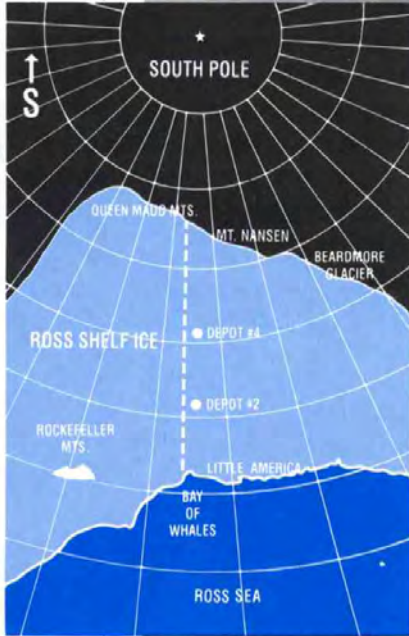


The Antarctic Century

NUMBER 4

SPECIAL DOUBLE ISSUE

JULY - OCTOBER 1989



Larry Gould of the Antarctic

It was December 7, 1929. Fierce winds shook the men as they ascended Mt. Nansen's icy slopes, their shivers and cold shakes gratefully offset by warm, trembling expectations. Finally gripping the long-sought prize, Larry Gould breathed a deep sigh and was seized by these emotions:

No symphony I have ever heard, no work of art before which I have stood in awe ever gave me quite the thrill that I had when I reached out after that strenuous climb and picked up a piece of rock to find it sandstone. It was just the rock I had come all the way to Antarctica to find.

It was music to the ears of one Laurence McKinley Gould, age 33, geologist, teacher, and polar explorer — who had come to The Ice to find a link between the great Seventh Continent and Earth's other great land masses. Suggested earlier by Ferrar (on Scott's Discovery Expedition) and others, these rocks were a searing ambition for the young, dedicated scientist — now second-in-command to Richard Byrd on this, the United States' first Antarctic expedition in 90 years.

We thank Larry Gould, the Archives of Carleton College and Eiler Henrikson for permission to use the photographs and illustrations contained in this issue. Thanks also to Eiler and Chris Henrikson, Nancy Goell, Pete and Linda Kresan, and Peter Anderson for their wise counsel, suggestions, and guidance.

Thanks to The Tinker Foundation, whose generous support has made publication of this Newsletter possible.

Mt. Nansen's sedimentary rocks were a small part of a great puzzle. Later finds, like the 1969 discovery of a small reptile fossil called *Lystrosaurus*, also helped to prove the geological link between the continents, that all were once part of the great Gondwana, and that the theory of continental drift was more than idle speculation. These rocks, and the great, dog-sledge trip to find them, became a life-time inspiration to Larry Gould.

Now the dean of living Antarctic explorers, Larry has played his symphony for countless numbers of students, explorers, and friends of The Ice. For all to whom Antarctica is a milestone and a benchmark, Larry's scientific work, writings, and career have left an indelible mark. In this issue, we celebrate his career and the 60th anniversary of his great sledge trip.

The Stage is Set

All great Antarctic explorers have succeeded because of their "teams," the very able individuals and colleagues who often risked life and limb for their leader. Linked to Robert Falcon Scott, for example, was the inestimable Ed Wilson, the great ornithologist, medical doctor, and friend to all; with Shackleton, there was Frank Wild, the hard-nosed, gutsy lieutenant who kept 22 starving, determined souls alive at Elephant Island while "The Boss" sought help on his open boat voyage to South Georgia; and with Richard Byrd there was Larry Gould, whose sharp wit, trap-door intellect, fairness, and dogged purpose made him the scientific and humanistic glue of a venture that earned worldwide acclaim.

The 1929 Byrd Expedition was an opportunity not to be missed. Financed by the likes of Edsel Ford, John D. Rockefeller, Jr., the American Geographical Society, and the National Geographic Society, it was the expedition to end all expeditions — at the time, the best financed and largest-ever to Antarctica: more than 40 men, two support ships, four airplanes, more than 90 dogs, and enough food and medicine for a couple of years' work. Byrd's goal was to attempt the first-ever, South Polar flight; he already was the toast of the States and the World, having flown the Atlantic a month after Lindbergh, and now, he tempted the public with another geographical and mechanical challenge.

Larry Gould found opportunity knocking. Like Robert Cushman Murphy, the ornithologist who made landmark studies of South Atlantic and Antarctic seabirds earlier in the century, Larry left behind his career (teaching at the University of Michigan) for the opportunity to visit uncharted territory in



Members of the Geological Sledge Party and the Supporting Party.

the frozen desert of the Ross Ice Shelf and the mysterious Trans-Antarctic Mountains. It was a chance to blaze geological trails in a search for new rocks, new fragments for understanding the geological chain of evolution.

Why were they on The Ice? Why did they all want to come?

... Some came for the sheer love of adventure and wanted no reward beyond that; some wanted fame or its counterfeit, publicity; some were mercenary and thought primarily in terms of what they were going to get out of it; and lastly there was that small group, the like of which gives character to any expedition of merit — not necessarily scientists at all, but men who could understand the lure, if not the love of knowledge for its own sake; men who came not for position or money but who found full reward for their effort in the pursuit of an ideal.

The romance of Antarctic exploration was peaking, the legends of Scott, Shackleton, Amundsen, and Mawson still bright. Historically, though, the world was on the brink: a crashing stock market; the pending Great Depression; and the continually fracturing European politics that would lead to World War II. The Byrd Expedition plunged forward, a band of dedicated adventurers on the cutting edge of exploration and science.

The newsletter and its contents are solely the property of OCEANITES and may not be used without its permission. OCEANITES, Inc. is a non-profit foundation incorporated under the laws of the State of Maryland, and a Section 501 (c) (3) tax-exempt organization under the provisions of the U.S. Internal Revenue Code. Contributions and bequests are fully deductible as provided by the Code. Your tax-deductible contributions are not necessary to continue receiving the Newsletter, but would be greatly appreciated.

The Antarctic Century Newsletter is edited by Ron Naveen. Additional copies are available at \$3.00 per copy. Please address all correspondence to OCEANITES, 2378 Rt. 97, Cooksville, MD 21723. (301) 854-6262. ©1989 Oceanites, Inc.

It was a special time, the South Pole flight often cited as the end to the romantic period of Antarctic exploration. After 1929, men and women relied more on machines, than on their bodies, for accomplishment on The Ice. Yet, right on this cusp between the heroic age and modern times, sits one last feat of romance: Larry Gould's dog-sledging foray to find the Mt. Nansen sandstone.

The Byrd Expedition Begins

Byrd and his men arrived in the deep south in December 1928. With Larry in charge, they established a base camp called Little America on the towering, creaking, and shifting Ross Ice Shelf, the wide swath of moving ice bordering the Ross Sea, about 800 miles as the skua flies from the Pole. Little America was in the vicinity of the Bay of Whales, also the site of Amundsen's base camp, Framheim, from which Amundsen made his 1911 trip to the Pole. While the men scurried about to outfit Little America, Byrd made his first aerial surveys into the continent, discovering a new mountain range — named the Rockefeller Mountains — east of the 160th meridian, in the area now called Marie Byrd Land.

Larry flew with pilots Bernt Balchen and Harold June to explore this new area on foot, hoping to collect geological samples and examine the terrain. Unfortunately, they met with near-tragedy, being caught in a severe storm that destroyed their aircraft. At one point the great storm left Larry blowing cross-wise in the wind:

... Bernt and I were trying to anchor an additional line to a wing, when a sudden gust blew me off my feet and held me streamlined horizontally in the air for some seconds. And the wind was increasing all the time. Once I was knocked off my feet by a blow on the side of my head.

Though he could not possibly have heard me, I started to tell Bernt what a clumsy ass he was with the shovel. I looked up to find that he wasn't within 40 feet of me. I just had the time to dodge a piece of hard snow half as big as my head or I should have gotten another crack. It seemed that the whole earth was being torn apart. In spite of its hard glazed surface the wind was breaking loose great pieces of snow and sending them bounding across the ground or hurtling them through the air.

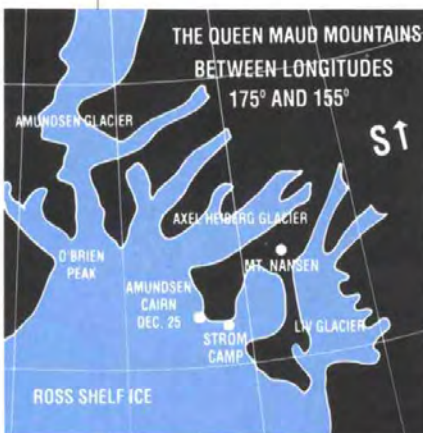
So much for a first taste of Antarctic geology! The men were rescued by a search plane in three days, and returned to Little America. With the lost plane, however, next spring's geological trip to the south, timed to coincide with the South Polar flight, would have to rely totally on dogs for transport.

Preparations and the Antarctic Winter

Without access to airplane transport, Larry and his geological team — Norman Vaughn, Mike Thorne, Eddie Goodale, Jack O'Brien and Freddy Crockett — expected quite an adventure. None had any significant sledging experience, and they had to become expert dog handlers and provisioners. The six months' preparation was earnest and effective, their love for, and skill with, the dogs increasing exponentially with each passing day.

Larry's expectations were high. The Geological Party would have a hard core look at the previously unexplored Queen Maud Mountains, laced with impressive glaciers, perhaps containing the clues Larry had come to find. The range had many impressive glaciers, one of which, the dangerous, crevassed Axel Heiberg Glacier, was Amundsen's gateway to the Pole.

Larry and his team spent much time poring over the journals and notes of Scott, Shackleton, Mawson and Amundsen, gleaned as many secrets as possible from these masters.



Campsite, Liv Glacier.

Indeed, Amundsen's presence was strong; the men would traverse areas that Amundsen had covered on his great trek to the Pole in 1911; some of the members of this expedition, like Martin Ronne, had been with Amundsen at his winter quarters at Framheim; and, most poignantly, the great Norwegian had been lost the previous year in a flight over the Arctic.

From descriptions of these long winter months in his polar classic, *Cold*, Larry obviously had become a keen observer of Antarctic phenomena, each encounter bringing new thrills. On Antarctica's unexpected colors:

Each day [as winter approached] the sun got perceptibly lower and the periods of daylight very noticeably shorter. But this was withal the most gorgeously colorful time of the year. The snow had lost its chalky or marble whiteness of the summer when the sun was high. Now it was shimmering with colors that one could never exactly identify as blue, purple, opalescent, or rose. And more than once in the latter days of March, I was stopped in my tracks by the glory of the setting sun. Most often were to be seen rich reds and royal purples widely fringing the ragged stratus and cumulostratus clouds that hovered about the horizon. If there were no clouds then the sun became a flame scarlet ball, sometimes surrounded with the most complicated and fantastic halos and mock suns.

Not infrequently the air was filled with minute frost particles which caught the light and color from the sun and diffused it throughout the surrounding atmosphere. The whole world became saturated with color. The sunset was not a thing far away — one participated in it. One had a very real illusion of being suspended in a world of soft pastel colors. . . .

With the onset of winter, the light show got better:

. . . I shall not forget [that] night early in April; a shaft of greenish white light streaming up from the horizon to the east that soon arched the heavens in a dancing band of



On the Queen Maud sledge trip.

light. Suddenly it was faintly aflame with all the hues of the spectrum. It was a rainbow which seemed to be infused with the spirit of jazz.

During the latter days of August and early September, as spring beckoned, there was:

. . . the miracle of the returning sun [and] we could easily understand how man might worship him, purely from the standpoint of beauty. The color effects seemed to have been cumulative. It was as though the sun had been storing up over the four months that he had been gone for the great splashes that colored the early days of his return. And it is when the sun is near the horizon that the snow takes on its richest colorings, shading from the pale blue of celestite to the deepest purples where the shadows are heaviest. It is a kind of giant fairyland for in the flatly oblique rays of the sun everything casts long skeletal shadows that give an effect of only semi-reality.

The Great 1929 Geological Sledging Expedition

With spring beckoning, of course, the geological sledge-dog trip neared its start. Larry's geographical and geological goals loomed: climbing Mt. Nansen to get a cross section of the Queen Maud range; exploring Amundsen's suggestion that there was a unique highland running eastward from the Queen Mauds (which ultimately could not be found); and to explore "appearances of land" suggested by Amundsen between the 81st and 82d parallels. One original purpose, now scrubbed, was to lay depots before the South Polar flight; still, the Geological Party would radio weather reports back to Little America, assisting Commander Byrd in finding the necessary window for flying to the Pole.

The Geological Party's departure suffered many fits and starts, the men testing their sledges, dogs and equipment, and Commander Byrd insisting on a careful beginning to this potentially arduous journey. Larry found that getting used to the dogs produced more than a few bruises. Sufficient time was taken to mend these initial scrapes, and to insure that all equipment worked and that the dogs could be successfully handled. To give the Party a running start, heavy loads were moved ahead to depot No. 2, 110 miles south. From there, there would be about 330 miles to the Queen Mauds.

The Geological Party finally left Little America on November 4th: six men, with five teams of nine dogs each, with each team hauling two sledges in tandem, each sledge carrying just under a half ton in weight. As expected, the run to depot No. 2 was relatively easy; then, the hard work began. A Supporting Party had marked the crevassed area between 81° South and depot No. 4, 220 miles south of Little America, making that difficult leg more comfortable. Larry reached depot No. 4 on November 17th; thereafter, the Geological Party was on its own, in uncharted, unsupported territory, and with much extra dog

Antarctic Traveler's CODE



Antarctic Visitors

- **MUST NOT** leave footprints in fragile mosses, lichens, or grasses.
- **MUST NOT** dump plastic or other, non-biodegradable garbage overboard or onto the Continent.
- **MUST NOT** violate the seals', penguins', or seabirds' Personal Space
 - start with a “baseline” distance of: 15 feet (5 meters) from penguins, seabirds, and true seals and 60 feet (18 meters) from fur seals
 - give animals the right-of-way
 - stay on the edge of, and don't walk through, animal groups
 - back-off if necessary
 - never touch the animals.
- **MUST NOT** interfere with protected areas or scientific research.
- **MUST NOT** take souvenirs.

Antarctic Tour Companies

- **SHOULD** apply the Antarctic Traveler's Code to all officers, crew, staff and passengers.
- **SHOULD** utilize one (1) guide or leader for every twenty (20) passengers.
- **SHOULD** employ experienced and sensitive on-board leadership.
- **SHOULD** use vessels that are safe for Antarctic ice conditions.
- **SHOULD** adopt a shipwide anti-dumping pledge.

ATCO Announcement

Washington, D.C., July 31, 1989 — Today, we propose an **Antarctic Traveler's Code** for all who might venture to the great Seventh Continent and the Southern Ocean.

The **Code** would apply to all Antarctic visitors — tourists and expeditioners, scientists and scientific base personnel, shipboard crews and support staff, and diplomats — and incorporates readily understood and easily applied guidelines.

At present, the Treaty Parties have not fashioned sufficiently specific guidelines to govern tourism and other Antarctic visits — and which insure minimal impacts to Antarctic wildlife and fragile habitats. Further, among the various Antarctic tour companies and the national scientific programs, there is much disparity in visitation procedures. We hope that the **Antarctic Traveler's Code** addresses these gaps.

The **Code** is based on basic conservation principles, the ethics underlying the Antarctic Treaty's 'Agreed Measures for the Conservation of Antarctic Fauna and Flora,' prevailing international conservation Treaties, and our collective experience as expedition leaders and naturalists in the field.

Personal Space and Minimum Distances

Most tours and visits occur during the peak breeding seasons for many Antarctic animals, and it's easy to have a devastating impact on breeding success. Nothing can justify that kind of result.

Minimum distances — 15 feet (5 meters) from penguins, seabirds, and true seals (Crab-eaters, Weddells, Leopards, and Elephants) and at least 60 feet (18 meters) from fur seals (which can be very aggressive) — are a helpful starting point, but may prove too rigid and artificial — especially with visitors who ignore the animals' behavior. What we'd prefer is combining these minimums with a standard for respecting the animals' **personal space** — in all situations, and without excuses.

The concept is easy to apply: stay at whatever distance is necessary to avoid a disturbance; this may involve more space than the suggested minimums of 15-60 feet (5-18 meters). If an animal starts to fidget, back-off. Passengers and visitors should stay on the edge — the periphery — of any animal assemblage, and avoid walking through any group of resting, courting, nesting, or displaying animals. Regarding penguins, these precautions avoid giving assistance to plundering skuas and sheathbills, who are always intent on seizing a few extra eggs or chicks. For safety's sake, passengers and visitors should never get between a fur seal and the water's edge. The animals, obviously, should never be touched.

More than ever, there's a serious need to consider these kinds of guidelines. The 1988-1989 Antarctic summer witnessed two major disasters: the wreck of (and oil spill from) the supply ship/tourist vessel *Bahia Paraiso* in Arthur Harbor, and the grounding of the *Humboldt* near Marian Cove on the western end of King George Island. Many are calling for stricter regulation (perhaps, the limitation or elimination) of Antarctic tourism, and for tougher prohibitions on the conduct of Antarctic scientific operations.

No doubt, we believe that a discussion of the pros and cons of Antarctic tourism and visitation is both healthy and appropriate; however, we don't think it's wise to lose the many positive benefits that otherwise would result — if visits are conducted sensitively. We firmly believe that those who visit and work in The Ice provide

a major boost to the future conservation of Antarctica. Each season, the Antarctic generates more than 3,000 ebullient tourists and countless numbers of enthused scientists and support personnel, who return to their many home countries, excited about what they've seen, and who want to do something to conserve Antarctica for the future. We believe that these folks are a valuable resource in this effort.

From our experience as expedition leaders and naturalists in Antarctica and in many other of Earth's fragile ecosystems, we strongly believe there's a proper way to go about this business. We're the ones who have been on the 'firing line' at the landing sites — policing visitors and tourists, enforcing our gut-level sensitivities, and making sure that these guests witness Antarctica's beauty and grandeur in a safe and environmentally sound fashion.

Yet, we're caught in the middle: while, by default, we've had *ad hoc* responsibility to enforce the Antarctic Treaty on the landing beaches, we are neither policy-makers for or full-time employees of the tour companies, nor are we official representatives of the various governments involved in the Antarctic Treaty System. We're greatly concerned that the 'voice' of naturalists working The Ice will be lost in the pending debate about Antarctic tourism and visitation practices. Our aim and purpose, then, is to start this discourse in the right direction by stating how 'we've done it' — how we've created an abundance of dedicated Antarctic enthusiasts without, we are sure, compromising the Antarctic environment.

Over the years, we've fought many battles about what we view as sensitive, environmentally sound visiting and tourism. The **Code** is simply a composite of our experience; we speak only for ourselves, and trust that we can set an example for others who may be visiting The Ice in the future.

The **Code** requires the full support of both the Antarctic shipboard tour industry, which alone brings 3000+ passengers southward during each Antarctic tour season (November-February) and the various national Antarctic programs.

Suggestions for Antarctic Tours

Regarding the tour industry, we suggest a passengers-to-guides ratio of 20 to 1 (to insure the proper supervision of visitors at landing sites) and the application of the **Code** to all shipboard crew and personnel. Experienced, on-board leadership is critical; Antarctic trips should be led by experienced Antarctic guides, leaders, lecturers, and crew. On the expedition staff side — those with the most contact with the passengers — this can best be accomplished by employing sensitive, well-trained expedition leaders, guides, and lecturers who have solid backgrounds as naturalists or scientists (irrespective of where they may have worked), or who have been 'trained' as staff on previous Antarctic trips. We would welcome an industry goal to train a few new staff each season, to carry-on the tradition.

Staff should be fully familiar with the Antarctic Treaty provisions and Recommendations, facilitated by communication and a free flow of information between the tour companies and the national Antarctic programs. Regarding visits to research stations, staff and crew should take care to give the Treaty's required 24-72 hours' notice.

It is important that passengers are adequately advised, in advance and on board, about the landings that they will be making, and that they are properly supervised while off of the ship. Although we have serious concerns about a few Antarctic landing sites that may be incapable of handling large numbers of people (i.e. more than 125), our greater concern is with the supervision of passengers, by staff, while ashore.

We believe that the expedition staff should be available at the landing site, to answer questions and, most particularly, to insure that passengers and visitors cause no disturbances. Again, based on our experience and given the typical landing sites that are visited in the Antarctic, we believe that this requires at least one (1) guide or leader for each twenty (20) passengers (or, 5 guides for every 100 passengers).

For everyone's safety, Antarctic tours should utilize vessels that are safe for Antarctic ice conditions.

The Code's Application to All Vessels and Crews

One substantial criticism of Antarctic shipboard operations — tourist and otherwise — is that crews on some vessels show little respect for the environment. As a matter of common sense, it is imperative that the **Code** should apply equally to crew as well as to expedition staff, passengers, and scientific staff. It is incumbent on the captains and their senior officers to insure that those under their command, while taking shore visits, adhere to these guidelines.

Suggestions for Up-to-Date Treaty Recommendations

With respect to updated Recommendations under the Treaty, we suggest better marking and posting of protected areas, the development of multiple use sites where both visitors and scientific work could be accommodated, and improved notice by the national Antarctic programs to all visitors — especially the tour companies — of Recommendations adopted under the Antarctic Treaty. "Specially Protected Areas" (SPAs) and "Sites of Special Scientific Interest" (SSSIs) under the Treaty should be reviewed critically and regularly, to evaluate their continued need and utility.

Vessel Safety

We reiterate that vessel safety is a very serious Antarctic issue, and we believe that this matter should be examined immediately by the Antarctic Treaty Parties. All vessels operating in the Antarctic should be safe for the prevailing ice conditions, and should be operated by experienced and competent captains and crew. If the Parties are moving toward a central Treaty Secretariat, this mechanism might be a useful way to deal with vessel safety, and for coordinating the distribution of new charts, routes, and soundings that become available.

This particular Antarctic winter is easing, and each day bequeaths fresh harbingers of a new season about to flourish: female emperor penguins returning across fast ice to relieve starving mates and feed newly hatched young; longer, glowing streaks in the morning and evening skies; the loud cracks and groans of shifting ice; chinstrap, Adelie, and gentoo penguins fattening their chubby bodies at the edge of the pack, preparing for long swims back to home.

Spring also means that other planetary travelers soon will tread the great seventh Continent, and ply its waters. We trust that this **Code** encourages them to visit safely, without intrusion, and with a long view toward the future conservation of Antarctica.

Ron Naveen
Tui De Roy
Mark Jones
Colin Monteath
July 31, 1989

The Antarctic Traveler's Code © 1989, Oceanites, Inc.



Supporting the Ocean's Living Resources



The Antarctic Century BOARD

• News

The **Antarctic Minerals Convention** received a setback with Australia and France announcing that they would not sign the Convention, but rather, would work to establish an international nature reserve. Under the Convention, Australia, France, and the other claimant countries, plus the U.S. and the U.S.S.R., were required to become parties in order for the Convention to come into force. These developments undoubtedly will have an impact on the biennial **meeting of the Antarctic Treaty Consultative Parties**, scheduled for October in Paris; indeed, they may take time away from other issues like a central Treaty Secretariat, waste disposal, a comprehensive Antarctic environmental assessment, and tourism. Regarding minerals, the hotly debated question remains: Is it better to have the Treaty or not? Under the proposed minerals convention, one country's opposition can prevent development. Without a regime and under the present system, will any country or company attempt exploration or development, without certainty about how its operations may or may not be regulated? Aspects of the minerals convention that need further negotiation are the questions of liability and responsibility for damages. The U.S. government supports the Convention. . . . The **Antarctic Traveler's Code** (see enclosure) was announced on 31 July 1989. The **Oceanites** Board of Directors has agreed to adopt the Code formally, and to assist its distribution to all interested parties, both in the U.S. and abroad, including: all Antarctic tour companies and national Antarctic programs; the travel and tourism trade press; the broadcast and print media; and national and international conservation organizations. Also, the Code will be translated into a number of languages for use aboard all Antarctic vessels and by nationals of other Treaty countries.

Already, the Code has been endorsed by Salen Lindblad, Inc. and Victor Emanuel Nature Tours (VENT); four Antarctic tour companies — Society Expeditions, Lindblad Travel, Mountain Travel, and Travel Dynamics — are developing, collectively, their own visiting rules and procedures. . . . As of this writing, the **Bahia Paraiso**, which ran aground last January in the Antarctic Peninsula, remains "on the rocks" and, apparently, continues to leak oil. Plans for its removal are still uncertain. The rapidly approaching Antarctic spring and summer will allow additional assessment of the spills impacts on Arthur Harbor's resident wildlife. . . . **Colombia** has joined the Antarctic Treaty system as a non-voting member. . . . The U.S. National Science Foundation has revised its Antarctic "bible," the **Antarctic Conservation Act Booklet**, which contains all pertinent laws, regulations, and permit forms related to the U.S. Antarctic Program. This is a very useful document, especially because of the maps showing all Specially Protected Areas and Sites of Special Scientific Interest. For free copies of the Booklet, write or call: Division of Polar Programs, U.S. National Science Foundation, Washington, DC 20550 (202-357-7817). . . . Upcoming meetings and speeches: **The Tinker Foundation Forum** entitled **Antarctica: Continent at Risk**, New York, NY, November 10, 1989, Martin Holdgate of IUCN the principal speaker; Ron Naveen will deliver the **Audubon Lecture** at the Smithsonian Institution, November 20, 1989, entitled "**The Antarctic Century**" (Tickets for the Audubon lecture may be obtained by contacting the Smithsonian Resident Associate Program, 202-357-3030, or the Audubon Naturalist Society, 301-652-9188). . . . Mountain Travel and associated companies like Condor Expeditions will utilize the 40-passenger **Nordbrise** this coming season to replace the ill-fated **Bahia Paraiso**, and

to continue their shipboard tour operations in the Antarctic Peninsula. . . . Salen Lindblad, Inc., has announced that the new expedition ship "**Frontier Spirit**" will begin operations in late 1990, and will include a number of trips to The Ice from the Australia/New Zealand side. The new ship is expected to have a superior ice rating and will carry as many as 164 passengers. . . . "**Wild Ice**" — the Smithsonian Press Book of Antarctica — is now into production, with publication expected in late 1990. The co-authors/photographers of this photographic celebration of Antarctica are Colin Monteath, Ron Naveen, Tui De Roy, and Mark Jones.

• Letter and Comment **Krill Treaty.**

I congratulate you on pointing out some of the realities associated with managing Antarctic fisheries (**The Antarctic Century Newsletter**, No. 2, January 1989), including the potential for over-exploiting krill when the population dynamics of this creature are not well known. However, the Krill Treaty was designed to do more than manage krill harvesting; its role is to keep exploitation by humans of ANY living resources in the Southern Ocean at, or below, a level that will not demonstrably alter the Antarctic marine ecosystem and allow the recovery of depleted species such as marine mammals and finfish. I wish to reiterate the concern for the welfare of the WHOLE ecosystem.

Your evaluation of the poor state of knowledge concerning krill and its importance in the ecosystem is one example of the paucity of information currently being used to control harvesters. A further point not made in the article is that, with such uncertainty, the

Krill Treaty Commission still allows fishing activity on most species to continue unabated, despite the potential for, and reality of, undetected disasters. A blatant example is its failure to prevent the continual over-exploitation of finfish stocks in the region.

In its first seven years of operation, the Commission has not yet set any interim measures to keep exploitation of a species at a low level until sufficient information is known about potential effects of that fishery on the ecosystem. The Antarctic krill fishery is often referred to as small. However, you rightly point out it makes a considerable contribution to global fisheries production. In fact, it is now the largest crustacean industry and one of the 30 largest fisheries worldwide. To date, the options available to the Commission to prevent the demise of any exploited and dependent species have not even been considered for krill. I hope a repetition of the whale disaster does not occur. However, the Commission has not demonstrated such a capability when, until now, the conservation measures applied to some finfish stocks have only occurred AFTER the total collapses of these fisheries were confirmed and even these do not fully protect those species from exploitation.

With the predicted escalation in the krill fishery, research into new fisheries like squid, and the obvious shortage of useful information, it is necessary that the Commission take control of Antarctic fisheries in a way that will ensure that the ecosystem does not incur further damage and that over-exploited species are able to recover.

Andrew Constable
*Advisor to Greenpeace
International on the Antarctic
Marine Living Resources Treaty*

• Ice Ratings and Double Hulls.

Using the "double hull/single hull" analogy to describe whether Antarctic tour ships are ice-strengthened or not ("Antarctica, The Impact of a Tragedy," **The Antarctic Century Newsletter**, No. 3, April 1989) proved euphemistic rather than metaphorically accurate; we regret any misconceptions that arose. In context, the important point was that even an ice-strengthened hull might not compensate for incompetence or other problems, as confirmed by the **Bahia Paraiso** accident. In actual fact, however, a double-hull *doesn't* necessarily connote ice-strengthening.

As yet, Antarctic tour vessels are not required by any international body to have a particular ice rating before operating in Antarctic waters; however, many vessel operators request such ratings (from a wide variety of shipping societies) for insurance and other purposes. These ice ratings are concerned with the degrees of steel strengthening or amount of ribbing in a vessel's hull (particularly, in the bow, "ice belt" and stern) and the area of the vessel's shaft, propeller, and rudder. A rating that a vessel is ice-strengthened suggests that it is sufficiently hardened to "push" ice under certain conditions, depending on geographical location and severity of ice. The greater the hardening, the better the vessel's ability to handle ice.

For the record, none of the Antarctic tour vessels are true "icebreakers."

Illyria claims a double-hull or "double-skin" (we had euphemistically called it single-hulled) and is built to the highest of engineering standards certified by the American Bureau of Shipping (ABS), but it doesn't have an ABS ice-strengthened

rating; however, it is authorized to operate to 70° South. The **World Discoverer**, the **Society Explorer** and the **Nordbrise** claim ice-strengthened ratings from one of the many shipping societies.

The lack of an ice-strengthened rating doesn't make a vessel inherently unsafe for certain polar operations, but suggests that a vessel must be more particular about where it goes and when it goes there, and that it must avoid certain ice conditions.

Conditions obviously change with the seasons. During the height of the Antarctic summer, many parts of the Antarctic Peninsula, in particular, may have less severe ice conditions.

Ratings aside, the issue of vessel safety in ice is complicated by other factors that may come into play: What is stored, if anything between the two hulls? How many watertight doors are there, and how are they placed? How easily can the bow or stern of the vessel be secured by watertight doors and other means? Again, the most important factor may be the competence of the officers in charge on the bridge.

Ron Naveen
Editor

COLD, Larry Gould's polar classic, may be obtained for \$19.95 (plus shipping, handling and taxes where applicable) through:

Carleton College Bookstore,
1 North College Street,
Northfield, MN 95057,
507/663-4153.

VISA, Mastercard and Discover cards are accepted.

Let's Hear From You.

The Antarctic Century Newsletter is being distributed to members of Congress, interested Congressional staffers, zoos, parks, and aquaria, scientists, educators, scientific institutions, and contributors to Oceanites. Please let us know if there are any other present or future Antarcticists whom we might have missed. Help us grow! Also, please keep us up-to-date on any news and information about Antarctica, and feel free to comment on the Newsletter and its contents. WE NEED TO HEAR FROM YOU!





Captain Bob Bartlett and Larry Gould

food to be carried. The additional weight slowed the pace considerably, and the dogs were rested often to conserve their energy. At one point, Byrd's plane, the **Floyd Bennett**, flew over, en route to lay a cache of gas, oil and food for use during the polar flight.

There were difficult sastrugi and bad haze early on the 25th; but, when the sky cleared after noon, the men got their first glimpse of their sought-after mountains, well to the southwest. The tall peak in the distance appeared to be Mt. Nansen. Two days later, the men were bogged down by high winds and heavy drifts, but with the mountains just 50 miles away. They could see what proved to be Liv Glacier, and use it to steer their course.

On the 28th, Larry radioed Admiral Byrd that the sky was cloudless, the barometer high, and the wind down. This looked like the necessary window to attempt the South Polar flight. This time, as the **Floyd Bennett** flew over, it dropped film, messages and cigarettes. The Geological Party resumed the next day, with word that the plane had successfully returned to Little America.

On November 30, the men went for broke, beating 35 miles through heavy drifts and a howling southeast wind that stung their faces, reaching camp at the foot of Liv Glacier, in the shadow of Mt. Nansen. After three days exploring this area, it was time to attempt to reach the higher ground that possibly held their geological motherlode. The foothills were old, pre-Cambrian rocks, which could also be seen on the lower portions of the higher mountains to the south. However, the pre-Cambrian rocks on these higher slopes were covered by flat, apparently layered rocks; if they proved

to be sedimentary, not volcanic, the men would have the evidence they sought.

Liv Glacier proved an impossible avenue to the high slopes, so the men moved to the southeast, establishing a second base, called Strom Camp, on the western side of the Axel Heiberg Glacier. The exultant, 15,000 foot peak of Mt. Nansen lay at the glacier's head. After inventorying food and supplies, the men sledged 14 miles up the glacier, camping as near as possible to the layered outcrops. The ascent looked quite uncertain, with much ice and many crevasses.

Ascent, Triumph, and Return

The next day, December 7th, caused symphonies to play. Gould, Goodale, Crockett, and Thorne scaled upwards on skis, roping, "herringboning" and "sidebiling" all the way. Just below them was a gaping chasm, the men's skis barely catching and holding edges. Finally, they reached the layered rocks and were thrilled to find that they were sandstones, with top seams of impure coal, precisely the same structure known by the British along the western edge of the Ross Sea. Clearly, Mt. Nansen wasn't volcanic in origin and, indeed, was part of the great uplifted fault block system of mountains beginning thousands of miles away.

Larry had found his prize, and for him it was a great triumph. He was the first geologist of any nation to sledge inland, the first geologist to explore this particular area, and the first to link this area to similar formations in India, Australia, South Africa and South America.

In addition, Eddie Goodale discovered lichens on this first climb, with more to be found as the Party proceeded southward. The following day, the men explored another spur of Mt. Nansen and more of the Axel Heiberg Glacier before returning to Strom Camp and pending ventures to the east. An initial search of Mt. Betty failed to disclose the Amundsen cairn. Soon, the men were on their way, ultimately reaching their furthest-south, 85° 27', on the 18th. Also, they made it past the 150th meridian into Marie Byrd Land.

Christmas Day, on their return, brought special excitement. They finally located the Amundsen cairn on Mt. Betty, and were able to stand on the exact spot where Amundsen had stood almost 18 years before. As Larry described it:

We couldn't help standing at attention, with bats off, in admiring respect for the memory of this remarkable man before we touched a rock of the cairn. It was one of the most

exciting moments of the summer when I pried the lid off the tin can in the cairn and took out a bit of paper which had formerly been a page in Amundsen's notebook, and on which he had briefly recounted the discovery of the South Pole.

They headed home, skilled sledgers, secure in the successes of their mission. As usual, Larry's recollections of the moment, whether in **Cold** or his description of the geological sledge trip found in Byrd's **Little America**, are filled with poetic descriptions of scenes that he felt privileged to witness; for example, that last look at the mighty peak that had yielded so much:

To the south of us lay Mt. Nansen in all his splendor, his cap of shining ice, his blackish shoulders of bare rock loosely wrapped in a ragged old shawl, and the whole made glorious by the touch of the long skeletal fingers of the early morning sun.



Al Smith, Larry's favorite sledge dog.

The dog-sledging trip lasted about 2 1/2 months and covered about 1300 miles, the equivalent of sledging from Boston to Richmond or from London to Moscow, and had achieved some stunning results: finding the Mt. Nansen sandstone; mapping 175 miles of the Queen Maud Mountains, and demonstrating that they extended due east of Axel Heiberg Glacier for another hundred miles; pushing the known limits of the Ross Ice Shelf another 100 miles further east; disproving the existence of the suspected highland running east of the Axel Heiberg; and charting three great valley or outlet glaciers that are classed along with the Beardmore (Scott's route to the Pole) as the largest known.

For the Love of Sledge Dogs

Finding the sandstone was a life's thrill, but working with the sledge dogs really triggered Larry's capriciousness. It was an

unparalleled experience to work with some magnificent animals, and to this day, Larry's eyes sparkle when recounting the dogs, creatures he accorded unbounded love and admiration:

I think man has found no means of pioneering by land or sea or air, that reaches the high conception of polar sledging with dogs. I think no other method of travel can be as fascinating in its entirety and I know of no other activity that makes such complete demands on all that there is in a man. It demands the most rigid self-discipline or self-control; it calls for the utmost resourcefulness and it taxes the endurance of the hardiest. Nowhere else could there develop a more complete understanding between men, and if they be the right men, that means a finer understanding and appreciation of all that is most fundamental in virile character. And here develops that friendship between man and dogs which is second only to that between men. Only after one has followed them day after day and week after week, and seen them pull their lives out for him, with never a complaint, can he appreciate the devotion of which dogs are capable.

The clear favorite was his lead dog, Al Smith, whose picture still overlooks the living room in Larry's house. As Larry described this wonderful animal:

... I was glad to see Al Smith distinguish himself for he was my own special dog and a great dog he was in every way. I never saw a busky who more sincerely wished peace; only when he was hard pressed would he fight, he always tried to avoid trouble. He was a bit of a diplomat too, for he seemed to make a point of keeping on good terms with his masters. Norman [Vaughn] drove him most of the time and whether in or out of harness he was always inviting Norman's attention to himself, quite apparently trying to ingratiate himself in his driver's favor. He appeared to be successful in what he started out to do, for though he was altogether too young to have any right to expect to be promoted to leadership, Norman decided one day to give him a trial. Al knew what was expected of him and with all the assurance of a veteran he led off with the team behind him.

Al never shirked his duties and he bitterly resented seeing other dogs do so. I have seen him bark and snap at the dog ahead of him trying to make him lean into the harness and pull. In the early part of our homeward trek, when Al was leading his team, he learned that the flags marked the trail we were following. Occasionally we were able to shorten our back trail by cutting across, but Al would have none of this. He knew the flags were to be followed and could only be dissuaded from doing so by being led away.

Leadership is an interesting thing among the dogs. Some of the ablest dogs we had just could not be trained to lead. Placed at the head of the team they had no notion of what they were to do. As in men so it was in dogs, leadership appeared to be a quality which was largely inherent. My dog Al Smith had it!

Teacher, Diplomat, Friend

Larry, too, had great leadership qualities. He returned from The Ice to resume his teaching career at Michigan, soon marrying his dear wife, Peg. Larry and Peg developed a wonderful and unique partnership, encouraging countless numbers of students and colleagues to follow the pull of science, academics, and humanistic achievement.

In 1932, it was off to Carleton College in Minnesota, starting Carleton's renowned geology department, and distinguishing himself both as a teacher and, ultimately, in 1945, as Carleton's President. Under his guidance, Carleton became a highly respected liberal arts institution. Larry's commitment to Carleton was tied to the pursuit of academic excellence and scientific research, with an emphasis that both required a heavy dose of the humanities; in Larry's words, education had to be "the bearer of values." Upon retiring from Carleton's presidency in 1962, he started a new career at the University of Arizona, inspiring and helping to create the College of Earth Sciences. The College has become one of the country's foremost geology departments, and is housed in the Gould-Simpson Building, dedicated recently, and honoring both Larry and the great paleobiologist, George Gaylord Simpson.

These academic achievements blended with Larry's continuing involvement in The Ice. In 1955, he headed U.S. planning for the pending International Geophysical Year, then directed the U.S. IGY Antarctic program. He returned as a tireless advocate of the Antarctic Treaty System, which grew from the IGY's success.

The Antarctic Treaty is indispensable to the world of science which knows no national or other political boundaries; but it is much more than that. I believe it is a document unique in history which may take its place alongside the Magna Carta and other great symbols of man's quest for enlightenment and order.



Richard Byrd and Larry Gould.

Returning to Antarctica once again in November 1979 brought this rush, as described to Charles Neider:

[My sharpest memory of Antarctica is] its sheer, utter, magnificent desolation. It is so desolate that it's impressive and inspiring. That may sound like a contradiction but it isn't . . . And its beauty, its beauty. It's such a simple beauty. There isn't a great variety of colors but somehow it penetrates, and when I got off the plane and stood on the ice once again, a year ago now, I had what amounted to almost a physical thrill. I was back to my spiritual home.

The Legacy

Few individuals have inspired so many others, and few have commanded the loyalty, respect, admiration and friendships that Larry has gained. He is, and has been, a scientist and teacher in the finest sense of those noble pursuits, leading us not just to Antarctica, but to larger questions about our place in the unknown scheme of things:

It does not matter from what angle or relationship to existing knowledge in other parts of the world we may approach the Antarctic, whether it be the role it played in the evolution of the earth in past geological times, or whether it be its present important role in the meteorological set up of the world — we always come up against the same question — we don't know — we don't know. The most vital reason for Antarctic exploration... [is] the lure of the unknown and the restless spirit of mankind that will never stop until every bit of it has been explored. It is man's never-to-be-satisfied thirst for knowledge. It is bigger than peoples or congresses or parliaments and though a lethargy of public and private interest may from time to time slow it up, nothing can stop it, so long as man is man.

. . . I don't believe that the greatest threat to our future is from bombs or guided missiles. I don't think our civilization will die that way. I think it will die when we no longer care — when the spiritual forces that make us wish to be right and noble die in the hearts of men.

Larry's gifts to us are both palpable and cosmic: the rocks he collected that numbing day on Mt. Nansen still provide clues, and are still being examined by today's generation of geologists and paleobotanists; more importantly, he has infected many of us not only with the "Antarctic virus," but with the impetus to pursue knowledge, to value the intricacies of life, and to conserve our fragile planet.

AT A GLANCE

Mawson

The great Australian explorer, Douglas Mawson, deserves special mention in the annals of Antarctic exploration. The credits are superb: in 1907, he joined Shackleton's expedition and was a member of the team that made the first ascent of Mt. Erebus, and which reached the South Magnetic Pole. Scott invited him on his ill-fated *Terra Nova* expedition, but Mawson insisted on his own investigatory trek to the area Mawson dubbed Commonwealth Bay, which would prove to be as windy a place as is possible on this planet. Mawson's focus was to chart the huge Antarctic coastline south of Australia. The expedition sailed from Hobart aboard the **Aurora** in December 1911, and the main base was established at Cape Denison in Wilkes Land. During the winter, the winds blew almost interminably, occasionally peaking at greater than 200 miles per hours — a "river of wind" that previous explorers had not faced. The long 1912 winter heightened hopes for the sledging reconnaissances in the spring to come; there was much sledging and exploring on the agenda, with the men to be split into various teams.

Smiles abounded as Mawson and his Far Eastern Party of three men set forth; they rendezvoused with other parties at a sheltered location called Alladin's Cave. From here, Mawson, Dr. Xavier Mertz, and "Cherub" Ninnis moved their 18 dogs and three sledges to the southeast. Then, a blizzard struck, trapping them for three days in early December. After digging out, they pressed on, five days later coming into a heavily crevassed area. After crossing one of the huge chasms, the horrified shout from Mertz spelled danger. Mawson leaned over the crevasse and shouted into the depths, but there was no reply. Ninnis and one of the two remaining sledges, most of the party's rations, their tent, and the six fittest dogs, had disappeared into the murk. All that was left was one crippled sledge dog, dangling in distress, soon to be dead. 315 miles from base, Mawson and Mertz had barely enough food for ten days, and no rations for the remaining six dogs. Mawson's epic of survival had begun.

The two pushed on, sacrificing the weaker dogs for food. A makeshift tent was assembled. On December 25, they were still 160 miles from base. By January 1, Mertz developed stomach pains from the toxic doses of vitamin A in the dogs' livers they'd eaten. Soon, Mawson had to haul his failing comrade; about 100 miles from base, Mertz died. Mawson wrote that he felt alone; worse, his fingers and toes started to blacken, boils erupted on his skin, and he feared collapse at any moment.

Upon burying his brave colleague, Mawson kept fighting, ignoring skin peeling off of his feet, hair falling out, cramps, and increasing pain. A few days later, Mawson, perhaps delirious from exhaustion, found himself suspended in a crevasse, swinging from his harness. Somehow, totally sapped of strength, he managed to climb to safety. As Mawson resumed his slow trek, others began searching for him; the Far Eastern Party was long overdue. On January 29, 1913 he found a supply cairn that searchers had erected; the note inside indicated that Alladin's Cave was only about 20 miles away. February was fast approaching, and **Aurora** was about to head away for the winter. Six men were left to continue the search. Mawson arrived in camp just after **Aurora**'s departure. Another, long Antarctic winter was Mawson's reward, but he didn't complain. He was alive and, now, safe.

