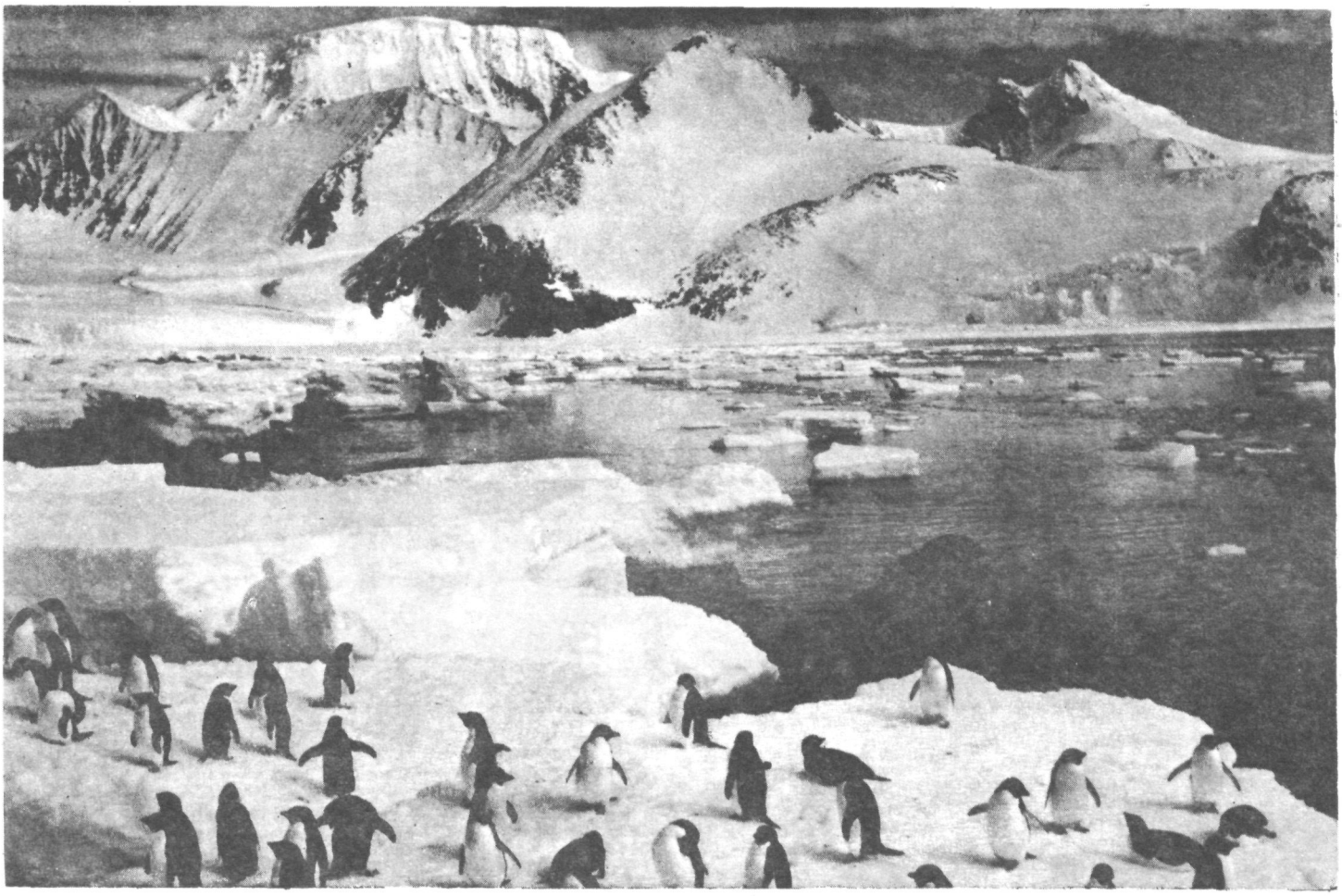
THE POLAR TIMES



British Antarctic Survey

Adélie penguins at Hope Bay, north-east Graham Land.

National Oceanic and Atmospheric Administration

The Polar Times

ERRATA NOTICE

One or more conditions of the original document may affect the quality of the image, such as:

Discolored pages
Faded or light ink
Binding intrudes into the text

This has been a co-operative project between the NOAA Central Library and the Climate Database Modernization Program, National Climate Data Center (NCDC). Permission to image The Polar Times magazine was granted to the NOAA Central Library by the magazine's Managing Editor on July 14, 2010. To view the original document, please contact the NOAA Central Library in Silver Spring, MD at (301) 713-2607 x124 or Library.Reference@noaa.gov

HOV Services
Imaging Contractor
12200 Kiln Court
Beltsville, MD 20704-1387
August 6, 2010

Antarctic panel studies continent

Jan. 28 (AP) —

Washington — A 16-nation working group on Antarctic mineral resources concluded a meeting Friday and reported progress in its effort to agree on ground rules governing development of the continent's untapped wealth.

The chairman of the group, Christopher Beeby of New Zealand, told a news conference the 10-day meeting produced "an enlargement of the common ground and a clearer perception of the shape of an international regime."

Beeby said the existing international treaty on Antarctica does not address the question of mineral development nor of the competing views as to whether sovereignty claims by some nations over Antarctic territories are valid.

He said the participating nations hope to come up with an agreement that resolves these issues and also protects the environment while ensuring that Antarctica remains a zone of peace.

Beeby, an assistant secretary in the New Zealand Foreign Ministry, said there is a "developing mythology" that there is great mineral wealth in Antarctica. He added, however, that experts say there is no basis for such assertions.

The chairman of the American delegation to the conference, R. Tucker Scully, director of the State Department Office of Oceans and Polar Affairs, said it is unlikely that any substantial mineral exploitation of the area will take place before the next century.

On the environmental question, Beeby said there is general agreement that no mineral development should be undertaken in areas where there are penguin colonies or breeding grounds or which have historical significance.

This is the fourth meeting of the group since the sessions began two years ago. Beeby could not predict when final agreement will be reached, saying, "We're now at mid-stream."

The member nations are Argentina, Australia, Belgium, Brazil, Chile, France, India, Japan, New Zealand, Norway, Poland, South Africa, the United States, the United Kingdom, the Soviet Union and West Germany.

The Polar Times

Published June and December by the AMERICAN POLAR SOCIETY, August Howard, Secretary, 98-20 62nd Drive (Apt. 7H), Rego Park, New York 11374

AUGUST HOWARD, Editor

THE POLAR TIMES highly recommends "The Polar Record," published by the Scott Polar Research Institute, Cambridge, England.

The American Polar Society was founded Nov. 29, 1934, to band together all persons interested in polar exploration. Membership dues are $2.00 a year or $5.00 for 3 years, which entitles members to receive THE POLAR TIMES twice a year.

Back issues, No. 1 through No. 77, if available are 50 cents each. Issue 78 and onward are $1.00.

The American Polar Society is classified as a tax exempt organization under Code Section 509 (a) (2).

Argentines rescued from antarctic base

Associated Press April 14

Buenos Aires, Argentina — The U.S. National Science Foundation research vessel RV Hero rescued seven Argentine military men whose barracks at an Argentine base in Antarctica burned down, the U.S. Embassy reported Friday.

Embassy spokesman Warren Morningstar said the men were rescued Thursday afternoon after Argentine authorities requested aid from the embassy.

The Defense Ministry said the fire broke out early Thursday at the Argentine navy's Almirante Brown research base 110 miles north of the Antarctic Cirle. The ministry said the fire, of unknown origin, completely destroyed the barracks of the seven men stationed there, and they took refuge in a nearby "emergency shelter."

Morningstar said the RV Hero took the Argentines to the U.S. base at Palmer Station, and they will be moved to the Argentine Jubay base Sunday.

He said the rescue was typical of the cooperation in the Antarctic among the 14 signatories to the 1959 Antarctica Treaty.

Mugu LC-130s Finish Role in 'Deep Freeze'

MAY 7, 1984 *NAVY TIMES*

POINT MUGU, Calif. — The Navy's squadron of six ski-equipped LC-130 transports has completed another accident-free season of "Operation Deep Freeze" airlift support for the National Science Foundation.

The squadron, now back home here, logged 3417 hours of flying during the five-month "austral summer." The unit airlifted 2.9 million pounds of cargo, 3833 passengers and 111,000 pounds of mail to and from the Antarctic stations.

In addition, almost 200,000 gallons of Antarctic diesel and 93,000 gallons of JP-4 aviation fuel were airlifted to Byrd and Siple Stations.

Officials said an Antarctic first was recorded when Navy Lt. Paula Hubbard became the first Polar-qualified female LC-130 aircraft commander. Her qualifying flight from McMurdo station's ice runway to the Byrd Station skiway was conducted by Cmdr. James M. Radigan, squadron commander.

Two at McMurdo Perform Surgery

PORT HEUNEME, Calif. — Two Navy men, part of the Operation Deep Freeze medical team, recently were called on to give emergency treatment to a 33-year-old woman on a Russian trawler off McMurdo Station.

Lt. Cmdr. David Brice, the winter-over physician, and Hospital Corpsman First George Sowers boarded the trawler and performed surgery on the woman to stop internal bleeding. The two men were taken to the trawler via whale boat.

Brice and Sowers are part of a 66-man Antarctic winter-over party. The Naval Support Force, Antarctica, is homeported at the Naval Construction Battalion Center here. Capt. Brian Shoemaker, a 1967 winter-over veteran, heads the Antarctica unit.

Cutter Damaged in Antarctica Mishap

WASHINGTON — The Coast Guard's 269-foot icebreaker Westwind suffered major hull damage January 1 while she was conducting icebreaking operations in the Wedell Sea, just off the Larsen Ice Shelf on the Antarctic Peninsula.

A 120-foot gash was ripped in the side of the vessel when the ice shifted, pushing her up against a 100-foot ice cliff. The gash occurred six feet above the water line, but there was flooding, officials reported.

Several deckplates were buckled and frames were bent. After two hours, the cutter was able to maneuver away from the ice shelf. All engineering systems are intact and are operating normally, according to Coast Guard officials.

Six hours after the incident, Westwind proceeded toward Seymour Island to recover geological parties and to begin temporary repairs. The cutter, homeported in Mobile, Ala., routinely travels to Antarctica in support of scientific missions.

There were no personnel casualties, officials said.

The most spectacular mammal herds in America are now those of the caribou, a species of deer, in the Far North.

The Polar Times

No. 98 JUNE 1984

EXPERTS QUESTION SEA-RISE THEORY

New Evidence Raising Doubts on Polar Ice Melting From Global Warming Trend

By WALTER SULLIVAN
The New York Times / April 15, 1984

Specialists in polar ice caps have expressed doubts about a rise in sea level that has been predicted as a consequence of the expected warming of world climates.

Some experts, in fact, now suspect that the sea level may fall.

Two reports on probable climate change were issued last October, one by the National Academy of Sciences and the other by the Environmental Protection Agency. Both suggested there would be substantial rises in worldwide sea levels if, as suspected, there was a rise of several degrees in global temperatures.

Such a rise would be caused by the effects of carbon dioxide delivered to the atmosphere by steadily increasing combustion of fuels. That gas absorbs infrared heat radiation from the earth instead of allowing it to escape into space, acting somewhat like the glass in a greenhouse.

Scientists at the environmental agency suggested that heating of polar latitudes would melt enough ice to raise sea levels four to seven feet by the year 2100. The academy report said a less radical rise of two feet was "likely" in the next century, but added, "More rapid rates could occur subsequently if the West Antarctic ice sheet should begin to disintegrate."

Forecasts Are Challenged

These predictions were challenged last week at the latest in a series of seminars on global habitability being held at Columbia University. It brought together Government and academic specialists to discuss the future of the Antarctic ice sheet.

In the past there have been far more ominous predictions regarding that ice sheet than those suggested in last October's reports. In 1964 it was proposed that virtually the entire ice cap at the bottom of the world sometimes slips into the sea, raising global sea levels more than 200 feet, enough to flood many coastal lands and cities.

Such dramatic predictions fell out of fashion, and attention focused on the ice covering West Antarctica, that part of the continent south of the Americas. As pointed out at the Columbia seminar by Dr. George H. Denton of the University of Maine, an authority on the ice of West Antarctica, much of it rests on land thousands of feet below sea level.

Because such ice readily breaks off into icebergs it is thought to be more vulnerable to discharge than continental ice. Since it is a mile or more thick, its entry into the oceans would raise sea levels several feet.

It has been widely assumed that, between the last two ice ages, some 125,000 years ago, the climate was hotter than it is now and sea levels were 10 or 20 feet higher. Coral reefs formed in that period on some oceanic islands suggest such a high stand of the sea. These two lines of evidence were taken to mean that the West Antarctic ice dispersed into the oceans in that period.

Past Assumptions Are Questioned

New evidence, however, questions both arguments, Dr. Denton said. While sea floor sediment in the North Atlantic suggests it was unusually warm there, it is beginning to appear the climate of the Southern Hemisphere was much like that of today. The coral reefs may be high, he added, not because the oceans were high but because the islands have risen.

Likewise the response to greater warmth is difficult to predict, Dr. Denton said. More moisture may be carried to the Antarctic hinterland, increasing snowfall there and the Antarctic ice "may even expand," he said.

The Antarctica's interior is so high and cold there is virtually no melting and some scientists believe there would not be much, even if the climate warms. The critical area is along the coasts, where ice discharges as icebergs.

As pointed out by Dr. Arnold Gordon of Columbia's Lamont-Doherty Geological Observatory, the behavior of the ocean along the coast may be a controlling influence. A change in oceanic circulation in response to warming of the atmosphere could, for example, alter the extent to which deep water wells upward along the rim of Antarctica and beneath its coastal ice shelves.

The two shelves through which most West Antarctic ice reaches the sea are considered keys to the fate of that region's ice cover. They are the Ross Ice Shelf on the Pacific side and the Filchner and Ronne ice shelves facing the Weddell Sea on the Atlantic side. Each shelf is fed by broad ice streams flowing from the hinterland.

The shelves are thought to hold back the flow of ice and there has therefore been concern that they might be unstable. As stated by Dr. Robert H. Thomas, manager of the polar oceans program of the National Aeronautics and Space Administration, the conclusion seems "unambiguous" that, if the shelves go to sea, the ice of West Antarctica "will collapse."

The seaward edge of the shelves breaks off into icebergs. Should this process accelerate, specialists believe it could drain much of the ice from West Antarctica in a matter of centuries. Hence, in the last few years, there have been extensive studies of the ice cover.

Dr. Ian M. Whillans of the Institute of Polar Studies at Ohio State University said these studies had revealed no "dramatic" changes either in West Antarctica or on the Ross Ice Shelf. He cited various "catastrophic hypothesis" regarding that ice and added, "Perhaps we should also consider the possibility that it is stable."

There appeared to be a consensus that too little was known about the factors controlling growth and shrinkage of the ice sheet to predict its response to warming.

Nine Britons to Live In Tents in Antarctic

PORTLAND, England, Feb. 16 (Reuters) — Nine British soldiers leave tomorrow to spend nine months in the Antarctic with no base hut to protect them from the savage winter.

The men, who will study physical and psychological problems associated with cold, will rely on tents and holes in the snow for protection from 100 mile-an-hour winds and temperatures 60 degrees below zero.

Whaling panel gets $50,000

Washington — Barrow's Eskimo Whaling Commission has been awarded $50,000 to help enforce bowhead strike limits and monitor the whale hunts in nine Alaska villages.

The grant, from the National Oceanic and Atmospheric Administration, is part of the federal government's continued funding of the program. The commission was given $17,000 in September 1982.

PITTSBURGH-AREA SCOUT PICKED FOR ANTARCTIC EXPEDITION

A 19-year-old Eagle Scout from McMurray, Pa., will be off to Antarctica this September as a crew member of a U.S. Coast Guard polar icebreaker on an 8-month working stint with the United States Antarctic Research Program.

Douglas C. Barnhart of 104 Thompsonville Road, McMurray, a member of Troop 1331 and Post 95, was selected from among more than 200 applicants. He is a sophomore at Johns Hopkins University and the son of Mr. and Mrs. Donal L. Barnhart.

It is the fourth time in 56 years that the Boy Scouts of America has teamed with the National Science Foundation or other agencies to enable an outstanding young adult to participate in United States Antarctic research and exploration.

The Scout leaves in September and will return in May 1985—in time to join in the celebration of Scouting's Diamond Jubilee.

The expedition will get underway in California and go to Antarctica by way of South America. While in Antarctica, the youth will participate in science projects, visit research stations on the continent, observe the opening of a channel through the sea ice of McMurdo Sound, and return to the United States probably by way of New Zealand.

The selectee also will participate in advance training with the National Science Foundation at Arlington, Va., and with the U.S. Coast Guard and U.S. Navy on the west coast.

A. Zach Hirsch, Jr., director of activities for the BSA, said that the successful applicant had a particularly strong background in winter camping and cold-weather experience as well as a high aptitude for science.

Barnhart, an honor graduate of Peters Township High School, McMurray, is a certified emergency medical technician, assistant chief of the Johns Hopkins First Aid Squad, and a member of the Washington County, Pa., Emergency Medical Services. He plans a career as a physician specializing either in emergency medicine or trauma surgery.

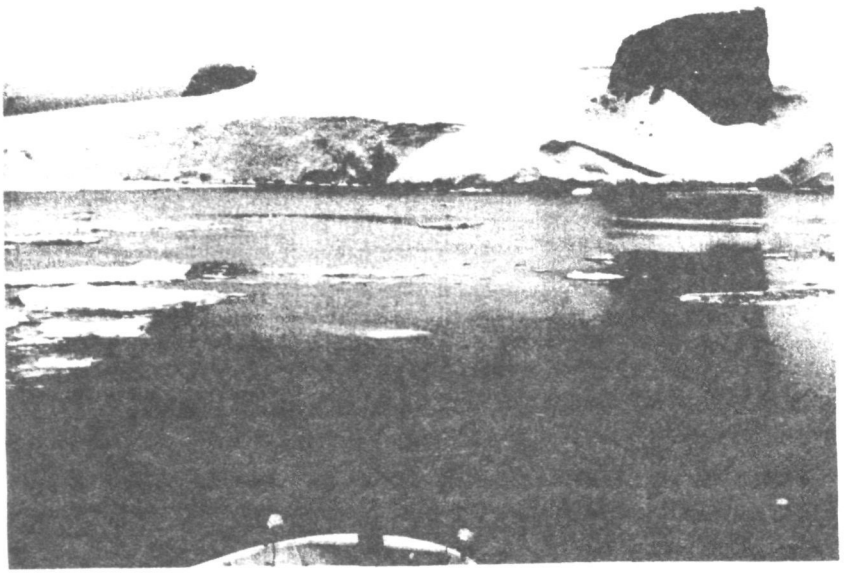
He has been a participant in Carnegie-Mellon University special science programs for gifted students, placed first in a science contest conducted by California State University of Pennsylvania, and has had his research published in the *Journal of Pennsylvania School for the Sciences*. He also is a recipient of the Bausch and Lomb Science Medal.

An assistant Scoutmaster of Troop 1331, organized by VFW Post 764, McMurray, the youth also is a member of medical specialty Post 95 associated with Allegheny General Hospital, Pittsburgh. Both units are part of the Allegheny Trails Council, Boy Scouts of America, Northeast Region.

The National Science Foundation, a federal agency, funds and manages United States activities in Antarctica. These efforts comprise some 90 research projects per year in the atmospheric, oceanic, earth, and life sciences supported by station operations by a contractor and logistics provided by the Navy, the Air Force, and the Coast Guard.

Douglas Barnhart

A 3.70-krone stamp was issued by Greenland Feb. 9



NSF photo by Richard Cameron.

USCG icebreaker *Polar Star* approaches Siple Island in February 1984. Ahead is Lovill Bluff where three teams of U. S. geologists collected data while a fourth team used a helicopter to survey the distribution and concentration of radioactive elements. The scientists were the first known group to visit Siple Island, which was discovered in 1940 during an airplane flight.

U.S. scientists conduct first investigation of Mt. Siple

Supported by the U.S. Coast Guard icebreaker *Polar Sea*, five groups of scientists briefly visited Mt. Siple (73°15'S 126°6'W) on Siple Island between 22 and 26 February 1984. Mt. Siple, a 3,110-meter, snow-covered volcano, dominates the northwest portion of Siple Island, which lies along the Getz Ice Shelf of Marie Byrd Land.

U. S. scientists discovered the mountain in December 1940 during an airplane flight from West Base (Little America III) on the Ross Ice Shelf. Based on its shape and location, geologists assumed that Mt. Siple was a volcano. But until the 1983-1984 austral summer visit, they could not confirm its volcanic origins or whether it was active, dormant, or long extinct because there were no recorded visits by scientists or nonscientists to this site.

Polar Sea left McMurdo Station on Ross Island on 16 February and sailed west toward Palmer Station in the Antarctic Peninsula region. Although the cruise objective was to support science at several locations along the coast of Marie Byrd Land, blizzards and heavy pack ice kept the icebreaker from reaching many of the selected sites, including Cape Burke (74°45'S 136° 50'W) and Pine Island Bay (74°50'S 102° 40'W). Similar conditions limited the amount of time that the science parties were able to work at Mt. Siple and Siple Island.

Three of the five science parties went ashore on the west side of Mt. Siple during the afternoon of 22 February and worked until evening when the weather began again to deteriorate. A fourth party

Antarctic Journal

conducted a radiometric survey from one of the icebreaker's helicopters, while the fifth party observed birds from the ship. Although their stay was brief, as the first science parties to visit Mt. Siple and Siple Island, their observations provide new information about this unexplored area.

Mapping operations

A U. S. Geological Survey (USGS) team established three geodetic control points on or near Lovill Bluff (73°22'S 126°54'), a large rock outcrop along the east shore of Siple Island. They used a satellite geoceiver to determine one point accurately; to locate the remaining two points (both topographic points) they determined distances and direction from the geoceiver's position. The geoceiver was left in place for about 40 hours so that more data could be generated and more precision obtained.

While the weather permitted, the USGS team performed conventional surveys in the Lovill Bluff area. Besides the work done on land, they also used the icebreaker's radar and navigational equipment to sight and measure prominent features on the island and nearby sites.

Although their work on Siple Island was not as extensive as originally planned, the USGS researchers did obtain enough data to improve small-scale maps (1:500,000 sketch maps) of the area. Most significantly, their data correct the existing maps that show Siple Island to be about 15 miles north and 13 miles east of its actual position.

SAR Is First Mission of Antarctic Pararescue Team

McMURDO STATION, Antarctica — The 17 members of VXE-6's pararescue team are the only people currently staging regular parachute jumps on the Antarctic continent — including a jump at Amundsen-Scott South Pole Station in 1973.

They've been jumping since 1956, when the Chief of Naval Operations authorized the team and charged it with providing pararescue capabilities to Operation Deep Freeze.

The team's primary mission is search and rescue, said Master Chief Aircrew Survival Equipmentman John Blankenship. But parachuting into an accident site is a "last resort," he said.

When an aircraft is forced down onto the frozen continent or when a scientific field party is in danger, the pararescue team has a variety of choices depending on the location of the incident. It could arrive at the accident site by helicopter, LC-130 Hercules transport or land vehicle, or be positioned as close to the site as possible by helo or transport and then cross to the scene on foot, or, as a last resort, parachute onto the site. Arriving with medical and survival equipment, the team treats immediate injuries and quickly moves survivors to a pick-up point.

In addition to its SAR duties the team provides a one-day polar survival course to ground personnel and squadron aircrew at McMurdo. It works closely with the New Zealand Mountaineers Survival Team, stationed at nearby Scott Base.

Members of the team, all volunteers, must be jump-qualified and maintain their proficiency annually — in both the United States and in the Antarctic environment. Team members are trained in first aid, cardiopulmonary resuscitation, ice, snow and mountain rescue methods, cold weather survival, and mountain climbing, as well as parachuting.

When the squadron is home at NAS Point Mugu, Calif., during the summer, new members must attend emergency medical technician training at a nearby community college. Once certified as EMTs, the members are qualified just a step under a paramedic rating and are allowed to provide most forms of first aid in an emergency situation. Most members volunteer to work in local hospitals, standing emergency room duty or working with ambulance services.

VXE-6 helo provides platform for the first jump of Deep Freeze 84.

Panel says arctic health research inadequate

by A.J. McClanahan
The Anchorage Times

Current arctic health research that could benefit all Americans because of the strategic importance of the North is inadequate, according to a draft arctic health science policy statement to be presented to the American Public Health Association.

That statement, developed over a two-year period by a task force of 28 Alaskans, was presented to participants of the 6th International Symposium on Circumpolar Health. The week-long meeting drew about 700 health specialists from thrpughout the world to the Sheraton Anchorage Hotel. It ends today.

One of the symposium organizers, Dr. Ted Mala of Anchorage, headed up the medical section of the arctic health science task force. The draft policy statement will be offered to the American Public Health Association in Washington, D.C., for its approval.

Current research efforts in the arctic are hampered by lack of money to support trained and experienced people, according to the draft statement. Part of the problem is that researchers in the arctic have been unable to attract support from major national organizations, such as the National Institute of Health, the Environmental Protection Agency and others, it states.

"Large quantities of data, now of interest for internal comparison, were lost when the various federal arctic health research facilities closed. Potentially useful health information on the arctic collected by extant agencies is buried in files or discarded."

The statement calls for "an explicit and forceful policy" to remedy the situation. Some improvements would include:

The symposium was the sixth such meeting on circumpolar health since 1967 and the second time one has been held in Alaska. Others have been in Fairbanks, Finland, the Northwest Territories, the U.S.S.R. and Denmark.

Christopher Hansteen

April 10 the Norwegian postal service issued two stamps commemorating the 200th anniversary of the birth of Professor Christopher Hansteen. Hansteen was the first Norwegian to gain an international reputation as a natural scientist, and in particular he set his mark as an astronomer and geophysicist. Depicting a portrait of Hansteen and a rendition that he made himself of the earth's magnetic meridians and parallels, the stamps are valued at 5 Nkr and 3.50 Nkr, respectively.

Whaling Body Cuts Quota and Bars '85 Whale Hunt

BUENOS AIRES, June 23 (AP) — The International Whaling Commission has reduced the number of minke whales available to commercial fleets by one-third and has decided to prohibit all hunting of sperm whales next year.

Minke whales, the most commercially exploited of all whales, are a major source of income to Soviet and Japanese fleets working around Antarctica.

The commission, meeting here, voted 22 to 7 on Friday to set the quota next year for minke whales in those waters at 4,224, which is down from 6,655 this year.

"The combined efforts of conservation groups and proconservation countries brought significant gains — and good news for whales," said Michael Nielsen of Greenpeace International, an environmental group.

Japan, Norway and the Soviet Union, the three nations with the largest whaling industries, have filed formal objections to a moratorium on all whale hunting that is to go into effect in 1986. Under the commission's rules, the objections automatically exempt those countries from the moratorium.

During the commission's weeklong meeting, Japanese representatives raised the possibility that their country would withdraw from the international organization. Japan and the Soviet Union contend that the reductions in quotas and the planned moratorium are not needed to protect whales from extinction. In addition to minke whales, Japanese whalers have been taking about 400 sperm whales each winter from waters off Japan's coast.

Norway has argued that the moratorium on minke whales would deprive many of its coastal villages of important sources of income and food.

The commission failed to reach a consensus on a proposed reduction in the quota for minke whales taken off the Norwegian coast. As a result, that quota will remain at 635 next year.

Craig Van Note of Monitor, a consortium of 35 conservation and animal protection groups, said after the decision on Friday that "the gross tonnage of whale meat and whale oil has fallen by more than 95 percent over the last 10 years." That, he said, is "a good indication that the industry is collapsing."

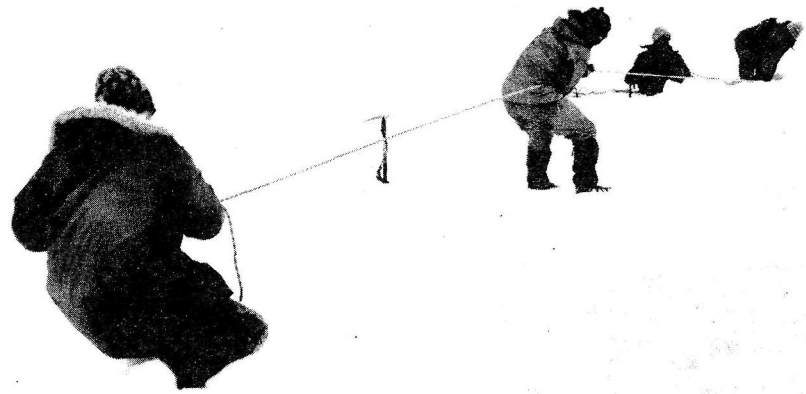
Sweden and Finland join 29 nations adhering to Antarctic Treaty

On 24 April 1984 Sweden acceded to the Antarctic Treaty and signed the Convention on the Conservation of Antarctic Marine Living Resources, which entered into force in April 1982. On 15 May 1984 Finland acceded to the Treaty.

As the 30th and 31st countries to recognize the treaty, Sweden and Finland join with the other acceding nations—Bulgaria, Czechoslovakia, Denmark, the German Democratic Republic, Hungary, Italy, the Netherlands, Papua New Guinea, the People's Republic of China, Peru, Romania, Spain, and Uruguay. These countries agree to abide by the Treaty but do not participate in its operation.

The contracting nations that are consultative parties were original treaty signatories or conduct substantial scientific research programs in Antarctica. These countries are Argentina, Australia, Belgium, Brazil, Chile, the Federal Republic of Germany, France, India, Japan, New Zealand, Norway, Poland, the Republic of South Africa, the Union of Soviet Socialist Republics, the United Kingdom, and the United States of America. Representatives of these nations participate in consultative meetings to formulate recommendations aimed at furthering the objectives of the Treaty.

Any member of the United Nations may accede to the Treaty. Nations conducting substantial research in Antarctica may become consultative parties.



U. S. Navy photo.

Students practice a crevasse rescue as part of their training during the snowcraft/survival school.

U.S. responds to U.N. request

The U. S. government responded in May 1984 to a request from the Secretary-General of the United Nations for information on U. S. activities, research, and policy related to Antarctica. The response, sent to the United Nations through the Department of State, included detailed information on the U. S. Antarctic Program.

The Secretary-General's request arose from a resolution (38/77) adopted by consensus during the 38th session of the U. N. General Assembly in November 1983. This resolution calls for "the Secretary-General to prepare a comprehensive, factual and objective study on all aspects of Antarctica, taking fully into account the Antarctic Treaty." The General Assembly directed the Secretary-General to seek the views of nations that are members of the United Nations and the assistance of "those States conducting scientific research in Antarctica, other interested States, the relevant specialized agencies, organs, organizations and bodies of the United Nations system and relevant international organizations having scientific or technical information on Antarctica."

A report is scheduled to be presented at the 39th session of General Assembly in 1984.

Scientists probe antarctic lichens

CINCINNATI (AP)—The study of microorganisms living in wind-blasted sandstone in the antarctic may give clues to life elsewhere in the universe, a University of Cincinnati researcher says.

J. Robie Vestal, a biology professor, is on a team of U.S. researchers who study tiny lichens found living in porous sandstone in Wright Valley, one of the wind-blown Dry Valleys along the antarctic coast. The organisms survive despite howling winds, long periods of no sun and a year-round average temperature of zero.

"It may be an analog to life elsewhere in the universe," Vestal said in an interview. "The antarctic and the Dry Valleys are the closest thing on this planet to conditions on Mars. So the people who are interested in Mars are interested in this."

He says the study is also a matter of scientific value.

"There's the intrinsic interest in how organisms adapt to extreme conditions," Vestal explained.

The National Aeronautics and Space Administration and the National Science Foundation fund the research. NASA's Viking satellites landed on Mars in 1976 and revealed it to be a hostile, lifeless planet. But they sent back pictures showing permafrost, or frozen water, on the Martian surface.

"They sent Viking to Mars. They didn't find any life, but it could have been in the wrong place," Vestal said of the Viking lander.

Imri Friedmann, a Florida State University biologist who heads the project, is seeking federal funds to continue the study another three years. He and his team are trying to learn how old the lichens are, how photosynthesis occurs in such cold temperatures and how they survive in an apparently dormant state where summertime high temperatures may be in the 20s.

Vestal, a specialist in carbon metabolism, said preliminary data indicated the organisms achieved photosynthesis—the process by which plants grow in sunlight—in air temperatures that were below freezing. If further research shows that to be true, it raises more questions, he said.

"It hardly ever gets above freezing," Vestal said. "This opens up a whole lot of questions, like how photosynthesis could take place if the water in the cells is frozen."

Mrs M. L. Bird

American geographers' new director

A NEW chief administration officer has taken up her duties at the American Geographical Society (AGS). She is **Mrs Mary Lynne Bird** of Little Neck, New York, whose husband is a professor in the department of Germanic and Slavic languages at Queens College.

Announcing the appointment, the council of the AGS notes that Mrs Bird has served on research staffs at three American universities – the department of social relations at Harvard, the centre for international studies at Princeton and the school of international affairs at Columbia – also at the Council on Foreign Relations and the Twentieth Century Fund. Mrs Bird has also served as development officer for the Fund for Peace, the Association for Voluntary Sterilization, the World Policy Institute and as a programme officer for the Executive Council on Foreign Diplomats. She graduated from the Maxwell School of Citizenship and Public Affairs at Syracuse University and did graduate work at the East European Institute at Columbia University.

Study sheds new light on auroras

By SUSAN FISHER
Daily News-Miner, Fairbanks

A thin, bright, horizontal band observed in some auroras suggests new avenues of exploration for those studying the northern lights and upper atmosphere, a University of Alaska-Fairbanks researcher says.

Tom Hallinan, associate professor of geophysics, unveiled his observations Thursday during a lecture at the Geophysical Institute.

Although the band has been observed in the past, Hallinan said it has not been the focus of much research or examination. He suggested that the layer deserves a closer look.

"We don't look for things we don't expect to find," he said. "If you're looking for oil, you expect to find it in the Beaufort Sea, and not in Connecticut," and thus, "We don't find things we don't look for."

Hallinan and another colleague, Hans Stenbaek-Nielsen, also of the UAF faculty, suggest that tne upper atmosphere may not be as uniform as previously believed. "I think what it suggests is some sort of layering within the upper atmosphere, where the aurora is occurring," Hallinan said.

If so, then perhaps electrons may be losing their energy not because of collision with the atmosphere, which is the current assumption, but because those electrons emit a type of radio wave.

"Whatever this layer is, it's not always there. We're not even sure what's different about this layer," the geophysicist said.

Finding specific answers won't be easy. The aurora occurs in the ionosphere, about 60 miles above the earth. Rockets are shot through the ionosphere, equipped with cameras and instruments to collect information. But the band is so thin, Hallinan said, a rocket probably would pass through it in a second or two. Further, he is not sure what type of instruments could be used to probe this band.

The band may not always be present. It may occasionally be bright enough to be seen with the naked eye, but the best recordings of it are on stereo television cameras. Hallinan said that in a two-month period in the winter of 1982-83, the band was observed four times.

Hallinan said he is working on a paper to describe these new recorded observations.

Fred Rees of the UAF Geophysical Institute developed models which are used in predicting northern light activity at different altitudes. Hallinan, in his lecture, said the model "explains 95 percent of the light we see from the aurora."

But there have been "disturbing bits of information" in the past, and some of those exceptions don't fit neatly on graphs or models.

"We're kind of in the hand-waving stage," Hallinan told his audience of these new observations.

A rising tide for sure
The Associated Press

The world's oceans have risen more than six inches in the last century, according to the U.S. Geological Survey. As freshwater glaciers continue to melt from the warming trend caused by carbon dioxide in the earth's atmosphere, scientists predict sea levels may rise as much as 15 feet in the next 100 years.

Hurricane storms studied in Arctic

WASHINGTON (AP)—Government researchers are launching a study of devastating Arctic winter storms similar to hurricanes.

"These Arctic hurricanes can develop very rapidly and in a matter of hours produce winds as high as 100 miles an hour, causing very high sea states that are extremely dangerous to shipping in the area, as well as to any off-shore oil activities," said Melvyn Shapiro of the National Oceanic and Atmospheric Administration.

The storms will be studied by American and British scientists flying research planes from Keflavik, Iceland, later this month, and from Bodo, Norway, in February.

The storms occur in many Arctic areas, including the North Atlantic, Norwegian and Barents seas and the Gulf of Alaska and Bering Sea.

Scientists report that the storms form spiral cloud patterns similar to hurricanes, although they are smaller than the tropical storms,

Yankee Whaling Boat Found on Arctic Isle

ANCHORAGE, April 22 (UPI) — A 31-foot harpoon boat used by whalers around the turn of the century has been recovered intact from an uninhabited Arctic island.

Yankee whalers of the 19th century used thousands of the small boats, but only a dozen have survived in good enough shape to be refurbished for museum display, said John Bockstoce, curator at the New Bedford Whaling Museum in Massachusetts.

The excellent condition of the boat, found some 10 miles north of Prudhoe Bay on a gravel spit in the Beaufort Sea, was attributed to the dry Arctic conditions.

THE AGS AND POLAR WORK: Highlights in Retrospect

Since its earliest days The American Geographical Society has earned particular distinction for its polar work. Those contributions have included cartography, publications, and the encouragement of and financial backing for research and exploration. With the triple anniversary of the First and Second Polar Years and the International Geophysical Year occurring now, this is a good time to pause and savour a few of the AGS's achievements in polar work, which loom so brightly on the horizon of the past 131 years.

Focus on the Arctic

At first the AGS's interest in the polar regions was largely in exploration. In fact, Arctic exploration may have had something to do with the founding of the Society. Sir John Franklin's third Arctic expedition, which had left England in 1845, was never seen again. Search expeditions were sent out for many years, including expeditions to search for the searchers! Henry Grinnell, one of the founders of the AGS, became fascinated with the search for the Franklin expedition. J. K. Wright in *Geography in the Making* (New York: The American Geographical Society, 1952, p. 11) writes: "Would there have been an American Geographical and Statistical Society had not the loss of Franklin aroused Mr. Grinnell's interest?" Actually, Grinnell had begun sponsoring Arctic voyages in search of Franklin in 1850. In 1851 he became President of the newly-organized AGS and was "the leading spirit in focusing a substantial part of the Society's attention on the Arctic and in initiating its long tradition of interest in polar expeditions." (Wright, p. 30) Arctic explorers were welcomed speakers at AGS meetings and AGS-sponsored public lectures. For instance, the leader of the Second Grinnell Expedition in 1853, Elisha Kent Kane, lectured to the Society on the Expedition.

Many Arctic projects, notably those of Howgate, Greely, De Long, and Schwatka, were more substantially associated with the AGS. Judge Charles P. Daly was largely responsible for this. Daly, who was elected to the AGS Council in 1858 and served as its President from 1864 to 1899, had broad geographical interests. However, Arctic exploration was the subject he followed most closely, and it was he who established and maintained contacts with these expeditions.

Daly was the prime mover behind the Society's Franklin Search Party in 1878-1880 to Repulse Bay, King William Island, and Hudson Bay. It was financed by the AGS and led by Frederick Schwatka. The expedition discovered evidence of the fate of the Franklin party and also established several "firsts" in Arctic work in terms of: length and duration of overland sledge travel, record low temperatures experienced in the field, subsistence on indigenous game and native fare, and functioning in the field in the dead of winter.

During the early 1900's ". . . The Society was in especially close contact with five Arctic explorers: Peary, Mikkelson, Leffingwell, Stefansson, and MacMillan" (Wright, p. 176). The Society sponsored a number of their expeditions and provided some financial support.

Attempts to reach the North Pole started in the 1860's. The Society began in the 1890's to support the efforts of Robert E. Peary, including his first North Greenland Expedition of 1891-1892 and the expeditions in 1895, 1899, and 1905-1906. In January 1903, when Peary had returned from five years in the Arctic, he was chosen to be President of the AGS. In a speech shortly after that, he said: "If we wish to keep in the lead and be in at the death of the final geographical conquest of the world, our first efforts must be in those two directions, north and south. . ." (Wright, p. 138). Peary went back to the Arctic in 1905, then returned to New York the next year when his term as President came to an end. In April 1909 Peary reached what he calculated to be the North Pole.

Attention Turns to Antarctica

Meanwhile AGS's interest in the Antarctic had taken hold. Wright writes (p. 175) that the first article on the South Polar regions published by the Society appeared in the *Bulletin of the AGS* in 1900. It was by Frederick A. Cook, who had participated in the Belgian Antarctic Expedition of 1897-99 before turning to his better known explorations of the northern Canadian islands and adjacent regions. During the next 15 years ". . . many more articles and notes had to do with the Antarctic than with the Arctic. . . The expeditions of Amundsen, Scott, Shackleton, Mawson, Charcot, Bruce, Filchener, Drygalski, and Nordenskjold were chronicled."

Assistance to Polar Pioneers

A substantial proportion of the 118 lectures delivered under AGS auspices in the period 1900-15 were given by major Arctic and Antarctic explorers. The Society further encouraged explorers and their backers by awarding medals and Honorary Fellowships in recognition of their achievements, and the names of polar explorers liberally adorn the lists of AGS medalists and Honorary Fellows both at the turn of the century and later. Peary, Amundsen, Scott, Shackleton, Mawson, Leffingwell, and Stefansson were among them. Later came people like Louise A. Boyd, Richard E. Byrd, Lincoln Ellsworth, William O. Field, Alexander Forbes, Sir Wilfred Grenfell, O. M. Miller, Sir Hubert Wilkins, and Walter A. Wood.

As the century moved on, AGS's assistance to polar work frequently took on more utiliarian forms. The Society typically helped polar explorers prepare for their expeditions and present the results in maps and pubications afterwards. For instance, in 1928 AGS supplied base maps and navigation charts and loaned instruments to Byrd's Antarctic Expedition. It did the same for Ellsworth's Antarctic Expedition of 1933, including the development of experimental custom-made equipment for air navigation; in 1937 it did studies for Ellsworth, relating his cartographic results to those of the British Graham Land Expedition.

The pioneering quality of AGS's contributions to polar work was exemplified by the participation of O. M. Miller of the Society's cartographic research group in the Grenfell-Forbes Expedition to Northern Labrador in 1931 and his assistance to followup trips in 1932 and 1935. Those trips and the subsequent work published by the Society (Alexander Forbes, *Northernmost Labrador Mapped From the Air,* 1938) demonstrated the efficacy of techniques devised by Miller for the use of aerial photography in cartography.

Labrador, as a matter of fact, received a generous amount of attention from AGS staff, and so did Greenland. Among other things, both Miller and Walter A. Wood of the AGS staff participated in Louise Boyd's Greenland expedition of 1933, and her *The Fiord Region of East Greenland* was published by the Society in 1935.

Finn Ronne's Antarctic expedition of 1947-48 took place under AGS auspices. It benefited from modest financial support from AGS but even more so from the Society's endorsement, which encouraged funding from other sources. His materials, air-mailed from Valparaiso, were prepared by the Society and lavishly presented in slides and printed programs at the gala AGS reception welcoming him back to New York.

AGS Polar Publications

AGS publications on polar subjects have been so numerous and extensive over the years that it is difficult to convey even an impression of their scope here. Several are generally considered to be classics in the field

One of the earliest was *The Polar Exploring Expedition* published in 1860. It was a report of a special meeting of the Society to consider the proposal from I. I. Hayes for his Arctic expedition that took place in 1860-61.

In 1868 the Society published *Alaska and the Polar Regions,* a report by T. L. Kane of his explorations. *Bering's Voyages . . .*, by F. A. Golder was published in 1922 (Vol. I) and 1925 (Vol. II). Nineteen-twenty-eight was a stellar year; it saw the appearance of both *The Geography of the Polar Regions* by Otto Nordenskjold and Ludwig Mecking and *Problems of Polar Research,* comprised of contributions from 31 polar explorers and edited by W. L. G. Joerg. Joerg followed that up in 1930 with his *Brief History of Polar Exploration Since the Introduction of Flying.* Nineteen-forty-eight saw the issuance of another book by Louise Boyd, *The Coast Region of Northeast Greenland,* and the 1960's and 70's marked the appearance of a whole series of monographs from AGS on Antarctica. An historical study, *Americans in Antarctica, 1775-1948* by Kenneth J. Bertrand, appeared in 1971.

AGS Polar Cartography

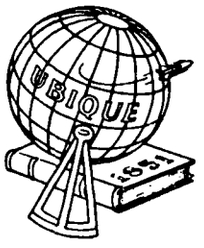
AGS's cartography of the polar regions has been similarly extensive. Some of the better-known contributions have been the 1928-29 *Map of the Antarctic* (1:4,000,000), the 1930 *Physical Map of the Arctic* (1:20,000,000) and *Bathymetric Map of the Antarctic* (1:20,000,000), the 1948 *Map of Alaska, Northern Canada, and Greenland* (1:5,000,000), the *Antarctic Map Folio Series* edited by Vivian Bushnell in 1964-75, the polar projection *Map of the Arctic Basin* (1:5,000,000) produced in 1975 for the National Science Foundation, and the *Map of Antarctica* (1:5,000,000) prepared in 1965 also for the National Science Foundation (with later updating) Although *Ice Atlas of the Northern Hemisphere* (1946) was published by the Hydrographic Office of the U.S. Navy, it was prepared at AGS by John C. Weaver and other staff.

Indirectly, the AGS has had additional impact on Arctic work through the efforts of AGS staff or Council members in the Arctic Institute of North America, which actually had its New York offices in the AGS building for several years in the late 1940's. Fred A. Armstrong, William O. Field, Lawrence Gould, Kenneth Hare, Richard H. Nolte, Walter Sullivan, and Walter/A. Wood are among those who have been thus associated with both organizations.

AGS and the Anniversary Years

AGS had minimal involvement in the assigned work of the First and Second Polar Years. However, the International Geophysical Year was a different matter. AGS helped plan the glaciology, Arctic, and Antarctic programs; it did the cartographical work on the continually updated map of Antarctica, showing developments as they occurred each year; it bore major responsibility for the two parties sent in 1957 and 1958 to continue the study of Alaskan glaciers; and it was selected to operate World Data Center A for Glaciology. The field training given by AGS to young students and scientists in 1948 on the Juneau Ice Field Research Project probably helped to bring about the latter two assignments. So did the fact that glaciologists Field and Wood were associated with AGS, and that the Alaskan glacier photograph collection assembled by Field and others for the American Geophysical Union Research Committee was by that time housed under his care at AGS. The excellence of AGS's cartographic section accounted for the Antarctic mapping assignment, as well as the fact that the staff included W. A. Briesmeister, experienced in drafting maps of the area.

In reflecting on the prominence of polar work in AGS's projects over the long span of the organization's life, it seems appropriate somehow that the first AGS Honorary Fellow to be named in some years is Dick Richards, who has been so honored for the work he did in Antarctica. Currently the AGS and the National Science Foundation are making arrangements to reprint the latest map of Antarctica prepared by the AGS under commission from the Foundation.



Mary Lynne Bird, AGS Director
in collaboration with
William O. Field and Walter A. Wood
AGS Councilors

THE AMERICAN GEOGRAPHICAL SOCIETY
156 Fifth Avenue Suite 600 New York, NY 10010
(212) 242-0214

Study finds arctic gains world clout

by David Ramseur
The Anchorage Times

Washington — The growing strategic importance of the arctic is placing more power in the hands of northern leaders, especially natives, according to a paper published by a Georgetown University think tank.

The paper, by French scientist Louis Rey, says the arctic constitutes a "Fourth World" which, although small in numbers, is gaining in international clout.

"From now on, it will be necessary to have regular open discussions with the 'native power' in the frozen north," Rey says in "The Challenging and Elusive Arctic Region."

"Administrations, the multinational companies, the armed forces themselves will seek to benefit from a wide consensus before carrying out their planned developments and they will have to be prepared to revise certain of their projects, brilliant though they may look, should they wish to have them fully endorsed by local populations."

The 27-page publication is the second in an Arctic Resources Project series by Georgetown's Center for Strategic and International Studies.

The Washington, D.C. university began the series in 1982 and plans several more papers, seminars and research projects on the arctic. The series will culminate with at least one major report.

The center is headed by Charles Ebinger, a former Federal Energy Administration official who has been actively supporting Alaska's efforts to lift the federal ban on the export of North Slope oil.

Rey, president of the International Arctic Committee, most recently was a visiting professor of arctic sciences and history at the University of Alaska-Fairbanks.

He says arctic natives find themselves in the precarious position of presiding over an area of increasing strategic importance while trying to preserve their heritage.

For example, besides oil — some estimates say the region holds 50 percent or more of the world's oil reserves — the arctic also contains deposits of other valuable minerals including uranium, zinc, manganese and precious metals and stones such as gold, silver and diamonds.

At the same time, Rey says the arctic is of growing military importance. For example, he says the Arctic Ocean's ice pack offers ideal conditions for the deployment of submarine-based missiles which can be fired from beneath the ice and then the submarines can disappear undetected.

The Arctic Ocean, which he terms a "vast no-man's land" between the world's two major powers, also contains huge trenches, some more than 8,000 feet deep and 60 miles wide, in which submarines can operate and travel.

Both the United States and Soviet Union have a large military presence in the arctic, from the Air Force's Distant Early Warning line across Alaska to Soviet installations along the Siberian cost.

Rey says although people indigenous to the region are separated by language and distance, they "have nevertheless federated to give more weight to their claims."

He cites as evidence the Alaska Federation of Natives and similar groups in Greenland, Canada and Scandinavia.

"Everywhere, these peoples react and aspire, if not to control their own development, at least to participate closely in all that concerns their environment," Rey says.

"They insist upon maintaining their native languages and its teaching. They proclaim their indefeasible right of control of the lands that have constituted the framework of their lives for thousands of years.

"They wish to be consulted on new developments concerning their territories and claim the right to oppose any measures they judge to be against their traditions and interests."

Rey cites North Slope Borough Mayor Eugene Brower as an example of a native leader trying to balance competing interests. For example, Brower is presiding over a huge financial empire with a per capita debt larger than Anchorage, yet each spring he hunts whales in the tradition of his ancestors.

Rey says the challenge of the arctic "will be to develop it efficiently while preserving its unique strengths and character."

A Study of Polar Storms

WASHINGTON, Jan. 9 (AP) — Government researchers are launching a study of devastating Arctic winter storms, similar to hurricanes.

"These Arctic hurricanes can develop very rapidly and in a matter of hours produce winds as high as 100 miles an hour, causing very high sea states that are extremely dangerous to shipping in the area, as well as to any off-shore oil activities," said Melvyn Shapiro of the National Oceanic and Atmospheric Administration.

The storms will be studied by American and British scientists flying research planes from Keflavik, Iceland, later this month, and from Bodo, Norway in February.

The storms occur in many Arctic areas, including the North Atlantic, the Norwegian and Barents Seas and the Gulf of Alaska and Bering Sea.

Scientists report that the storms form spiral cloud patterns similar to hurricanes, although they are smaller than the tropical storms, rarely growing more than 200 miles across.

Often forming a hurricane-like eye, the storms occur from October to April, reaching peak frequency in February.

Dr. Shapiro said the formation of the storms seems to be associated with movement of cold polar air over ocean water. Air moving from Arctic areas may be as cold as minus 30 degrees, he said, and when it moves over relatively warmer water it collects heat and moisture, forming storm clouds.

The scientists hope to learn more about the storms to help predict their appearance and warn shipping in endangered areas. In addition, they plan to study the amount of carbon dioxide absorbed by the ocean in this area.

JOHN ETALOOK

ARCTIC JOHN ETALOOK

Arctic John Etalook, 93, who successfully took on the state of Alaska and Alyeska Pipeline Service Co. for building the trans-Alaska pipeline across his Native allotment near Wiseman, died March 1 at Fairbanks Memorial Hospital.

Etalook was originally from the Arctic Slope region and "just lived the old subsistence way of life," according to long-time friend John Heffle.

Etalook, an Inupiat Eskimo, could not speak or read English, but taught himself to read Eskimo with the Bible, Heffle said. He worked most his life as a trapper.

Etalook won a major case in federal court in 1983 over the use of a 160-acre plot of land he was alloted in 1975 under the 1906 Native Allotment Act. The land, located about six miles north of Wiseman, was crossed by the trans-Alaska pipeline. He had occupied and used the land since 1937.

The land, a federal court ruled in 1983, belongs to Etalook.

Etalook is survived by his wife, Ester and daughters Louisa and Lilly, all of Fairbanks.

Richard Cohen, a member of the Hunter College field party during the 1979-1980 austral summer, uses a photographic microscope at Eklund Biological Center. This group's research focused on protein synthesis in antarctic fish as a means of assessing metabolic adaptation to year-round subzero temperatures.

U. S. Navy photo (XAM-0062-11-79) by Douglas K. Nortell.

Polar ice cap meltdown could start

WOODS HOLE, Mass. (AP)—A study of atomic bomb fallout and nuclear wastes in the North Atlantic indicate the earth is heating up and the polar ice caps are melting faster and sooner than predicted, a physicist said Monday.

The so-called "greenhouse effect" could cause heavy floods, monsoons and heat waves in the next century, said William J. Jenkins, a professor and researcher at Woods Hole Oceanographic Institute, which is affiliated with the Massachusetts Institute of Technology.

"It should bring some alarm to all of us," Jenkins said. "We will see drastic changes in the next decade that will affect us all."

Jenkins' findings resemble, but are much more dire than, a federal report on the greenhouse effect released last October. That U.S. Environmental Protection Agency concluded that the full "catastrophic" impact of the greenhouse effect will be felt in the 21st century.

Shortly after that report appeared, the National Academy of Sciences issued a 500-page study that offered a much less pessimistic view of the greenhouse effect, saying the world could adapt to the climate changes brought on by carbon dioxide buildup without a major crisis.

Experts on the greenhouse effect describe it as a build-up of carbon dioxide in the atmosphere. The gas, produced primarily by the burning of coals and other fossil fuels, allows sunlight through to the earth's atmosphere, but then traps heat like a greenhouse.

Scientists have predicted that as more fuels are burned, the earth will heat up significantly, melting the polar ice caps and causing floods and drastic climate changes throughout the world.

Those temperature shifts will undoubtably ruin farming production and cause widespread starvation, EPA experts said.

New Research Program for Barents Sea

News of Norway

Through a new research program called "Pro Mare", Norwegian researchers over the coming years will for the first time be studying the entire spectrum of ecological environments in the Barents Sea and around Svalbard.

The entire Norwegian marine-ecology research sector has been mobilized to carry out the project, and the results will provide information about the most fundamental natural conditions in the northern polar regions, ranging from plankton at the bottom to polar bears on the top of the food chain. The results of the project may become decisive for the administration of animal and fisheries resources in the region and for the assessment of pollution.

The Pro Mare program will last for six years and cost $13.3 million. Totaling about 50, the participants in the project will come from all major Norwegian universities and from the marine and polar research institutes. The field work for 1984 has been carefully planned and will be carried out on three journeys to the Barents Sea.

The Barents Sea is the growth environment for several commercially important species of fish, including cod and capelin. Some of the world's biggest colonies of nesting seabirds are also found in the region, which is considered to be ecologically very sensitive.

The Pro Mare project is being sponsored by the Ministry of Environment, the Norwegian Research Council for Science and the Humanities and the Norwegian Fisheries Research Council.

Bering bridge: step back in time

By SUSAN FISHER
Daily News-Miner, Fairbanks

The Bering land bridge—it's a centuries-old mystery, and likely one that won't be solved for many years When did the land bridge disappear? Did man cross the bridge into North America, and when?

David Hopkins, a geologist with the U.S. Geological Survey, wrote "The Bering Land Bridge" in 1967, and later collaborated on "The Paleoecology of Beringia" in 1982. Both books examine "Beringia," a region stretching from Siberia to Canada, with the Bering Strait roughly the center.

He came to Alaska in 1943 at age 20, and most of his career with the USGS has centered on Alaska. This semester he is a visiting professor at the University of Alaska-Fairbanks.

The idea of a "land bridge" once connecting Asia to North America is ancient, first suggested in 1590. Since then, geologists, biologists, archeologists and anthropologists have examined how plants, trees, mammals and people came to be distributed in unlikely areas.

Hopkins said a land bridge did exist, but there is no direct evidence about when it submerged.

Scientists have long studied continental drift, when millions of years ago the continents were shaped and connected quite differently, and Asia and North America were joined.

Hopkins thinks there was a broad river valley in what is now the Bering Straits, and that the sea level rose at a time when the region was subsiding.

"While we don't know how, we know when it happened," he said. The presence of the Arctic ringed seal in the Pacific 3.5 million years ago is a "signal of the opening of Bering Strait," he said.

It is likely the sea level rose and fell, at times opening and closing the land bridge. "About 18,000 years ago, the sea level starting coming up fast," an indication that glaciers were melting.

Boats may have been a possibility for the migration to North America. It's been learned in recent years "that the aborigines reached Australia 35,000 or 40,000 years ago. There's never been a time when man could reach Australia without crossing 70 miles of open water.

"We don't require dry land to explain the first arrival of humans" in North America, he said.

If there were humans on North America more than 35,000 years ago, they became extinct. Man was not equipped to live in the tundra and colder climates until around 30,000 years ago, Hopkins said.

"Most American Indians are quite different from the people in Asia," Hopkins said. He speculated the people who dispersed into North America 12,000 years ago were the Athabascans, and they moved eastward into Canada. They represent a second-wave migration.

An earlier migration perhaps 30,000 years ago may account for the ancestors of other Indian groups in the Americas.

"The Athabascans are different from other Indians, both in language and blood type, and in tooth morphology and skull morphology," he said, and they are different from Eskimo and Aleut peoples.

Eskimos and Aleuts may be descended from a third wave migration. That group may have lived in northeastern Siberia 10,000 years ago, crossing the Bering Sea 4,000 years ago to occupy coastal regions and moving eastward to Greenland.

"Certainly someone was present 12,000 years ago and moved on to North America," Hopkins said, but while 12,000 is a "definite," 30,000 years could be a "maybe."

"I favor the idea that people showed up around Beringia," around 30,000 years ago, he said.

Those who crossed may have been bands of hunters from northeastern Siberia. The theory is that as man learned to dress, hunt and live in colder climates, he moved into those new territories.

Discoveries near Moscow unearthing burials revealed a great number of ivory buttons, in such a fashion to suggest trousers and tunics. The clothing appears sophisticated. "That's one of the things you need to live in the Arctic," said Hopkins.

These Siberian residents were mammoth hunters, evidenced by findings of shelters built from mammoth bones and hides. Did they move into North America more than 12,000 years ago?

On the Soviet side, the sites are excellent, but there is doubt about the dating. On the American side, there is evidence of altered mammal bones, which might suggest butchering or altering by humans—"but the doubt is if man had anything to do with it," Hopkins said.

World body may be needed for Arctic haze

TORONTO (AP)—Arctic air pollution is so bad it needs a joint cleanup effort by adjacent countries, Environment Minister Charles Caccia said Monday.

The pollution, including acidic sulphate, comes from different countries and shows the need for "an international agency to deal with transboundary pollution," Caccia said.

He said Arctic haze may become an issue during international meetings on air pollution in Europe next month. It may also come up at an international workshop on the environment in Canada next year.

"There is no pristine frontier left," Caccia told 50 scientists from six countries meeting on Arctic air quality.

The air pollution comes mainly from burning coal and oil and from smelters in industrialized regions thousands of miles away. There is pollution across the Arctic up to an altitude of two miles and recent flights have found streams of dirt in the air, said Caccia.

Two organizers of the meeting, Len Barrie of Environment Canada and Kenneth Rahn of the University of Rhode Island, said Arctic air pollution appears to be coming mainly from Europe and the Soviet Union.

Magnetic Pole draws explorer

London (UPI)—British adventurer David Hempleman-Adams battled a polar bear, almost died in a plunge through the ice and tiptoed through fog and blizzards to become the first person to walk alone to the Magnetic North Pole, the most northerly point on Earth, an expedition spokesman announced May 16

"There have been so many times when I thought I'd never do it, but this makes it all worth while," Hempleman-Adams, 27, was quoted as saying on reaching his goal in 22 days.

The Magnetic North Pole, a theoretical geographical point defining the northern tip of the Earth's natural magnetic field, is on ice-covered Bathurst Island in Canada's Northwest Territories, 1,000 miles from the geographic North Pole.

Hempleman-Adams began his 250-mile walk from the settlement of Resolute, in Canada's Northwest Territories, and was picked up at the target by aircraft Monday night, his spokesman, Nicholas Schoon said.

HEMPLEMAN-ADAMS made the journey with only one supply drop, hauling 100 pounds of equipment behind him on a plastic sled.

To guide him, he used a satellite radio and a sextant. Compasses are useless so close to the magnetic pole, to which all compass needles point.

The explorer was attacked by a polar bear. He shouted and fired warning shots in an attempt to drive it away, then shot it dead after the bear ignored the warnings.

On May 7, at the start of the arctic summer, Hempleman-Adams fell through thin ice into the sea. Badly shaken, he pulled himself out with only wet legs. If he had fallen right through "he would almost certainly have died in minutes" Schoon said.

Hempleman-Adams also was dogged in the last few days by unseasonably warm weather that caused huge blankets of mist and fog and blotted out the sun.

Schoon, based at the explorer's hometown at Bristol in western England, said: "He was very sunburned, extremely tired, in need of a shower, but in excellent shape and very, very elated and happy."

Navy, Corps Take Part In Arctic NATO Exercise

WASHINGTON — More than 80,000 Navy and Marine Corps people participated in the largest amphibious landing ever held north of the Arctic Circle in NATO exercise Team Work 84.

The cold weather exercise, which ended in March and was held in snow storms and high winds, proved the Navy and Marine Corps, together with NATO allies, can "fight our way across the Norwegian Sea to reinforce NATO's northern flank," said Vice Adm. Joseph Metcalf III, Commander 2d Fleet and senior allied commander for the 150-ship exercise. Fifty U.S. ships participated, 32 of which are homeported in Norfolk. One week after Team Work 84 concluded, the Soviets began exercising more than 100 of their surface ships and submarines in the Atlantic and Norwegian Sea.

During the exercise, forces from the United States, Great Britain, The Netherlands, West Germany, Canada, Denmark, Belgium, France and Norway landed at night in fjords near Tromso, Norway, which is about 200 miles above the Artic Circle.

It was the largest amphibious exercise in NATO's 35-year history, Navy officials said.

Rear Adm. Robert B. Rogers, USN, commander of the assault, said he was determined to perform the assault without serious personnel injuries. "There were no serious injuries and only one aircraft loss," he said.

Support for the landing was provided by aircraft carrier Independence's battle group, with additional air-ground support from Marine Corps AV-8 Harriers from assault ship Inchon.

Search and rescue for all aircraft operations and the assault was provided by U.S. Coast Guard Aviation Detachment 101, Mobile, Ala., marking the first time the Coast Guard has participated in an overseas exercise of this scope, officials said.

David Hempleman-Adams—calls it "all worth while."

AAT

Australian Antarctic Territory will introduce two stamps Jan. 16 marking the 75th anniversary of the South Magnetic Pole Expedition.

Ron Fletcher's designs show instruments used to locate the South Magnetic Pole. The 30¢ features a prismatic compass and a Lloyd-Creak dip circle. An aneroid barometer and theodolite are illustrated on the 85¢.

The set was printed by photolithography in sheets of 100 (two panes of 50) with traffic lights in the gutter. It was produced by Leigh-Mardon Pty Ltd., Melbourne.

Unlike the geographic poles, which are fixed points, the Earth's magnetic poles are mobile, traveling erratic courses in the north and south polar regions of the globe.

The first expedition to locate and reach the South Magnetic Pole included Australian scientists Prof. T.W. (later Sir) Edgeworth David and Dr. (later Sir) Douglas Mawson, and a Scottish surgeon, Dr. Alastair Forbes Mackay.

The party was part of the larger 1907-09 British Antarctic Expedition led by Lt. (later Sir) Ernest Shackleton.

The three men left Shackleton's base at McMurdo Sound on Oct. 5, 1908, on a 124-day, 2,000-kilometer return journey across some of the world's most inhospitable terrain.

They passed the Nordenskjold Ice Barrier, negotiated the Drygalski Glacier and spent Christmas Day on Mount Bellingshausen Glacier, encountering biting Antarctic blizzards along the way.

The South Magnetic Pole was reached Jan. 16, 1909, and the three members of the party posed for a photograph, using a string to trigger the camera so that all present could be included in the historic shot.

Australian Antarctic Territory will commemorate the 75th anniversary of the South Magnetic Pole Expedition with 30¢ and 85¢ stamps to be issued Jan. 16.

Cook Islands joined the International Campaign to Save the Whales by issuing stamps depicting dolphins, porpoises and small whales Feb. 16.

Our age breaks the ice

The Christian Science Monitor

People who think the severe North American winter of 1976-77 felt like the Ice Age have a point. Climatologist Thomas Crowley says the atmospheric circulation that season was a mild version of what may be a typical ice-age pattern.

The University of Missouri scientist, who is temporarily with the National Science Foundation, notes that ice-age type circulation patterns may not be all that unusual. In fact, this may be a normal mode of atmospheric behavior.

Meanwhile, at the Australian Numerical Meteorological Research Centre, B.G. Hunt has run computer simulations that suggest to him that ice ages may themselves be the prevailing climatic norm. Presenting his conclusions recently in the magazine Nature, he says that intervening warm periods, such as the present, "should be considered climatic aberrations."

> *"It may well be that our pleasantly warm interglacial climate today is an aberration in a normally icy world."*

Such ideas are speculative. But they do dramatize the fact that the climatic record indicates our present equable climate may be a fragile thing.

Certainly the present geological epoch is best characterized as a long-playing ice age that is punctuated at 100,000-year intervals by brief (10,000-year) interglacial spells. This pattern has persisted for at least the last million years. The onset of this ice age now seems to have been as early as 2.5 million years ago, according to analysis of deep sea sediment samples from the North Atlantic made by Nicholas Shackleton of Cambridge University in England and his colleagues.

Just what started the glaciation and what causes the interglacial breaks still is far from clear. However, meteorologists generally have accepted the theory that changes in Earth's orbital motion set the basic rhythm. These are slow, cyclical variations in the shape of the orbit and in the tilting and wobbling of Earth's axis. As suggested in 1941 by the Serbian scientist Milutin Milankovitch, these planetary changes slightly alter the timing and degree of solar heating in relation to the seasons and thus can have climatic effects.

The most obvious correlation is that between a 100,000-year cycle in orbital shape and the 100,000-year glacial-interglacial rhythm. This makes a 0.1 per cent change in the total sunlight intercepted by the planet.

Thomas Crowley notes that such small changes in the amount of sunshine reaching Earth might be enough to kick the atmosphere into a preferred mode, such as an intensified version of that prevailing during the winter of 1976-77. He calls this circulation pattern "Greenland Above," because Greenland and western North America have above-normal temperatures, while eastern North America and western Europe are unusually cold.

It is a pattern that would dump a lot of snow on the land and favor ice sheet growth. Crowley notes that about 70 per cent of the Januaries over the past century were characterized by only four distinct circulation patterns. The "Greenland Above" pattern was one of these, appearing in a form somewhat less intense than that which would prevail during an ice age. It has occurred about 20 per cent of the time.

Hunt, whose findings also indicate that ice-age conditions are normal, thinks that such a small change in solar radiation could easily lead to glaciation. His computer studies suggest to him that a frozen ocean is a preferred state for the Arctic. Furthermore, he says a frozen Arctic seems to be a "necessary and sufficient condition . . . for the creation of ice ages." Thus he sees no need to hunt for special conditions to initiate glaciation. The problem is to account for the warm interglacials which may also be tied to the Milankovitch cycles.

Here Hunt thinks the mechanism may be an increase in the atmosphere's concentration of carbon dioxide. This picks up a suggestion made by some other investigators as well. Carbon dioxide traps heat radiated toward space and reradiates some of it back toward the ground. This has a warming effect. Climatologists are concerned that a buildup of carbon dioxide released in burning fossil fuel may abnormally warm the atmosphere. But, as a natural control, carbon dioxide increases in the past may have helped modulate the ice-age rhythm.

There is evidence of this in polar ice cores. The natural atmospheric carbon dioxide concentration began increasing as the ice sheets started melting 16,000 years ago. It increased to some 280 parts per million, which was typical just before there was significant fossil fuel burning. At the peak of the last glaciation, the carbon dioxide level was 40 to 100 parts per million below that figure.

Climatologists do not yet know how changes in solar radiation linked to the Milankovitch cycle might, in turn, be linked to carbon dioxide levels. There are many pieces of the puzzle yet to be found. But it may well be that our pleasantly warm interglacial climate today is indeed an aberration in a normally icy world. If that is true, one wonders whether and to what extent the man-made carbon dioxide buildup may help prolong the warm spell. /III

Soviet Scientists Wind Up 1,000-Day Ice Floe Stand

Reuter

MOSCOW, April 25—The Soviet Union has abandoned a research station on a drifting Arctic ice floe after manning it with polar scientists for more than 1,000 days, Tass news agency reported today.

It said the last 12 experts to occupy the station, called North Pole 25, had been airlifted off this week and indicated that the floe was expected to break up.

The large ice slab covered some 3,000 miles after beginning its drift near eastern Siberia in May 1981. Tass said it had moved through little-known regions of the Arctic and enabled the station to gather valuable data for polar research.

A second Soviet station, North Pole 26, is operating on another floe, and Tass said aircraft were searching for a chunk of suitable ice on which to set up a third research base.

Soviets halt polar bear attack

Moscow — Nearly 100 polar bears attacked a large herd of walruses off Siberia's arctic coast and Soviet helicopter pilots had to invervene to halt "the massacre," the news agency Tass reported Saturday. The report from Leningrad did not say when the attack off the Soviet island of Novaya Zemlya occurred or how many walruses were killed. Polar bears are protected in the Soviet Union as an endangered species, and the pilots of the Soviet Polar Aviation Group scared them away with the noise and downdraft of their helicopters, Tass said.

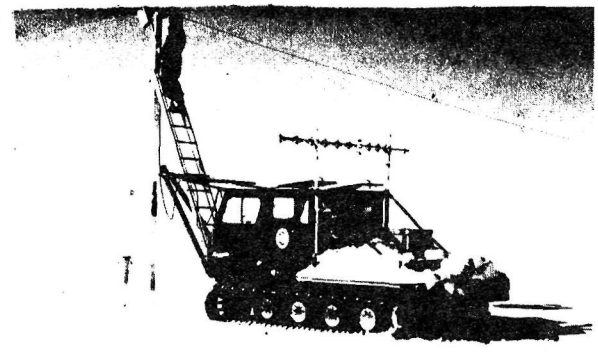
Clues to life in the universe

The Associated Press

The study of microorganisms living in wind-blasted sandstone in the Antarctic may give clues to life elsewhere in the universe, a University of Cincinnati researcher says.

J. Robie Vestal, a biology professor, is on a team of U.S. researchers who study tiny lichens found living in porous sandstone in Wright Valley, one of the windblown Dry Valleys along the Antarctic coast. The organisms survive despite howling winds, long periods of no sun and a year-round average temperature of zero.

"It may be an analog to life elsewhere in the universe," Vestal said in an interview. "The Antarctic and the Dry Valleys are the closest thing on this planet to conditions on Mars. So the people who are interested in Mars are interested in this."



Photograph showing the Siple very-low-frequency antenna and the technique used for measuring the various currents and voltages.

The first Canadian new issue of 1984 debuts March 15 in Yellowknife, Northwest Territories, for the 50th anniversary of that city.

The 32¢ commemorative honors the fact that Yellowknife dates from 1934, when gold was discovered there.

Gold mining colors most of the history of Yellowknife. Paradoxically, the town's name is not derived from gold.

In 1770, when Samuel Hearne was exploring the Great Slave Lake area, he encountered a tribe of Indians who used copper-bladed knives. He called them the Copper Indians, although fur traders began to refer to them as Yellowknives.

To symbolize the growth of Yellowknife and its major industry, the stamp shows the head frame of a gold mine, a characteristic feature of the city, rising out of the type of pan prospectors were probably using when they first detected traces of gold near the Yellowknife River and Yellowknife Bay in 1896.

Capt. Peter J. Smenton, 73; took part in polar expeditions

Jan. 22

BROCKTON — Capt. Peter J. Smenton, 73, U.S. Coast Guard, retired, a Brockton native who was a veteran of many Arctic and Antarctic operations, died Sunday after a short illness in Lawrence Hospital, New London, Conn. He was a former staff officer at the Coast Guard Academy in New London, Conn. He resided at 18 Richards Grove Road, Quaker Hill, Conn.

He was the son of Mrs. Amelia Smetonis of Brockton, who turned 100 on Christmas Day, and the late Bartholomew Smetonis.

Capt. Smenton retired from the Coast Guard in 1964 after 31 years of service. He took part in two expeditions to the Arctic directed by Richard E. Byrd, and later appeared in a full-length movie about the adventure. He was the first man to fly north of the Arctic Circle in a helicopter. At one time he served as chief-of-staff of the First Coast Guard District in Boston. He also taught at the Coast Guard Academy.

Born in Brockton, Capt. Smenton was graduated from Brockton High School in 1930 and from the Coast Guard Academy in New London, Conn. He recently celebrated his 50th anniversary year at the academy.

Following graduation, he was assigned to the USS Cayuga, stationed in Boston, until March 1937. The Cayuga was one of the Coast Guard vessels loaned to the British prior to entering the war.

Capt. Smenton later was assigned to the USS Spencer out of Cordova, Alaska. While on that duty he covered the Bering Sea and the Aleutian Islands patrols during 1938-39.

In 1940-41, he served with Capt. E.H. "Iceberg" Smith on the cutter Northland. Although the United States and Germany had not yet declared war, both were trying to establish bases in Greenland. The Northland broke her way through uncharted ice, discovered and destroyed Nazi radio installations, captured a German ship, led American convoys through narrow ice channels, and rescued survivors of torpedo attacks.

For four years, beginning in 1941, Capt. Smenton taught electrical engineering and electronics at the Coast Guad Academy. He was promoted to lieutenant commander there in 1943 and to commander in 1944.

He was ssigned as executive officer of the Navy Transport USS Admiral Eberle in 1946, operating between the West Coast and Japan.

For three years, he commanded the ice creaker Northwind out of Seattle, Wash., taking part in two expeditions to the Arctic, Operation Nanook I and Operation Highjump, directed by Admiral Richard E. Byrd.

In 1949, a full-length movie, with Capt. Smenton in a leading role, about the expedition, was released under the same title as the adventure.

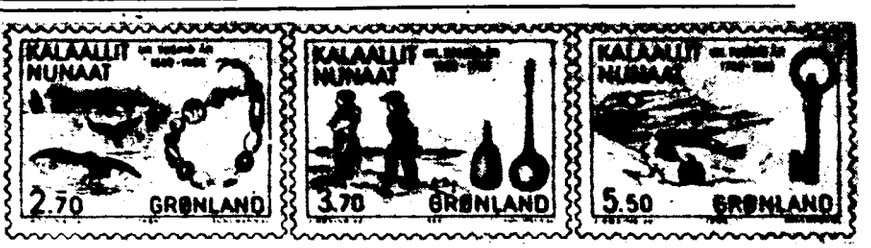
In 1956, Smenton had another feature role in a second film about Admiral Byrd and a later Arctic expedition. The film, entitled "Men Against the Arctic," won an Academy Award. The expedition was known as Operation Deep Freeze, on which Capt. Smenton commanded the ice breaker Westwind. It was on that expedition that he became the first man to fly north of the Arctic Circle in a helicopter.

During the intervening years betwen the two record making expeditions, he served two years as commanding officer of the Staten Island Coast Guard Base in New York, and attended the Armed Forces Staff College in Norfolk, Va. He was chief of the Readiness Branch, Eighth Coast Guard District, New Orleans, for three years and commanding officer of the USS Rockaway out of New York for a year.

He was elevated to the rank of captain in 1956.

He was head of the Department of Professional Studies at the Coast Guard Academy from 1957 to 1961 and then served two years as third district chief of operations division and a year as first district chief of staff in Boston.

Following his retirement to New London, he worked for the Electric Boat Co. in Groton, Conn., as an engineer, retiring a few years ago..



Greenland trio to recall history

Three stamps will be released by Greenland March 29 continuing the 1,000 Years of Greenland series. The 2.70-krone value features whales and pearls (1500-1600), while the 3.70kr depicts Europeans and apostle spoons (1600-1700). The 5.50kr shows the key to the first trade and mission station founded by Hans Egede on the Isle of Hope in the mouth of the Godthab fiord (1700-1800). The key was discovered during an excavation.

36,000-year-old bison finds new home at UAF

By JANE PENDER
Northland News, Fairbanks

FAIRBANKS—The world's only fully restored Pleistocene bison is now on display at the University of Alaska Museum.

The animal was killed "most likely by a lion" 36,000 years ago at Pearl Creek, 30 miles north of Fairbanks. The lion ate most of the meat but left most of the skin intact. Claw marks were found on the skin.

Soon after, what was left of the bison was preserved in permafrost where he remained until he was carefully excavated in the summer of 1979 by Dr. Dale Guthrie of the University.

Called a "Steppe Bison" in Europe, the animal's scientific name is Bison Priscus. It was was slightly larger than modern bison, and looked a little different, too, Guthrie said. "He didn't have the big pantaloons and the hairy bonnet we see in the modern animal."

The bison lived during a slight modification in the middle of the last glaciation. The predators that killed it resembled the modern African lion, Guthrie said.

The bison is "an absolutely unique" specimen, according to Eirik Granqvist, chief head taxidermist for the Zoological Museum, University of Helsinki, who accomplished the restoration in an astonishing six weeks—much too short a time, he says.

"We have been doing the impossible," he said. But it is an exciting task. "It's not every day a 36,000 year old animal is discovered," he said.

His first job was to treat and tan the skin to preserve it, then to construct a foundation on which to mount the skin. The bones, which include the skull are being preserved for scientific purposes. The horns which are somewhat larger than those of modern bison, are being cast to be mounted on the reconstruction while the originals will also be saved.

The Center for Polar Archives was formally opened in the National Archives on September 8, 1967. It is designed to serve as a depository for gifts of private collections of papers from individuals and institutions as well as for records of the U.S. Government pertaining to exploration, research, and other types of activities in the arctic and antarctic regions. The primary objectives of the Center are to preserve, arrange, and describe polar-related records and to facilitate research on those that have had no restrictions placed on them.

U.S. Government exploration teams have been active in the polar regions for over 150 years. The records of their activities are as numerous as the subjects of investigation are wide ranging. It is important that these records and papers be preserved as part of the Nation's heritage.

The 20¢ National Archives commemorative debuts April 16 in Washington, D.C.

Hugh Odishaw, 67, Who Led U.S. Effort in Scientific Year

By WOLFGANG SAXON
The New York Times/March 5, 1984

Hugh Odishaw, director of American endeavors for the International Geophysical Year of 1957-58, a vast undertaking to unlock the secrets of the earth and solar system, died of cancer at the University of Arizona Medical Center yesterday morning. He was 67 years old and a resident of Tucson.

After winding up the affairs of the I.G.Y. in 1972, Mr. Odishaw became dean of the College of Earth Sciences at the University of Arizona in Tucson, a post he held at the time of his death.

The I.G.Y. involved 60,000 scientists from 60 nations, each of which operated its own programs and contributed the data gained to three centers for all to share. The United States and the Soviet Union were among the principal partners, and Mr. Odishaw was appointed executive director of the United States National Committee for the I.G.Y .in 1954 to organize the American effort under the auspices of the National Academy of Sciences.

Hugh Odishaw

The result was what Mr. Odishaw himself called "the single most significant peaceful activity of mankind since the Renaissance and the Copernican Revolution."

The project included the lauching of the first instrumented earth satellites, which discovered the Van Allen radiation belts and the influx of charged solar particles believed to cause the auroras.

There were also Antarctic expeditions that found that the continent's eastern region actually was much smaller than had been thought.

And ocean soundings brought important findings on the ocean floors and their rifts and undersea mountain chains, data that helped explain the movements of the earth's crusts.

Mr. Odishaw remained executive director of the committee until 1965. From 1954 until 1972, he also served as director of I.G.Y. World Data Center A, one of the three established to manage and interpret the enormous wealth of information streaming in from Argentina to Yugoslavia, from China to Canada.

From 1966 to 1972, he also was executive director of the division of physical sciences of the National Academy of Sciences.

Hugh Odishaw was born in North Battleford, Sask., Canada, on Oct. 13, 1916, to a family of Persian immigrants. He came to this country in 1922, studied at Princeton and earned degrees at Northwestern University, the Illinois Institute of Technology and Carleton College.

With a love for literature, he combined his expertise in various branches of science with an interest in the humanities. In fact, while taking postgraduate courses, he taught English as well as mathematics at the Illinois Institute of Technology until 1944.

He then joined Westinghouse Electric as a researcher in the radar laboratory, whose operation were of great military importance in wartime. A year later, he directed a radar study group of the United States Office of Scientific Research and Development in Weshington, D.C.

After the war, and until 1953, Mr.Odishaw was assistant to the dirctor of the National Bureau of Standards, the Federal agency for research in the physical sciences.

The I.G.Y. itself, to which each country pledged full and nonpolitical cooperation, lasted 18 months, from July 1957 to December 1958, but data continued to come in to be processed for years.

Mr. Odishaw is survived by his wife, the former Marian Lee Scates; a son, Geoffrey Scott, two daughters, Tracy Lee and Courtney Lee, all of Tucson; and a stepdaughter, Marian Louise McCray of Plantation, Fla.

R. M. Gilmore, Whale Expert, Dies on Brink of Expedition

SAN DIEGO, Jan. 3 (AP) — Raymond M. Gilmore, an expert on whales, died, apparently of a heart attack, as he was about to board a whale-watching boat Saturday. He would have been 77 years old on Sunday.

Mr. Gilmore, one of the first researchers to take a census of gray whales, was scheduled to lead the whale-watching expedition. He often studied whales from a rooftop perch at Scripps Institution of Oceanography.

Mr. Gilmore served as associate curator of mammals at the National Museum in Washington, and later headed whale research for the United States Fish and Wildlife Service, first in San Francisco and then in 1952 in San Diego, on the Scripps campus.

Survivors include his wife, Elizabeth, two sons and a daughter.

Sven E. Roos; Sailed With Byrd

By JAMES BARRON

Sven Edward Roos, a member of Adm. Richard E. Byrd's first and second expeditions to Antarctica, died May 15 of a stroke following cancer surgery at Cape Canaveral Hospital in Cocoa Beach, Fla. He was 76 years old and lived in Cocoa Beach.

Mr. Roos, who was born in Gothenburg, Sweden, became an apprentice merchant seaman at the age of 15. In 1928, he joined Admiral Byrd's first expedition to Antarctica as a crew member on the City of New York, the flagship.

For the second expedition, organized in 1933, Mr. Roos was the oceanographer and the chief of hydrographic surveys aboard the Coast Guard cutter Bear. Admiral Byrd later described how Mr. Roos had conducted tests of the floor of the Pacific Ocean along the Bear's route.

'Striking Discovery'

"All the way across," Admiral Byrd wrote of the voyage first through the Panama Canal and then on the way to a refueling stop in Tahiti, "Roos ran a bathymetric profile with her sonic-sounding unit along her track, making the striking discovery, while crossing the so-called Aldrich Deep between Tahiti and New Zealand, that the ocean bottom had apparently been upheaved in recent years, probably by an earthquake."

Admiral Byrd called this survey one of the most valuable contributions of the voyage because it added 600 soundings of a section of the Pacific as large as the combined territory of the United States and Mexico. Until then, only 14 soundings had been taken of that part of the Pacific.

When the Bear landed in Antarctica, Mr. Roos oversaw a small dredging operation that yielded rocks, pebbles and blue clay. The rocks, Mr. Roos said, "were fresh and angular, glacial debris."

"Most of them," he said, "were acid igneous rocks with occasional fragments of more basic varieties."

Between the Byrd expeditions, Mr. Roos was a crew member on the Atlantis, a research ship affiliated with the Woods Hole (Mass.) Oceanographic Institute. In 1936, he returned to the merchant marine, and in 1938 joined the Standard Oil Company (New Jersey) as a boatswain on the company's oil tankers. During World War II, he survived two torpedo attacks.

He joined the Moore-McCormack Lines and after the war became a captain and licensed master. In 1959, he was captain of the Moore-Mac Elm, which saved a disabled Brazilian fishing boat and rescued its crew in the South Atlantic. The following year he received the Tradition of the Sea award from the New York Board of Trade.

Mr. Roos joined Sea-Land Lines in 1962 and retired in 1970.

He is survived by his wife, Anne; a son, David, of Delmar, N.Y., and two grandchildren.

Team Halts Search for Climber

TALKEETNA, Alaska, March 8 (AP) — A Japanese team searching Mount McKinley for the body of the mountaineer Naomi Uemura has abandoned the search and is descending the mountain, a pilot said today.

Lowell Thomas Jr., whose flying service transported the climbers to the 7,200-foot level on the 20,320-foot mountain Feb. 26 to start the search, said: "They didn't find anything. They're coming down."

On Feb. 12, Mr. Uemura, 43 years old, became the first person to reach Mount McKinley's summit alone in the winter. The mountain is North America's tallest.

A pilot, Doug Geeting, reported seeing Mr. Uemura on Feb. 16, waving from an ice cave as he presumably waited for better weather to continue his descent. Mr. Uemura has not been seen since.

Team Climbed Despite Warning

Jim Wickwire of Seattle and Eiho Otani of Tokyo, who were flown to the 14,000-foot level of the mountain on Feb. 20, concluded that Mr. Uemura fell to his death on an ice wall between the 16,000-foot and 14,000-foot levels.

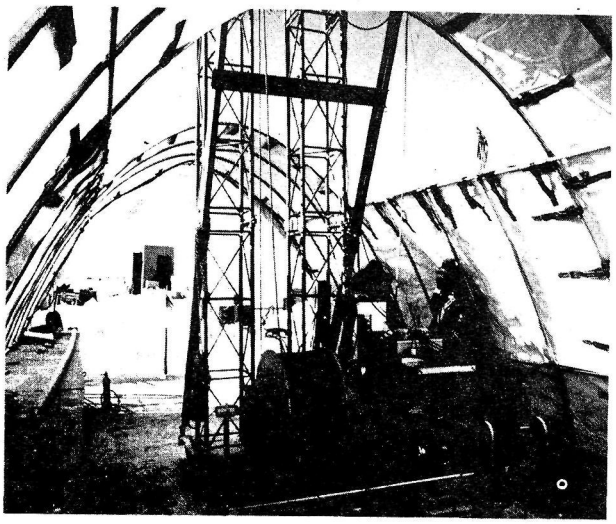
The four-member climbing team was flown to the Kahiltna Glacier base camp hours after Mr. Wickwire and Mr. Otani had delivered their news to Denali National Park officials. They went up the mountain over the objections of the park service, which called it too dangerous.

They focused their search near the 14,000-foot level, where it was believed Mr. Uemura's body likely would be, Mr. Thomas said.

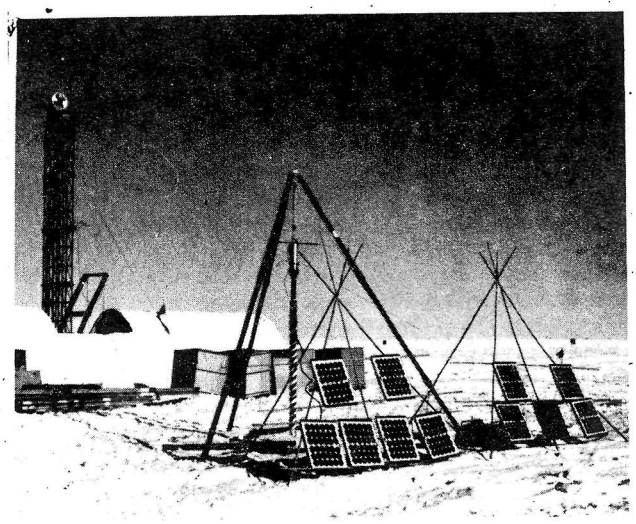
The team from the Meiji University Climbing Club, of which Mr. Uemura had been a member, is expected back at the base in about three days.

Bob Gerhard, chief mountaineering ranger at the park, said Mr. Uemura's body could be in any of the scores of crevasses on the mountain, or could be covered by snow on the surface.

NAOMI UEMURA



Winch platform including winch drum, tower assembly, and control panel inside the canvas-covered drill shelter at South Pole Station, December 1982.



Solar-powered drill at South Pole Station 1982.

Three miles from McMurdo Station the U.S. Coast Guard icebreaker *Polar Star* opens a channel in McMurdo Sound sea ice in January 1982. During the 1982–1983 austral summer, *Polar Star* circumnavigated Antarctica while transporting a four-person U.S. State Department team to observe antarctic stations of other nations. Also participating in the cruise were five groups of scientists who collected data on marine microorganisms, the ocean's physical characteristics, and distribution of whale, seals, and birds. (U.S. Navy photo by Dana Babin)