

THE POLAR TIMES

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National Oceanic and Atmospheric Administration

The Polar Times

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ESKIMO LAWMAKER: William E. Beltz, an Eskimo, is the president of Alaska's first state Senate. The Democratic lawmaker is pointing out on a map the location of his home village of Unalakleet, on the Bering Sea coast of the vast 49th state.

RADIO AWARD — Julius M. J. Madey of Clark, N.J. (right), holds annual Edison Radio Amateur Award for Public Service he received in Washington from L. Berkley Davis of General Electrical Co. Madey spends average of 90 hours a week at ham radio station relaying messages to men in isolated areas.



Dr. Thomas C. Poulter, vice president, presents Polar Society's scroll of honorary membership to Miss Louise A. Boyd at meeting in San Francisco on June 6.

Woman Honored For Polar Exploits

By Harlan Trott

The Christian Science Monitor

SAN FRANCISCO, June 6

When the American Polar Society held its first regional meeting here, the honors for conspicuous achievement in the rugged realm of Arctic endeavor went to a gentle, bright-eyed woman in her seventies. She is Miss Louise Arner Boyd of nearby San Rafael.

When Dr. Thomas C. Poulter presented her with the society's illuminated scroll in recognition of her contribution to polar exploration, not many San Franciscans were aware that this unassuming septegenarian who is president of the Boyd Investment Company was the leader of eight Arctic expeditions, including one to the North Pole in 1955.

The ceremony at the Marines' Memorial Club here elevates Miss Boyd to honorary membership in the society in company with such illustrious names as Brig. Gen David L. Brainard—the famous Sergeant Brainard of the United States Army Signal Corps, last survivor of Adolphus Greely's Arctic Expedition of 1881-1884; Admiral Richard E. Byrd; Dr. Vilhjalmur Stefansson, Dr. Lincoln Ellsworth; Dr. Paul Siple, who received his scroll of honorary membership while standing at the South Pole in 1957; and Dr. Frank Debenham, founder of the Scott Polar Research Institute at Cambridge, England.

Foremost Authority

In his presentation speech, Dr. Poulter, the society's vice-president who is head of the Poulter Laboratories at Stanford Research Institute, credited Miss Boyd with having "contributed more to our knowledge" of Greenland, Spitsbergen, Franz Josef Land, and the Greenland Sea "than has the work of any other explorer."

During the war, when the Pentagon contacted the American Geographical Society to find the best authority in the United States on the fjords of Greenland and Spitsbergen, Miss Boyd was selected to serve as adviser to the War Department as the one most familiar with the region.

After serving as photographer on her first Arctic voyage, the San Franciscan formed the Louise A. Boyd Expedition in 1931. Cruising the Veslekarl, she explored the fjords and charted many of the features of those



LOUISE A. BOYD

portions of the East Greenland coast. Her 1933 expedition photographed East Greenland's scenery and surveyed fjords and glacial marginal features in the Franz Josef fjord region.

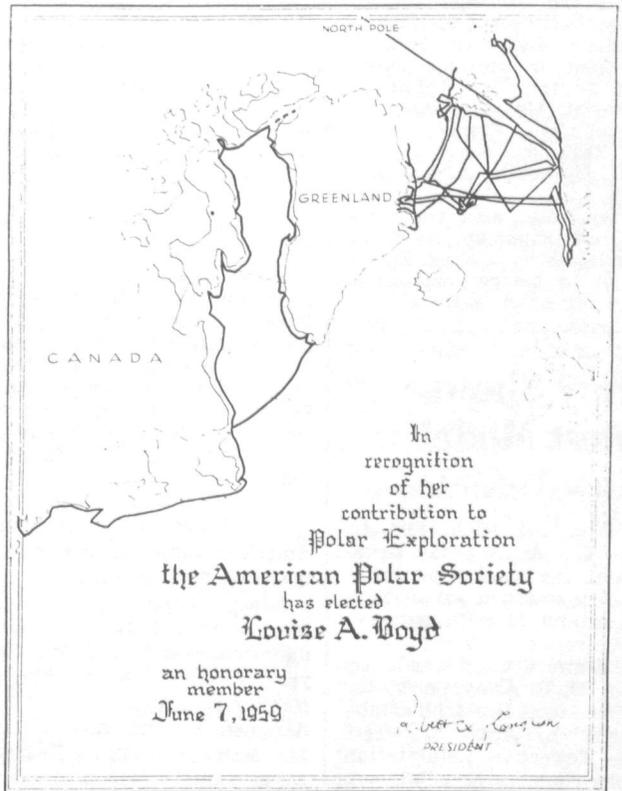
Prodigious Programs

Aided by the American Geographical Society, Miss Boyd pursued her polar conquest by surveys and chartings in the King Oscar Fjord regions.

In 1937 and again in 1939, Miss Boyd forged north in the stout steamer Veslekarl carrying out hydrographic, geologic, and natural history surveys on the seas between Lofoten Islands of Norway, Jan Mayen, and the islands between the latitudes of 72° to 78° North.

The prodigious but unsung work of this San Francisco woman had a useful impact on the Arctic perimeters of World War II. Such navigational works as "Hydrographic Surveys of the Greenland Sea," "Antarctic Harbor to Home Foreland," and "Bottom Profile of the Greenland Sea" were used by the antisubmarine patrols of the Grand Alliance in the ocean trains that supplied the Soviet and Western war fronts.

Largely through the unselfed work and perseverance of this remarkable San Francisco woman, these and many other technical documents helped to



fortify the efforts of inexperienced naval and air commanders to wage the subarctic war at a time when there were not enough native ice pilots to go around.

All her previous Arctic adventures had been by ship or dog sled, but in 1955 Miss Boyd took to the air. Her chartered plane covered in one expedition much of her tedious early conquests. Her ultimate triumph was when she flew over the North Pole and gazed down on the ice-locked polar sea that was the illusive prize of so many valiant explorers.

Other governments showered honors on Miss Boyd. France made her a Chevalier of the Legion of Honor. She was the first woman to receive the award of St. Olaf of Norway. Sweden's Geographical Society bestowed its cherished Andree Plaque upon Miss Boyd. Denmark gave her its King Chris-

tian X Medal. And, wonder of wonders, her fame finally followed her home to California. At long last, Louise Arner Boyd was made Honorary Citizen of the City of San Rafael.

The American Polar Society has 1,800 members and includes a number of citizens in the San Francisco area such as Gordon Fountain, East Bay executive who was a seaman in the Bear of Oakland on the Second Byrd Antarctic Expedition. Dr. Poulter, the society's vice-president, was second in command in the same expedition. These are polar pioneers — trail blazers. But membership in the Polar Society encompasses numerous "come afters" such as Edwin Drechsel of Belvedere, Calif., who made the first trans-Arctic flight over Pan American's new Frobisher base on Baffin's Island, on the fast air route linking San Francisco with London and Paris.

PRESIDENT SENDS GREETINGS TO SCIENTISTS IN ANTARCTIC

WASHINGTON, June 19 (AP) — President Eisenhower sent a message of praise today to scientists and explorers of eleven nations who are wintering in the Antarctic.

"You are participants in a unique venture of peaceful cooperation toward the enrich-

ment of human knowledge," the President said in a communication dispatched to the South Pole area by the Navy.

The occasion is mid-winter, day in the Antarctic—the day of least daylight. Some interior scientific stations are in total darkness twenty-four hours a

day at this season.

The days has been welcomed by Antarctic explorers as a time of festivity to break the monotony of a long period of darkness. The celebrations include dinners, talent shows, speeches and exchange of radio messages with other stations.

President Eisenhower's message went to stations maintained by the United States, the Soviet Union, Argentina, Belgium, Chile, France, Japan, New Zealand, Norway, the Union of South Africa and Britain.

In the polar area the message transmitted by the Navy was relayed by United States stations to camp maintained by the ten other nations.

Army Shows Latest Model Snow Vehicles

HOUGHTON, Mich., Feb. 18 (AP).—The Army today demonstrated its latest snow vehicles before scores of top officers, civilians and Mid-West newsmen.

The demonstration was billed as the "U. S. Army Snow, Ice and Permafrost Research Establishment" by Army Engineers at the Keweenaw field station between Hancock and Calumet, a heavy snowfall area.

The equipment is intended to permit Army personnel to land in Greenland or on the Arctic ice cap.

Exhibited today were the Keebird, a vehicle which can travel over ice or snow at sixty to seventy miles an hour; the Snowpacker, a machine developed to build roads and runways over snow; the Polecat, a vehicle which pulls its cargo by a traction device, and the Marsh Buggy, which has large inflated tires and can roll over snow without sticking and also can maintain stability when moving across marshes.

The Polar Times

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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 one dollar a year, which entitles members to receive THE POLAR TIMES twice a year.

Back issues are 50 cents each. Bound volumes, covering five years, are \$8.00 each.

MacMillan's Arctic Ship Given to Mystic Museum

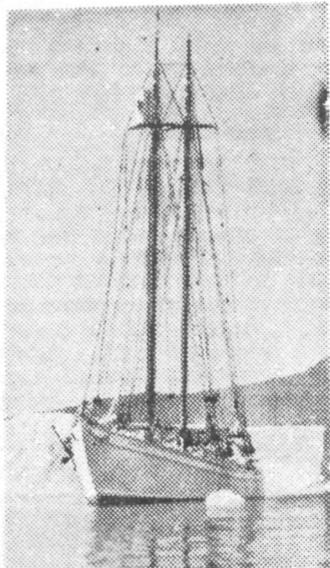
MYSTIC, Conn., June 27.—The schooner Bowdoin, thirty-eight-year-old veteran of twenty-six voyages to the Arctic, sailed today to its new permanent berth at the Marine Historic Association's moorings, at Mystic Seaport, where she will be on public view, fitted out as though she were about to leave on an expedition north.

More than 6,000 persons lined the banks of the Mystic River as the craft, accompanied by fifty other boats, made her way toward her new berth at 3:30 p. m. Her skipper, Adm. Donald N. MacMillan, told the crowd: "I feel that I haven't lost a ship, but have found a home for her."

The Bowdoin is the only American schooner in existence designed for the Arctic.

Adm. MacMillan is said to have conceived the Bowdoin's plan while stranded for four years, from 1913 to 1917, in North Greenland. The ship was designed by the late William H. Hand, of New Bedford, Mass., and built in 1921 by Hodgdon Bros., of East Boothbay, Me.

The sixty-ton Bowdoin, a two-masted auxiliary eighty-eight feet long and twenty-one feet wide, is doubled planked and double framed and sheathed against ice with an inch and a half layer of greenheart, a wood so tough and heavy that it will not float. The spoon-shaped bow with an 1,800-pound sheet of steel at-



ON DUTY—The Bowdoin off Greenland, 1939.

tached, is designed to crush ice.

If caught in an ice pack, the vessel is so designed that it will rise up rather than be crushed. On two occasions, it is reported, Bowdoin was lifted by the ice almost completely out of the water and rolled over on its side.

The Bowdoin's voyages to the Arctic were sponsored by various museums, colleges and government agencies and covered 300,000 miles. The ship was taken over by the Navy in 1941 and during World War II was used along the coast of Greenland.

Bowdoin bears the name of the Maine college where Admiral MacMillan once taught anthropology. She was built in 1920-21 of Maine's native white oak, and sheathed against ice with a five-foot belt of Australian ironwood.

The ship was made of wood because the rivets of metal ships in those days easily loosened when bucking ice. A wooden hull could spring back into shape after being compressed. Bowdoin's verve and durability in treacherous Arctic seas has been the pride of two generations of seafarers.

The smallest vessel ever to go into the far north, Bowdoin made her first voyage in 1921, the year she was launched.

Two years later she sailed north with a National Geographic Society tablet honoring the men of Lieutenant (later General) A. W. Greeley's expedition who died in 1884 in a long battle against cold, darkness and starvation. Commander MacMillan erected the tablet on Cape Sabine, Ellesmere Island, Canada.

In 1925 came another notable moment in her history. Dr. Gilbert Grosvenor, then president and editor of the society, and Sir Wilfred Grenfell, a famed medical missionary, met with Admiral MacMillan aboard Bowdoin at Battle Harbour, Labrador. She was moving north on another historic mission, as flagship of the National Geographic-United States Navy expedition to Greenland. During that voyage Navy fliers surveyed 30,000 square miles of Arctic ice in fifteen days.

The commander of the Navy fliers, Lieutenant Commander (later Rear Admiral) Richard E. Byrd, returned home convinced that aviation would conquer the Arctic—and Antarctic. Within a few years he fulfilled his own prediction by becoming the first man to fly over both North and South Poles.

SEISMOLOGIST HONORED

Navy Gives Highest Award to Father Linehan of Boston

BOSTON, Jan. 20.—The Rev. Daniel J. Linehan, chairman of the department of geophysics at Boston College, received the Navy Distinguished Public Service Award today, the highest civilian award the service can bestow.

The citation accompanying the medal commended Father Linehan for his "outstanding contribution to the Navy in the field of scientific research and development." It was presented by Rear Admiral Carl F. Espe, commandant of the First Naval District, at the Parker House.

Father Linehan, a Jesuit, worked on seismological problems that assured the Navy the sites at Little America and McMurdo Sound in the Antarctic would hold for the duration of the International Geophysical Year.

Several officers of Navy Task Force 43, which Father Linehan served also as Roman Catholic chaplain, were present for the ceremony.

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Skate Again Sails to North Pole In Winter Cruise Under Ice Pack

WASHINGTON, March 27—The nuclear submarine Skate has made a second trip to the North Pole, this time in the darkness and cold of the Arctic winter. The Navy reported today that the Skate had set a record for time and distance under ice, although the cruise had been made when the ice was thickest and high winds increased movement of the floes. The submarine remained under the ice for twelve days and logged 3,090 miles. She surfaced ten times, once right at the pole.

The winter cruise was also a voyage of sentiment for the Skate. On March 17, as the vessel floated at the pole between huge ice drifts, crew members carried out a wish of Sir Hubert Wilkins, the polar explorer who died last Dec. 1 at Framingham, Mass.

Atop the globe, in the half light of the polar winter, they scattered the explorer's ashes into the blowing snow of a fierce wind.

Sir Hubert's ambition had been to reach the pole. He never made it on the ice but in 1927 flew over it.

The Skate's skipper, Comdr.

James F. Calvert, and his crew of 106 have been congratulated in a radio communication from Admiral Arleigh A. Burke, Chief of Naval Operations.

Comdr. R. D. McWethy, operations officer for the Atlantic Submarine Command at New London, gave the details of the Skate's latest trip at a news conference at the Pentagon.

Last year, when the Nautilus made the first voyage under the pole, and the Skate, the second, weather conditions were ideal, he said.

There was plenty of open water and light. Temperatures were reasonably moderate.

The questions that were unanswered, he went on, were whether the submarines would find enough open water in winter when the area became a huge and dark refrigerator.

A scouting mission was undertaken in February by plane. The surveyors, Commander McWethy among them, saw that there was sufficient ice-free water for the submarine to make its winter effort.

On the aerial reconnaissance,

the Navy plane swooped over a Soviet ice drift station in the Arctic ocean, about 165 miles north of Greenland. Such stations observe the weather, ice and water.

"We tried to contact them, but we failed," Commander McWethy said. "So if the Russians read about this in their newspapers tomorrow, they'll know that we were in the plane that came over the station. It looked like quite a sizable settlement."

The Skate left New London March 4. Her conning tower had been strengthened for under-ice operations. However, she carried no special equipment for puncturing through the ice.

Commander McWethy emphasized that the winter ice might pile up to a thickness of eighty or ninety feet and that even the average thickness of twelve feet would be too much for a submarine to pierce.

The Skate dipped under the ice March 14. On her third surfacing, three days after she left New London, the Skate emerged at the pole.

On the latest trip, surface temperatures were 30 degrees below zero and the winds were constant. To combat the darkness, the Skate had floodlights to help look for ice openings. It was not known whether she had used them.

Soon after the Skate had surfaced at the North Pole, funeral rites were held for Sir Hubert on the deck, with a red torch carried high for light. Service men held flags of the United

States, Britain and Australia. Sir Hubert was born in Australia. A firing squad sent several rifle volleys crackling over the urn that contained the ashes. Then the ashes were strewn into the wind.

On the ice the crew left a heap of stones under which were placed an American flag and notes explaining the memorial ceremony.

The Skate then plunged back into the sea to continue her scientific mission. She surfaced seven more times. Soundings were made of the depths of the earth's floor in the region and studies undertaken of the varying ice thickness—"The profile of the ice," Navy men said.

GROTON, Conn., April 7—The atomic submarine Skate glided home from the North Pole today.

She returned to a warm welcome and honors. Upon President Eisenhower's orders, Commander Calvert was given a gold star to his Legion of Merit. The crew received a second Navy unit commendation ribbon.

The great contribution of the Skate lies in the comparison she made of the weather, the light and the ice conditions in Arctic regions under widely differing circumstances. Commander Calvert spoke freely about them at a news conference soon after he came ashore.

In June, July and August, he explained, the temperature of the Arctic remains a steady 32 degrees Fahrenheit, the winds are light and the sky overcast. The sun hangs low on the horizon.

"There is no more of a problem than navigating at sea off New London," continued the skipper. "It is especially pleasant because variations in the climate at this season are so slight.

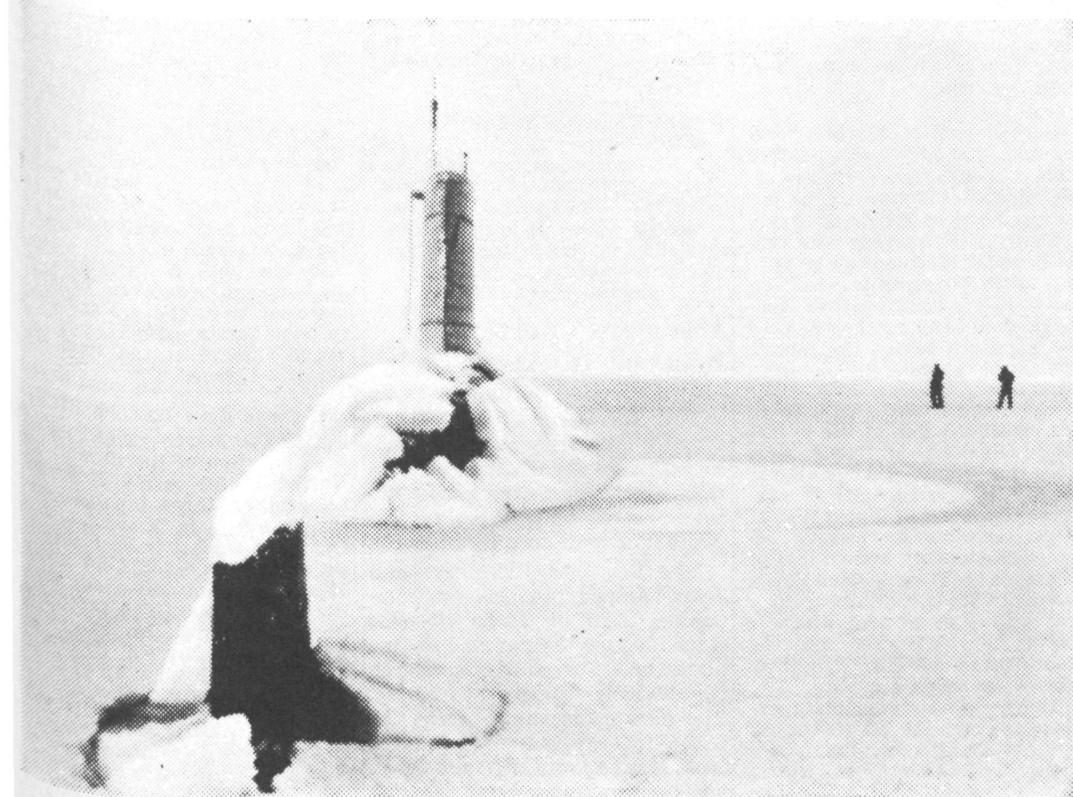
"The ice pack is pock-marked with lakes of open water, some small and others half a mile wide, usually elliptical in shape."

Knowledge of such areas, in his opinion, offers the key to control of the Arctic Sea.

Winter was a different matter. The Skate has just learned first-hand that in January, February and March the mean air temperature is 30 degrees below zero, a drop of 60 degrees. The water, however, remains comparatively warm—that is to say just above 32 degrees. The winds howl over the ice pack up to 55 miles an hour.

Gone are the open "lakes." In more than 3,000 miles of cruising the Skate found "only one puddle, two feet wide," it was disclosed. This presented a problem for the submarine.

Commander Calvert reported that the wind blew apart the ice overhead, creating free patches that froze solid at a rate of 6 inches a day. Thus the trick for the Skate lay in spotting thin ice quickly enough to break through to the surface.



(U. S. Navy)

RIGHT AT THE NORTH POLE: The U. S. Navy nuclear submarine Skate at the pole on March 17, in the course of her second trip under the ice there.

95 LOST ON VESSEL THAT HIT ICEBERG

COPENHAGEN, Denmark, Feb. 6—The Danish Government announced tonight that all hope had been given up for the Danish ship Hans Hedtoft, which disappeared off Greenland with ninety five passengers and crew after having hit an Iceberg last Friday.

The announcement came after a meeting attended by Premier H. C. Hansen, cabinet members, Greenland officials and naval representatives.

The conferees expressed "deep sorrow" at having to record that all hope must be abandoned.

In a television and radio speech tonight Premier Hansen thanked the United States, Canada, Iceland and West Germany for their help in the search for survivors.

He also announced the formation of a committee, which includes himself and Prof. Niels Bohr, to launch a national fund to aid those bereaved by the disaster.

The United States Coast Guard said here early today that the cutter Campbell, which had been searching for the Hedtoft and possible survivors since last Saturday, had left the scene of the search to return to her ocean station to the southwest.

A series of radio messages Jan. 30 painted in terse phrases the agony of the sinking Hans Hedtoft in the North Atlantic. All were relayed by the Coast Guard cutter Campbell as she steamed at a reported speed of nineteen knots for the Hedtoft.

The messages, all given with New York time, follow:

11:54 A. M.—"Collision with iceberg. Position 59.5 north 43.0 west."

12:42 P. M.—"Filling with water in engine room." The engine room is aft in the Diesel-powered ship.

1:22 P. M.—"Ninety passengers and crew aboard. Taking a lot of water in engine room."

2:55 P. M.—"Ninety passengers and about 40 crew."

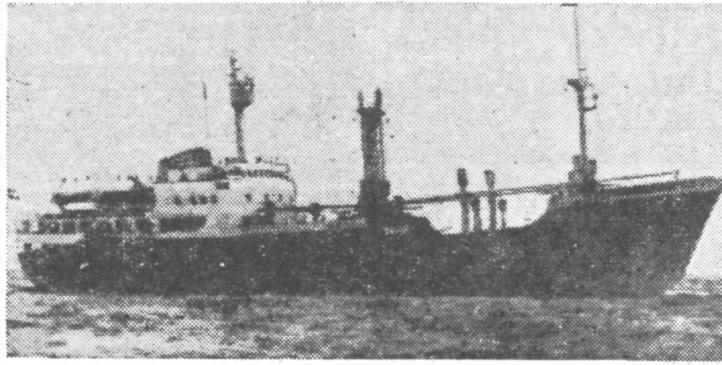
3:35 P. M.—"Hans Hedtoft slowly sinking and need immediate assistance."

That was the last report from the Danish ship.

The 288-foot Hedtoft, designed and built in Denmark last year, was reported to be equipped with every device known to assure safe navigation in northern waters.

She was given a double steel bottom, armored bow and stern and seven watertight compartments and carried the most modern navigating equipment.

Her master, Capt. P. L. Ras-



The Hans Hedtoft, Danish ship that hit iceberg off Greenland.



Position of vessel (cross)

mussen, who is 58 years old, has sailed in Arctic seas all his adult life and is one of the most respected of his country's famed polar seamen.

But in an uncanny parallel to one of maritime history's greatest disasters—the sinking of the Titanic in 1912—the Hedtoft collided with an iceberg on her maiden voyage. The Titanic went down about 600 miles south of the site of the new disaster.

Captain Rasmussen had brought his new ship safely from Copenhagen to Godthaab, the capital of Greenland, on the outward leg of its maiden run.

Then, late Thursday, the vessel headed south, down the rugged west Greenland coast, on her first trip back home to Denmark. Just after she had cleared the southern tip of the island, and headed east, the collision occurred.

The Coast Guard said it could not recall any loss of life in iceberg collisions in peace time since the Titanic disaster almost forty-seven years ago. A merchant ship sunk in World War II after ramming an iceberg resulted in the only known loss of life since the Titanic went down.

But unlike the Titanic, which was sailing in an area where it might not encounter ice, the Hedtoft was operating "right up where the bergs are born."

There was no immediate explanation of why the Hedtoft's radar had not picked up and revealed to navigating officers any iceberg big enough to cause damage.

The Hedtoft's route was far to the north of regular shipping lanes, a fact that slowed the

arrival of rescue ships.

The Hans Hedtoft was named after the late Prime Minister of Denmark. Her owner is Denmark's Ministry of Greenland and she is managed by the Royal Greenland Trade Department.

She was built by the Government to maintain a year-round flow of passengers and cargo between the huge island and the mother country.

In addition to passengers, the Hedtoft was reported to be carrying salted and frozen fish in her cargo holds.

The Hedtoft's fifty-five passengers included nineteen women and six children.

COPENHAGEN, Feb. 5 (UPI)—The Danish Government will pay compensation to relatives of the ninety-five passengers and crewmen who went down with the Hans Hedtoft.

The Royal Greenland Trading Company, a Government concern that owned the \$2,000,000 ship, said the vessel was not covered by private insurance contracts.

COPENHAGEN, Feb. 5 (AP)—Documents that can't be replaced—some dating back to 1780—were lost with the Hans Hedtoft. The cargo included thirteen crates of archives material being taken to Denmark for safekeeping.

Minister-Reporter Rescued in Arctic

BARROW, Alaska

The Rev. John Chambers, 29, a flying missionary who is Associated Press correspondent in this arctic area, survived 40-below zero blasts beside his plane in a tent sewn by his wife.

The Rev. Mr. Chambers and Jesse Ahgak, an eskimo companion, sent a radio distress signal before their single-engine plane was forced down March 10, 130 miles southwest of here. The men made camp beside the plane and stayed snug in the tent Mrs. Chambers had given her husband as a surprise gift before he and Ahgak took off.

They were rescued in good condition by bush pilots 24 hours after landing.

SCIENTISTS TRAP PREHISTORIC AIR

Research Ship Returns From Far North With a Priceless Cargo

North American Newspaper Alliance. WASHINGTON, Jan. 13—A research ship has just returned from the Far North with a cargo—about a quarter of an ounce of air.

The cargo is considered priceless because the air blew over Greenland many millenniums and was trapped in pockets of newly formed ice. Imprisoned there since, the air holds clues to what the earth was like in prehistoric times.

It is the residue of more than 200 tons of glacier ice melted by highly specialized techniques aboard the floe-bucking little Norwegian sealing ship Rondoy. It contains bits of ancient dust and pollen, perhaps even gasps of breath of extinct arctic animals.

The collection of the air was a major objective of an expedition to Greenland by the Arctic Institute of North America. The expedition was supported primarily by the Office of Naval Research, with the collaboration of nine other American and Norwegian institutions.

For each carefully viald air sample obtained from the glaciers an average of ten tons of ice was melted, requiring a two-man shift of skilled scientists working twenty-four hours a day for three days. It is possible that each sample will be dated, by the now well developed carbon-14 technique. The amount of this radioactive form of carbon found in a substance provides a good measurement of the substance's age.

It also will be possible, by analysis of whatever organic material is in the air samples to form rough estimates of the arctic climate at the time the air was trapped.

Japanese Join Iceberg Study

TOKYO, March 12 (AP)—At the invitation of the Cambridge United States Army Research Laboratory, three Japanese scientists will join American and Canadian scientists on a gigantic iceberg called T-3 for study of sea currents and winds near the North Pole. The three are Prof. Ukichiro Nakaya and Asst. Profs. Niroshi Kusunoki and Jira Muguruma, all of Hokkaido University. The iceberg has been studied since its discovery by United States airmen in 1947.

1721 Missionary to Greenland

The first Danish missionary to Greenland, Hans Egede, arrived at the north Atlantic island in 1721.

ICEBERG WATCH ASSIGNED TO U. S.

14 Nations Finance Patrol, Which Was Started After Sinking of the Titanic

When the Titanic collided with an iceberg in 1912, the world learned to fear icebergs as never before. Out of the Titanic disaster was created The International Ice Patrol, operated by the United States Coast Guard but financed by fourteen nations.

By plane, sea and radar, the patrol has sought to watch for icebergs, but it has not always been easy. Fog and storms frequently obscure the frozen, moving masses, and on a radar screen an iceberg and a fishing boat look pretty much alike.

The International Ice Patrol was organized after the Titanic was sunk on April 14, 1912. On that date the supposedly un-sinkable ship sank, and 1,513 of the 2,224 persons aboard died.

The iceberg that sank the Titanic on her maiden voyage came from the Greenland Cap. The 45,000-ton Titanic was the largest and finest ship of its time. Yet it was no match for the ice mass that displaced more than 200,000 tons. The Titanic was traveling at twenty-one knots when it hit the iceberg.

The Coast Guard has had little success in trying to destroy icebergs with explosives and gunfire. Instead, the patrol concentrates on spotting the icebergs and warning all vessels.

The vast bulk of the operations are carried out in the vicinity of Newfoundland and the Grand Banks off shore frequented by fishing fleets. Other limited observations by aircraft are made only in the vicinity of Greenland, the source of most of the icebergs.

In ordinary years the ice patrols by Coast Guard cutters extend from mid-March to July. Severe conditions in 1957 caused patrol ships to remain on station looking for icebergs through August.

This winter planes have been operating on a sporadic rather than a daily basis for two weeks. Conditions have been reported routine.

The Coast Guard employs R5D planes, similar to DC-4's. Their equipment, like that on the ships, includes radar for detecting objects in the darkness or in fog, and Loran, an electronic system for pinpointing positions at sea.

Both ships and aircraft are based in Argentia, Nfld.

The Coast Guard said it sent out the ice patrol whenever the presence of ice began to threat-

en steamship traffic in the North Atlantic. The patrol area covers a region about the size of the state of Pennsylvania "and is in the general region of Grand Banks (a comparatively shoal area) of Newfoundland."

Generally, two cutters (Coast Guard vessels exceeding 110 feet) are assigned to the patrol. When surface-craft scouting starts one vessel stays on continuous patrol and the other is on stand-by status at or near Argentina.

As a result of the loss of the Titanic and public shock, the International Conference on the Safety of Life at Sea convened in London, Nov. 12, 1913, to discuss patrols in the ice regions.

An agreement was signed Jan. 30, 1914, and patrols were ordered started on Feb. 17, although the agreement would not take effect officially till July 1, 1915.

It was discovered that the bergs broke off glaciers in Greenland, drifted north past Baffinland and then appeared off the Newfoundland coast.

The confluence of the cold Labrador Current and the Gulf Stream's warm remnants produce heavy fogs. The bergs, which have been followed as far as a point 1,000 miles east of New York City, are melted by the warmer water.

In an average season as many

Eskimo Wife-Stealers Become Fast Friends

By the Associated Press

When it comes to wives, Alaskan Eskimos do things a little differently.

If one man covets another's wife, he often simply steals her.

You'd think this would cause hard feelings, but it often leads to lasting friendship between the two men.

This is especially true if the wife-stealer later pays compensation to the first husband. In that case they have entered into a formal trade, a commercial transaction as it were, and such traders traditionally become fast friends.

These observations were made among Eskimos living in the icy region between Alaska's Brooks Mountains and the

Arctic Coast by Dr. Robert F. Spencer of the University of Minnesota. He published them recently in a bulletin of the Bureau of American Ethnology of the Smithsonian Institution.

Sometimes a feud develops, but not just from the stealing of a wife. A feud starts only if blood is spilled when the first husband tries to kidnap his wife back again.

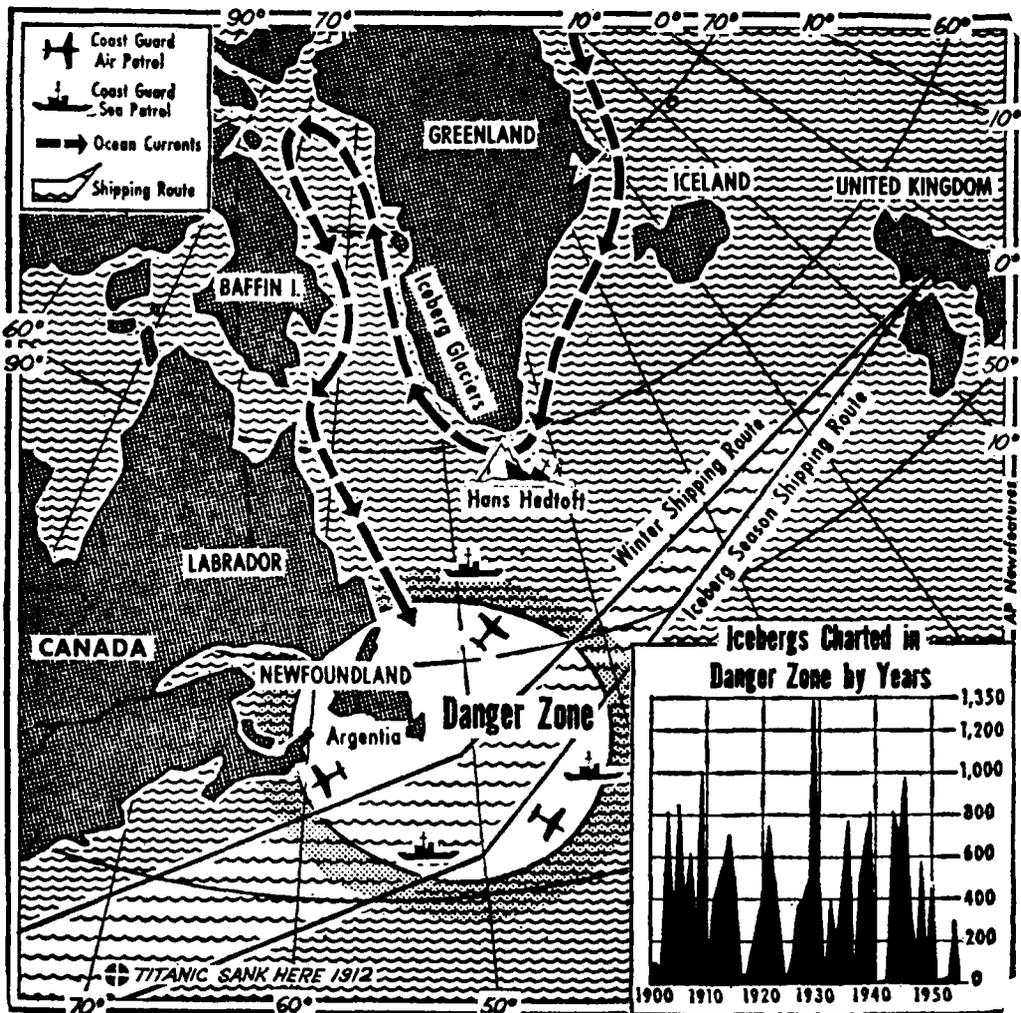
The Eskimos even have a word for the relationship between the first and second husbands in wife-stealing cases.

The word is "nullinuroak." It doesn't reflect shame or disgrace, but a sort of kinship between the two men. It implies "a certain degree of cooperation and mutual aid" between them, Dr. Spencer reported.

as 396 icebergs have been sighted and charted. The total was 897 in 1957, frequently called the worst in history.

The Navy's Hydrographic Office issues weekly ice charts,

based upon daily bulletins received from the ice patrol, which formally is known as the International Ice Observation and Ice Patrol Service. The information is radioed to ships.



ESKIMOS HELPING TO GUARD ALASKA

Guardsmen in 2 Scout Units Keep a Keen Year-'Round Watch Along Coast Line

By HANSON W. BALDWIN

From Cape Lisburne to the Pribilof Islands an unusual military organization, composed chiefly of Eskimos, guards the coastline of Alaska—the closest American territory to the Soviet Union.

The watchdog force is composed of two battalions of Alaska National Guard Scouts. They are scattered around the coastline from Barter Island to Bristol Bay. They augment naval patrol planes, radar stations, communications intelligence and Air Force reconnaissance planes in observing and reporting.

The scout battalions, totaling more than 1,000 men, are on duty the year 'round. They report anything moving in their area—from ships, to floating oil drums, aircraft and men. They represent the only on-site ground defense of the Alaskan periphery.

Although they are equipped with weapons, their job is not primarily to fight—but to observe and to report.

As an intelligence organization they are highly effective. It is doubtful that any strangers could penetrate this human screen without detection.

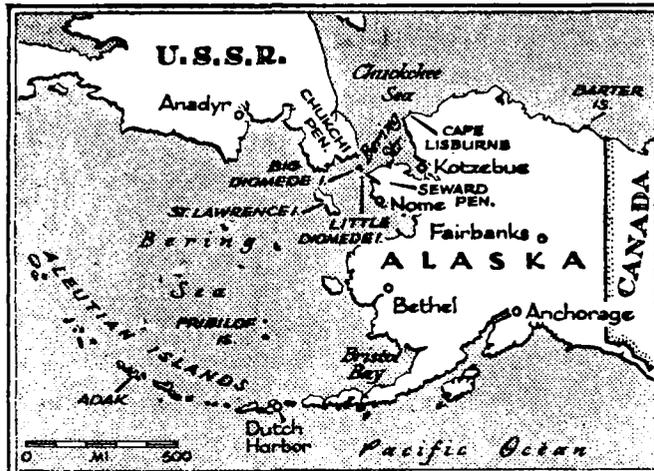
The headquarters of the First Scout Battalion is at Nome, on the Seward Peninsula. This is a desolate town of 2,000, which has no permanent doctor and no water mains. Its area extends from Canada, in the northeast, to St. Lawrence Island in the Bering Sea.

Ninety-five per cent of the enlisted men and noncoms are Eskimos; six officers are white, nine Eskimos.

The Second Scout Battalion has headquarters at Bethel. Its men include Eskimos, Indians, Aleuts and whites.

The men are on duty all the time, even though they maintain the regular National Guard schedule of forty-eight drill periods a year and two weeks of "summer" camp. The battalions are scattered in small groups. The First Battalion's men, for instance, live in thirty-one villages.

Each man keeps his M-1 rifle and ammunition and his personal equipment in his sid or frame hut. Sometimes he uses the rifle for hunting. Each detachment has a small portable radio. The noncommissioned officer in charge is responsible for maintaining a regular communication schedule with bat-



ESKIMO SCOUTS: Vast coastline of Alaska kept under surveillance by more than 1,000 National guardsmen.

talion headquarters, which, in turn, is linked with Alaskan Army Command headquarters.

The men carry on their normal occupations. Many of them range widely over the Arctic ice or along the coast, hunting and fishing. But they are expected to report anything unusual they see at any time. They cover the coastline thoroughly and range well out into the Bering Strait. There are outpost detachments on St. Lawrence Island, the Pribilofs and Little Diomed Island. The last-named island is just three miles from Big Diomed Island, owned by the Soviet Union. The battalion commander visits his detachments by light aircraft, usually traveling 40,000 to 50,000 air miles annually. To reach some detachments he must use dog sled or skin boat.

Membership in the Scout battalions is proudly regarded; it conveys a local prestige. Many of the noncoms are headmen in their villages, president of the Town Council, or peace officers.

The reports and the discipline are both informal but effective.

Most of the men speak some English, although it is often broken, and some complex military terms may have to be translated into Eskimo. The written English of their reports may be tortured, but it is always intelligible. The scouts have a remarkable facility for accurate and precise sketching and for dimensions and colors.

Master Sgt. Michael A. Okpealuk, non-com in charge of the Little Diomed Unit, has a strategic observation post, because of the island's proximity to Big Diomed. The Eskimos on the two islands are related, and used to go back and forth.

Until last year, however, the Russians had been enforcing a strict prohibition against fraternizing. But twice within the last year parties of Eskimos from Big Diomed have visited Little Diomed, gossipped and traded Russian cigarettes for American ones.

OSTEOARTHRITISLOW AMONG ESKIMO MEN

BETHESDA, Md. (Science Service)—One type of arthritis is not as prevalent among Alaskan Eskimo men as it is among other American males, it was reported here.

Despite the cold and snow of the north, osteoarthritis, which causes stiffness and pain in the joints but does not cripple, occurs less in Eskimo males than in other American males of the same age.

This was reported here by Dr. Baruch Blumberg, Dr. Kurt Bloch and Dr. Joseph Bunim of the National Institute of Arthritis and Metabolic Diseases. They presented the results of their studies at the Pan American Congress of Rheumatic Diseases.

A study of three Eskimo villages revealed, however, that the women were as prone to the disease as any other American woman.

In addition, the inhabitants of Wainwright, an Eskimo village on the Arctic Ocean coast, were studied. Among 211 villagers, two cases of rheumatoid arthritis were found. Both cases were discovered in women over 50 years old.

However, rheumatoid arthritis appears to be as common among Eskimos as among other Americans. This study was undertaken to determine if the geographical area might affect the rate of occurrence of arthritis.

Eight Die in Fire

BARROW, Alaska, April 29 (AP)—Nearly all the residents of this Eskimo village battled a fire in a combination grocery-home yesterday, but they were too late to save a family of eight. Mr. and Mrs. Willy Nayakik and their six children died in the flames.

NAVY 'IS NOT AWARE OF PRIBILOF FLIGHTS

WASHINGTON, April 4 (AP)—The Navy said today that it knew nothing of Soviet plane surveillance over a Russian fishing fleet working near the Pribilof Islands off the Aleutian chain.

This comment by the Navy, made in answer to questions by newsmen seemed to be at variance with a statement by Senator Warren G. Magnuson, Democrat of Washington.

The Senator said yesterday that Soviet planes were keeping surveillance over the fishing boats in the Pribilof area. That information, Mr. Magnuson said, came from Admiral Arleigh A. Burke, Chief of Naval Operations. He quoted Admiral Burke as having said also that the Soviet fishing fleet numbered about fifty fishing craft and fourteen support vessels.

Reporters asked the Navy about the reported Soviet plane activity. Today, after officials said they had consulted with Admiral Burke, a spokesman gave this answer:

"The Navy is not aware of any Russian air surveillance of the Russian fishing fleet in the area of the Pribilof Islands. The Russians are, however, free to operate in international air space."

Called Fur Seal Islands

The Pribilofs, a fog-enshrouded group in the Bering Sea, are often called the "fur seal islands" because of the immense herds that annually migrate to the rookeries there.

The four islands are about 180 miles north of Unalaska and 200 miles southwest of Cape Newenham in southwestern Alaska. During the annual migration, the seals start from Southern California and Mexican waters for the Pribilofs in February. They usually are convoyed by the United States Coast Guard for protection against poachers. The herds arrive in the islands in June.

The islands, known as St. Paul, St. George, Otter and Walrus, were visited and named in 1786 by Gerasim Pribilof, navigator for Russian fur interests. From Russia the islands passed with Alaska to the United States in 1867. Since 1911, operations have been administered by the Federal Government and for many years by the Fish and Wildlife Service.

In 1957 the United States, the Soviet Union, Canada and Japan reached a new agreement for conserving the fur seals of the area. The four nations had worked on the agreement in conferences in Washington during a fifteen-month period.

The islands are hilly and of volcanic origin, without harbors. The native population in 1950 was 547.

WILDLIFE REFUGE ASKED FOR ALASKA

**Seaton Suggests Congress
Set Up 9,000,000-Acre
Tract in the Arctic**

WASHINGTON, May 3 — Legislation creating a 9,000,000-acre wildlife refuge in north-eastern Alaska has been transmitted to Congress by Fred A. Seaton, Secretary of the Interior.

The area is 140 miles from north to south and 120 miles from east to west.

Caribou, polar and grizzly bears, wild sheep, wolverines and Arctic foxes roam the tract. Numerous species of birds are found there. Seals and whales swim off its shores.

The area is noted for its scenic grandeur. The tundra abounds with wild flowers during the short Arctic summers. Mountain peaks are jagged and some exceed 9,000 feet.

Mr. Seaton said the tract offered the only opportunity for the nation to preserve an undisturbed portion of Alaska large enough to be biologically self-sufficient. In size it reportedly is exceeded in North America only by Canada's Wood Buffalo Scientific Study Area. The Canadian park is farther south and represents a different habitat.

The proposed site in Alaska is bounded on the north by the Arctic Ocean, the east by Canada, the west by the Canning River and goes south to a point beyond the crest of the Brooks Range.

It lies entirely above the Arctic Circle and is north and slightly east of Fairbanks.

The bill would permit the Department of Interior to authorize mineral activity within the area but at the same time it would preclude appropriation of title to the surface of the land.

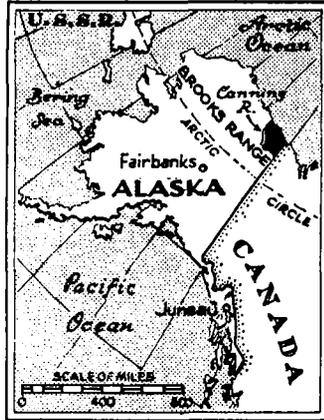
Hunting, fishing and trapping are authorized by the bill in accordance with laws and regulations of Alaska.

POLAR BEAR IS COLORED

**Animal With Beige Spots Has
White Brother and Mother**

COPENHAGEN (Reuters) — Copenhagen zoo has a colored polar bear, which was born last December, together with a snow-white brother, to a white mother.

The colored bear is beige and white with the color spots distributed over its body in the manner of a colored cow.



REFUGE SITE: Where Alaska wildlife reserve may be established (solid area).

BALLOON TESTS SLATED

**Iowa Scientists to Launch 6
Spheres From Alaska**

IOWA CITY, March 26 (UPI) — State University of Iowa scientists will send six research balloons into the Arctic atmosphere beginning next week to study cosmic rays in space.

Kinsey Anderson, Associate Professor of Physics, and two assistants will go to Fairbanks, Alaska, where they will release the balloons carrying measuring instruments. The balloons are expected to reach altitudes of 140,000 feet, Professor Anderson said.

Three of the balloons are 230 feet in diameter; the others are 100 feet.

The project is sponsored by the Office of Naval Research. Participating will be experts from the University of Alaska Geophysical Institute.

DEW Operating In Aleutian Chain

WASHINGTON, April 30.—

The westward extension of the Distant Early Warning Line has been completed with extension of six more radar sites in the Aleutian Island chain.

With the new stations, which will be opened formally today by the Alaskan Air Command, run from King Salmon to Umnak, an island not quite half-way up the Aleutian chain and about 100 miles west of Dutch Harbor.

Four new radar stations are being built across Greenland. They will complete the eastward extension of the system.

In announcing yesterday the readiness of the Aleutian stations, the Air Force cited the Dew Line's contribution to North America's air defense system.

The Dew Line now runs from Baffin Island, north of Hudson's Bay in the east, across Canada's Northwest Territory and Alaska's Arctic slopes, down to Umnak where it ties in with the detection system operated by the ships and aircraft of the Navy.

The Dew Line will provide warning against manned bombers and air breathing missiles. Another system, the Ballistic Missile Early Warning setup, is now under construction. Two of three planned BMEW sites have been announced, one at Tule, Greenland, the other at Clear, Alaska.

ALASKA, SIBERIA TIED BY LAND BRIDGE ONCE

WASHINGTON (Science Service)—Alaska and Siberia were linked by a land bridge as recently as 10,000 years ago, Dr. David M. Hopkins of the United States Geological Survey, Menlo Park, Calif., reported here.

From available evidence, he concludes that Bering Strait and the areas of the Bering and Chukchi Seas to the south and north of the strait were above sea level throughout most of the last 60,000,000 years. Although, about a million years ago, this land region sank and the water barrier preventing migration of plants, animals and men came into existence, the sinking was not permanent.

The repeated growth and disappearance of large glaciers in the last million years caused corresponding changes in sea level. The land bridge linking Alaska and Siberia was opened several times when the surface of the sea was considerably below its present level in the most intense glacial periods.

About 35,000 years ago, the land bridge was more than 1,000 miles in north-south width, Dr. Hopkins reported in the current issue of Science. His conclusions are based on studies of geological formations, marine sediments, ancient plant and animal remains, and radiocarbon dating of sea level positions.

ARCTIC PLANT LIFE

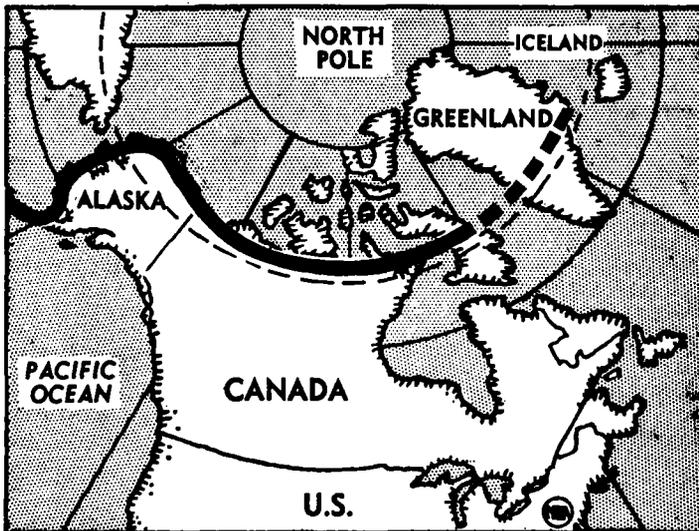
**Now Occupies Large Areas
Once Coated With Ice**

Arctic and alpine plant species now occupy large areas that only a few thousand years ago were overlaid by great ice sheets or by the sea, according to Arctic, Journal of the Arctic Institute of North America. No all arctic land areas were covered, however. Beringia, the coast of northern Alaska, the Yukon valley and a part of the Arctic Archipelago all remained free from ice, and thus many plant species survived.

Although the numbers of strains of many species were reduced, others retained the capacity to "recolonize" their former habitats after the ice had finally retreated. The recolonization was achieved through the use of vegetative reproduction by bulblets, runners, rhizomes, etc., and dispersal by seeds.

Cities in Alaska

Anchorage is Alaska's largest city with a population of 31,000, or 60,000 including the outskirts. Fairbanks is second with 10,000 within the city limits and 38,000 in the area.



LONGER DEW LINE—Planned extension of the Distant Early Warning (DEW) Line eastward across Greenland will give added protection against attack, according to the Defense Department. The 27-million-dollar extension (broken line) was agreed to by Denmark which owns Greenland. When completed, the radar warning system will extend from the Aleutian Islands, around Alaska, across Canada and over Greenland.

Canada Eyes Arctic Route For Shipping

Believes It Would Aid In Developing North

OTTAWA, June 17 (AP) — Transport Minister George Hees said today his department is investigating the possibility of a regular west-to-east shipping route across the Canadian Arctic.

He told the National Federation of Financial Analysts Society that ships using such a route would spur development of the Canadian North.

Ships using the route would sail from open waters in the Western Arctic through Coronation Gulf and Dease Strait which separate Victoria Island from the Canadian mainland. They would then sail through Victoria Strait and Fury and Hecla Straits, which separate Baffin Island and Melville Peninsula, and on to Hudson Bay.

"We have reason to believe that under certain conditions, this long-dreamed-of traffic route over the north of Canada could be used, and that its use would facilitate the economic development of this area," he said.

The route would be about the same as that followed by Norwegian explorer Roald Amundsen in 1905 when he made the first complete trip through the northwest passage.

CANADA IS REPORTED OPENING THE ARCTIC

Canada's search for oil and minerals is opening hitherto unsettled arctic areas to economic penetration, George Hees, Canadian Minister of Transport, said Feb. 6.

He told a dinner meeting of the Canadian Society of New York at the Biltmore Hotel that his Government was actively assisting private capital in an effort to find new resources.

"In the Canadian arctic," he said, "where it is necessary to transport by sea or air every nail, hammer, board, gallon of fuel and the tons of food required, we are making good progress with the construction of airfields and harbors."

He reported that, last summer alone, fifteen icebreakers, twenty-two ocean-going freighters and 125 landing craft were used to take 77,000 tons of cargo to Arctic and sub-Arctic posts.

The search for oil and gas, he said, had been carried beyond the Arctic Circle "with a marked degree of success." As

Eskimos Produce New Magazine



An illustration by Tomosiapik, an 18-year-old Eskimo boy

OTTAWA, June 10 — The first issue of a magazine by and for Eskimos was distributed this week to some of the 11,000 Eskimos of Canada's Far North.

The magazine is called "Inuktitut" (pronounced Ee-nook-tee-toot). Its title means "The Eskimo Way."

The first issue, of which 2,000 copies were printed, is in the East Arctic dialect. It was published under the authority of Alvin Hamilton, Minister of Northern Affairs and National Resources, but was produced entirely by Eskimos. Another issue, in the West Arctic dialect, will be published soon.

The magazine uses the syllabic form of writing being taught to Eskimos, who heretofore have had no written language. A special Eskimo typewriter has been produced for this purpose.

The first issue of Inuktitut contains an Eskimo's account of a goodwill mission last year by a group of East Arctic Eskimos to Greenland Eskimo.

Also included are some Eskimo folk tales by people of Igloodik and the story of a hunting adventure by a man who was a tuberculosis patient not long ago. There is a children's page in the magazine.

The issue is illustrated by Eskimo artists, including the magazine's art editor, Mary Panegoosho, who designed the cover.

Commenting on the new magazine, Mr. Hamilton said: "This is a great step forward in the preservation and development of the Eskimo culture. Now, for the first time, Eskimos will have their own publication as an outlet for their creative talents. It is a new voice for them, and may well become a contribution to Canadian culture as a whole."

Inuktitut succeeds the former Eskimo Bulletin, prepared by Canadian officials and which dealt with such practical subjects as caribou conservation and the maintenance of boat engines. The new magazine will encourage literary and artistic endeavor by Eskimos.

regards mining possibilities, he said: "Preliminary aerial surveys of these areas indicate they warrant further extensive exploration and development."

Mr. Hees expressed great confidence in Canada's economic future. "We are rich in resources, and we know it," he commented.

MINES DEPT. STUDIES UNDERSEA 'SHELF' IN ARCTIC OCEAN

Ottawa, Feb. 18 — (CP) — Mines Minister Comtois has announced a major project to survey resources in Canada's polar area.

He told the House of Commons mines committee that a team of experts will enter the northern area about March 1

to determine the best methods to be followed in charting the continental shelf extending northward into the Arctic ocean from Canada's Arctic islands.

The region to be surveyed extends for about 1,500 miles along the northern rims of the Arctic islands and for distances up to 200 miles northward into the Arctic ocean.

The survey work this year will be reconnaissance in nature. Mr. Comtois said. Its objective would be to obtain an idea of the general nature of the shelf, equipment needed for a major survey expedition, and the best type of transportation.

Few and Far Apart

Canada's Eskimo population of about 10,000 is scattered across a northern area of more than 750,000 square miles.

CANADA SPURS STUDY OF ARCTIC RESOURCES

MONTREAL, April 4 (Canadian Press)—Scientists and researchers are preparing to head into the Arctic this summer for a far-ranging survey of Canada's little-known northern marine resources.

The survey, first of its kind is to be carried out by the Arctic unit of the Fisheries Research Board of Canada in Montreal.

Four teams of three or four men each will range from the Alaskan border in the west to Frobisher Bay in the east, sampling marine life in a 400,000 square mile area.

Known as the "Barren Grounds" project, the survey will be devoted to a study of fresh-water fish and marine conditions.

Associate scientist Gerald Hunter, 37-year-old chief of the program, said yesterday that the aim was to gather as much scientific information as possible in the shortest time.

"There can be no doubt that the Russians are way ahead of us in knowledge of the Arctic," he said. "We don't know nearly as much about our northern regions as they know about theirs."

The project is scheduled to last from about June 1 to Sept. 20. The teams will camp at sites near rivers and lakes for fourteen days, then move on to new sites. Each team will make eight moves, starting at Yellowknife and moving east across the Northwest Territories.

Members of the teams are hand-picked university professors and museum officials.

TRANSFER IN DEW LINE

Canadian Air Force to Take Over Control From U. S.

OTTAWA, Jan. 19 — The Royal Canadian Air Force will take over control of the Distant Early Warning line from the United States Air Force.

The change-over will take place on Feb. 1, it was announced today. About twenty men will go to the four main control sites in the Arctic, at Cape Dyer on Baffin Island, Sall Lake on the Melville Peninsula, Cambridge Bay on Victoria Island and Cape Parry on Amundsen Gulf.

There are about sixty warning line stations in all in addition to the control sites. These are manned by 700 civilians, 90 per cent of them Canadians. The United States Air Force will leave at least one officer at each of the four control stations to act as liaison with United States contractors who maintain the line.

TOWN OF FUTURE SOUGHT IN ARCTIC

Community Is Planned With Domed Center Area and 12-Story Housing Units

By TANIA LONG

OTTAWA—Canadian authorities planning the communities of the future in the Arctic are breaking away from conventional thinking and experimenting with some startling new construction forms.

As the economic development of the North proceeds, with more people moving into the region and more Eskimos abandoning their nomadic way of life for paid employment on the Distant Early Warning (DEW) Line and in the mines, housing has become a major problem. The Government is attacking it with a fresh approach.

One architectural plan that is being given serious thought calls for the erection of a circular ring of twelve-story apartment buildings surrounding and linked with a town center covered by a huge dome. The apartment buildings would themselves be circular and grouped in threes.

The dome would house stores, banks, schools and a recreation area that would include a restaurant, moving picture theatre and a park. The dome would protect the population of 5,000 from the freezing winds that add so much to the discomfort of life in the Eastern Arctic.

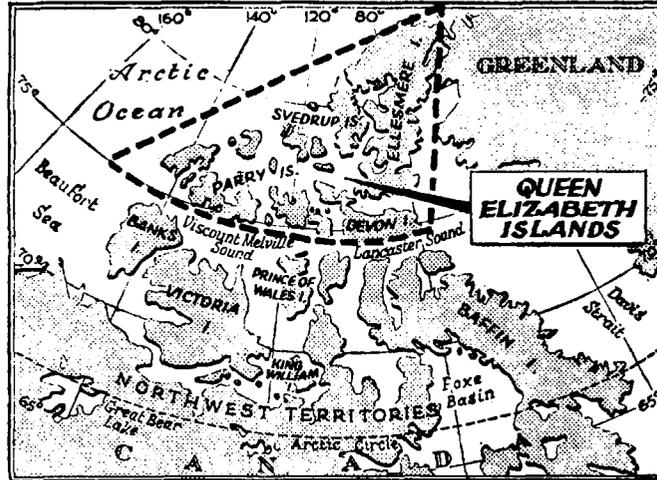
When the temperature is 40 below zero outside, the air inside the dome would be between 15 to 20 degrees above. Winter clothing would be worn, but there would be no need for over-shoes or fur caps.

Comfort for the future inhabitants of the Arctic is not the sole reason behind the present research into new construction plans. The chief reason is economy. It is thought that in the long run concrete apartment buildings in which each unit has at the most two surfaces exposed to the chill winds will be cheaper to operate than the individual family houses, each of which has five surfaces exposed.

The sort of Arctic homes that are now going up in the new communities at Inuvik and Frobisher Bay are based on conventional housing appropriate to southern Canada, although variations have been introduced to meet Arctic conditions.

Heating is a big problem and a great expense, since it must be imported during the brief summer thaws. Sewage, electric power and water also must be protected against the frost and carried in heated

Companies Rush for Oil Rights In Canadian Arctic, Ottawa Says



Arctic Archipelago, in which oil rights are sought

By TANIA LONG

OTTAWA, Feb. 13—A rush for oil and natural gas rights in the Arctic Archipelago has developed over the last month it was revealed today.

Alvin Hamilton, Minister of Northern Affairs and National Resources, told the House of Commons that ten companies had applied for development permits, covering 50,000,000 acres in the archipelago.

Officials of the Department of Northern Affairs said that the rush had been building up ever since geological surveys from the air indicated that oil and natural gas might lie below the remote islands.

[The Arctic Archipelago is an area roughly situated 60 degrees to 130 degrees west longitude and 60 degrees to 84 degrees north latitude. The area includes the Parry Island, Baffin Island, Ellesmere Island and Banks Island,

most of which are now described as The Queen Elizabeth Islands.]

For the last three years, the Government has been intensifying its airborne geophysical surveys of the Arctic islands and the Geological Survey of Canada has completed a survey of the 120,000 square miles of the Queen Elizabeth Islands—the northern part of the archipelago.

Applications by oil companies for development rights represent "insurance" against the actual finding of oil and gas. They do not at present mean an increase in development work, it was said.

The applications are being held, pending a review of Government regulations with regard to the granting of gas and oil leases in the far north, Mr. Hamilton said. When the review is finished, permits will be issued on a first-come, first-served basis, he told the House.

"utilidors," or aluminum-cased conduits, to serve the community.

The wasteful heat loss of the present system and the danger of fire because of the wooden house construction are the two main reasons that have led planners to do away with detached buildings and to design living quarters and other facilities in big concrete blocks.

Plans for the circular skyscraper community with its central domed area have been drawn up by architects of the Department of Public Works.

However, it is thought that even if the entire proposal is not carried out, and the domed center left out, the proposed apartment towers would still be a more efficient form of building than the present single family homes.

Frobisher Bay on Baffin Island may have the first such community, for it is intended to build that settlement into an administrative center for the Eastern Arctic.

In the meantime, however, the construction of another new center, at Inuvik in the Northwest Territories (it was to have been called New Aklavik, but the residents of Aklavik protested) is gradually nearing completion. This town on the Mackenzie River delta is to be an important education center for the Central Arctic's Eskimos and Indians. Although the center is still under construction, two school rooms are already in operation, with the expectation that twenty such rooms will be operating next fall.

Canada Acts to Limit Arctic Gas, Oil Hunts

OTTAWA, May 12 (Canadian Press)—The Canadian Government will demand proof of financial responsibility and definite work programs before permits are assigned for gas and oil exploration in Canada's Arctic Islands, Alvin Hamilton, Northern Affairs Minister, said last night.

Such restrictions should bring "minimized" speculation, Mr. Hamilton said.

He made the statement in the Commons when asked for assurance that the public interest was being protected in search for resources in the North.

No such permits have been assigned, although applications for them have been made this year covering about 86,000,000 acres on the Arctic islands and continental shelf.

Applicants for the three-year exploration permits, Mr. Hamilton said, must show proof of financial responsibilities, their latest audited financial statement—whether company or individual—and the exploration program the applicant "intends to carry out during the first half of the term of the exploration permit."

There is already considerable exploration work being done in 76,000,000 acres of wilderness in the Northwest Territories and in the Yukon, the Minister said. Oil companies also are showing interest in the gas and oil potentials of the West Coast, he added.

Among the companies named by an official of the Northern Affairs Department as having asked for development permits in the Arctic archipelago were California Standard, Texaco, Talent Oil and Gas, Round Valley, and a New York concern of consultants known as Rose and Associates.

The first indication of possible oil deposits in the Arctic islands was the discovery of circular "domes" similar to structures in other parts of the world which are known to be characteristic of sedimentary basins favorable to the presence of oil.

Other rock formations discovered in the area are similar to formations found in the oil-bearing areas of the Canadian prairies.

23,000 Men Used To Build DEW Line

It took 23,000 men to build the Distant Early Warning radar line that protects the United States from enemy air attack.

ICY HOMES SOUGHT BY U.S. AND SOVIET

Planes Hoping Soon to Find Drifting Arctic Islands to Replace Melted Ones

By WALTER SULLIVAN
April 11

During the last week aircraft from both the United States and the Soviet Union have been ranging over the Arctic Ocean, seeking out sites for two new drifting stations.

Each of the stations will replace one that had to be evacuated after the ice floe on which it rested had been chewed down to a dangerously small size. An American reconnaissance group has already made exploratory landings on several promising floes. A final selection is expected soon.

The stations, both Soviet and American, will study virtually all the phenomena within their reach at the top of the world. These will include ice formations, ocean currents, the ocean floor, weather and upper air phenomena.

The Russians have chosen a prize chef to counter the sagging morale of those confined for long periods to a drifting platter of ice. So serious was the situation, more than a year ago, at the station North Pole Seven, the station doctor recommended that evacuation be considered.

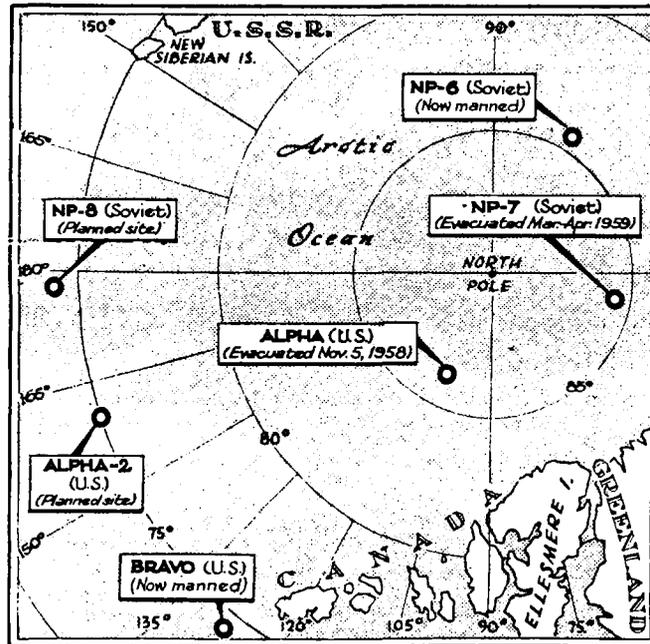
The symptoms of the men on the floe included loss of appetite, insomnia, drowsiness and irritability. There were also signs of vitamin deficiency, such as falling out of the hair, bleeding of the gums and thickening of skin and fingernails. The doctor reported there was sufficient fresh food, and attributed the trouble to wind, cold, continual winter darkness and mineral-free water obtained from snow.

Heavy exercise had a beneficial effect, he reported, so no attempt was made to evacuate the floe. The men of the station were finally airlifted to land a week or two ago, after their floe had been worn away and had drifted to within 180 miles of Greenland.

On April 4 an advance party was flown from Leningrad to Tiksi Bay, on the north coast of Siberia, preparatory to the establishment of a new drifting station, North Pole Eight. According to Soviet press reports it is hoped that a suitable floe can be found in the area 350 miles northeast of Wrangel Island.

At last report the supporting aircraft had landed prefabricated huts for the station at Tiksi bay and were scouting over the pack ice in search of a floe large

Arctic an Ocean of Floating Islands



Soviet and United States aircraft have been scouring the Arctic Ocean for ice floes, heavy enough to carry scientific stations. On this map of that ocean are to be seen the proposed sites of these stations, those currently manned and those whose crumbling has forced evacuation.

enough for an airfield and heavy enough to have a reasonable life expectancy.

The station leader is to be V. M. Rogachev, long a specialist in polar weather problems. Of special interest to those to be stationed there: the cook is to be U. Vedenev, who served in the restaurant of the Astoria Hotel—Leningrad's most luxurious.

The hoisting of the Soviet flag over the new station is planned for "the first days of May."

The new United States station is to replace Station Alpha, which was established as part of the program for the International Geophysical Year.

The Alpha floe originally measured several square miles, but break-ups forced the smoothing of new air strips and moving of the camp. Its men were flown out in November, when further cracks and the onset of the winter night made the situation critical.

The selection of a new floe, in the area 300 miles north of Point Barrow, Alaska, is the responsibility of Max Brewer, director of the Navy's Arctic Research Laboratory at Barrow. He has landed in a small ski plane on several floes and made borings to determine their thickness.

Once the floe has been chosen a small party is to be landed by twin-engine Douglas transport, also on skis. Its most important item of equipment will be a radio beacon to enable successive flights to find the site in

the vast drifting wilderness of the Arctic Ocean.

Then tracked vehicles will be parachuted to level an air strip, prior to the flying in of the huts and supplies. This part of the job devolves upon the Air Force. The station has temporarily been designated Alpha-Two. When fully staffed it will be manned by fifteen scientists and a dozen supporting personnel.

It is reported that the chief scientist will be Dr. Kenneth Bennington, a glaciologist of the University of Washington, and that Capt. John S. Smith of the Air Force will be chief of the military group. Captain Smith was at the previous station when it was evacuated.

Two other drifting stations are now manned on the Arctic Ocean. Both are on ice islands—heavy sections of ice that have presumably broken from the apron extending seaward from Ellesmere Island. One of these stations is Bravo, long known as Ice Island T-3, which is an American outpost. The other is the Soviet station, North Pole Six.

The aerial hunt for ice floes suitable as scientific stations began with the return of daylight to the North Pole region. The stations must be fully established before the summer sun makes the floes too slushy for aircraft landings.

Mighty Ocean Current

The warm Gulf Stream affects ocean water as far north as 280 miles above the Arctic Circle in Norway.

A WARMER EARTH EVIDENT AT POLES

Arctic Findings in Particular Support Theory of Rising Global Temperatures

WASHINGTON, Feb. 14—The theory that the world is growing slightly warmer is receiving added confirmation from temperature data gathered at opposite ends of the earth.

Dr. H. E. Landsberg, director of the United States Weather Bureau's Office of Climatology, said that data gathered recently in the Antarctic was consistent with this theory of a gradual upward trend in the planet's temperature. He added, however, that information obtained at the other pole was much more conclusive on this score.

In the Arctic, Dr. Landsberg said, there is substantial physical evidence as well as temperature figures to support the warming trend theory.

While trees have advanced two or three miles in thirty years in Finnish Lapland, glaciers are retreating in Alaska. The ice in the Arctic ocean is about half as thick as it was in the late nineteenth century and the harbor of Spitsbergen is open twice as long each year as it was in the late nineteenth century.

Meteorologists say the trend began about 1900. Temperatures taken in New Haven, Conn., where the longest uninterrupted temperature record in the United States has been kept, show that annual averages were at, or slightly below, 50 degrees Fahrenheit from 1785 until the end of the last century.

After 1900 there was a steady rise that touched 52 in the mid-Thirties. There have been fluctuations since that time. Other rural stations show a similar pattern. During the last two or three years there has also been what is considered a "spectacular" warming trend along the Pacific Coast from California to British Columbia.

Over-all, however, the warming phenomenon is not considered either alarming or steep. Dr. Landsberg estimates its increase at from two to three degrees a century.

Pole Said to Be Warming

MOSCOW, June 8 (AP)—A scientific writer for Tass, the Soviet press agency, says the North Pole is getting warmer after ten centuries of cooling off. N. A. Below based his conclusion on tests by the Leningrad Oceanological Institute.

International Team To Study Greenland

By Reuters

Copenhagen, March 26 —

The windswept ice fields and glaciers of Greenland will be the target for scientists and explorers from five European nations this summer.

Greenland, the world's biggest island, where about 25,000 people, including Eskimos, Danes, and American servicemen, live clustered in small settlements around its rocky coasts, is the center of increasing natural scientific interest.

As the European team prepares to launch its assault on the icecap, a team of engineers at the American air base at Thule on the northwestern coast is probing into the mysterious world beneath Greenland's hard-frozen surface.

Tunnels, some of which are already over 1,200 feet long, are being bored through the ice to form a network of underground defense and storage halls and passages. Special drills, ice saws, and scrapers were sent to Greenland from Wilmette, Ill., to excavate this subterranean town.

The broken ice is taken back to the surface on long conveyor belts.

Workshops and laboratories have been hollowed out in the ice and eventually much of the background operational work at the Thule base, apart from that at the control buildings, may be carried on underground.

The subterranean system, relatively impervious to air attack, provides excellent storage room. When it is 40 degrees below zero outside, the temperature does not drop below 21 degrees Fahrenheit in this new ice town, nor does metal rust there.

Man's knowledge of this remote, barren land near the roof of the world—where fur-clad Eskimos live by hunting seal, as their fathers have done for generations, just a few miles from ultramodern air and radar bases—is still extremely limited.

But during the past few years, scientists have wanted to find out more about the huge icecap which covers Greenland. They want to know, for example, whether the Northern Hemisphere's improved climate of recent years will continue, so that the icecap will continue to melt, or whether the weather will change, bringing a new thickening of the ice.

The question is of intense interest to the world. If Greenland's huge mass of ice melted, the level of the oceans would rise

by 23 to 33 feet.

And if the rocky base of Greenland, crushed beneath the weight of hundreds of millions of tons of ice, were to be relieved of its burden, it could heave itself up with tremendous force.

Such movements of the earth's surface are, of course, spread over centuries. But the scientists are determined to know in advance just what is likely to happen.

The leader of the European expedition is Dr. Paul-Emil Victor, the veteran French polar explorer. He will have under him 70 experts from France, West Germany, Austria, Switzerland, and Denmark. The expedition has been arranged by the International Committee for Snow and Ice.

Dr. Borge Fristrup, vice-president of the committee and one of the expedition's chief planners, will join the team and spend two summers on the Greenland ice fields. He and Dr. Victor are old colleagues and together made a detailed preliminary survey of the territory over which the expedition will work.

100-MILE ICE TUNNEL SET FOR GREENLAND

WASHINGTON (Science Service)—A 100-mile covered highway will be gouged out of the Greenland ice cap to supply an isolated Army camp now under construction.

The roadway will be cut twenty-eight feet deep in the Arctic cap and will be twenty-two feet wide to handle two lanes of traffic.

Vehicles probably will be electric-driven to eliminate the danger of carbon monoxide fumes from internal combustion engines. At least two modes of electric transportation are under consideration: a rail system, and a cable system by which cars would be pulled over the roadbed on sled-like runners.

Robert R. Philippe, United States Army Corps of Engineers' research and development division, told Science Service that another possible system would entail making a solid roadbed out of pressed snow briquettes.

Mr. Philippe estimated that roadway construction could move along at four miles a day. The cost would be a small fraction of that of concrete highways, which cannot be built much faster than a mile a week.

ICECAP EXPLORERS BATTLE WITH BEAR

Party on Greenland Plateau Kills Beast After It Mauls One of the Members

By WALTER SULLIVAN

June 20

Few places in the world are as devoid of life as the lofty Greenland icecap. Its vast reaches are fringed with almost impassable mountains and glaciers. A few weeks ago, however, six unarmed Frenchmen found it terrifyingly alive.

They are members of one of the largest scientific expeditions to penetrate the Arctic—the International Greenland Glaciological Expedition. Supported by cargo planes and helicopters, it is carrying out extensive studies of the second largest slab of ice on our planet, surpassed only by the Antarctic ice sheet.

The Frenchmen were camped about 6,600 feet above sea level, almost 200 miles inland from Scoresby Sound on the east coast on May 26. Their sled had been unloaded and the bars used in lashing on the cargo had been stuck in the snow.

Five of the men were in their wigan—a hut on skis—with the door open. The sixth, Alexandre Pierson, a radio operator, was out by their weasel, a small tracked vehicle, putting up a radio antenna.

Suddenly he cried for help. Bernard Gaudin, the navigator, leaped out to see M. Pierson roll under a polar bear. Gaudin shouted and all jumped from the wigan. They seized the sled bars and began pounding the bear. He dropped the radioman and turned on them. They fought back, battering his head and paws until he retreated.

Presumably the bear was

ravenous, since there is virtually no game on the icecap and he had probably traveled several hundred miles without food.

The injured radioman was treated by the expedition doctor, Claude Negre, as the bear, covered with blood, prowled angrily near-by. M. Pierson had been bitten and scratched, but was not badly hurt. His wounds were dressed and he was given antibiotics.

As soon as M. Pierson had been cared for, the weasel was started and the bear fled.

The party was being supported by parachute drops from French Air Force planes based at Sondrestrom, the United States Air Force Base on the west coast of Greenland.

The next flight, which took off a few hours after the attack, carried its planned drop cargo, plus an added item: one carbine.

The bear was killed the next day.

A message from the expedition's leader, Paul-Emile Victor, describing the incident, says the only other known instance in which a polar bear has climbed onto the inland ice plateau was in 1955.

In that year one was killed almost 200 miles inland from Thule in northwest Greenland.

The leader of the attacked party is Robert Guillard. They were a mile and a half north of Dumont Station, established in 1956, when four men were parachuted with eighteen tons of supplies to enable them to build a wintering station for themselves. They walked out the next summer.

The international expedition comprises some 130 scientists and supporting personnel from Austria, Denmark, France, Switzerland and West Germany. They have fourteen tracked vehicles, eighteen sleds and wigans divided into six trail parties fanning out over the ice sheet.

M. Guillard led the twenty-man advance party, which set forth in March, from Sondrestrom with the vehicles for a rendezvous point 125 miles inland and 5,000 feet above sea level.

Supplies have been parachuted at the inland site by Nord 2501 transports of the French Air Force—somewhat comparable to the American Flying Boxcar. The French planes also carried two Alouette helicopters from France to Sondrestrom.

The expedition has a polyester igloo which is to be used to house six men of an ice cap wintering party. Also taking part is a survey team from the Institute of Geodesy in Denmark and the German research ship Gauss.

The studies will seek to learn what the ice sheet has to tell of past climates and future climate changes, and will collect other data on weather, geophysics and glaciology.



POLAR ATTACK: Point where Frenchmen were attacked by bear (cross). Their supporting planes are based at Sondrestrom.

RACE TO SUPPLY ARCTIC ON AGAIN

40 Ships Begin Yearly Task of Stocking U. S. Bases Before Ice Sets In

June 13

The yearly race of men and ships against cold, ice and time in the Far North is under way again.

The first units of a fleet of more than forty vessels and thousands of sailors, soldiers and civilian seamen have started the tenth annual supply mission of northern bases on the shores of Greenland, Newfoundland, Labrador, Baffin and Ellesmere Islands.

Details of this year's activities were outlined here last week by Rear Admiral Donald T. Eller, commander of the Atlantic Area of the Navy's Military Sea Transportation Service.

The flotilla, known as Task Force 6, is charged this year with delivering about 170,000 tons of dry cargo and over 2,000,000 barrels of petroleum products to the rugged ports and desolate beaches of the area.

At many of the beaches, Admiral Eller said, Army stevedores, equipped with the latest amphibious cargo-handling devices, will wrestle much of this cargo ashore. The work will be easier at such installations as Thule, Greenland; and Goose Bay, Labrador, where ships can tie up at piers and discharge in a normal fashion.

This year's military and civilian tasks force includes ice breakers, ice-strengthened cargo ships, ice-strengthened tankers, regular cargo ships and tankers, a landing craft mother ship and tugs.

Some of the ice breakers will go within a few hundred miles of the North Pole to supply Canadian scientists at Lake Hazen on Ellesmere Island and on the northern tip of Greenland.

The first ships to begin operations last month were the ice breaker Burton Island and the ice-strengthened tanker Alatna. They forced their way into Sondre Strom Fjord on Greenland's west coast to deliver the year's first petroleum cargo.

Admiral Eller said operations are expected to continue until December. They are, he explained, a cooperative project of the armed services, with the Navy furnishing sea transport, the Army the stevedores and



Rear Adm. R. A. Gano

Adm. Gano Succeeds to M.S.T.S. Post

Vice Admiral Roy A. Gano has relieved Vice Admiral John M. Will as Commander of the Navy's Military Sea Transportation Service.

A change of command ceremony was held June 30 at the service's Washington headquarters. Retirement ceremonies were held later at the Naval Gun Factory. He retired with four-star rank and will assume the posts of president and chief executive officer of American Export Lines.

Adm. Gano has been Deputy Commander of the M. S. T. S. since September, 1955. The M. S. T. S. is the ocean transportation branch of the Depart-

cargo gear and the Air Force in charge of planning for the supply mission.

The ships and men will gradually move farther north as ice conditions improve. The late closing date has been made possible by the pioneering use at Thule last year of underwater compressed air equipment that keeps ice from forming on the surface. This system is to be expanded this year and may be adopted for use in other Arctic harbors.

Other novel job this year will be the installation of two automatic radio navigation beacons that can be turned on by code signal sent out by ship's radio; complete survey and charting of the Melville Bay area, the birthplace of most of the icebergs that reach the Atlantic and the installation of submerged oil pipe lines at Goose Bay.



Adm. Will

ment of Defense and has responsibility for transporting millions of tons of cargo annually to military installations all over the world. For this assignment it uses privately-owned merchant ships as much as possible and is therefore a branch of the service that is close to the shipping industry.

A native of Pipestone, Minn., Adm. Gano has had a distinguished Navy career since his graduation in 1926 from the United States Naval Academy in Annapolis. He has been awarded the Navy Cross, the Gold Star and the Bronze Star Medal in addition to other citations for outstanding service in the Navy.

Admiral Will has been a versatile naval chieftain—a daring combat leader, a submarine warfare expert and an able personnel director. He was commander of the Atlantic Area of the M. S. T. S. from 1951 to 1953.

Before taking over the top job in M. S. T. S. in 1956 the admiral commanded the agency's Atlantic district, with headquarters in New York.

Last year Admiral Will received the American Legion's Merchant Marine Achievement Trophy Award for contributions to the welfare of the nation's shipping interests.

One of the major tasks of the naval agency in recent years has been the difficult supply mission to the distant early radar warning stations, known as the Dew Line, in the far north.

In connection with this annual assignment, Admiral Will in 1957 directed the successful exploration of a Northwest Passage in the Arctic, providing an escape route for supply ships that might be caught by ice movement in the far north,

ARCTIC STUDY BEGUN BY ARMY SCIENTISTS

WASHINGTON, June 23 (AP)—An Army expedition of forty-one men has set up a base camp 500 miles south of the North Pole before pushing on to conduct scientific studies along the Arctic Ocean coast of Greenland.

Designated Operation Lead Dog, the expedition will spend the rest of the summer traversing areas that have been covered by explorers, but about which more accurate observations are required.

The first objective is to find a safe overland route from the shelf of the icecap, which is several thousand feet above sea level, to the shores of Lincoln Sea.

The second phase of the operation will carry the explorers north-eastward to Peary Land. On this leg, which will take about three months, the Army men will carry all fuel, food and supplies needed to sustain life and support their scientific observations.

Studies will be made on snow to a depth of fifteen feet. Samples will be compared with those obtained in previous expeditions in Greenland.

Quartermaster Corps experts will also conduct weather observations and report on the possibility of supporting troop movements in the far north regions.

Signal Corps scientists will study snow drifts, measure winds and conduct general meteorological observations.

RULES ESKIMOS FREE TO SHOOT MUSK OX

Edmonton, April 23—(CP)—Mr. Justice John H. Sissons of the Territorial court has ruled that a law prohibiting the hunting or shooting of musk-ox by Eskimos is beyond the power of the Territorial council, it was learned today.

Mr. Justice Sissons gave the ruling Monday at Cambridge Bay, NWT, an Arctic settlement 1,500 miles north of Edmonton, during the trial of Kogolak, an Eskimo charged by the RCMP under a Territorial Game ordinance with shooting a musk-ox when he and a companion ran short of food on their trap line.

"Game ordinance does not apply to the Eskimo and cannot," he said. "Eskimo title does not appear to have been surrendered or extinguished in whole or in part by treaty or legislation of the Parliament of Canada."

He referred to a royal proclamation issued following the Treaty of Paris in 1763. He said that "to speak of a bill of rights for Canadians while making a mockery of the proclamation of 1763 seems capricious. The Eskimo is not a ward and this is his land."

Soviets to Cut Arctic Slot

By Reuters

Moscow

Using the atomic-powered icebreaker Lenin, Soviet maritime authorities hope soon to pioneer a new sea lane around the frozen northern shores of the Soviet Union.

The new ocean route will cut the sailing time to the Far East, from Murmansk to Vladivostok, by half. But it also means cleaving a channel through ice several feet thick over distances of thousands of miles.

Even more important, the Soviet Union's northern sea route would open up the gateway to the natural riches of northern and central Siberia, the new industrial frontier of the Soviet Union, where new towns are being built every year.

Together with plans to open up the new northern sea lane, the Soviet Union has announced its intention to almost double its Arctic fleet in the next seven years.

Soviet Arctic ports such as Dikson, Tiksi, and Peveka, and Siberian river ports like Igarka, on the 2,478-mile-long Yenisei, are to be developed and equipped to speed up loading and unloading in deep-frost conditions.

An ice reconnaissance by Soviet fliers along the entire north-

ern sea route from the Barents Sea, north of Norway, to the Bering Strait facing the United States, ended last April. Its main purpose, a long-range forecast of ice conditions in the coming Arctic navigational season, was accomplished.

This month, natural scientists will take off in 16 aircraft to establish a new Soviet ice-floe drifting station. The ice floe at the outset of its snail's pace voyage will be situated 400 miles northeast of Wangel Island, off the far northeastern tip of the Soviet Union and nearly 800 miles inside the Arctic Circle.

Soviet weather researchers, encamped on the ice floe, will drift westward for the next year or two amassing data from their instruments. After a drift of several thousand miles, although only 2,250 miles in a straight line, the isolated weathermen will abandon the floe before it breaks up in the warmer waters off European Russia. Afterward, a new ice floe will be chosen and the icy odyssey repeated.

Russians have dreamed of a route through the Arctic seas into the Pacific ever since the 18th century. The present venture forms a natural complement to other Russian and Soviet attempts of acquiring warm-water ports.

But a systematic study of how to keep a path open through thick ice all the year round only began 27 years ago, under Stalin.

At first, the problem loomed too large in the preatomic age.

SOVIET POLAR BOOKLET

374 Research Groups and 109 Arctic Stations Listed

Three hundred seventy-four Soviet organizations and institutions concerned with northern science and progress are listed in a booklet entitled Institutions of the U.S.S.R. Active in Arctic Research and Development, prepared by Vlas Stanka, a member of the research staff of the Arctic Bibliography Project of the Arctic Institute of North America.

Included also are details regarding fields of activity, organizational set-up and publications of many of the organizations. An additional listing gives names and locations of 107 Soviet polar stations known to have been in operation as far back as 1956.

Some northern ports are closed by ice for 200 days out of 365 in the year.

But now charts have been corrected, the ocean bed mapped, ice distribution plotted and the flow between the Arctic and neighboring seas measured.

The advent of the atomic-powered icebreaker has given a decisive impetus to efforts which aim at providing the Soviet Union with a new major outlet to the Pacific. The Lenin, which has completed mooring trials in readiness for its maiden voyage any time now, has the power and weight to crunch its way through ice up to eight feet thick at several knots.

It can remain at sea for one year without refueling and can shepherd other vessels through the northern ice throughout much of the year and keep open the approaches to Siberian harbors which normally are barred to shipping during the long Arctic winter.

The Lenin and other vessels like it now on the ways in the Soviet Union can keep open the navigational channel in the north for most of the year.

Ships plying this route between Murmansk and Vladivostok have to cover 5,085 sea miles. If they take the other route, through the Suez Canal, they have to cover 12,000 sea miles.

Polar aviation will play an increasingly important role in study of ice formations on this northern route. Long-range jet and turboprop aircraft will act as spotters to sound the warning if the channel moves too rapidly or shows signs of freezing over between convoys.

Although the Soviet Union has a keen eye on the long-term effect of a passage north into Pacific waters, the short-term profit of quicker supply to its Siberian mining, timber, and industrial settlements is of crucial importance to its new Seven-Year Plan.

But the problem to be overcome are immense. In the thick crust of permafrost on sites where new industrial towns are being founded, houses are being built on stilts. Ordinary foundations would take too long to install in the icy ground.

Bulldozers cannot claw the top surface off until it has been heated. Cement has to be mixed with boiling water, for otherwise it freezes before being laid.

Food is scarce and has to be transported across great distances. Hard winter wheats are being produced after years of experimentation in the hope that they will flourish in the sunshine of the brief Siberian summer.

ARCTIC SEA ROUTE PUSHED BY SOVIET

Plan to Develop Northeast Passage Is Envisaged Under Program Aired in Ottawa

OTTAWA, April 1 (Canadian Press)—The Soviet Union plans to make its already active Northeast sea passage a communications lifeline linking the Soviet west with the Far East under a new seven-year program.

More icebreakers, more stout Arctic shipping, more aid to navigation and more research into ice, currents and weather are envisaged, according to news bulletins published by the Soviet Embassy here.

The logic behind the move is indicated by the fact that it is 5,800 miles from Murmansk to Vladivostok by the northern sea route compared with 12,830 miles by the Suez Canal. One-third of the Soviet Union, including regions under intensive development, lies north of the Arctic Circle.

Some details of the seven-year plan, as authorized by the Communist party's twenty-first congress, are made public in an article credited to V. Burkhonov, deputy chief of the northern sea route administration for the Merchant Marine Ministry.

The Soviet Union's northern route is much longer than Canada's and, like Canada's, is blocked with ice about eight or nine months of the year. While the Soviet route lies farther south, it has the disadvantage of little protection to ship navigation from offshore islands, which, in the Canadian archipelago, tend to bear the brunt of polar ice driving with great pressure down on the mainland.

Soviets to Close Polar Station

LONDON, Mar. 18 (AP)—Moscow radio said today a Soviet polar scientific station, which has been drifting for almost two years on an ice floe, has completed its work and will be closed.

The station, known as North Pole 7, was established in April, 1957, northeast of Wrangel Island. It is now 180 miles off the coast of Greenland. The station personnel will be withdrawn by airlift.

Wireless in the Arctic

The United States schooner Bowdoin was the first ship to send and receive wireless messages in the Arctic Ocean in 1923.

ATOM SHIP READY SOON

Soviet Gives Some Details of Icebreaker Lenin

LONDON, Feb. 22 (AP)—The Soviet Union announced today some details of a power plant aboard the world's first atomic surface ship and indicated the vessel would soon be ready for the sea.

The Moscow radio said technicians were completing dockside tests of the 16,000-ton Soviet icebreaker Lenin, which was launched at Leningrad in December, 1957.

The broadcast said the Lenin's power plant, developing 44,000 horsepower, consisted of three atomic reactors. "But two reactors suffice to meet all the needs of the ship and one is kept as an auxiliary unit," it added.

There are two control panels for running the atomic engine, "but one is a reserve," said the broadcast.

It said also that a "self-propelled base" was being built to service the icebreaker on Arctic trips. It said the base would carry a section of an atomic plant that could be fitted into the Lenin in mid-Ocean.

SECRETS YIELDED BY ARCTIC OCEAN

**Skipper of Nautilus Reports
Sea Very Deep, Contrary
to Popular Belief**

WASHINGTON—New discoveries are changing man's hazy concepts of the Arctic Ocean, the icy crossroads at the top of the world.

For centuries the Arctic Ocean's 5,400,000 square miles remained as unmapped as the far side of the moon. Until Nansen's icelocked Fram drifted across the polar basin in the Eighteen Nineties it was thought to be shallow and perhaps not a true ocean. Even early twentieth-century experts expected to find a polar continent there. Slowly gathered knowledge of the Arctic has been costly in lives and ships.

Now passenger planes fly regularly over the polar route. Men have maintained scientific stations on ice floes, and two nuclear submarines have crossed the frozen sea via the North Pole.

Commander William R. Anderson, skipper of the submarine Nautilus, reports in the National Geographic Magazine that the Arctic is a very deep ocean. It has low-lying approaches from the Atlantic side, shallower avenues from the Pacific. Soundings revealed differences of more than one mile between estimated and actual depths. (The Arctic's greatest known depth is 17,124 feet.)

He said the cruise showed two other things: "One, that the under-ice profile is fantastically rugged, far more so than anyone ever thought; and, two, that there is, stating it plainly, a lot more ice up there than anyone has suspected."

As the Arctic has been warming, some optimists had envisioned ice-free trade routes across the polar basin in a matter of decades. The abundance of ice suggests, however, that routine transit by surface ships may never be possible. Submerged shipping routes are a distinct possibility.

Another recent discovery is the 9,000-foot Lomonosov Ridge, named for the Russian scientist who predicted its existence. The drowned mountain range divides the Arctic Ocean into two huge basins with their own circulating systems, one clockwise, the other counterclockwise. Curiously, the water is slightly warmer on the American side.

The word Arctic comes from the Greek arktos, meaning north. The Greek explorer Pytheas, who went voyaging

British Geographers Cite Nautilus Skipper



U. S. Navy
Cmdr. William R. Anderson

LONDON, Jan. 25—Comdr. William R. Anderson, who captained the nuclear submarine Nautilus under the North Pole last August, has been awarded the Patron's Medal of the Royal Geographical Society.

The award to the 37-year-old officer was approved by Queen Elizabeth. The submarine's first port of call after traversing the polar ice-pack under water was the British naval base at Portland.

Another polar award announced today by the society went to Sir Raymond Priestley, 72, one of the last survivors of the ill-fated South Pole expedition of Sir Robert Falcon Scott in 1912.

Sir Raymond, who went last year as British observer with the United States Antarctic Expedition, received the society's Founder's Medal.

in about 325 B. C., probably was the first world traveler to touch or come close to the Arctic Circle.

The outer reaches of three continents—North America, Asia and Europe—encircle the Arctic Ocean. Its continental shelf is unusually shallow and broad, extending more than 500 miles off Siberia. The shelf

holds numerous groups of islands—those of the Canadian Arctic, Greenland, Spitsbergen, Franz Josef Land and Novaya Zemlya. The sea's main axis runs about 1,800 miles across the world's apex from Spitsbergen to Alaska. The North Pole is closest to Greenland.

As oceans go, the Arctic is not especially salty. It is fed

U. S. Begins to Supply Island Station in Arctic

ALPHA TWO, Arctic Ocean, April 15 (AP)—Ice Skate, a cold-weather scientific mission with strong military overtones, was begun yesterday on this tiny block of ice in the Arctic.

Two C-124 Globemaster planes parachuted twenty-two tons of equipment, food and shelter to set up the base. Civilian and Navy scientists later will study meteorology, hydrology, oceanography and what animal and fish life there is in the area.

The Russians have a similar station and are landing a second within 100 miles of here.

Alpha Two is the successor to Alpha One, an ice island that broke up last November and had to be evacuated. It is 233 miles north of Point Barrow, the northernmost part of the United States and North America. The island is about 900 miles south of the North Pole and moves slowly around it.

by large American and Siberian rivers. A deep-flowing Atlantic current enters north of Spitsbergen. The sea's major outlet flows along east Greenland.

The polar basin, though perpetually frozen, is not a lifeless place. The frigid waters sustain seals, fish and crustaceans. Peary saw fresh polar bear and fox tracks at 88 degrees latitude. And Russia's 1937 polar expedition observed birds flying at the pole itself.

CHART TO INSULATE ARMY AGAINST COLD

WASHINGTON—It is always colder when the wind blows—or does it only feel that way?

Well, in the effect on exposed flesh, it might as well be considerably colder, according to the Army Surgeon General's Office. He has just issued a conversion table for the protection from cold injury of soldiers stationed in such places as Iceland, Greenland, Alaska and the South Polar regions—and in more temperate climates as well, according to Army News Features.

For the chill chart shows that if the forecast is for a mild 35 degrees, but a wind velocity of 20 miles an hour, the prudent soldier will bundle up as though he were going out into a windless 38 degrees below zero.

A Pioneer Explorer

Samuel Hearne, first white man to reach the Arctic overland from Hudson Bay, was forty-seven at his death in England in 1792.

ANCESTRY OF INDIAN AND ESKIMO TRACED

OTTAWA (Canadian Press) Richard MacNeish, archaeologist, spent his tenth summer in northern research back-track-in over a probable migration route for the Asian peoples believed to have been ancestors of North American Indians and Eskimos.

En route, he added fresh evidence to the theory that natives of Russia, Canada, the United States and Mexico share common forefathers who migrated in waves across Bering Strait.

Dr. MacNeish is an American who is senior archaeologist for Canada's National Museum.

In four "fairly extensive" excavations, new artifacts were bared, complementing those harvested earlier. In 1955 he returned to Ottawa with evidence of nine separate cultures in the Yukon near the Alaskan boundary.

This year, he added to his collection of traces of the second-earliest culture, dated from 8,000 to 12,000 years ago.

Men dressed in stitched leather garments used spears to hunt fish. Horses and giant buffalo were present.

ESKIMO SUMMER STUDY

**Alberta U. Language Course
to Be Given in July**

EDMONTON, Alberta (Canadian Press)—Eskimo language will be offered as a course at the University of Alberta summer school in July. It will be in charge of Thomas C. Correll, a missionary and linguist.

Eskimo patients at Edmonton's Charles Camsell Indian and Eskimo Hospital will aid Mr. Correll, who has worked with Eskimos in the Churchill, Man., area for the last three years.

Eskimo phrases are often a mouthful. "Inuktitut uqarung-naqpit?" is an example. It means, "can you speak Eskimo?"

This is believed the first time Eskimo has been offered as a course in a North American university. Mr. Correll also will give his students lectures on Eskimo culture.

Magnetic Pole Shifting

Position of the constantly moving north magnetic pole has been studied for 250 years. It was first reached by James Clark Ross on Boothia Peninsula in 1831, the National Geographic Magazine says. Intensive field work (1946-48) by the Dominion Observatory determined the magnetic pole's latest position on Prince of Wales Island in the Canadian District of Franklin, some 1,100 miles from the geographic North Pole.

North Pole Discovery Marked

WASHINGTON, April 7

Fifty years ago yesterday a man stood in the midst of the Arctic wastes and forgot his bone-weariness and the wind-whipped cold as he announced:

"89 degrees, 57 minutes. The Pole at last!"

Yesterday more than 150 persons gathered on a little knoll in Arlington Cemetery, 38 degrees and 51 minutes latitude north, to remember that day. They were there to commemorate the 50th anniversary of the discovery of the North Pole at ceremonies at the graveside of Rear Adm. Robert E. Peary, Civil Engineer Corps, USN.

"I will find the way to the Pole or make one," Peary once said.

At 53, he walked 500 miles over shifting ice and frozen Arctic wastes to make a way.

In the audience yesterday were Peary's son and daughter, both of whom caught their father's fascination with the challenge of the North.

Marie Ahnighito Peary Stafford, now a tall, handsome grandmother, earned her own reputation as an Arctic explorer. She was born only 13 degrees from the North Pole to the amazement of the Eskimos, who marveled at her white skin. Mrs. Stafford now lives in Brunswick, Maine.

Before she was 10, she had made four trips into the Arctic regions. In 1932, she headed the Peary Memorial Expedition to Greenland.

Her brother, Robert E. Peary Jr., a civilian engineer, has worked on construction projects in the North.

The ceremony yesterday was sponsored by the Navy's Civil Engineer Corps. Peary joined the corps in 1881 and first ended up far removed from the Arctic—surveying a canal in Nicaragua. The first volume of the National Geographic Magazine in 1889 carried an article by the 33-year-old Naval engineer: "Across Nicaragua With Transit and Machete."

After the graveside ceremonies, Mrs. Stafford went to Explorers Hall at National Geographic Society headquarters to see the Peary flag, which hangs in a place of honor. Mrs. Stafford presented



ADM. ROBERT E. PEARY

the flag to National Geographic four years ago. It had been stitched by her mother in 1898.

Peary carried the flag as a talisman and left snippets of it to mark his Arctic explorations. Several fragments have been recovered and restitched in the flag.

Last night the National Archives opened an exhibit of early Arctic exploration, including documents of Peary's North Pole Expedition.

"Peary's 'I have won out at last!' was scrawled on a postcard on Apr. 6, 1909. It opened a message to his wife written during his 30-hour stay at the pole with his aide, Matt Henson, and four Eskimos. Peary had at last attained 90° north latitude, never before reached by man.

From New York City in July, 1908, Peary's expedition sailed north aboard the Roosevelt to Etah on Greenland's west coast.

At Etah in mid-August Peary picked up 49 Eskimos and 246 dogs—native Arctic travelers. Then his ship pierced 350 miles of ice to Cape Sheridan, his rear

base.

Peary's men acclimated themselves during the Arctic winter by hunting game and sledging ten tons of supplies from the ship 90 miles westward to Cape Columbia on Ellesmere Island, jump-off place for the polar thrust.



MRS. STAFFORD

A total of 413 miles separate Cape Columbia from the pole. Peary began the 37-day march with 23 men, 19 sledges and 133 dogs. For one month the supporting parties opened a trail, relayed supplies and established camps on the ice, fighting hazards of extreme cold and wind, open water and 60-foot ice ridges. One by one, according to plan, teams of men and dogs turned back. The last was Bob Bartlett, leaving Peary's party of six men, five sledges and 40 dogs with 133 miles to go. In five grim forced marches they made it.

At the North Pole, Peary displayed a silk United States flag made by Mrs. Peary. He also unfurled four other banners: The flag of Delta Kappa Epsilon, Peary's college fraternity; the Navy League flag; a "World's Ensign of Liberty and Peace"—a United States flag on a white background donated by the Daughters of the American Revolution; and an ensign showing a white Maltese cross on a red background described by Peary as a "Red Cross flag."

The adventurous North Pole discoverer and famous civil engineer officer was married to an equally venturesome lady, the former Josephine Diebitsch, daughter of a Smithsonian Institute professor.

She accompanied her explorer husband on his early expeditions and became the first Arctic heroine, later to be recognized as an explorer.

Mrs. Stafford, now a grandmother seven times, is tall, blue eyed and quite handsome.

Mrs. Stafford was the recipient of the Henry A. Bryant Gold Medal from the Philadelphia Geographic Society in 1954, and the Franklin L. Burr Prize Award of the National Geographic in 1955. She was decorated with the Order of Liberation from Denmark in 1946.

She is a member of the Society of Women Geographers (and was their president from 1948 to 1951); also the Royal, American, and Philadelphia Geographic Societies; The Polar Philatelic Society and The Altrusa Club. She was the leader of the Peary Memorial Expedition in 1932.

Mrs. Stafford is presently writing the history of the Philadelphia Geographic Society, and has a new book on the Arctic coming out in the fall.

Extinction of Blue Whale Feared

Whaling Industry Is Believed Dying—Prices Decline

By WALTER SULLIVAN

The blue whale, one of the largest animals known to have lived on earth, is being hunted so much that some believe the species, and the industry dependent upon it, face extinction.

An added peril to whaling is the growing output of vegetable oils. Their competition has forced down the market value of whale oil and may, in the end, save the whales.

Some of the gloomier specialists predict that, unless the annual kill is sharply reduced, the whaling industry will be dead in five years. They base this pessimism on the belief that the population of blue whales is nearing the point of no return.

Whaling probably began in prehistoric times and was carried out by Norwegians and other Europeans as early as the ninth century.

New England became a leading base for whalers, but the increasing scarcity of whales and replacement of whale oil by gas for lighting almost eliminated the world's whaling fleet by the end of the nineteenth century.

Then the development of the factory ship, fast catchers and harpoon gun made it possible to pursue and process the greatest beast of them all—the blue whale—and the industry revived, but not in New England.

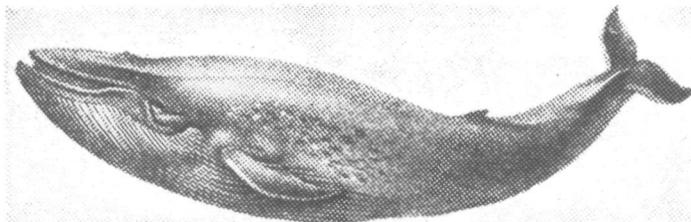
The blue whale, also known as the sulphur bottom, attains a length of almost ninety feet and a weight of 140 tons.

The blue whale is hunted primarily in the waters off Antarctica, where it finds an abundance of krill, the miniature shrimp that provides the staple of its diet. Mating, however, takes place in the tropics.

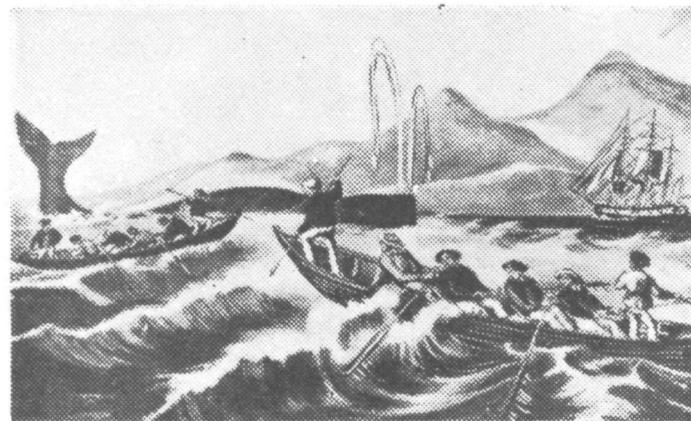
The population is said to be so low that it is becoming difficult for a whale to find a mate in the vast oceanic reaches of those latitudes.

It is such a situation which is said to have kept another species, the right whale, from recovering, despite protection for many years. In the eighteen hundreds it is estimated that American whalers alone took 100,000 right whales. It was finally agreed to protect them, but they have never recovered and are only rarely seen.

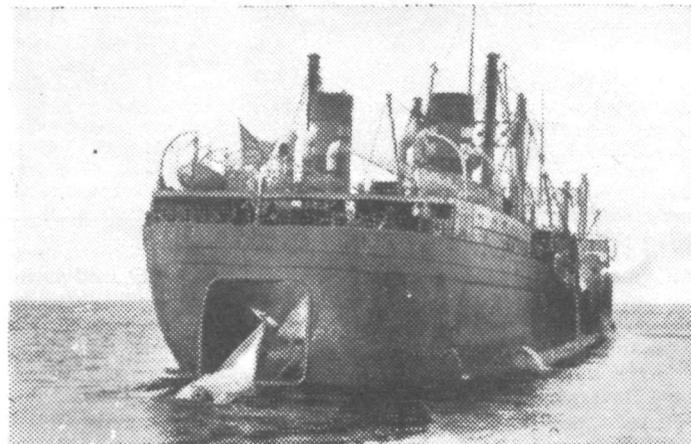
Specialists in whaling note



A drawing of a blue whale, of type hunted off Antarctica



An 18th century whale hunt, from a Currier & Ives print



Modern whalers take catch aboard factory ship at stern

that there has been a marked drop in the blues, largest of all whales. Because of their size they are the harpooner's favored target.

In the season of 1931-32 the take consisted of 82.1 per cent blues, 15.4 per cent finbacks and the rest in miscellaneous species.

In 1957 the blues made up only 4.6 per cent, whereas the finbacks constituted 78 per cent of the catch.

There is likewise reported to have been a shrinkage in the size of the blue whales taken. The limit for the annual catch is set each year by the International Whaling Commission, representing the seventeen nations taking part in the industry.

The Antarctic catch is set in terms of Blue Whale Units, one

unit being the equivalent of a single blue whale, two finbacks, 2.5 humpbacks or six Sei whales.

For the season of 1956-57 the limit was dropped from 15,000 units to 14,500. At the Commission's tenth meeting, held at The Hague last June, its scientific committee expressed concern at the shrinkage of the whale population.

However, the commercial interests of the various nations won out and the quota remained unchanged.

The next conference is to take place in London the last week of June.

What probably sustains the whaling industry against the inroads of vegetable oil is the desire of the whaling nations to conserve their foreign exchange. In general they do not produce

enough vegetable oil for their own needs and hence must either catch whales or buy fats and oil abroad.

Norway is the chief whaling nation, operating about half of the nineteen factory ships that scoured the Antarctic seas during the last season, coincident with the northern winter. The Japanese are said to have had six such vessels in the area; Britain and South Africa three, and the Soviet Union and the Netherlands one apiece.

These ships were accompanied by some 242 catchers, twenty-four of them hauling in whales for the gigantic Soviet ship, the Slava. The other factory ships were aided by about a dozen catchers each. The Soviet Union is reported to have recently launched a second factory ship.

There has been a steady increase in the tally of catchers. In 1934-35 the number of factory ships, which process the whales, was twenty—almost identical to that of today—but there were only 140 catchers.

Because of the quota system, however, there has not been a great change in oil output, the figure for 1934-35 being 403,460 tons compared to 307,198 tons for 1957-58.

The great change has been in the relative production of vegetable oils. In the nineteen thirties whale oil provided, by volume, 9.4 per cent of world trade in fats. In 1958 it constituted only 1.7 per cent of world production in animal and vegetable oils.

Immediately after World War II whale oil was much in demand in a fat-hungry world. Most British margarine was based on the whale catch. Whale oil also went extensively into soap and lard.

This year vegetable oil production is expected to increase by about a million tons to a new world high of 18,000,000 tons. Yet no increase in demand is foreseen, according to "The World Agricultural Situation 1959," published by the Department of Agriculture. The United States alone exports 1,200,000 tons a year.

In this situation whale oil prices have been declining. The price per ton in 1957 was \$252. Last year it had dropped to \$211, despite increasing production costs.

One of the factors helping to keep the whaling industry alive is the heavy investment that has gone into the factory ships. As a last resort they could be used as tankers, but this would mean writing off their elaborate installations for processing whales.

Despite its size and weight, blue whale is so swift that it was rarely taken before the day of engine-driven catchers and modern harpoons. The number killed each year has run higher than 8,000, but for a decade scientists have been concerned at its declining population.

WHALE MAY HOLD KEY TO EMOTIONS

Animal's Brain Described as Similar to Man's—Three Specimens Arrive Here

A clue to human emotional problems may lie hidden in the brains of three whales just received at New York Medical College. Norwegian whalers sent the specimens to the college from Antarctica.

The brains of whales and humans are believed to be very similar in contour and other parts.

Dr. Arthur V. Jensen, assistant dean, noted that in whales and fish the olfactory senses were presumed to be very keen because they use their sense of smell to find food. In whale brains this section, called the rhinencephalon, was found to be "surprisingly" smaller than had been anticipated.

Dr. Jensen said this made him curious because the similar part of the brains of humans were concerned not so much with smelling as with emotions.

Although a whale brain might be six or eight times the size of a human brain, he said, the olfactory area of the whale brain was only about twice the size of the similar section of the human brain.

He said he and his associate Dr. Myron Jacobs, had also become interested in the fact that the dura mater, a tough covering for the brain, unaccountably increased in thickness from a sixteenth of an inch in the front of a whale brain, to three inches at the back.

Soviet Boasts Whaler

MOSCOW, Feb. 9 (AP)—Moscow newspapers have published pictures of a nearly completed whale factory ship that will be the flagship of the Soviet whaling fleet.

The papers said the vessel, called the Sovietskaya Ukraina would be the biggest whale factory ship in the world.

According to Lloyd's Register of Shipping, the 36,000-gross-ton Sovietskaya Ukraina is being built by the Nosenko Shipyard at Nikolaiev, a Black Sea port. She is a 714-foot motor-ship.

A whale factory ship performs two functions—the cutting up and rendering of whale carcasses into such products as oil, meat and bone meal and the storage of these products in large cargo tanks.

The largest whale factory ship now in service is the 23,830-gross-ton Willem Barendsz, a 677-foot Dutch vessel built in 1955.

Russians Land Whale With Feet

LONDON, May 16 (AP). Moscow radio reports Soviet whalers in the Bering Sea have harpooned a whale with feet. It said the animal, a sperm whale, had rudiments of hind extremities resembling the paws of giant mammals.

Scientists at the Soviet Pacific Institute of Fishing and Oceanography found by X-ray, it said, that the feet had bones and concluded the whale was a throwback to the days of land-roving whales.

JAPAN WON'T LEAVE WHALE CONVENTION

TOKYO, June 29—Japan today notified the United States Government, the depository of the International Whaling Convention, that she would not withdraw from the convention.

The Japanese Government announced Feb. 6 that Japan would conditionally withdraw from the convention if four whaling nations, Britain, the Netherlands, Norway and Japan, failed to reach an agreement on individual quotas for next year.

The decision to retract the earlier announcement on withdrawal was reached at a meeting today between the Japanese Ministers of Foreign Affairs and Agriculture.

The International Whaling Commission has limited a total annual catch to 15,000 units for the four countries and the Soviet Union.

The Soviet Union has already been allocated a quota of 3,000 units, but the four nations have been unable to reach an agreement on individual quotas of the remaining 12,000.

LONDON, June 22—Quotas for Antarctic whaling fleets were discussed here tonight by representatives of five of seventeen nations at the annual meeting of the International Whaling Commission.

The five nations are Great Britain, Japan, the Soviet Union, the Netherlands and Norway. Other nations on the commission are not concerned with the Antarctic.

The talks begun tonight were to seek agreement on quotas for 80 per cent of the Antarctic catch. Soviet whalers already have been allotted 20 per cent.

John Hare, British Minister of Agriculture, Fisheries and Food, told the opening assembly of the conference that the control of the Antarctic catch was

President Gives Medal to Fuchs

WASHINGTON, Feb. 4 (AP)—President Eisenhower today presented the National Geographic Society's Hubbard Medal to Sir Vivian Fuchs, the British explorer who led a Commonwealth expedition that made the first overland crossing of Antarctica.

The presentation took place at the White House.

General Eisenhower also presented a Hubbard Medal to the United States Navy for its 1955-59 Antarctic expeditions. It recognized more than 10,000 men who built and manned scientific outposts.

"It is a great pleasure and honor," the President said in presenting the medal to Sir Vivian.

The President said he did not see how the party had kept from freezing and asked about the lowest temperature.

"Minus 72," the explorer said, adding: "It's the wind that counts."

Sir Vivian told the President he intended to return to the Antarctic in November.

Thomas S. Gates Jr., Secretary of the Navy, accepted the medal for the Navy. The President said: "It is a great pleasure to say, 'Well done,' to the Navy."

The Hubbard Medal is conferred by the society in commemoration of Gardiner Greene, a founder of the society and its first president.

the most important question facing the international whaling industry. He said the Antarctic seas yielded about three-quarters of the world's whaling catch, worth \$140,000,000 annually.

Other problems before the conference are humane methods of killing whales and proposals for the international observation of Antarctic whaling.

LOWEST TEMPERATURE

124.1 Degrees Below Zero Recorded in Antarctic

The lowest air temperature ever recorded was taken in August, 1958, according to the United Nations Educational, Scientific and Cultural Organization.

The measurement was 124.1 degrees Fahrenheit, below zero and was taken at the Russian International Geophysical Year Antarctic station Sovetskaya.

Ice Island Dwarfs City, Reds Report

United Press International.

WASHINGTON, April 18.—Russian whaling ships in the Antarctic have discovered an iceberg nearly twice as big as New York City.

The berg, apparently a chunk of the Ross Ice Shelf which had broken off and drifted to sea, dwarfs to ice cube size the one which sank the Titanic 47 years ago.

The ice island sighted by the Russians was estimated to be 66.45 miles long, 9.3 miles wide, and up to 135 feet high. Its area was about 619 square miles, compared to New York's 315.5.

But big as it was, this iceberg would look like a midget beside one reported by the American icebreaker Glacier in Antarctic waters on Nov. 12, 1956. It was 208 miles long and 60 miles wide. With an area of 12,480 square miles, it was nearly as big as Maryland and Delaware combined.

The Russian berg was reported in a Soviet article digested here by the Commerce Department.

EXPLORER TO RETURN

Sir Vivian Fuchs Plans Trip to Antarctic in November

LONDON, June 26 — Sir Vivian Fuchs, leader of the British Commonwealth trans-Antarctic expedition in 1957 and 1958, said today he intended to return to the Antarctic in November.

Sir Vivian is director of the Falkland Islands Dependencies Survey. He disclosed his plans at Southampton, where he welcomed nineteen Antarctic scientists and technicians who had returned on the research ship Shackleton after two years in the area. He said:

"I was commander of seven bases from 1948 to 1958. Now there are twelve bases. I am out of touch and I want to look around all the existing bases."

Whaling Costs Go Up

Rising production costs threaten the profitability of the Norwegian whaling industry in the 1958-59 Antarctic season, according to the Financial Review of the Norwegian Commercial Banks. During the 1957-1958 season the Norwegian share of world production declined to 850,600 barrels of whale and sperm oil out of total production of all countries of 2,318,479.

TRIP HOME CHEERS POLAR SCIENTISTS

Balmy Pacific Weather and Sunsets Novelties to 41 Sailing to New Zealand

By PHILIP BENJAMIN
ABOARD THE U. S. S. WYANDOT off New Zealand, Jan. 16—Warm weather, a couple of sunsets and a seagoing symposium on the Antarctic have been the highlights of a seven-day, 2,200-mile voyage from the bottom of the world to New Zealand.

This Navy attack cargo ship is carrying back to civilization forty-one scientists. More than half of them spent more than a year in Antarctica during the International Geophysical Year, which ended on Dec. 31.

Under the command of Capt. Ronald K. Irving of Bayside, Va., the Wyandot left McMurdo Sound last Friday, led by the Coast Guard icebreaker, Northwind.

During the last four days the scientists aboard have attended seminars. The final one was held this afternoon on the sunlit forward hatch in the balmy South Pacific air. The sessions have dealt with the work of the traverse parties during the Antarctic spring just ended and with glaciological, meteorological and geological data accumulated during Operation Deepfreeze III.

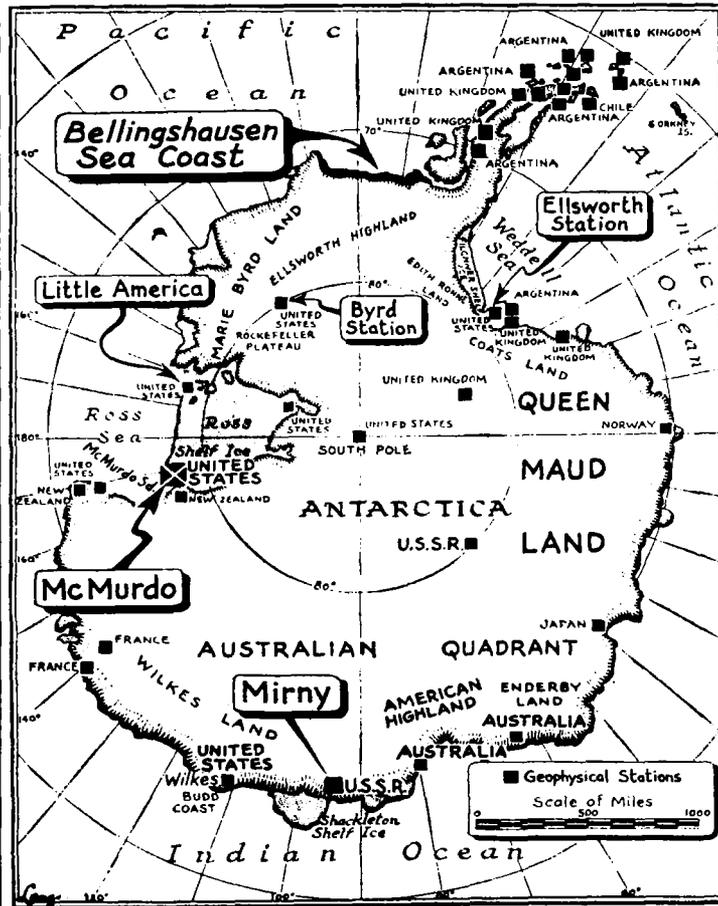
Generally, the speakers have shied away from making conclusive statements, preferring to present data still to be evaluated.

Nevertheless, some interesting nuggets have come out of the symposium. For example, Mario Giovinetto, a 25-year-old Argentinian from La Plata, who wintered at the South Pole, reported having found pollen in ice that was formed as far back as a century ago. The pollen will be examined by biologists.

Mr. Giovinetto said that the ice hole at the South Pole station had been 165 feet deep. By studying the discernible layers of ice laid down each year he was able to determine that at 90 feet he had reached the year 1650.

When he studies the ice core removed from the hole, he said, he hopes to find volcanic ash at the 75-year-old level. This would have come from the eruption in 1883 of the volcano Krakatao in the Dutch East Indies. Thus a catastrophic eruption three quarters of a century ago may help check the accuracy of present measurements of ice density.

Several nights ago after the Wyandot had steamed out of the Antarctic Circle the sci-



Common Cold Pursued In Antarctic's Chill

McMURDO SOUND, Antarctica, Jan. 12 (AP).—In a land of uncommon cold, doctors are trying to untangle some of the mystery of the common cold.

They don't expect to have the problem licked by next week. But they do hope their work will give man a few new clues in his anxious pursuit of a solution to one of life's most baffling annoyances.

Dr. R. Goldsmith of the Medical Research Council in London boarded the icebreaker Staten Island at Seattle in October and has been using it as a field headquarters for Operation Snuffles ever since. A ship was picked for a laboratory because of its isolation.

entists saw their first sunset and first dark sky in months.

"All this is hard to get used to," said one of them. He had spent two years in a world of six-month nights and six-month days and of temperatures ranging from zero to 70 below.

"It's a damned eerie feeling seeing a regular sunset and being outdoors with just a light shirt and pair of pants on," he said. He shivered as he spoke, but not from cold.

"We've got 50 volunteers aboard," Dr. Goldsmith said. "We get nose and throat swabs from them every day and periodic blood samples. From these, we are able to make some determination of what types of viruses this ship is carrying."

The next phase of the experiment develops after the ship goes to Wilkes Station to pick up a party being returned home from the Antarctic.

"If these people co-operate," Dr. Goldsmith said, "we will take nose and throat swabs from them and get blood samples to find out what antibodies they have in their blood."

"Then we hope they will catch cold."

If some of them do, it may be found that they have picked up a virus and that it is the same virus detected a few weeks earlier in a member of the ship's crew.

It would then be established, Dr. Goldsmith said, that this particular virus definitely causes this particular disease.

The Wilkes party should make a good test group, the doctor believes, because it has been in complete isolation for a year or so. After a party has

ANTARCTIC TEAM COMPLETES TREK

U. S. Committee for I. G. Y. Reports Traverse Unit Has Reached McMurdo

WASHINGTON, Feb. 2.—The United States National Committee for the International Geophysical Year announced today the completion of a 1,628-mile scientific study expedition from Little America to McMurdo Sound, Antarctica.

The expedition, led by Albert P. Cray, deputy chief scientist and chief glaciologist of the United States Antarctic program, left Little America on Oct. 15, 1958. It arrived yesterday at McMurdo sound after making numerous seismic, glaciological and geomagnetic observations along the way.

The I. G. Y. committee said that the data gathered by the party would help determine if the amount of ice in Antarctica were growing or diminishing, and would lay the groundwork for the first accurate measurements of ice flow of the Skelton Glacier.

Arrival of the Cray party at McMurdo marked the end of the traverse program for Antarctica, the committee said.

More than 10,000 miles was traveled in the traverses of 1957 and 1958.

The committee said that the Navy sees in the success of the Cray traverse a suggestion that it might be feasible to resupply the United States scientific station at the South Pole by tractor train.

Such a train would bring in heavy equipment that could not be dropped by air, and this would assist in retrieving air-dropped equipment that sometimes drifts as much as 40 miles away.

The expedition, in addition to Mr. Cray, included Dr. Trevor Hatherton, chief scientist of the New Zealand I. G. Y. Antarctic program; Charles R. Wilson of Washington; Lyle McGinnis of Kaukauna, Wash.; Stephen Dan Hertog of Concord, Mass., and Frank Layman of Pittsburgh.

been isolated like this, he said, it doesn't catch colds. Those who have colds at the outset spread them around for a while, but in time they die out.

"I have never heard a story yet about a group of isolated people getting a batch of colds for no reason," Dr. Goldsmith said. "The party at the South Pole, for example, had no colds but then suddenly got a rash of them after planes came in with new people."

ANTARCTICA AREA HELD SPLIT BY SEA

New Study Backs Theory That Deep Trough Divides East and West Regions

By PHILIP BENJAMIN

McMURDO SOUND, Antarctica, Jan. 3—Further evidence has piled up that a deep trough or valley divides East Antarctica from West Antarctica.

An airborne traverse just completed in Marie Byrd Land has shown that from the Harold Byrd Mountains in the south to the Executive Committee range in the North the bed rock under the ice sheet ranges from 1,000 to 2,500 feet below sea level.

A known trough runs from the Weddell Sea "inland" for about 350 miles to Lat. 82 degrees S. In addition, a traverse party this season, the last of the International Geophysical Year, found the deepest water yet discovered under the Ross Ice Shelf on the Ross Sea, 4,400 feet.

Thus, three points in an approximate straight line have been found to bear out the theory that a trough exists from the Ross Sea to the Weddell Sea.

The findings of the airborne traverse were reported here today by Dr. Edward Thiel of Wausau, Wis., the traverse leader and chief seismologist. The group made seven ski landings along a 550-mile stretch, starting from the south.

Dr. Thiel said that in the south the elevation was 2,000 feet. It rose slowly going northward until it was 5,000 feet at the seventh and final station.

Seismic soundings by means of explosive shots determined that in the south the ice thickness was 4,500 feet and in the north 8,000 feet. By simple subtraction the bedrock in the south was found to be 2,500 feet below sea level and in the north 1,000 feet below sea level.

Dr. Thiel commented that the soundings proved something else, that there was no water connection between the Ross and Weddell seas, although there might be an ice-filled channel.

Pointing to an area on an Antarctic map between Long. 60 and 90 degrees W. in Marie Byrd Land, he declared that that was the gap, the unknown quantity.

"Because nunataks (outcroppings of rock from the ice sheet) have been picked up visually and by radar from aircraft in this area," he continued, "it's possible that the trough pinches out just here."

More aerial surveys and a

Two Americans Reach Top of Antarctica Peak

McMURDO SOUND, Antarctica, Jan. 7 (AP).—A sailor and a scientist battled freezing weather yesterday to reach the top of 13,200-foot Mount Erebus, highest point ever reached by American climbers in Antarctica.

Seaman Hudson Holloway, 23, of Odessa, Fla., and Hugh Anderson, 26, of Altadena, Calif., a cosmic ray researcher, reached the summit of the volcanic mountain about 81 hours after they started out from sea level. They walked about 22 miles.

Earlier this week three New Zealanders scaled the peak, the first time this had been accomplished since 1912. Sir Raymond Priestly, a British explorer, led the party back then. He now is visiting Antarctica for the fourth time and the American climb was made partly in his honor.

Seaman Holloway and Mr. Anderson left two other members of their party about 5 miles

below the top to set up a base camp. They went on alone, traveling at times in conditions of zero visibility.

At one point, Seaman Holloway said, "My feet were sweaty when I went to bed and when I woke up they were frozen together."

They reported battling stiff winds and cold that prevented sleep when they reached the 11,500-foot level.

"The snow was drifting up and coming through the seams of the tent," they said. "You could hardly take off your gloves long enough to tie a knot or tie up the tent without your hands freezing."

Despite the raw weather they decided to put concentrated meat in their pockets and try for the peak without other supplies. The final dash took 2 hours.

It took about 11 hours to get back to the base camp after 10 minutes at the top. The entire party was evacuated by Navy helicopter.

Air Crash Kills 2 in Antarctica

McMURDO SOUND, Antarctica, Jan. 5 (AP).—A United States Navy Otter plane crashed while taking off from an Antarctic runway yesterday, killing two persons and seriously injuring three others.

The crash occurred at Marble Point, on the Victoria Land coast, where the United States is planning to build a \$5 million all-weather runway. The runway there is now the only dirt landing strip in Antarctica.

The Navy identified those killed as Lt. Harvey Eugene Gardner, Redwood City, Calif., and Lt. (j.g.) Lawrence Joseph Farrell, Quonset Point, R. I.

The injured are Chief Journalist James Hubert Macdonald, Jr., New Bedford, Mass.; Avia-

tion Machinist Mate Joseph Henry Bratina, Ladysmith, Wis., and Photographer's Mate 2/c Richard William Bundy, Royal Center, Ind.

Medical help was sent by helicopter from the naval base at McMurdo Sound and from the Coast Guard ice breaker Northwind. A third helicopter carrying Rear Admiral David M. Tyree, commander of the Navy Antarctic expedition, and scientists on an inspection tour brought the injured to the McMurdo hospital.

surface traverse may be necessary to confirm the existence of the nunataks, he said. The other members of the party, which operated out of Byrd Station, were Ned Ostenso of Chippewa Falls, Wis., seismologist, and Hugo A. C. Neuburg of Yonkers, N. Y., glaciologist. The pilot of the twin engine Navy ski plane that made the landings was Lieut. Ronald Carlson of Milton-Freewater, Ore.

PENGUINS 'HATCH' RADIO RECORDING

Transmitter Is Put Into an Emptied Egg and It Tells Sitting Temperatures

Although two Adelie penguins may not realize it, they spent the last Antarctic summer trying to hatch a small radio transmitter.

The two, a male and a female, clearly thought they were taking turns in sitting on two eggs in their nest. One "egg," however, was an egg only to the extent of the shell. It had been "bugged" by a naturalist, the radio machinery replacing its contents.

The radio recording showed that the penguins keep their eggs above 90 degrees, Fahrenheit, despite frigid polar blasts and the habit of sitting two weeks at a stretch without food.

The naturalist was Carl R. Eklund, scientific leader of the United States outpost in Wilkes Land, Antarctica. He was assisted, electronically, by Chief Electronics Technician Frederick E. Charlton of the Navy. Their experiment is reported on in the current I. G. Y. Bulletin of the National Academy of Science.

Eggs were taken from a rookery and carried to camp. One was sliced in two by an electric saw and emptied. The halves of the shell were placed around the moisture-proof radio transmitter, designed to report temperatures. The halves of the shell were then cemented together. The egg white was put back with a syringe and the syringe hole was closed with cement.

This "bugged" egg was stealthily substituted for one of the two eggs in the nest selected for the test. A loop antenna over the nest of heaped pebbles picked up signals from the "egg" and sent them by wire to a near-by shelter.

Despite air temperatures well below freezing and cruel winds, the "egg" interior showed a constant temperature in the vicinity of 92.7, Fahrenheit.

In a similar experiment with skua gulls the egg stayed at an average of 96.6 degrees.

In each case the temperatures were about ten degrees lower than the body temperatures of the birds.

The second egg in each of the two nests hatched.

Mr. Eklund had hoped to "bug" an egg of the emperor penguins, but no emperor rookeries could be found near the camp. The annual emperor egg is laid on the ice in the midst of the winter night and in the hatching the male stands on the ice for an unbroken month in temperatures that reach 60 and 70 degrees below zero.

AUSTRALIA TAKES BASE

U. S. Turns Over Scientific Station in Antarctica

CANBERRA, Australia, Feb. 6 (Reuters).—The Australian Government took over the United States scientific research base at Wilkes, Antarctica, last Wednesday, it was announced here today. Richard Casey, Australian External Affairs Minister, said that under an agreement with the State Department Australia had assumed custody of the base's equipment and installations without charge or liability, and insured its continued operation.

Wilkes is part of Australian Antarctica. During the International Geophysical Year the United States established a scientific research base there.

ANTARCTIC CHIEF IS NAMED BY U. S.

Crary, Polar Scientist, Will Lead Research Program Started Under I.G.Y.

WASHINGTON, March 28—The National Science Foundation announced today the appointment of Albert P. Crary as chief scientist of the United States Antarctic Research Program.

Mr. Crary, a scientist who specializes in arctic and antarctic research, returned recently from a two-and-a-half-year stay in the antarctic.

He had been station scientific leader at Little America and deputy chief scientist of the antarctic program of the United States National Committee for International Geophysical year under the aegis of the National Academy of Sciences.

The National Science Foundation, through its director, Dr. Alan T. Waterman, announced also the formal establishment of the research program that Mr. Crary is to head. The program was set up to carry on the work in Antarctica that had hitherto been done under the auspices of the International Geophysical Year. The I. G. Y. ended its eighteen-month program last Dec. 31.

Other nations besides the United States, including the Soviet Union, are continuing their program in the South Polar continent. Eleven countries took part in the antarctic program during the International Geophysical Year.

Mr. Crary, a 47-year-old native of Pierrepont, N. Y., spent thirty months in the antarctic and led two traverse parties on the Ross Ice Shelf and the Victoria Land plateau.

Last November he reported finding the deepest water yet discovered under the ice shelf—4,500 feet. The shelf is a portion of the antarctic ice sheet that floats on the Ross Sea.

Prior to his antarctic tour, Mr. Crary had been a member of a group that established a scientific station on a large drifting ice island in the arctic.

In making the announcement of Mr. Crary's appointment, Dr. Waterman said Mr. Crary's "acquaintanceship with virtually all scientists engaged in polar research, and his extensive knowledge of research problems in both areas, will be very helpful in the planning and execution of the United States program."

The foundation, Dr. Waterman noted, will look to the National Academy of Sciences-National Research Council, which had coordinated the United States I. G. Y. program, for recommendations on proposed



TO HEAD PROGRAM: Albert P. Crary, named chief scientist of U. S. Antarctic Research Program by National Science Foundation.

research programs.

As chief scientist of the program, Mr. Crary will advise the foundation in the planning of programs and the selecting of personnel and equipment, and will supervise field investigations, data analysis and publication.

Mr. Crary will have an office at the foundation's headquarters in Washington, but he will continue his affiliation in Cambridge, Mass., with the Air Force Cambridge Research Center.

EDISTO IN ANTARCTICA

Completes Nonstop Cruise From Norfolk, Navy Says

NORFOLK, VA., Feb. 3 (AP)—The Navy icebreaker Edisto has arrived in the Waddell Sea in Antarctica after a nonstop cruise from Norfolk, naval spokesmen reported today.

It was the first such nonstop cruise in the history of Operation Deep Freeze. The Edisto, commanded by Comdr. H. D. Davison, left Norfolk in mid-December and sailed 9,335 miles.

The ship met with a heavy ice pack in Antarctic waters and was beset for ten days, 500 miles short of her destination, the Navy said.

The Edisto will remain at Ellsworth Station long enough to support Geophysical Year summer activities and turn the station over to the Argentine Government.

She will evacuate United States naval and scientific personnel who spent the last year in the Antarctic as geophysical year observers, then leave for Buenos Aires from where the United States personnel will be flown to this country.

Seal Mummies Found 2,000 Feet Above Sea

By the Associated Press

Mar. 19

Mummified seals and an inland pond found in Antarctica have scientists puzzled.

Both American and Russian scientists found the mummies of seals in ice at heights up to 2,000 feet above sea level. The seals were believed to have lived between 500 and 600 years ago.

The big question is how they got to those high levels—scientists won't even hazard a guess.

The puzzle of the pond also stemmed from International Geophysical Year work in the Antarctic. Dr. Harry Wexler, chief scientist of the Antarctic program for the IGY, said today.

American scientists found it in a partially ice-free area about 300 miles inland from Ellsworth Station on the Weddell Sea.

That was puzzling enough in itself. But the scientists also found algae-like aquatic plants floating around in the water. The plants lie dormant, but come to life again in the polar spring.

How did the plants get there in the first place?

For want of firmer evidence, Dr. Wexler says scientists theorize that maybe skuas—a kind of seagull—picked up the plants in their claws while visiting the seashore, and lodged them inland.

Dr. Wexler yesterday described tremendous ice accumu-

lations in the Antarctic as "a perpetual sort of sword of Damocles hanging over the human race."

Dr. Wexler, in saying this, added that while there is no present evidence, there's always the potential for extensive melting. "Future generations will have to keep a close check on the Antarctic ice" lest the world's coastal cities like New York and London be inundated, he said.

Dr. Wexler said tentative findings made during the IGY suggest there may be as much as 40 per cent more ice in the Antarctic than previously figured—even though it has been known that the continent holds about 90 per cent of the world's ice.

If it should melt all at once—which would be impossible—it would quickly raise sea levels throughout the world 150 to 200 feet, he said.

But Dr. Wexler added that a more gradual raising of sea levels to dangerous heights is not beyond possibility—although its effect would not be felt for generations.

The Sun Has Little Effect On Ice 14,000 Feet Thick

WASHINGTON — There is probably 40% more ice than hitherto estimated in the great cap which covers the Antarctic continent.

And the South Pole, coldest spot in the world, actually gets more summer sunshine than any other place on earth.

These are conclusions of U. S. scientists who are remaining another summer at four stations in the far south. The International Geophysical Year program under which the stations were established now is officially ended but the work is being continued under the National Academy of Sciences and the National Science Foundation.

Scientists at one of the American stations, according to an IGY report, have measured ice

14,000 feet thick, the thickest yet known anywhere in the world. Deep drilling operations which have penetrated more than 1000 feet into this part of the cap have brought up cores of ice which fell as snow more

than 1000 years ago. Analysis of the cores is expected to add greatly to knowledge of past climates.

Despite the intense South Polar summer sunlight, the observers say, 95% of it is reflected by the ice cover so that there is practically no melting.

Seventy American scientists wintered on the desolate continent and they since have been augmented by about 70 more who will remain during the present southern summer, working on a large number of geophysical missions, largely concerned with the ice cover.

ANTARCTIC PEAKS FOUND SMALLER

Trek Also Discovers Range
Is Not Where Mapped by
Earlier Air Surveys

By WALTER SULLIVAN

April 8

What was charted as the highest mountain in Antarctica has been surveyed by a trail party and found to be more than 6,000 feet lower than previously estimated.

This has been reported by the four-man group after a journey of 500 miles from the United States base at Byrd Station. The peak was charted on the basis of a sighting by two planes, which flew from Little America in 1947.

Perhaps the most remarkable discovery of the trail party was the sprinkling of the ice sheet with volcanic rocks as far as seventeen miles from the peaks.

There was no other evidence of recent volcanic activity. How the rocks got there was a mystery. They averaged four to eight inches in diameter and were scattered about twenty feet apart in the region within two miles of the peaks.

As had been suspected from earlier sightings of mountains in this portion of Marie Byrd Land, all the peaks visited proved to be of volcanic origin. Antarctica has an active volcano in Mount Erebus, 1,000 miles to the west. There is also volcanic activity in the islands fringing Palmer Peninsula and the Weddell Sea.

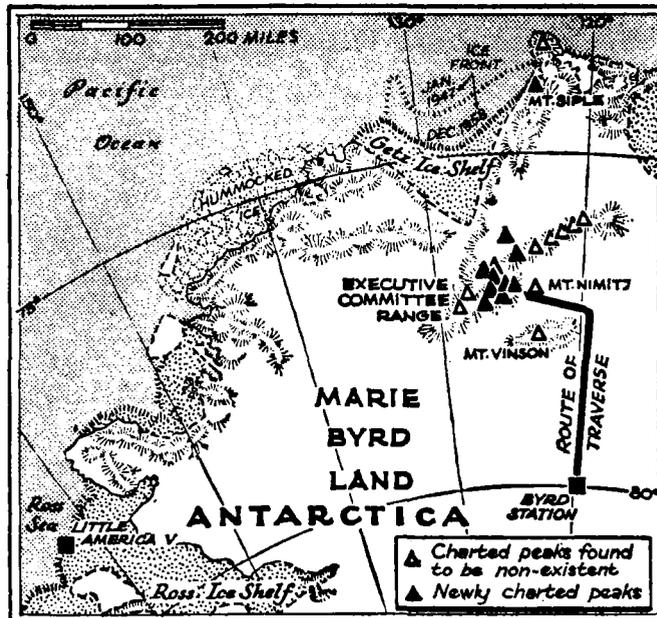
The trail party, as often happens in Antarctica, found the lay of the land radically different from that which had been charted on the basis of aerial sightings.

The mountain charted at 20,000 feet had been named Mount Vinson and a neighbor, Mount Nimitz, was listed as 16,000 feet.

The men on the ground found no mountains at all in those positions. However, about sixty miles northwest they found a summit 13,856 feet high that dominated the entire region. In all there were ten peaks, aligned north and south, near the area where earlier charts showed five mountains named the Executive Committee Range.

One gigantic crater was almost entirely filled with snow and ice. Only its rim showed above the surface. It was described as the Caldera.

The highest summit established in Antarctica by the



CHANGING FACE OF ANTARCTICA: Earlier maps have been revised by a trail party just returned from 500-mile journey into Marie Byrd Land and as result of flight over region last Dec. 21. An entire mountain range has been scrubbed and the coast moved many miles inland.

New Antibiotic Found In Antarctic Waters

BLACKSBURG, Va., Mar. 28 (AP).—A Virginia Tech scientist, just back from his second summer in the Antarctic, says an antibiotic he found there among the penguins may help save human lives.

Dr. John Sieburth, a young Canadian who is an associate professor of bacteriology, scaled a 1,000-foot mountain carrying test tubes and tugged at frozen sea nets until his knuckles bled.

But he feels he has found the first antibiotic which is important in nature. Besides, he says, it may be useful in combating "staph" diseases in hospitals and perhaps ailments in turkeys and chickens.

The antibiotic is named halosphaerin and it exists in Antarctic waters, where it at-

crude methods of a trail party was Mount Markham, roughly 15,000 feet high, overlooking the Ross Ice Shelf. It has a number of rivals awaiting scrutiny by the surveyor's instruments.

The trail party, which was out for three weeks, was led by John Pirrit, a glaciologist from Glasgow, Scotland. He is scientific leader of the American base at Byrd Station. His three companions were all Americans. They traveled in Sno-cats, a form of tracked vehicle.

tacks floating bacteria. Dr. Sieburth had to work backwards to find it.

Scientists long have noted that penguins and other birds of Antarctica have digestive tracts which are almost disease free, he says.

Dr. Sieburth and his associate on this year's voyage, Dr. Paul R. Burkholder, director of research at the Brooklyn Botanic Garden, discovered a small shrimp on which the penguins feed.

Next they found the shrimp eat a little green sea plant, phytoplankton. Finally it was learned these floating plants produce the antibiotic, which eventually works its way into the penguin's digestive tract where it fights disease.

All other known antibiotics, Dr. Sieburth explains, are produced by fungi in the soil and are so rapidly destroyed by other soil fungi that they appear to have no real purpose in nature.

Already the new antibiotic has been found to be active against staphylococcus aureus, a cause of boils and abscesses. Many so-called "staph diseases" in hospitals have developed strains which are resistant to the common antibiotics. Dr. Sieburth hopes his discovery will be effective against these infections.

Little America Ice Gathering Since 733

LITTLE AMERICA, (AP).—Glaciologists now estimate that the 850 feet of snow and ice underlying Little America has been accumulating since 733 A. D.

They arrived at this figure after drilling into the Ross ice shelf, on which the camp is situated. From samples taken at various depths down to 174 feet, they calculated the annual accumulation of water equivalent is 8.3 inches. They are able to tell a year's accumulation because layers form and can be counted like the rings on a tree.

In a report on the drilling operation, the International Geophysical Year office here said:

"Assuming this figure for water equivalent to be representative of the total thickness, and 850 feet to be the total thickness of the shelf, then Little America rests upon 1,225 years of accumulated snow"—much of it turned to ice.

SOUTHERNMOST CHURCH

16-by-16 Chapel Is Dedicated
at South Pole

SOUTH POLE STATION, Antarctica (RNS)—A permanent 16-by-16-foot chapel was dedicated by the seventeen United States servicemen manning the Scott-Amundsen Station at the South Pole.

Lieut. Sidney Tolchin, officer in charge of the group wintering at the post, reported that "now it can truly be said the earth turns on a point of faith." The church will never lose its title of "the southernmost church in the world."

Each of the men takes his turn every Sunday in giving a sermon on his own faith, Protestant, Roman Catholic, Jewish or Buddhist. No chaplain has been available because of the post's isolation from the rest of the world.

A sign over the entrance bears the words, "The Chapel of Our Faith." Inside, an altar is adorned with candle holders and a reversible Catholic and Protestant cross.

In a message to the men here, Rear Admiral George Dufek, commander of the Naval Support Force, Antarctic, said that "faith is what the world needs and it is an inspiration to all of us to know that at the bottom of the world there is a place of worship for all every hour of the day."

ADMIRAL LEAVES ANTARCTICA POST

Dufek Turns Over Command of Deep Freeze to Tyree

By PHILIP BENJAMIN

Rear Admiral George J. Dufek relinquished his post April 14 as commander of United States Naval Support Forces, Antarctica.

As he did so, Admiral Dufek, who first went "down to the ice" twenty years ago, predicted that the next ten years would see the establishment of commercial air routes over the South Pole.

In a sunlit ceremony here aboard his flagship, the Navy icebreaker Glacier Admiral Dufek turned over his command to Rear Admiral David M. Tyree, a 1925 classmate at the United States Naval Academy.

The ceremony took place at 10:30 A. M. on the fantail of the Glacier, berthed at Forty-sixth Street and the Hudson River. Before the ceremony Admiral Dufek held a news conference—his last as head of Operation Deep Freeze—in the icebreaker's wardroom.

For the last four years he headed the operation that supported United States research in Antarctica under the International Geophysical Year.

The 56-year-old admiral, who retired in 1955 but was retained in command status by a special act of Congress, will leave the Navy in September.

At the change-of-command ceremony a Navy band played "Ruffles and Flourishes" and "The Admiral's March" as Admiral Dufek inspected an honor guard. After a brief speech he gave the order: "Haul down my flag." The blue flag with the two stars was hauled down. It was presented to him by Comdr. Joseph A. Houston, the Glacier's captain.

After the ceremony, Admiral Dufek was given a luncheon by the New York Council of the Navy League at the Waldorf-Astoria Hotel.

ANTARCTIC MEASURED

Continent Found Much Smaller Than Its Ice Sheet

PASADENA, Calif. (Science Service)—The Antarctic continent is much smaller than its ice sheet cover, two seismologists of the California Institute of Technology here have found from studies of earthquake waves.

Dr. Frank Press and Dr. Gilbert Dewart said they had found that, at most, three-



Admiral Tyree, left, accepts stuffed penguin from Admiral Dufek. The retiring admiral, who was commander of U. S. Naval Support Forces, Antarctica, will leave Navy in fall.

DOCTOR EXPLAINS POLAR HEADACHES

Psychiatrist in Antarctic Says It Isn't the Cold, It Is the Humanity

CHICAGO, May 9 — Life in the Antarctic can be just one long headache, but it isn't the cold, it's the humanity, according to a Navy psychiatrist.

The psychiatrist, Capt. Charles S. Mullin Jr., chief of

fourths of the Antarctic ice sheet is underlain by continent, the remaining area being oceanic in structure. They also found that larger areas of the Antarctic land mass lie below sea level than has been thought.

Their results support the idea that the below-sea-level depths observed in measurements of ice thickness are primary features, not the result of the crust's sagging under a heavy ice load.

Dr. Press and Dr. Dewart base their conclusions on the higher-than-expected speed with which certain earthquake-generated waves traveled across the Antarctic continent.

the Neuropsychiatric Service in the Naval Hospital in Philadelphia, wrote in the American Medical Association Journal issued this week that men stationed near the South Pole during the recent International Geophysical Year frequently complained of headaches.

But the pain-in-the-head was apparently emotional in origin, he said. One catharsis, he reported, was violent and profane mutual insult, more in jest than in anger, but a technique confined to the enlisted men. The officers and civilians in the expedition apparently were afraid to unbend to the same extent, the studies indicated.

The A.M.A. office here, where the journal is published, said Captain Mullin was with the I.G.Y. parties during October, 1958.

Men living in close quarters for a year, he said, realized that they must control their feelings of aggression and mutual hostility, and the result was tension.

Medical officers on the scene reported, Captain Mullin noted, that few if any of the headaches could be attributed to eye strain, poor ventilation, fatigue, cold, hunger, sinus trouble or to other common causes for headaches.

As for the cold, most of the discomfort was reported during

the coldest periods when outside activity was at minimum, he said.

Captain Mullin said that a notable discovery was that there was a "remarkable" absence of either physical fights or hostile-angry arguments at small stations.

He explained that the men recognized the need for self-control and for avoiding open arguments because each man realized how dependent he was on the good will of his fellows in a "tight little world."

But, the captain said, such an abnormal control effort could not be achieved without paying for it in accumulated tension.

The enlisted men, Captain Mullin reported, did more violent swearing, engaged in vigorous horseplay and had "an interesting technique of exchanging frank and fearful insult, often quite personal and to the point but apparently rarely reacted to with much if any anger."

"The more sophisticated scientist-officer group was more limited in the effective techniques available and were perhaps under greater self-imposed necessity for careful control of their aggressions; hence their preponderance of headaches," the Captain said.

BOTTOM OF WORLD VAST DOME OF ICE

Meteorologists of 10 Nations
Discuss the Antarctic—
Summarize I.G.Y. Data

MELBOURNE, April 4 (Reuters)—The bottom of the world is a vast dome of ice, shaped like an inverted soup plate, and from whose edges the strongest winds in the world stream to the polar seas.

Over the ice sheet lies a "skin" of cold air, 1,000 feet thick, sending temperatures down to the lowest point they reach on earth.

This is the picture of Antarctica that emerged from the discussions at a week-long symposium on Antarctic meteorology.

Several of the meteorologists from ten nations who attended a symposium here came directly from a year's work at antarctic weather stations.

Representatives were present from Australia, Britain, the United States, the Soviet Union, Japan, France, Belgium, South Africa, Argentina and New Zealand.

The symposium was organized by the Australian Bureau of Meteorology, under the auspices of the Australian Academy of Science.

The pooling of information and opinions by scientists summarized the results of work done during the International Geophysical Year and produced the clearest picture yet of this frozen continent.

Reviewing it, the chairman, W. G. Gibbs, said that it had been pervaded by the spirit of international cooperation, typical of the I.G.Y.

"One of the interesting facts it revealed is that Antarctica is shaped like an inverted soup plate," he said. "By far the greatest porportion of the continental mass is made up of ice, on the average about 7,000 feet thick. This means that if the ice were melted from Antarctica, it would be a considerably smaller and lower continent than it is."

Mr. Gibbs, who is the assistant director for research in the Australian Commonwealth Bureau of Meteorology, said that since the establishment of inland stations in Antarctica it had been proved that it was the coldest continent on earth.

Stating that the symposium had devoted a considerable amount of attention to the phenomenon of "down-slope" winds, which blow strongly down the sloping portions at the edge of the icecap, he said:

"Apart from wind in tropical cyclones and tornadoes, these are the strongest winds experienced anywhere on the earth's

Poles 'Migrate' 6 In. Annually, Siple Finds

WEST POINT, N. Y., June 24.—A noted polar explorer today advanced new reasons to support an old theory of why coal and other tropical fossil remains are found in ice-caked Antarctica near the South Pole.

Dr. Paul A. Siple, who has spent more time on that conti-

Climb Volcano In Antarctica

WELLINGTON, N. Z., Jan. 18 (UPI).—Mount Terror, an 11,400-foot volcano in Antarctica, has been climbed for the first time, it was reported today.

Three New Zealanders, Bruce Alexander, Michael White and Jim Wilson, all of Christchurch, scaled the ice-covered peak and said they had a "magnificent" view of the surrounding desolate terrain.

It was the third major peak in the McMurdo sound area of Antarctica to be climbed this season.

surface."

The symposium also provided a great deal of information about meteorological conditions in the upper air, and made possible, for the first time, an understanding of what the air was like and how it behaved above the Antarctic continent.

Scientists found that in the Antarctic summer the temperature five miles above the ice sheet was not noticeably colder than in areas nearer the Equator, and that it increased with altitude.

However, in winter, the temperature decreases with altitude, reaching minus 120 degrees Fahrenheit at about 80,000 feet.

"Strangely enough, the only other part of the upper atmosphere in which such low temperatures are recorded is over equatorial regions," Mr. Gibbs said.

The symposium also reached broad agreement on the general nature of the Antarctic's weather systems. I. G. Y. scientists found that very strong "cyclonic vortices," whirlwinds on a vast scale, dominate the region and have a profound effect on the weather of other continents in the Southern Hemisphere.

Whale Oil Industry

More than 15,000,000 gallons of whale oil were being used in the United States in 1859, when completion of the world's first commercial oil well in Titusville, Pa., doomed the whale oil business.

ment than any other man, suggested the poles have migrated. The South Pole has slowly "walked" around the earth to now pass through once-tropical Antarctica; or, more accurately, the entire earth has very slowly revolved over the ages in a direction perpendicular to its east-west spin.

"The North Pole seems generally to be moving toward the 70 degree meridian," which passes through Cape Cod, he said. "The South Pole is moving toward 110 degrees east," which is toward the western part of Australia.

Dr. Siple, who first went to the polar regions in 1928 as an Eagle Scout with Adm. Richard Byrd's expedition, said the axis around which the earth spins is migrating at about six inches a year, or about 100 miles in a million years.

Evidence suggests that large scale events, such as glaciation changes, could unbalance the earth from time to time much more than it is being unbalanced today," by slow crustal shiftings and movements inside the soft interior of the earth." However, the unbalance would never cause a sudden topple, but rather only an acceleration of the process just described."

He presented photographs to the Army Science Conference meeting here, which showed that the South Pole migrates in a circle ten to eighty feet in diameter over a fourteen-month cycle, but does not return exactly to its starting point at the end of the cycle. Instead, it is displaced about six inches toward Australia.

He also showed films of experiments he conducted with a small sphere and semi-plastic and hard crusts, simulating the spinning earth and surface effects from the spin. The crust split apart under centrifugal force, suggesting this means for the creation of continents. Some pieces which remained at the split suggest underseas mountain ranges similar to those in the Antarctic and Atlantic oceans, he said.

The scientist, who led the American team that spent more than a year at the isolated South Pole station during the International Geophysical Year,

concluded that "a combination of polar movement, crustal shifting and climatic changes has led to the complex geological history of the earth's crust."

Previous theories held that Antarctica broke away from other land masses during crustal splitting, but they have been discarded because any floating mass would tend to migrate toward the equator, where the centrifugal force from the earth's spin is at its maximum, rather than in the opposite direction. Dr. Siple's novel theory requires no actual migration of the continent, only the movement of the poles.

U. S. Icebreaker Aiding Belgian Antarctic Base

WASHINGTON, Feb. 15 (UPI).—The Defense Department said today the damaged icebreaker Glacier, guided by helicopters of a sister ship, the Edisto, is plowing its way steadily through an Antarctic ice pack to supply a Belgian base at the bottom of the world.

Last week the Boston-based Glacier hauled a Belgian ship, the Polarhav, out of an ice jam. The Polarhav, escorted by the Glacier, was carrying supplies to the Belgian base. The Polarhav could not negotiate the iced sea, so the Glacier took over the supply job, the department said.

In hauling the Polarhav loose, the Glacier lost a propeller blade. The Glacier and Polarhav also lost their helicopters, used in scouting the icy path to the base. The Edisto, standing by with three helicopters, offered to do the scouting job.

Meantime, a British supply ship, the John Biscoe, off Palmer Peninsula, got stuck in the ice and called for help. The department said that as soon as the Glacier gets far enough along to dispense with the Edisto's helicopters, probably in a day or two, the Edisto will chug toward the John Biscoe.

2 Lost in Whaling Fleet

CAPETOWN, Mar. 21 (AP).—The British whale refinery ship Balaena, arriving today from the Antarctic, reported two crewmen of the British whaling fleet lost in stormy seas. Some crewmen described the weather during the whaling season just ended as the worst they ever had experienced.

Solid Barrier of Ice

Ice fields blocking the approaches to the Antarctic Continent are nine feet thick in places.

LAND MASS FOUND UNDER ANTARCTIC

Soundings by Soviet During Trek Shows Area Is Not Made Up of Islands

WASHINGTON, March 23 (AP)—Soviet scientists have turned up evidence of a continental land mass beneath a great part of the ice-covered expanse of Antarctica, United States scientists reported today.

The evidence was found, they said, in the section of the Antarctic where the Soviet has bases far inland.

While the presence of a broad, continuous land mass has been suspected, findings in other areas by other countries have been limited to discovery of mountain peaks and less extensive land areas that could have indicated islands rather than a continental land mass.

Dr. Harry Wexler and Morton J. Rubin of the United States Weather Bureau, two of the key scientists in the American Antarctic program for the International Geophysical Year, reported the accomplishment at a news conference.

They said the "positive" evidence of a continent had been found by the Russians during a long, over-ice trek made in the latter part of 1958 from their main base at Mirny on the Knox Coast to the "pole of relative inaccessibility"—a point about 1,400 miles inland.

Using dynamite charges, the Russians made seismic soundings about every thirty to fifty miles along the route. The explosions were employed to send sound-waves down through the covering ice and pick up echoes from underlying land. Mr. Rubin, a meteorologist, who spent fifteen months with Russian scientists at some of their bases, said:

"They found that everywhere beyond their base camp at Pionerskaya which is 250 to 300 miles inland from Mirny, there was definitely a continent in this region."

He said that while the extent of the continental land mass was not yet known, the evidence so far was that the topography of the land ranges from some areas 5,000 feet below sea level to others ranging as high as 10,000 feet above sea level. The ice is up to 3,000 feet thick above the high points.

The Ross Dependency

The Ross Dependency of the Antarctic, under New Zealand administration, covers 175,000 square miles.



Russians open Antarctic station Lazarev (cross).

Soviets Claim New Polar Base

LONDON, Jan. 19 (AP).

Radio Moscow said today a Soviet base has been established at the Antarctic pole of inaccessibility — the Antarctic's geographic center.

The base was set up by a Soviet sled and tractor train which returned to Russia's main Antarctic base at Mirny yesterday, the broadcast said.

"In 81 days," it added, "they covered about 2,672 miles from the Sovietskaya station to the pole of relative inaccessibility. The polar explorers crossed ground hitherto untrodden by human foot. Despite a constant lack of oxygen and severe frost, the Soviet scientists carried out systematic scientific observations."

In addition to serving as a center for scientific observations, the station also will serve as a half-way base for Soviet explorers planning a trans-Antarctic expedition during 1959-60, the broadcast said.

The Russians have also announced the opening of a new base in the Antarctic. Known as Station Lazarev, it lies on the coast of Queen Maud Land. The region, which is claimed by Norway, is on the opposite side of the continent from Soviet stations established earlier.

Station Lazarev was officially opened March 10. Its small wintering staff of seven men typifies the difference between the Soviet and American approaches to the manning of polar stations. The American outposts tend to be staffed by a score or more.

The Soviet station is to be the goal of a transcontinental tractor journey by a Russian team during the next two years.

Soviet Plans 30 Arctic Units

LONDON, March 11 (Reuters)—The Soviet Union is setting up a chain of thirty automatic meteorological stations and automatic radio transmitters on drifting ice floes in the Arctic Ocean, the Soviet press agency Tass reported today.

ANTARCTIC SEALS FOUND MUMMIFIED

Well-Preserved Finds Dated Back 'Hundreds of Years' by Soviet Discoverers

Soviet explorers have reported finding many mummified bodies of seals and other creatures in an Antarctic "valley of death."

Some of the mummified animals were said to be "hundreds, or maybe even thousands" of years old, but in excellent states of preservation. In some cases only the seals' eyes and some patches of fur were damaged, it was reported.

With the many bodies and skeletons of seals were found abundant remains of penguins, giant petrels and jaegers. Some of the birds also were mummified.

An abstract of the Soviet report was printed in the United States Department of Commerce's latest publication of "Information on Soviet Bloc International Geophysical Co-operation—1959."

The discoveries were made in the Vestfold oasis in a "valley of death" covering a distance of over 10 kilometers (about 6.2 miles) along the shores of bitter-saltwater lakes," the abstract said.

The Vestfold oasis is near a sharp indentation of the Antarctic coast line in the region between the Soviet base at Mirny and the Australian station at Mawson.

Conditions for the mummification were said to be particularly good on the banks of the bitter-salt lakes.

During the Antarctic winters the bodies were well preserved by the extreme cold, the report said. In the summers, even though the temperatures rose above the freezing point at the oasis, the mummification process apparently continued. This probably was possible because of the extreme dryness of the air and the absence of bacteria and insects, the report explained.

Mummified seals and birds have previously been found in other areas of the Antarctic.

Early last year Dr. Troy Pewe, a geologist of Fairbanks, Alaska, told of having found mummified seals on mountain tops in the McMurdo Sound region. Some of the carcasses were found far inland and at altitudes as high as 2,500 feet, according to his report. Dr. Pewe estimated that some might be 100 to 200 years old.

Antarctic Gales

Gales in the Antarctic have been known to reach a force of more than 100 miles an hour.

SOVIET SEEN STAYING LONG IN ANTARCTIC

MELBOURNE, March 18—The expectation that Russian scientific bases would long remain in the Antarctic was voiced yesterday by Richard G. Casey, Minister of External Affairs.

He made this statement after he and Nikolai Firubin, Soviet Deputy Foreign Minister, had announced the resumption of diplomatic relations between the countries.

Mr. Casey said he had discussed the Antarctic situation with Mr. Firubin, who is here to attend the meeting of the Economic Commission for Asia and the Far East.

The details of their talks are confidential, Mr. Casey added, because of discussions in Washington on a suggested treaty for the Antarctic. The treaty would establish freedom for scientific research and provide for non-militarization of the region "in an effort to keep it a quiet place forever."

U. S. Joins Search For Lost Flyers

BUENOS AIRES, Argentina, June 15 (AP).—A United States Air Force four-engine rescue plane yesterday joined four Argentine planes in the search for a six-man Argentine army patrol that has been lost for 40 days in Antarctica.

The United States plane is part of the equipment of Operation Crowflight, a mission based at Ezeiza Airport here for a series of stratospheric weather studies. The plane carried 10 United States and four Argentine airmen.

The lost patrol had been on a routine survey outing when it lost radio contact with its base in Hope Bay. Army officers said the patrol was well supplied with food and medicine, and had two dog sleds.

American Leaves Red Antarctic Base

CAPE TOWN, South Africa, Feb. 10 (AP).—Dr. Morton J. Rubin, a United States scientist, has arrived here after spending fifteen months at Mirny, the main Soviet base in the Antarctic.

Dr. Rubin, the only non-Russian at the base, was part of a Soviet-American exchange of Antarctic personnel and was responsible for maintaining charts on the upper atmosphere in the Antarctic.

SOVIET PLEDGES ANTARCTIC PEACE

Joins 11 I. G. Y. Participants
in Plan to Exploit Area
for Science Only

WASHINGTON, May 31 (UPI)—State Department officials said today the Soviet Union had given assurances that it would not try to establish military bases in Antarctica.

They said the Soviet Union had joined other nations in agreeing to respect the non-military development of the ice-covered area nearly as big as South America.

A twelve-nation conference next Oct. 15 in Washington will try to write a treaty to promote the peaceful scientific development of the Antarctic wastes. The Russian pledge was a key factor in making the parley possible.

While unwilling to speculate on the treaty's chances, the officials said they believed the biggest hurdles had been cleared in the last year.

It was on May 2, 1958, that President Eisenhower addressed the governments of the other eleven nations participating in the International Geophysical Year activities in Antarctica, seeking such a treaty.

It took almost a year to get all the parties to hold the treaty conference. In all, forty-seven meetings were held at which all twelve nations were represented.

The diverse views and policies on Antarctica held by the twelve nations contributed to the delay. Many had to be assured that their territorial claims to parts of the southernmost continent would not be affected by a treaty.

The President told them in his message that the legal status quo in Antarctica would be maintained for the duration of the treaty. He suggested that the treaty provide, specifically, that such rights and claims would remain unaffected.

The message was this country's strongest pronouncement about its own position on the territorial issue. The President said the United States Government "reserves all of the rights of the United States with respect to the Antarctic region, including the right to assert a territorial claim or claims."

As United States officials see it, the treaty will not internationalize the area. It would simply provide the means of exchanging scientific information gleaned from the numerous ex-

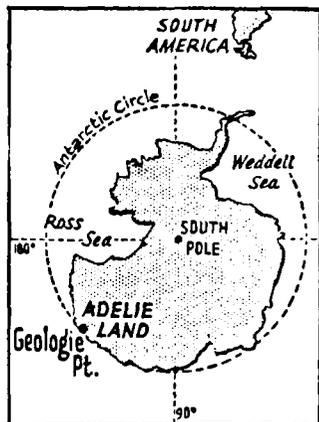
Antarctic Observer Finds Penguins Dying Out Fast

Feb. 15

The mysterious domestic habits of the emperor penguin, that formally dressed bird which stands almost four feet high, have been revealed by a French adventurer who spent ten months in Antarctica watching them.

The story he brought back is both comic and tragic. The penguins reverse the cycle of other Antarctic birds, returning to the ice shelf as the other birds leave, to bear and raise their young in the savage winter of that most savage continent.

At times, they act like caricatures of people. But tragically, they appear to be doomed. The Frenchman reports: "The emperors are dying out. Fewer leave and few return each year: Finally, it seems plain, there will be no emperor penguins."



Locating Geologic Point in
Adelie Land in the Ant-
arctic.

peditions already or about to take place.

The treaty would assure that peaceful conditions will continue indefinitely by mutual agreement, permitting development of scientific research and cooperation.

Nations that will attend the parley in addition to the United States and the Soviet Union are Argentina, Australia, Belgium, Chile, France, Japan, New Zealand, Norway, the Union of South Africa and Britain.

Antarctic Mountains Found

LONDON, Feb. 28 (Reuters)—Soviet explorers have discovered a mountain range in Antarctica near Princess Astrid Land, due south of the African continent, the Moscow radio reported tonight. The range towers some 1,500 to 3,000 feet over the ice and is 9,000 to 12,000 feet above sea level.

The Frenchman is Dr. Jean Rivolier, a Parisian physician who became an explorer and served with a French expedition to Antarctica in 1952. His account of life at the penguin rookery at Geologic Point is published in "Emperor Penguins"—an account of a near-human society almost as strange as the mythical one in Anatole France's satire, "Penguin Island."

A shorter account by Dr. Rivolier appears this month in "Natural History," the magazine of the American Museum of Natural History. A summary follows:

In early March, the first emperors begin to pop from the sea onto the ice at the edge of the land and make their way to the rookery. By the middle of April, 10,000 are congregated there.

During the first weeks, the emperor acts, as well as dresses, like the idle rich. "Immobility is, in fact, the most characteristic feature of the emperors' behavior," Dr. Rivolier writes. He explains that the penguin "cannot afford to generate heat simply to waste it."

In April, the birds begin to pair off, the males choosing mates by singing love songs. During courtship, triangles develop and a bachelor colony is formed from the unrequited. When the Antarctic blizzards come, the birds survive by huddling together in a solid, oval-shaped mass.

The eggs are laid directly on the ice, starting on May 5—a single egg to a couple. The female rolls it on top of her feet to keep it warm in a fold of skin, and at interval shows it to her triumphant mate. "The male looks at it, gestures and breaks into song."

But within a few hours, the female emperor transfers the egg to the male and soon afterward starts in company with other females toward the sea for food.

By this time the sea has frozen until the ice shelf extends 125 miles from land. By the time the females reach the sea, gorge themselves on food and return, the males have gone without food, except for snow, for four months. As soon as their mates get back, the male return the eggs and make for the ocean.

About four-fifths of the eggs are successfully hatched by July. The chicks feed by sticking their heads inside the mouths of their mothers, who regurgitate.

By September, the males are back from feeding and within a month the colony begins to move back toward the sea. In November, they meet the yearlings who were born the previous year and have spent the intervening months up north. The yearlings are returning to the rookery to molt.

By December, the adults and chicks have reached the sea. They drift away on rafts of ice to an unknown destination farther north.

Two emperor penguins, of unknown sex, live in New York. They may be seen in the Penguin House at the Bronx Zoo.

EAST-WEST LINK HAILED

Cooperation in Antarctica
Pleases Soviet Scientist

MOSCOW, Feb. 11 (Reuters)—A Soviet geophysicist who spent about a year at the Little America base in Antarctica reported "deep satisfaction" today at collaboration shown him there.

The scientist, Pavel Astapenko, represented the Soviet Academy of Sciences at the international weather center at Little America where American, French, Australian, Argentinian and Soviet representatives worked side by side.

Mr. Astapenko said the experiment in working together had been most beneficial, and had fully justified itself.

Thanks to the businesslike and friendly relations between the scientists, observations were undertaken that would undoubtedly contribute to knowledge of the Antarctic, he said.

ANTARCTIC PARTY LANDS

Australians Set Foot on Oates
Region for the First Time

MELBOURNE, Feb. 23—The Australian Antarctic Expedition made its first recorded landing on Saturday on the coast of Oates Land on the extreme east of Australia's Antarctic territory.

No important rock features now remain undiscovered in any part of the territory.

The Department of External Affairs announced the landing in Canberra today. Four previous attempts to land there had failed.

Philip Garth Law, expedition leader aboard the Magga Dan, radioed today that a survey had been made and the Australian flag hoisted. While some of the landing party erected a cairn on a peak 800 feet high, the region was examined by a geologist, glaciologist and zoologist.

Antarctic Deep Freeze

Seismographic measurements in 1958 revealed some ice in the Antarctic reaches down 14,000 feet.

SOVIET EXPLORERS TRAVEL IN STYLE

Russians Who Will 'March' Across Antarctic Will Go in Air-Conditioned Vehicle

MOSCOW, May 9 (Reuters)—The Soviet explorers who will "march" across the Antarctic icecap this year will do so in foam rubber armchairs and in air-conditioned comfort.

Russian engineers have built a new Antarctic vehicle that is hermetically sealed and can sleep six people.

Three of the vehicles already have successfully passed their trials on the South Pole icecap and will be used by the fourth Soviet Antarctic expedition when it sets out later this year.

This will be the longest Antarctic trek in history, more than 1,000 miles longer than the Commonwealth trek, led by Sir Vivian Fuchs and Sir Edmund Hillary.

The builders of the new snow tractor report that its crew can travel across the icecap and carry out a complicated program of seismic depth recordings and other research without stepping outside the cozy vehicle.

At the end of the day's work, while blizzards rage, the crew will be able to take a warm shower before having dinner.

Mail from home, dropped by aircraft, can be read under the tractor's electric table lamps.

Although the tractor is, in fact, a hermetically sealed traveling laboratory, every effort has been made to preserve the domestic touch.

There is brown linoleum on the floor. Curtains strung across the nine portholes, through which the crew views the world of ice and snow, serve to keep out the glare and to remind the men of civilization.

Green synthetic leather covers the walls of the living compartment, which is cut off from the radio room, the navigator, driver, cook and other purely functional sections of the tractor.

Powerful air conditioning plants send jets of warm air through nozzles into every corner of the interior and between the double thickness glass portholes to prevent frosting.

Warmth is kept inside by eight layers of cotton, each layer covered with airproof cloth, attached like skins to the duraluminum and steel frame.

Automatic fire extinguishers complete the devices installed for the comfort and safety of the explorers.

Even more important for the crew is that apparatus for carrying out a broad program of Antarctic research is fastened



The Sakhalin dogs which were last seen at the Showa Base on Antarctica when they were left there

Two Dogs Survive Year Deserted in Antarctic

TOKYO, Jan. 15 (AP).—Japan's press, radio and public erupted with ecstasies of delight today at the news that two of 15 husky dogs abandoned in the Antarctic 11 months ago had been found alive.

"Two Dogs Survive!" headlined Tokyo's big dailies in type normally reserved for the death of Stalin, the outbreak of war and similar events.

Radios blared the news hourly. Newspapers, radio stations

to the exterior hull of the tractor so that the scientists can jot down their data in the warmth inside the vehicle. Even seismic recordings with the use of explosives can be effected from inside.

A perspex blister mounted on the metal roof of the tractor provides for astro-navigation without letting in the cold.

Day-to-day radio contact with the main Soviet base at Mirny is to be maintained by a radio transmitter using a twenty-foot mast fixed to the tractor's flat top.

Before it left the Soviet Union, the new tractor was named "Kharkovka," after the plant that produced it. But after a workout with specialists at the South Polar station of Mirny (which means "peaceful" in Russian), it was re-named "Hero."

and news agencies were flooded with calls for more information. There was as much rejoicing as there had been protest when the dogs were left behind last February.

A six-man advance party was flown by helicopter last night from the Antarctic expedition ship Soya to reopen the deserted Japanese base on Ongul Island. Masamk Murayama, leader of the party, radioed back that the two dogs came bounding up, wagging their tails in greeting. He said they were in good condition.

Mr. Murayama's first message gave no word of the other 13 dogs, or of how the two had managed to survive.

The 15 sled dogs, members of the vanishing Japanese Karafuto breed, were left behind when heavy ice kept the Soya from reaching the base to restock it for the Antarctic winter. Bad weather halted flying after removal of the 11 Japanese scientists who had staffed the base and nine other dogs.

The huskies left behind were tied up and had food for only a few weeks. Some Japanese dog lovers speculated that the two who greeted Mr. Murayama had broken their ropes and kept alive on penguins and penguin eggs.

Abandonment of the dogs had brought nation-wide demands that they be saved.

Penguin Has Lesson For Human

MCMURDO SOUND, Antarctica (AP).—The penguin, it seems, carries a built-in thermostat which keeps him warm in cold weather. He may provide lessons for men exposed to cold for a long time.

A British doctor believes a little systematic exposure might make man's life in the Antarctic much more endurable, if still not quite a thing of splendor.

Dr. R. Goldsmith, of the Medical Research Council at London, has been studying human adaptability to cold in Antarctica. He has tested the formidable constitution of the polar continent's most dignified inhabitant, the emperor penguin.

Several emperors were captured and brought aboard the icebreaker Staten Island. One, a fuzzy youngster which had not yet started to grow its tuxedo, was taken into a laboratory. The doctor let it stand there for a considerable time temperature which few penguins ever have to deal with. Then, suddenly, the bird was put into a freezer in which the temperature had been set at 55 below zero. A little space was left open so that the penguin could breathe.

The penguin was in the freezer for a couple of hours, but its temperature remained almost constant—as it had at 85 above.

"It did shiver a little after a time in the freezer," Dr. Goldsmith said, "and it panted at plus 85, something like a husky dog."

But it was obvious that the penguin regarded the ordeal as a childish simple trick.

Fire Razes Antarctic Huts

MELBOURNE, Australia, March 31 (AP)—Fire destroyed two huts last night at Australia's Antarctic naval base at MacQuarie Island and destroyed valuable scientific equipment. Philip Law, Australian Antarctic director, said important scientific equipment and records, which were part of Australia's contribution to the International Geophysical Year, had been destroyed.

Old Institution

The oldest geographical research institution in the United States is the American Geographical Society, which was established in 1852.

CHERRY-GARRARD, EXPLORER, DEAD

Member of Scott Antarctic Expedition Wrote 'Worst Journey in the World'

LONDON, May 18—Apsley Cherry-Garrard, polar explorer and a member of Robert F. Scott's last Antarctic expedition in 1911-12, died here today after a long illness. He was 73 years old.

Mr. Cherry-Garrard, one of the youngest of Scott's civilian officers, was the only officer fit enough to trek toward the five-man party returning from the South Pole, a month after it had been discovered by Roald Amundsen, the Norwegian explorer. With a Russian boy dog driver he reached a depot 130 miles from the base ahead of Scott's estimated time of arrival.

The question of whether he should go further in a bid to link up with Scott was settled out of hand by the boy's collapse. It was later known that the nearest of the two parties were to each other was seventy miles.

During the Antarctic winter Mr. Cherry-Garrard helped to plan a search journey for the Scott party, all of whom were found dead. It was he who suggested the epitaph for Captain Oates—"Hereabouts died a very gallant gentleman." Oates, helpless from a badly frozen leg, had left Scott's party so as not to slow them up.

Mr. Cherry-Garrard also suggested the epitaph for the Memorial Cross to the South Pole party—"To strive, to seek, to find and not to yield."

Although not fully recovered from his polar journeys, Mr. Cherry-Garrard commanded an armored-car squadron after the outbreak of World War I. He was soon invalidated from the service and wrote a classic of polar narratives, "The Worst Journey in the World."

CAPT. STEPHEN D. ROSE

MARBLEHEAD, Mass., March 14—Capt. Stephen D. Rose, U.S.N., retired, a member of Admiral Richard E. Byrd's second Antarctic expedition in 1934-35, died today at his home. He was 62 years old.

Captain Rose received the Navy Cross for his service on the expedition. He graduated from Dartmouth College in 1913 and joined the Navy two years later, retiring in 1949.

Surviving are his widow, Dorothy, and a son, Lieut. Comdr. Rodney Rose, U.S.N., of Charleston, S. C.

Augustine Courtauld Dies at 54; Explored Greenland in Thirties

LONDON, March 3 (Reuters)—Augustine Courtauld, Arctic explorer, died in a hospital here today. He was 54 years old.

During the British Arctic air-route expedition of 1930-31, Mr. Courtauld was marooned for five months on the Greenland ice cap.

In 1931 he married Miss Mollie Montgomerie, who accompanied him on the 1935 British East Greenland expedition. He received the Polar Medal in 1932 from King George V.

Major Story of Period

Mr. Courtauld's rescue from the Greenland ice cap in 1931 was one of the bigger exploration stories of that period.

For the last six weeks of his stay, the young meteorologist was snowed in in his igloo and the world feared for his safety. His rescue was accomplished after a Swedish aviator, Capt. Albin Ahrenberg, sighted his abode. A British party headed by H. G. Watkins sledged in from a British base camp to find Mr. Courtauld well and able to walk.

Mr. Courtauld later made light of his plight, but it went into the records as one of the sagas of man's ability to withstand extreme elements. The chimney had been the only opening in his igloo. For a month he was without light except for a small gasoline lamp, which he also used to melt snow for drinking water.

He said he had spent most of the time in his sleeping bag, dozing, thinking and telling himself not to give up hope. He also had achieved the purpose of his stay—to make weather observations that never had been made up to that time.

His observations were part of a project to find a pioneer Arctic air route. The expedition continued throughout 1931 after his rescue.

Mr. Courtauld studied at Trinity College, Cambridge. He served as a lieutenant in the British Navy during World War II.

Surviving, besides his widow, are four sons and two daughters.

Comdr. Crofford, Made Antarctic Trip With Byrd

WASHINGTON, May 30

Lt. Comdr. William N. Crofford, jr., USN (ret.), active member and resident of the Army-Navy Club, died Thursday of a cerebral hemorrhage at the club, Farragut square and I street n.w.

Comdr. Crofford was commissioned an ensign in 1921, and served continuously in the Navy with many ships and stations until his retirement in January, 1947.

From 1934 to 1937 he was with the Asiatic fleet in China and the Philippines and served on the USS Bear, Rear Admiral Byrd's flagship during the 1939 expedition to the Antarctic.

He was on duty in both the Atlantic and Pacific during World War II. After his retirement he considered Memphis, Tenn., his home but spent much time in Washington.

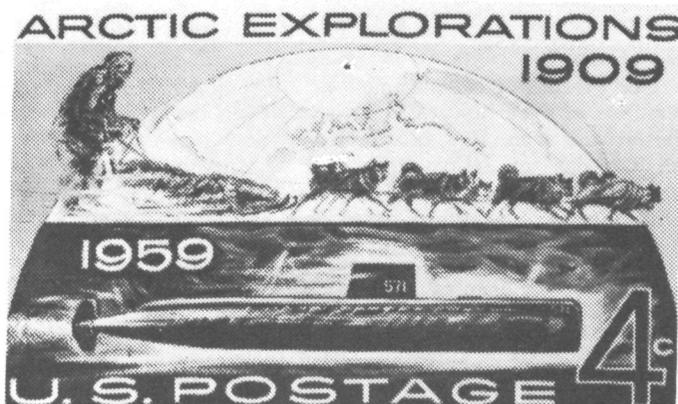
DR. R. S. ROBERTSON ARCTIC DENTIST DIES

Cobourg, Jan. 10—Known as the "Arctic dentist," Dr. R. S. Robertson, 69, died at his home here after a long illness. Dr. Robertson made numerous trips to the Arctic on the government supply ship C. D. Howe to treat Eskimos. An expert amateur photographer, he took many scenes of the North including photos of Eskimo life and was in demand as a lecturer by service clubs and other groups.

Dr. Robertson was born in Cornwall and was a graduate in dentistry at the University of Toronto. He practised for a time in Cornwall before coming to Cobourg 23 years ago.

ANTARCTIC

Australia's Postmaster General C. W. Davidson sends word that 4-pence, 7p, 1-shilling and 2sh3p stamps are to be issued for use in Australian Antarctic Territory, the items to be valid also within Australia. A sledge, dog team, penguins and a map of the territory will be illustrated on several values. The 4p will present portraits of Sir Edgeworth David, Sir Douglas Mawson and A. F. McKay, who were the first persons to reach, early in 1909, the South Magnetic Pole. They were members of an expedition headed by Sir Ernest Henry Shackleton (1874-1922), British explorer.



Arctic Stamp Honors Peary and Nautilus

The 4-cent Arctic Explorations stamp was issued April 6 at Cresson, Pa.

Cresson is the small town near Altoona in central Pennsylvania where Peary was born in 1856. It was on April 6, 1909, that the veteran Arctic explorer, after two failures, finally reached the Pole by dog-sled, accompanied by his Negro attendant, Matthew Hensen, and four Eskimos.

The Nautilus left Honolulu on July 23, 1958, surfaced briefly off Point Barrow,

Alaska, on August 1, and reached the Pole on August 3. It traveled 1,830 miles under the ice, surfacing August 5 between Spitzbergen and Greenland.

A second nuclear submarine, the Skate, made the crossing in the opposite direction a week later.

The dog-sled and submarine design is the work of George Samerjan of New York, whose background for the assignment included a flight to the Pole while making documentary sketches for the Air Force.

Shackleton's Voyage

Endurance: Shackleton's Incredible Voyage, by Alfred Lansing. New York: McGraw-Hill Book Company. 282 pp. \$5.

By Herbert R. Nichols

Scattered throughout the world today are several thousand young men who consider themselves experts on the Antarctic—thanks to the International Geophysical Year, the greatest international mass attack ever attempted on scientific problems in a single category. They are the true critics of Alfred Lansing's first book. They have been there.

For them this book will revive poignant memories. With double-plated steel ships, ice-breakers, helicopters, planes, weasels and crevasse detectors they have minutely inspected Antarctic crags, crannies, and ocean depths as time and individual interests dictated. It is particularly fitting that it should have fallen to the lot of a British group under Sir Vivian Fuchs to carry out the original plan of Sir Ernest Shackleton, completing 40 years later the first trans-Antarctic surface crossing from the Weddell Sea to McMurdo Sound by way of the South Pole.

Shackleton's plan was purposeful, simple and bold. That he was unable to bring it off himself was more the result of extreme vagaries of Weddell Sea ice and weather in 1914-15, coupled with the disadvantages of a deep-draft wooden ship, than any lack of planning, experience or stamina. When his ship, the *Endurance*, was trapped in pack ice some 60 miles offshore from where Sir Vivian's advance base was to be established in 1955-56, its hull could not withstand the tremendous force of what has been described as "the cruelest ice in the world."

Twenty-eight men got out and walked. They camped in tents on slush-topped ice floes (which gradually crumbled away). They fried flour flavored with dog pemmican to make "bannock," and concocted "hoosh" out of penguin, seal meat, or whatever else the cook could find to put in the pot. Bathless for months on end they "cold-creamed" their faces with blubber—almost cried with homesickness once when they smelled the fragrance of a burning twig, found among some seaweed. Many believed they would never get out alive.

From besetment on Jan. 18, 1915, until the *Endurance* sank on Nov. 21, the expedition was encased in solid pack ice, helplessly drifting clockwise to the north, always away from their hoped-for landing point. From December to mid-April they

sledged, drifted, paddled, and were blown out of the pack to a scarcely hospitable "beach" on Elephant Island near the tip of Palmer Peninsula. There they up-ended two of their three open boats and took shelter beneath. Meanwhile Sir Ernest and five associates sailed and rowed a 22-foot double-prowed whaleboat 870 miles across the cruel open ocean of Drake Passage to bring help from South Georgia Island.

This navigational feat alone stirred the admiration of seagoing men everywhere, but none more than the four veteran captains who greeted Shackleton and his navigator, Capt. Frank Worsley, after their arrival at Stromness, S.G. From a landfall on the opposite side of the island they crossed an "impassable" mountain barrier with only 50 feet of rope, a carpenter's adze, and shoe caulks fashioned from

screws drawn out of the hull of their tiny craft. Never before, and only once since, have mountaineers been able to come close to duplicating this crossing. With the help of a Chilean sealer, on Aug. 30, 1916, almost four months after completion of the perilous voyage to South Georgia Island, Shackleton made his way back to Elephant Isle to pick up the castaways. Not a man was lost.

Without doubt this painstakingly written authentic adventure story will rank as one of the classic tales of the heroic age of exploration—a time, now past, when daring leaders accomplished great feats with few men, cockleshell ships and hard-tack. It is a fitting companion volume to "Shackleton and the Antarctic" by English authors Margery and James Fisher. Fly-leaf charts of the Weddell Sea fore and aft, a sprinkling of meaningful photographs and drawings by expedition photographer J. F. Hurley and artist George Marston, division off the story into seven major parts, and a handy one-page list of expedition members and their job assignments help the reader follow Shackleton's icy trek.

The perpetual argument about whether Sir Ernest and his five picked men could have survived the long overland journey to the Ross Sea had they been able to get ashore is one that probably will never be settled. Certainly if personal leadership, physical ability, individual initiative, experience, preparation and audacity count for much, he might have made it. Yet Sir Vivian Fuchs with heated track-vehicles and powerful radios, guided by reconnaissance planes and dog teams, was several times urged to give up. Though he did achieve Shackleton's goal, it was a torturous experience.

Jan. 19

Since the recent establishment of the International Whaling Commission, a mass of altogether new data on the subject has become available. Paul Budker, a member of the commission, has drawn upon this and on his own wide experience to write "Whales and Whaling." Macmillan will issue it next Tuesday. Mr. Budker is director of a whaling research center and sub-director of the National Museum of Natural History.

Air-Conditioned World Under the Pole . . . By Frederick W. Roevekamp

Nautilus 90 North, by Comdr. William R. Anderson, USN, with Clay Blair, Jr. New York: World Publishing Company. 251 pp. Illustrated. \$3.95.

The technological magic of the USS *Nautilus* at once captures the visitor. Even the casual one who, like this reviewer, saw her on the day of return from her transpolar voyage. Moored at a Brooklyn Navy Yard pier, with only her low stubby-nosed deck and huge unlike sail sticking out of the dirty, rain-pelted harbor water, she seemed like an ugly creature of the deep eager to get back into her element.

But after a few steps past the lone guard in the dripping poncho who quickly raised the hatch that is almost flush with the deck, one descended into a warm, dry, pastel-shaded, air-conditioned world of comfortable security. It is a stark contrast whose initial impact does not fade quickly: somehow it is not easy to forget the cold wet grayness above.

There are many such contrasts in this book by the commander of the *Nautilus*. When his submarine dived under the ice for the first test of 150 miles—a mere dip compared with the 1,830 miles she ultimately traveled under the polar cap—it was done to the mellow voice of crooner Pat Boone singing "Love Letters in the Sand," one of a hundred selections in the crew's mess juke box.

There also are many instances of the hearty humor which helped to loosen the tension of one of the least predictable of peace-time naval assignments. There are plenty of sidelights on the thick secrecy in which the trip was wrapped: the two polar experts to go on the mission were smuggled on board and hidden until sailing time, orders were passed by word of mouth, some top Pentagon officers were excluded from planning discussions, and others had to travel in civilian clothes and under assumed names. As a result the news of the trip

was free of the kind of advance publicity which did so much to weaken the impact of some other recent military achievements in the United States.

Somewhat marginally the reader learns how the idea for the voyage was born, how divided were Pentagon officials about its chances, and how special interest on the part of the White House apparently helped to push the project along. And there are the moments of danger which challenged the crew's courage and ingenuity. It is the story of the men in and around the *Nautilus* which emerges perhaps most clearly—men like the two sailors who worked 12 hours in the Arctic wind to straighten a periscope which had been bent in an attempt to surface through the ice. These same two men on a subsequent test trip successfully fought a dangerous fire in the engine room.

Commander Anderson's modesty about his own role in the history-making trip has the effect of delineating even more prominently the achievements of others. The man to whom he gives the most generous and enthusiastic praise is Rear Admiral Hyman G. Rickover, the ingenious, individualistic, uncompromisingly determined "father of the atomic submarine" to himself. It makes bitter but salutary reading to learn in retrospect that Admiral Rickover's proposal for an atomic submarine back in 1946 "threw many people into uncontrollable spasms of laughter." At that time a nuclear reactor was about the size of two city blocks.

Without perhaps intending to do so, the book leaves one with at least one compelling question: Is enough being done to assure that other men with similarly driving visions of possibly crucial objectives are given the freedom to pursue them? Obviously, such men may irritate organization routine and personal sensibilities. But can the nation afford to shun such minor inconveniences in the day-by-day search for a more effective defense? Without articulating that argument, this book gives one the impression that it cannot.

Chappell Writes Vividly of Antarctic

ANTARCTIC SCOUT, Richard Lee Chappell; Dodd, Mead & Co., 205 pp., \$3.50.

BY LANCE ZAVITZ

ANYONE who knows the author of this newest account of adventure in the frozen South will not read many pages of "Antarctic Scout" without saying, "That sounds just like Dick Chappell."

The author has succeeded in doing what many older, experienced writers frequently have found impossible. He has projected his personality into the pages of his book.

Entirely apart from the fact that Dick IS the Antarctic Scout—the Eggertsville youth chosen in a nation-wide search to spend the International Geophysical Year in the Antarctic—there is a distinctly personal tone to the book.

The reader finds himself sharing the author's adventures, laughing with him at his companions—and at himself, and marveling at "everything so new and unusual it's like living in another world."

MOST READERS will note with amazement the mature quality of the narrative. The author passed his 21st birthday less than a month ago. Yet his book has in it neither the brashness that might be expected of a youth confronting a great adventure, nor the nervous awe of the inexperienced traveler facing the vast unknown.

Throughout the book there are persistent evidences of the quiet self-effacement combined with insatiable curiosity, the self-assurance resulting from careful preparation, the merry self-mockery and the deep religious faith which are notable in the author's character.

Mr. Chappell possesses excellent powers of vivid description. Thus he describes Little America V, one of the American bases in Antarctica, as looking "like some Arab city in the middle of a vast white desert." However, the book is effectively illustrated with 32 photographs, also the work of the author.

IF HIS HUMOR takes on a slightly grim aspect at times, the reader will realize that there actually was a good deal of grimness about the experiences he describes. Mr. Chappell's irrepressible good humor alone keeps some of his adventures from becoming somber.

Flying in the cargo hold of a large helicopter, he wore a life jacket over bulky cold-weather

clothing, a safety belt, helmet and earphones.

"Considering that, in addition to my being strapped down, bulged out and wired up, the last helicopter I had seen was on its way to the bottom of the Ross Sea, you may be able to understand my lack of enthusiasm for this mode of transportation," he writes.

Casually he tells of taking shelf ice temperature readings in wind gusts up to 47 knots

"compensated for by the fact that the temperature had risen to about 10 degrees above zero." By the time he had walked 100 yards, he says, "I had to turn around and walk backwards into the wind to keep my forehead from getting frostbitten."

* * *

ONLY A SCIENTIST can properly appraise Mr. Chappell's usefulness as a junior scientific aide in the IGY, or the scientific information included in his book.

Thus the praise of Dr. Paul A. Siple, first Eagle Scout sent to the Antarctic and now director of polar affairs for the Army, takes on added significance. In the preface, Dr. Siple wrote:

"I'm proud of the job Dick did. So is the U. S. National Committee for the IGY. So are the Boy Scouts of America. So are Dick's expedition mates and friends. And so will you be after you've read 'Antarctic Scout.'"

Midway, the South Pole

THE CROSSING OF ANTARCTICA: The Commonwealth Trans-Antarctic Expedition of 1955-58. By Sir Vivian Fuchs and Sir Edmund Hillary. Illustrated. 328 pp. Boston: Little, Brown & Co. \$7.50.

By WALTER SULLIVAN

DURING the Antarctic summer of 1957-58, a British Commonwealth expedition accomplished what many felt was the last great exploratory feat on this planet—the crossing of the Antarctic Continent. The journey was made by a tractor party led by Sir Vivian Fuchs. It brought to fruition a dream which had haunted polar explorers for half a century.

In 1909 Wilhelm Filchner of Germany announced his plan for such a crossing, but shortage of money limited him to a less ambitious venture. Soon afterward Sir Ernest Shackleton attempted it, but his ship on the Atlantic side was crushed in the ice and three of his men on the Pacific side perished in the effort to lay depots for a venture that had already failed. With adequate radios the tragedy would have been averted.

Sir Vivian's plan closely resembled those of Filchner and Shackleton. His trans-continental party based on the Filchner Ice Shelf, on the Atlantic side, and crossed via the South Pole to McMurdo Sound on the Pacific side. Sir Edmund Hillary, conqueror of Mount Everest, led a party of New Zealanders, who based at McMurdo and laid depots toward the Pole for the crossing party.

In contrast to those who had tried earlier, Sir Vivian had trail radios, air support, a way station near the midpoint (the United States base at the Pole) and newly developed snow vehicles. In contrast to explorers of previous generations, who ate

their dogs as the loads diminished, Sir Vivian discarded tractors. He succeeded where those before him had failed, but despite modern equipment, he and his men had many fearful moments.

As was to be expected, the chief difficulty of the travelers was with crevasses and they roped their vehicles together like mountaineers. The number of snow bridges which dropped from beneath them seems endless. On one occasion, typical of many, a snowcat appropriately named "Rock 'n' Roll" broke through and hung precariously over an abyss of terrifying dimensions. With typical understatement, Sir Vivian, who was inside, describes his sensations: "Peering out of the right-hand side, the situation looked distinctly uncomfortable," he writes. "for it was impossible to tell how firmly we were wedged against the sides, and in any case there was nothing to step out onto." Using other vehicles, they were finally able to haul the snowcat out again.

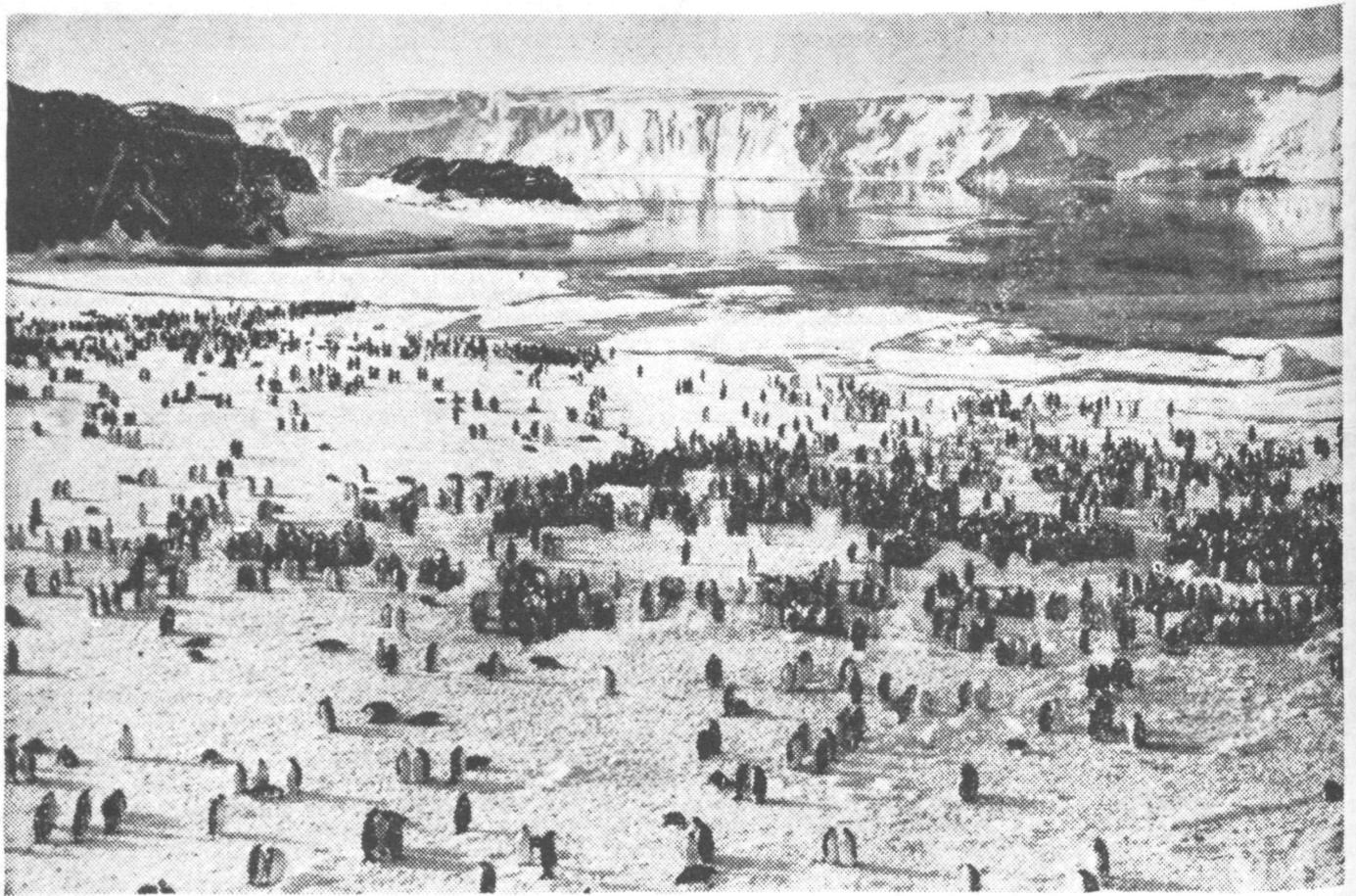
This book, the official account of the expedition, tells of these experiences in restrained fashion. Most of it was written by Sir Vivian, but the story of the New Zealand contingent is told by Sir Edmund. This may be the last of the authoritative "official accounts" of the exploration of our planet. It is unfair to compare it with the books of Capt. Robert F. Scott, whose heroic death and literary gift gave his written work special power, or with Shackleton's "South," which told of conquest over seemingly unconquerable odds. A more legitimate comparison would be with Sir John Hunt's account of the Everest expedition, on which Sir Edmund Hillary was star

performer. Yet, even here Sir John had the advantage, for it is hard to think of a feat of physical prowess that has thrilled this generation so much as the ascent of the world's highest mountain to coincide with the coronation of Queen Elizabeth.

As with the ascent of Everest, the trans-Antarctic expedition was sponsored by the British royal family. On their long journey Sir Vivian and his men carried a signed portrait of the Queen with other mementos, including Captain Scott's watch, which Sir Vivian wore on a thong around his neck.

THE objective of the expedition was to cross the continent and to that end it was necessary, on several occasions, to cut short geological side trips. The fact that the chief goal was an adventure, rather than a scientific program, evoked some criticism in academic circles. Yet the expedition returned with seismic soundings of the ice sheet that gave the first evidence that, along the route traversed, the buried land was above sea level from coast to coast, showing Antarctica to be a continent.

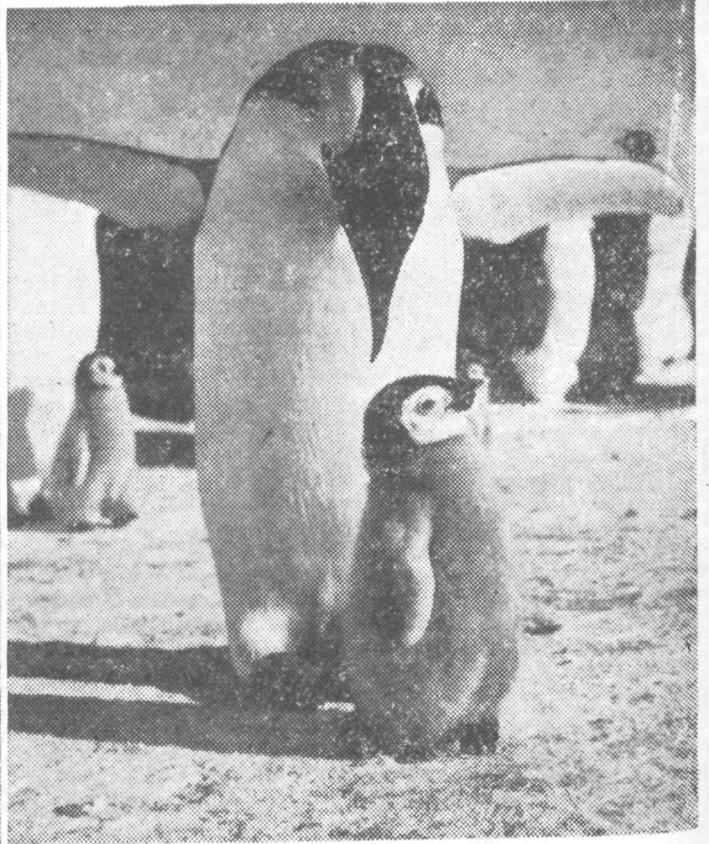
It is ironic that what probably brought the expedition most effectively into the world limelight was the press treatment of the "race" to the Pole between Sir Vivian and Sir Edmund and their subsequent debate as to whether the trans-continental party should continue past the Pole that summer. The term "race" seems hardly applicable, since Sir Vivian was pausing every fifteen miles to determine ice depths whereas Sir Edmund was not. Likewise, despite the lateness of the season, a halt at the Pole was out of the question from Sir Vivian's point of view. There is not the slightest hint of bitterness in his account of these matters.



EMPEROR PENGUINS AT ANTARCTIC BREEDING GROUNDS—Some of the thousands of emperor penguins which assemble to breed at Geologie Point in Adelie Land every March, at the end of the Antarctica summer.



FIRST EGG — Female emperor holds egg hatched about first week in May between feet in small fold of featherless skin at bottom of belly. After twenty-four hours, she passes egg to male, which continues the brooding while female goes to sea for food.



TWO MONTHS LATER—Female penguin, back from the sea, takes over hatching of egg in late June. This chick, compared to its mother, which is almost four feet high, is rather well developed and nearly ready for trip to sea.

Photos by Jean Rivolier in "Natural History."