo pioneer of an innovative device known as the Greenland Glider.

A weighted sheet-metal hydrofoil that sails a flat trajectory, the glider does not land on the bottom until it is several hundred yards from the hole. The line lies at an angle, in sharp contrast to DeVries' traditional vertical configuration. Asmall weight is sent down the glider line, which stops at the first hook and sends all twenty hooks to the bottom.

Skates are creatures of the benthos. They live on the sea floor, where they bury themselves in the sand when they are not feeding on a variety of invertebrates and small fishes. Their senses of smell, sight, touch and vibration are well-developed. They can also sense electrical and magnetic impulses. Their reproduction rates are low, making them vulnerable to habitat loss and overfishing in other parts of the world.

The male fertilizes the female internally with its claspers, firm organs with internal cartilage. Courtship usually includes nibbling and biting and copulation can last hours or a few minutes. The act may occur in mid-water or on the bottom, and in a variety of positions; belly-to-belly or back-to-belly with the claspers twisted.

The end of the clasper has many tiny hooks, spines, discs and grooves that grasp the female during mating as well as transfer the semen. Lubricating fluid is produced in secretory glands at the base of each clasper. The teeth and body spines also help the male to maintain its position. Females may mate with several males in succession.

The skate that Praebel caught is a well-developed male, measuring 3.7 feet (115 cm) long and weighing 25 pounds (11.3 kg). Preliminary examination indicates that he may be a member of *Bathyraja eatonii*, but a complete taxonomic analysis will be conducted by an expert when the skate is returned to the States later this season.

Kim Praebel, researcher and fisherman, examines the skate's mouth. He caught the fish using a special device he calls the "Greenland Glider." Photo by Teri McLain.

There is a small possibility that it is a previously undescribed species.

Positive identification is easier with a collection of specimens, both male and female, as well as examples of adults and juveniles. Upon learning this, Praebel said, "We'll just have to catch more."

Meanwhile, in his McMurdo lab, DeVries analyzed a blood sample taken from the tail of the skate. He did not find any antifreeze glycoproteins. To prevent freezing in the 28.5 F (-1.9 C) water of the sound, the skate employs a mechanism similar to the invertebrates.

"Their blood is isotonic with the seawater," DeVries said. This means that their freezing temperature is the same as the water they inhabit and as long as it doesn't freeze, neither will they.

It may be a long time before there is another skate in the aquarium in McMurdo. But then again, there may be more after the next long line is pulled up.

Praebel is sailing his Greenland Glider every day from Fish Hut Three in a mad quest for the fearsome *Dissostichus maw - sonii* and the elusive McMurdo Sound skate. "If they are there," he said, "we will catch them." ■

Teri McLain is a self-described science mercenary. She works with Art DeVries.

Names from previous page

gram manager at the Office of Polar Programs.
Mount Bresnahan is named for Dave Bresnahan, current NSF representative at McMurdo Station.
Mount Chiang is a mountain named after Erick Chiang, manager of operations for polar programs.
Mount Melton is a peak named for Terry Melton, who has worked as an engineer and manager at Palmer and McMurdo stations since 1981.
Palais Glacier is a glacier named after Julie Palais, field researcher in Antarctica and NSF polar glaciology program manager. Palais Bluff also bears her name.
Robbins Hill is named for Rob Robbins, science diving coordinator and 22-year program veteran.
Scanniello Peak is a peak named after Jeff Scanniello, surveyor at McMurdo and South Pole stations.
Uberuaga Island gets its name from Jules Uberuaga, long-time equipment operator.

Profile

Fire in the hole

Mike Dennistoun checks blasting caps, which determine the duration and direction of blasts. Photos by Beth Minneci.

By Beth Minneci
Sun staff

At first glance, explosives engineer Mike Dennistoun is a quirky character.

His red jacket is as dirty as a coal-miner's. His eyes bulge and he crows "woo-hoo" and "wee-hee," with child-like excitement when he talks about blowing up rocks.

But take another look.

Dennistoun is a self-taught pianist who played on a lounge circuit and a beekeeper who hands out honey to relatives on holidays. A former Seattle disc jockey, he was once the only white guy at a Motown radio station.

His road to blasting started early. When Dennistoun, 43, was a kid, his parents inadvertently introduced him to explosives.

"My parents bought me a chemistry set when I was eight and about two weeks later I blew my windows out,'' Dennistoun said. "My dad said, 'Oh my God we've created a monster.'"

But a love for radio started diverting much of his attention from explosives – at least for a while.

The same year he exploded his room, Dennistoun got a kid's voice part on a radio show. Later, he spun records at his high school and college radio stations.

After earning a bachelor's degree in communications at the University of Washington, he played assorted music at a number of stations – from jazz to light and alternative rock.

All the while, he said, he practiced "mischief" with explosives and rocks.

At 26, weary of low-paying radio jobs, he called the head of the Institute of Explosive Engineers in nearby Issaquah, Washington, a school for geology and blast design and techniques.

"He spent a half-hour on the phone telling me why I don't want to be an engineer," Dennistoun said.

But instead of deterring him with a description of dirty, dangerous work, the school's head turned him on to a new career.

"I'd been developing my own explosives all my life. Here was a whole industry for what I like to do, and they'll pay me $50 an hour to do it…I said, 'Great, see you at 8 tomorrow.'"

> "I'd been developing my own explosives all my life. Here was a whole industry for what I like to do."
>
> *- Mike "The Blaster" Dennistoun on becoming an explosives engineer*

After a summer as a blaster in Antarctica in the late 1980s he went home and blasted quarries for road rock and tunnels for highways. Last year he returned to the Ice.

"There's something that draws you back," he said.

The areas he blows up here are smaller than at home, where he'd use 70,000 pounds of dynamite to break up a quarry compared to about 80 pounds in a recent McMurdo project.

But it's not the size of the boom that matters most; it's the challenge in designing the blast. "It's small explosives, properly placed, properly timed,'' he said.

Take the ongoing 5 p.m. blasting project near the sea ice as an example.

For several days Mike "The Blaster" Dennistoun and his assistant, "Dynamite" Jim Stephenson have been busting up sections of rock to make way for the foundation of a new sewage treatment plant.

Each blasting day, Dennistoun drives up a winding road behind McMurdo Station where explosives are stored in white huts.

One day last week, Dennistoun tossed boxes of four- and 1 1/2-pound dynamite sticks on the back of his truck, enough to blast about 100 square feet of rock.

"That should do it," he said, rushing to the driver's side of the truck. "Wee-hee."

Dennistoun had spent half the day drilling 16 eight-foot holes, spewing dirt all over his jacket.

He and Stephenson dropped dynamite in the holes, and speared the sticks with tube caps that control the direction and duration of the shock signal.

The staggering of explosions is a kind of choreography, he said. The blasts are milliseconds apart.

"This is the part that I relish in,'' he said, "It's a bit of design, creativity and science."

By pumping once on a T-bar that resembles something out of a Road Runner cartoon, the signal jumps from hole to hole, igniting the dynamite row by row, just as planned.

"Woo-hoo," Dennistoun said, while he watched the rocks jump in the air. ■