THE POLAR TIMES

National Oceanic and Atmospheric Administration

The Polar Times

ERRATA NOTICE

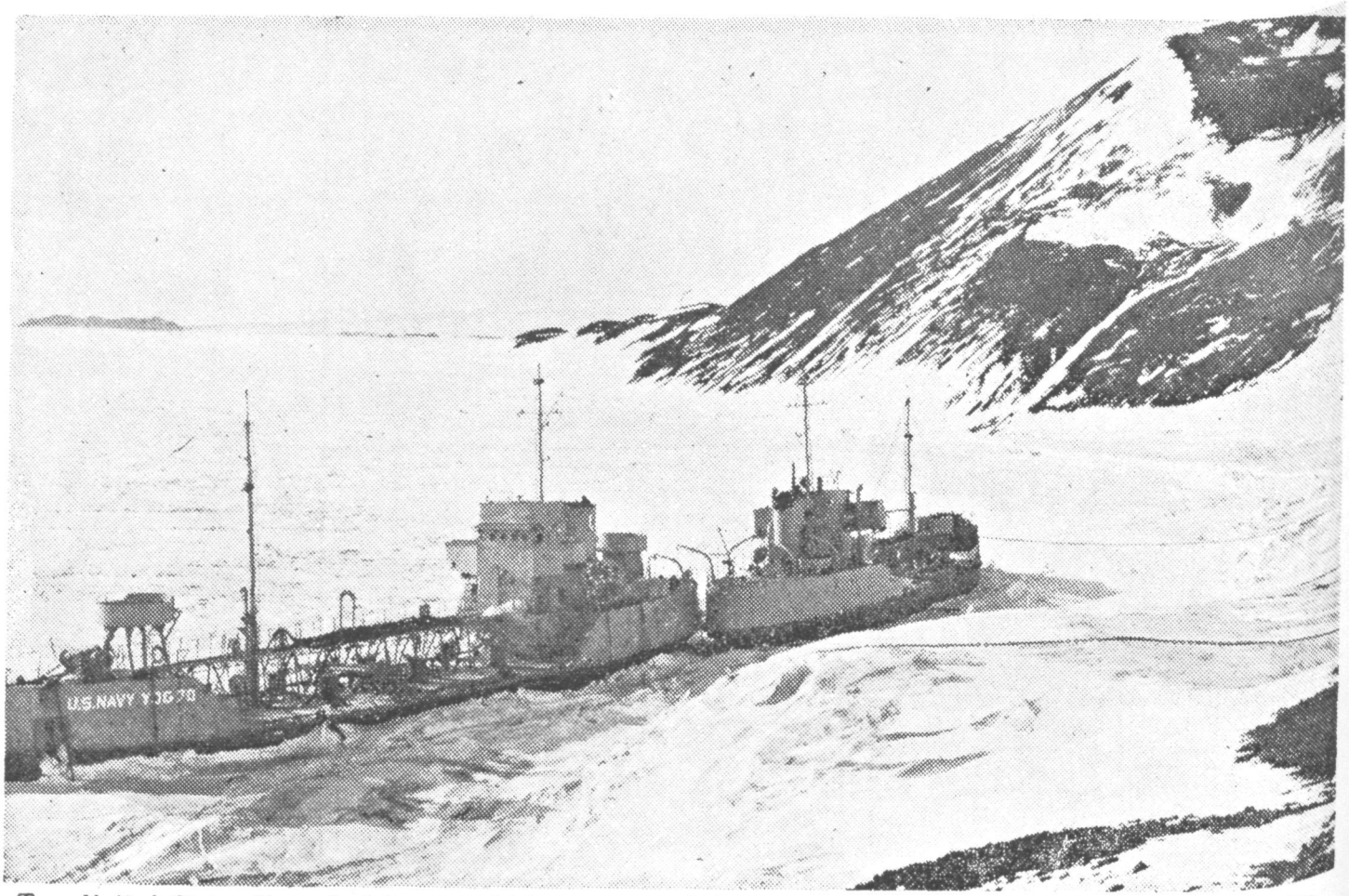
One or more conditions of the original document may affect the quality of the image, such as:

Discolored pages
Faded or light ink
Binding intrudes into the text

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

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

BEARDMORE WEATHER STATION.—Situated 410 miles from the South Pole, and a few miles from the Beardmore glacier, this camp is used to supply weather reports to McMurdo Sound. A propeller blade of a Neptune aircraft, about to leave the base, is shown in the foreground, and three officers of the station stand nearby.



Two United States Navy fuel barges which were towed from America three seasons ago. These barges remain in the ice not far from the American settlement at Hut Point. Lines lying across the ice anchor the barges to firm ground.

The Polar Times

No. 47. DECEMBER 1958.

EXPERT RECOUNTS I.G.Y. DISCOVERIES

Tells of Findings on Ice and Snow and Mineral Riches —Hails World Program

WASHINGTON, Dec. 4—The earth is covered by 40 per cent more snow and ice than previously believed, the Antartic apparently is a divided continent and vast mineral riches lie at the bottom of the Pacific Ocean.

These are some of the significant discoveries to emerge thus far from the International Geophysical Year—the international study of the earth and its environment that has been under way for eighteen months.

Some of the discoveries were enumerated today by Hugh Odishaw, executive director of the United States National Committee for the I. G. Y., in a speech before the National Press Club. His speech amounted to a preliminary final report on the I. G. Y. venture, which formally comes to an end this month.

Mr. Odishaw described the I. G. Y. as "the single most significant peaceful activity of mankind since the renaissance and the Copernican revolution."

I. G. Y. research, he said, has "opened new horizons on earth and those beyond earth" so it now "appears that another renaissance can be ours."

Aside from its scientific impact, he said, the I. G. Y. has opened new "psychological frontiers" by achieving "remarkable international cooperation among sixty-six nations in a period of sharp and perhaps unparalleled political unrest."

For the last eighteen months, he noted, 60,000 scientists, technicians and volunteer observers from sixty-six nations have manned scientific posts from pole to pole in this common "adventure into the unknown."

Out of this research, Mr. Odishaw reported, has come an "unprecedented storehouse of facts" about the earth and its place in space. The facts will take years to analyze, he said, but already these "findings of remarkable significance" have been made:

¶The 6,000,000-square mile continent of Antarctica is not a solid land mass, but appears to be a complex of island and mountain chains, with some of the mountains under the vast ice mantle lying beneath sea level. There are increasing indications of a major division between East and West Antarctica.

¶So much more ice has been found in Antarctica that the total amount of ice and snow in the world must be revised upward by about 40 per cent—from 3,240,000 cubic miles to 4,500,000 cubic miles. This revised figure is of critical importance in studying the heat and water balance of the earth.

¶A vast mineral-rich region has been discovered in the Pacific with millions of square miles of the bottom in the Southeast Pacific covered with a sludge laden with manganese and iron and some cobalt mixed with copper. The value of these minerals is estimated at $500,000 a square mile and the economics of dredging up the sludge "appear promising."

¶During the last fifty years the amount of precipitation in the Arctic has averaged twice that of the Antarctic—data that provide clues to future weather and climate.

Mr. Odishaw also said that the successful launching of earth satellites was "a pioneering and historic event" in itself and "has ushered in the space age."

As a result of the influence of I. G. Y., Mr. Odishaw predicted that international cooperation in geophysical research "will certainly continue for an indefinite period."

Already plans are under way to continue the same form of international cooperation for another year in a program called International Geophysical Cooperation-1959. Furthermore, he said, the International Council of Scientific Unions has established special committees for continuing cooperative research

Hugh Odishaw—Executive director, United States National Committee, International Geophysical Year.

Arctic Sea Floor Studded by Peaks

WASHINGTON, Dec. 29.—Mountain peaks as jagged as the Rockies thrust up from the floor of the Arctic Ocean, a Columbia University scientist reported today.

It was through these mountain tops and valleys that the atomic submarines Nautilus and Skate picked their ways a few months ago. But the measurements came from a group of isolated men on an ice floe.

The report was made by Kenneth Hunkins, geophysicist of Columbia University's Lamont Geological Observatory, to the 125th annual meeting of the American Association for the Advancement of Science, the world's largest federation of scientists.

Sound waves generated by explosions mapped the subocean terrain. The scientists found a plateau stretching from Ellesmere Island, the northernmost point of Canada, to Eastern Siberia. Its sides plunge to depths of 10,000 and 15,000 feet.

Cameras snapped pictures of huge boulders lying on the bottom. The rocks were carried there by the rivers of ice above and dropped into the ooze.

And samples from the bottom included living creatures like sea stars, sea cucumbers and mossy animals. However, Mr. Hunkins said that life down there in the dark is sparse, sparser than in most oceans.

Other measurements of radioactivity, water flow and chemical composition are completing the picture of the Arctic Ocean. It is believed by many geologists that this sea holds the key to the ice ages.

The theory suggests that when the ice on the ocean melted, much of its water evaporated to feed the giant northern glaciers which slowly ground their way southward.

WASHINGTON (AP) — Uncounted riches in minerals have been found in the sludge at the bottom of the Pacific Ocean, a leading American scientist reported

Dr. Joseph Kaplan of the University of California at Los Angeles said this ocean wealth is one of the unexpected results of the International Geophysical Year, the 18-month worldwide program of scientific cooperation that comes to a close this week.

This wealth includes manganese, iron, cobalt and nickel ores in a form that could be easily processed, he said.

Kaplan, chairman of the U.S. national committee for the IGY, outlined major IGY findings in a talk at the 125th annual meeting of the American Association for the Advancement of Science. He listed these others:

1. Antarctica is not a single continent, but a system of islands and mountain ranges partly below sea level under mountains of ice up to 2½ miles thick.

2. Measurement of Antarctic ice has shown that there is about 40 per cent more ice than was previously belived to exist.

3. There is about 50 per cent more snowfall in the Arctic than in the Antarctic regions.

4. The first census has been taken of Antarctic weather. Temperatures as low as 124 below zero fahrenheit have been recorded.

5. Three major currents have been discovered far below the ocean surfaces, flowing in opposite directions from surface currents. One is below the Gulf Stream in the Atlantic. The others are in the North and South Pacific.

6. Observations during an eclipse have shown that x-rays from the sun come from the corona, or atmosphere of the sun, rather than from its disc. There was indication that ultraviolet rays come from the disc.

Among other reports were the following:

¶The Soviet Antarctic expedition has caught a skua gull that was banded and dyed red by the United States expedition as part of a migration study. In reporting the catch the Russians made no reference to the dye. This was recounted by Carl Eklund, former scientific leader at Wilkes Station, who had done the banding and dyeing.

¶On an isolated and barren mountain range, jutting through a mile-thick ice sheet that extends hundreds of miles in all

directions, more than sixty species of lichen have been found. These paper-like plants, which often grow on rocks, were on the exposed peaks of the Sentinel range in Antarctica. Their discovery by an American trail party was reported by Dr. George A. Llano, a lichenologist.

¶A study of radioactive decay in the six-inch layer of dark sediment covering the floor of the Arctic Ocean shows that the layer is about 9,000 years old. It contains plant and animal remains, whereas a lighter layer beneath is barren and presumably represents the last ice age. This was reported by Kenneth Hunkins of the Lamont Geological Observatory of Columbia University in Palisades, N. Y.

Dr. Troy L. Pewe of the University of Alaska described evidence of four periods of marked glacier growth in the McMurdo Sound area of Antarctica. Each was successively smaller in extent.

The two principal periods may have coincided with the Wisconsin and Illinoisian ice ages, the two most recent periods of glaciation in North America, he said.

Explorer Gets Geographic Post

Dr. A. Lincoln Washburn, professor of northern geology at Dartmouth College and internationally known authority on the Arctic, has been elected to the council of the American Geographic Society.

Dr. Washburn, a veteran of many Arctic expeditions, founded the Arctic Institute of North America and was its first executive director from 1945 to 1951. He has also served as director of the Army's snow, ice and permafrost research establishment and as consultant to the Army's research and development board.

The Polar Times

Published June and December by the
AMERICAN POLAR SOCIETY,
Care August Howard, Secretary,
98-20 62nd Drive (Apt. 7H),
Rego Park 74, New York.

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.

Polar Ice Probed for ClimateData

WASHINGTON, Dec. 31 —

World shaking events leave their footprints in the snow. To the snow-hydrologist the eruption of Krakatoa in 1883 and the hydrogen bomb explosion at Eniwetok in 1952 are now nothing but convenient dates for labeling the appropriate strata of snow in Antarctica.

These dramatic names emerged yesterday from two papers presented to the AAAS symposium on the results of the International Geophysical Year program in Antarctica: one by William W. Vickers, Arctic Institute of North America, and the other by James Bender, United States Army Snow, Ice and Permafrost Research Establishment ("SIPRE").

The purpose of Vicker's study was to complete the inventory of the world's water. How much is locked up in the Arctic and Antarctic icecaps, and whether these are growing or shrinking has important implications for the future climate of the Earth.

Forty tons of commercial core-drilling equipment were transported, first to Greenland and then to Antarctica by Bender's group. With it holes have been drilled a thousand feet down into the ice, and 6-inch ice cores brought back practically intact.

These cores contain climatic history dating back a thousand years in Greenland and 1400 years in Antarctica. Volcanic eruptions, by leaving a load of characteristic dust, indelibly mark the ice levels deposited in the year they occurred.

Further work will tell whether the "star-dust" being deposited steadily all over the world is meteor debris, or whether it is a man-made thing coming from the world's tremendous industrial development in the last two centuries.

These revealing ice cores have all been brought back to the United States under refrigeration and are being studied in relative comfort in Illinois.

Antarctic Bus of 1939 Aids Climate Research

WASHINGTON, Dec. 30 —

A bus trip to the Antarctic that dead-ended in a snow bank two decades ago is unexpectedly propelling science to a high road of discovery.

A Canadian glaciologist — William W. Vikers—revealed the story today in a paper prepared for presentation to the American Association for the Advancement of Science.

It all began, he said, shortly before Admiral Byrd's expedition to the Antarctic in 1939. Equipment for the trip—which was displayed to the public in many areas of the United States—included a famous full-sized bus designed for travel in the unexplored regions of the vast snow-covered continent.

Especially equipped with tires about 9 feet high, it was expected to solve many problems of transit across the treacherous wastes. Unfortunately, according to Mr. Vikers, Admiral Byrd discovered soon after landing from a ship at Little America III that the vehicle was underpowered.

"It got stuck in the snow and was used thereafter as a lodge," the glaciologist said.

Not until last winter (which was summeritime in Antarctica) was it rediscovered. Exploring the site of the old Byrd camp, the IGY team stumbled upon a bamboo pole protruding about two feet above the surface of the snow.

"We had a photograph of Little America," Mr. Vikers said, "and we surmised that the bus was down below."

"We started digging with a bulldozer, but I dug the last shovelfuls myself," he added.

Inside the bus the scientists found a litter of old magazines, papers, cigarettes and other items.

The effort, he explained, was definitely not for amusement.

"We wanted to find out how much water is locked up in the ice cap of Antarctica," he said, "and if this amount is increasing or decreasing. The bus, we know, rested on snowfall in 1939, and we could measure the layers 23 feet up to the surface like the rings on a tree."

Information on the subject, which may help to determine long-range trends in world climate, is still being gathered, Mr. Vikers said.

The bus, he asserted, unexpectedly solved the problem of time identification, and vastly contributed by chance to the IGY program. So far as he knows, it is still sitting at the bottom of the pit.

The so-called snow cruiser was 20 years ahead of its time. A related vehicle—partially modified on the basis of the 1939 experiment—has been used successfully in recent years to supply remote Distant Early Warning radar sites in the Arctic.

Antarctic Cold, Reds Discover

LONDON, Sept. 7 (AP). —The Moscow radio said today that Soviet explorers recorded an average low temperature in central Antartica during the month of August at minus 71.8 degrees centigrade (about 97 degrees below zero Fahrenheit).

ARCTIC ANIMALS AID HEAT STUDY

Biologists Seek to Learn How They Keep Warm in Thin Coats of Fur

North American Newspaper Alliance.

WASHINGTON Nov. 19—University of Pennsylvania biologists are investigating the heat mechanisms of Arctic animals to devise adequate cold weather garb for the Far North.

Drs. Harold T. Hammel and James Hardy, working with grants from the Air Force and United States Public Health Service, are trying to learn how the animals can be comfortable at temperatures far below zero in relatively thin coats of fur. Dr. Hammel says:

"The best simulated fur developed by man, in terms of unit thickness, is still poorer than the poorest covering of any north country animal. We have a great deal to learn before finding the animal's cold weather secret and adapting our knowledge to new cold weather coverings for humans."

The two researchers are measuring the heat and energy exchanged between human and animal bodies and their environments. They also are measuring the relation between skin and internal temperatures.

Dr. Hammel, in one experiment, stimulates the hypothalmus gland at the base of the brain, where a temperature control center for the body supposedly is located, by gently cooling and heating.

Among the incidental findings of the two biologists is how Arctic wolves are able to kill prey four or five times their size by heat exhaustion. Favorite victim of the wolf is the caribou.

This animal cannot pant very well, and thus cannot get rid of heat from its body. The wolf merely keeps up the chase until the internal heat built up in the caribou reaches the point where it cannot be compensated for by sweating, as in humans, or panting, as in dogs.

The inevitable result is heat exhaustion and collapse, followed by a leisurely meal for the hungry wolf.

ISLANDS EMERGING

Southern Part of Spitzbergen Rising One Inch Annually

The southern part of the Spitzbergen archipelago is rising out of the sea at an estimated rate of 2.3 centimeters (roughly an inch) annually, it is reported by a Polish expedition. The land movement is related to the gradual melting of the Scandinavian ice cap in general, and the Spitzbergen ice in particular. Ice at present covers the land mass of the archipelago to a depth of 500 feet. Glaciers, however, are receding in the region by several hundred yards each year.

The Polish scientists, now based in southern Spitzbergen, say that the present speed of the movement is a comparatively recent phenomenon. They are able to fix the date of land movements by the position of strata containing creatures from the sea-bed of a known epoch, which are now found at various levels along the coastal terraces of the Spitzbergen islands.

Whaling history is helping scientists to check dates of land movements within the last 500 years. Over the short period from 1611 to 1640, whaling was carried on from the shores of Spitzbergen, and bones of flensed whales were left on the beach. The bones are now between sixteen and twenty-six feet above sea level, and some are to be found half a mile inland, according to the United Nations Educational, Scientific and Cultural Organization.

Stamp to Mark Alaska Statehood

WASHINGTON, Dec. 31 (UPI). — A commemorative Alaskan statehood air-mail stamp will go on sale Saturday —the day President Eisenhower proclaims Alaska the forty-ninth state of the Union, Postmaster General Arthur E. Summerfield announced today.

The seven-cent stamps will be first placed on sale at Juneau. It marks the first time a commemorative stamp has been issued on the actual date of admission of a territory into the Union.

The stamp features the "Big Dipper" and North Star of the Alaskan flag superimposed on a map of Alaska. Wooded hills and snow - topped mountains form a background. An initial printing of 90,000,000 stamps has been authorized.

U. S. Workers Fight Cold by Tapping Alaskan Gas Well That Navy Abandoned

WASHINGTON, Sept. 11 (AP) — Department of Commerce officials reported today that economy-minded bureaucrats had set up a natural gas business in northern Alaska and saved the Government money.

They also are helping themselves keep warm.

Six years ago, the officials related, the Navy drilled for oil near Point Barrow in northern Alaska but found only natural gas. Not needing the gas, the Navy sealed up the wells and departed, leaving behind thousands of dollars worth of pipe that could be hauled out only at prohibitive cost.

Civilian employes of four Federal agencies were having their troubles keeping warm in Point Barrow—and they looked with longing at the capped gas wells.

The employes of the Weather Bureau, Public Health Service, Bureau of Standards and Department of the Interior decided to try cutting through the red tape that threatened to snarl their dream of warming the long Arctic winter.

In 1956 they got permission from the Navy and Senate Armed Services Committee to use the gas and pipe.

Then the Air Force lent a hand, offering the use of bulldozers and other construction gear at Point Barrow. Finally the four civilian agencies made available about $350,000 to build a five-and-one-half-mile pipeline and install a generating plant to produce electricity from some of the gas.

Officials of the Department of Commerce said the gas distribution system, which went into operation recently, would save the Government $150,000 to $200,000 a year in fuel and hauling. At that rate, the system would pay for itself in two or three years.

U. S. HALTS SURVEY OFF ALASKAN COAST

WASHINGTON, Nov. 22

The arrival in Seattle of five Coast and Geodetic Survey ships has ended the ninety-first year of that agency's work off the coast of Alaska.

Rear Admiral H. Arnold Karo, director of the survey, announced today that the ships had gathered over a six-month period additional information on 1,500 square miles of water and land from southeast Alaska to the Aleutians.

Aided by sonic sounding gear and electronic navigation and surveying instruments, the five ships an dmore than 260 men brought to nearly 800,000 square miles of ocean the area surveyed since World War II. This work has produced more than 200 nautical and aeronautical charts plus information on related subjects from tides to earthquakes.

For the inhabitants of the next state, modern maps and charts are of utmost importance. Alaska's 586,400 square miles contain only slightly more than 4,000 miles of highways and one railroad. Commerce and transportation are largely dependent on the air and waterways.

Large areas, however, including more than 500,000 square miles of water composed of the Pacific and Arctic Oceans and the Bering Sea, remain inadequately surveyed. The last unsurveyed stretch of Alaska's 34,000-mile tidal coastline was only completed by a team of eighty men in 1953.

Coast Survey officials were investigating the Alaskan coast in 1867 while negotiations for its purchase were staill under way. But continuous work did not begin until 1882. With the Gold Rush of 1898, shipping needs soared and the demand for adequate charts of the offshore waters rose accordingly.

It was not until recently, however, that equipment became available to offset the foremost problem of the surveyor in Alaska waters—fog.

Alaska Yields Billion

More than a billion dollars in gold, copper, silver, coal, lead, tin, platinum, and mercury have been taken from Alaskan soil since the region was bought from Russia in 1867. Though the boisterous gold-rush days have passed into history, the annual yield from gold still exceeds the purchase price of $7,200,000, says the National Geographical Magazine.

Canada's IGY Contribution Second to None

MONTREAL, Oct. 29.—(CP)—A National Research Council scientist said Tuesday that Canadian accomplishments in the International Geophysical Year outrank those of all other countries on a per capita basis.

Dr. Peter Millman of Ottawa told the Montreal Rotary Club that "Canadians have every right to be proud of Canada's participation in the IGY".

Dr. Millman is head of the upper atmosphere research section of Canada's IGY electrical engineering division.

Auroral research, he said, has been pioneered in Canada and NRC scientists have developed a special camera for taking pictures of the sky that is superior to all other cameras of its type, except possibly those used by Russia.

At Churchill, Man., Canadian scientists working with colleagues from the United States had done much research on the aurora borealis and meteors.

Their activities, he said, include rocket firing to send instruments through the lights to altitudes of 40 miles.

Dr. Millman described the IGY as "the most outstanding scientific effort ever undertaken on earth". Scientists from 60 countries were working together without "discordant notes".

"I believe the one hope of our civilization is the forging of ties of this sort."

Dr. Millman has recently returned from a world tour of IGY stations.

Winters Cold for Eskimos

WINNIPEG, Man. (Canadian Press) — Canadian Eskimos now suffer from the cold because they have turned to white man's clothing, which is not suitable for the Arctic, Dr. Vilhjalmur Stefansson, famous explorer, said in an interview here.

A Peak in Canada

Mount Logan in the Yukon, highest Canadian peak at 19,850 feet, was named after Sir William Logan, geologist, who died in 1875.

GOOD FLYING WEATHER HELPS MAP ARCTIC AREA

Ottawa, Nov. 26 — (CP) — Good flying conditions in the Canadian north last summer reduced by about half a six-year federal project to produce a complete aerial photographic record of Canada's vast Arctic archipelago.

The photographs, taken from aircraft flying at 30,000 feet, will be used to make detailed maps to aid in developing resources of the sprawling area and to broaden defence information.

When the $6,300,000 photographic project was launched early in June the technical surveys department expected the work would be over a six-year period.

The project involves the phtographic coverage of an Arctic area of some 500,000 square miles. It is the largest air photo mapping project undertaken to date in the western world.

H. A. S. West, secretary of surveys for the department, said in an interview that work progressed so favorably last summer that it now is conceivable the project will be completed in three years.

"During July and August a total of 223,000 of the 500,000 square miles were photographed," he said. "This work was accomplished by eight aircraft."

Mr. West said excellent flying conditions permitted the aircraft to operate almost every day during July and August.

"The weather was phenomenal," he said.

Aerial photography work for map making must be conducted during the summer after the snow has gone. However, flying conditions in the Arctic usually are only suitable for thi stype of work over a period of 16 to 20 days in July and August.

The weather must be perfectly clear. This type of weather is not general in the Arctic in the two months because the difference between ground and air temperatures produces fog.

The project is being conducted for the department by Aero Surveys Limited of Vancouver, Photographic Survey Corporation of Toronto and Spartan Air Services Ltd. of Ottawa. They are under contract to complete the work not later than 1963.

The eight aircraft used in the project operate dmainly from DEW radar sites. For the most part last summer they operated in the southern section of the Arctic archipelago.

About 80 per cent. of Baffin Island was photographed. Work was completed on Somerset Island, Boothia peninsula, Prince of Wales island, Cornwallis island and Bathurst island.

About 50 per cent. of Ellef Ringnes island was photographed, 70 per cent. of Victoria island and parts of Banks island.

Ellef Ringnes island, some 2,500 miles north of Winnipeg, was the most northerly point of operation.

The eight aircraft took thousands of pictures with large specially-designed cameras.

The photographs are on a scale of about one mile to the inch.

The department says the maps produced will go far toward removing the formidable barriers to Arctic development.

Arctic Institute Expanding Research

MONTREAL, Dec. 8.—(CP)—The Arctic Institute intends to sponsor more field research parties in the North next year than ever before, says Dr. Ian McTaggart, chairman of the institute's board.

He told a two-day meeting of the institute board that $750,000 has been allocated for the expanded program, undertaken in an effort to match partly the "tremendous competition" from Soviet research groups.

"The program represents a burgeoning of scientific effort whose continued expansion is essential to the full development of the North American continent," Dr. McTaggart said.

He said a total of 374 Russian organizations are engaged directly or indirectly in Arctic research and development, a reflection of the strength of Soviet scientific and technological advance.

Named for Princess

OTTAWA, Aug. 13 (AP). Now cartographers can label that line of mountains on Axel Heiberg Island the Princess Margaret Range. The island is in the Queen Elizabeth Islands in the Canadian Arctic. Prime Minister John Diefenbaker announced naming of the range for the Princess, who ended a month's tour of Canada Monday.

ATKA ON ARCTIC TRIP TO GET SCIENTISTS

Aug. 5

The Navy icebreaker Atka is now en route from Thule Air Force Base in Greenland to a spot 400 miles south of the North Pole. She is on the first leg of a hazardous journey to evacuate a group of Canadian scientists from their base there.

The vessel, according to Atlantic area headquarters of the Military Sea Transportation Service, is to take out eighteen Canadians, their twenty-four dogs and about 6,000 pounds of scientific equipment.

The scientists, working for the Canadian Defense Research Boards in connection with the International Geophysical Year, have for the last eighteen months been at their Arctic outpost on Lake Hazen, on North Ellesmere Island.

The Atka is carrying outbound a group of American scientists, the Cambridge Research Party, to the polaris promontory, also in the Arctic at approximately the same latitude as Lake Hazen.

The Atka interrupted her voyage in Arctic waters, 500 miles south of the North Pole, to provide medical care for two Eskimo families and two Royal Mounted Canadian policemen. They had been without medical care for the last two years.

SHIP LOSES RUDDERS AND BESTS ICEBERG

QUEBEC (Canadian Press)—Supplying northern outposts, never an easy task even for the hardy and experienced crews of Canada's icebreakers, was particularly tough this year for the crew of Barge 75, designed to carry oil and dry cargo to the north.

After ramming an iceberg in the Belle Isle Strait, Barge 75 limped to Hudson Strait, where she lost both rudders. She drifted helplessly for thirty-seven hours before help arrived.

"It's a miracle we stayed afloat," said Andrew Penney, a Newfoundlander serving as third officer on the barge.

Mr. Penney, who sailed the Atlantic, the St. Lawrence River and Gulf and the Great Lakes for thirty years, described the first trip of Barge 75 as "something terrible."

She left Quebec with drygoods for outposts 1,500 miles north of here. Three days later they ran into the iceberg in the strait between Newfoundland and the coast of Labrador.

After temporarily patching up a slight leak in the bow plates, the barge proceeded to her destination but lost both rudders the following day in the Hudson Strait.

She was adrift for thirty-seven hours before the icebreaker Labrador came to the rescue from Diana Bay.

Death Rate Of Eskimo Babies High

Ottawa, Oct. 16—(CP)—In a "shocking" picture of infant mortality, a government report says 23 per cent. of all Eskimos born are dead within a year.

The death rate within the first year of life accounts for about half of all Eskimo deaths, says the report, and about half the infant deaths occur in the first month.

Bad housing — igloos, tents, sod and stone huts and shacks—is held largely to blame.

In a general re-appraisal of Eskimo housing policy, the department of northern affairs is well into a program designed to provide housing for wage-earning Eskimos, namely those employed on DEW radar line sites, such as Frobisher bay.

The need is pointed up in a report entitled "Eskimo Mortality and Housing," a grim recital of statistical data plus about 100 photographs of present Arctic dwellings and some experimental types.

Steadily rising infant mortality since 1953 has produced this pattern: 1954—155 infant deaths per 1,000 live births; 1956—250; 1957—228. This compares with the over-all Canadian rate of 32, 32 and 31 for the same periods.

Fifty-four per cent. of Eskimo infant deaths are due to unknown causes while respiration ailments are credited with at least 39 per cent.—and probably account for a large number of the unidentified deaths, says the report.

A higher rate may prevail in some Arctic areas.

The choice facing many newborn infants, it is suggested at one point, is death by gastro-enteritis in a filthy shack or by pneumonia in a draughty tent. Professional medical attention too often is lacking.

One photo shows an Eskimo mother holding a baby bare from the waist down in an outside temperature of 10 degrees below zero.

Most of the 12,000 Arctic Eskimos live in tents or huts in summer with the winter snowhouse still prevailing in areas removed from settled communities. One-room accommodation, draughty, dirty and cold, places the new-born infant in a highly vulnerable position.

Relief is planned. At Frobisher bay, low-rental housing is being provided in about 50 ordinary frame homes heated by an oil-fed kitchen range and with semi-partitioned space for two bedrooms. Smaller units—some frame and some plastic foam — also have been built.

The same plastic material was used in 1956 for the first experiments on artificial snowhouses. Final result of this project hinges on the "wearability" of the material, still to be assessed.

Like Muktuk As an Appetizer?

Muktuk—in case you are unfamiliar with the Arctic—is a new variety of hors d'oeuvres which the Canadian government is hoping to develop as a tasty tidbit for cocktail parties. It is made from the flesh immediately beneath the skin of the white whale.

It is pickled, and is said to taste like a cross between pickled herring and liverwurst.

Canadian officials believe they have lagged behind Japan and the Soviet Union in exploiting Arctic food resources and are trying to catch up. The goal is two-fold: (1) To help Eskimo traders prosper; and (2) To increase the diet of Eskimos and their dogs by drying meat and fish.

ARCTIC CLAIMS PRESSED

Pearson Bids Canada Act to Establish Her Rights

OTTAWA, Aug 14 (Canadian Press) — Lester B. Pearson leader of the Opposition, said today that Canada must firmly establish her claim to her Arctic territory in view of Soviet and United States interest in the area.

He said in the House of Commons that this could best be done through discovery and effective occupation, preferably by Canadian civilians.

Canada's claim to the Arctic should be strengthened so that it cannot be challenged by other nations that might wish to exploit the area's mineral resources, he said.

Mr. Pearson said the voyage of two United States submarines under the Arctic ice had opened a new field of Arctic development.

Census Shows Increase In Northwest Territories

By the Associated Press

Yellowknife, Northwest Territories

The population of Canada's Northwest Territories is about 19,500 now—up 3,500 from five years ago. But there's little danger of overcrowding. The sprawling area covers 1,305,000 square miles north of Hudson Bay.

Far North Lanes Carry Double 1957 Tonnage

OTTAWA, Oct. 27 (CP).—Northern shipping lanes this season carried almost double the supply tonnage moved in 1957 and will reach for fresh records next year when Canada assumes the full load. Thirty-five vessels—including twenty-two charter craft ranging from 250 to 10,000 tons—transported about 75,000 tons to the growing north. Still to come out for the season, the Transport Department said today, are the icebreakers Montcalm and N. B. MacLean plus a barge.

Frobisher Bay, headquarters for the Eastern Arctic, took 27,000 tons and the rest was dropped at a wide range of settlements and outposts, some by air. The most northerly sea run was the annual sprint by the icebreaker d'Iberville for Eureka Weather Station on Ellesmere Island, about 700 miles from the pole.

Transport Department officials said today that an extra 10,000 tons probably will have to be carried next year as a result of Canada asuming the full Arctic supply job. The United States until this year had been sending three convoys to supply bases on the D. E. W. radar line which it built and operates. This was to cut to one run this year, to Eastern Baffin Island in the Eastern Arctic.

GROUP OFF TO ARCTIC

Four Scientists Leave for Base Near North Pole

CHURCHILL, Man., July 14 (Canadian Press)—A four-man team of United States scientists left by air yesterday for the northern coast of Ellesmere Island, 450 miles from the North Pole, to begin a six-week study of geological formation.

The group is headed by Norman N. Read, veteran North American mountaineer, and included Dr. Maynard Miller of Columbia University; Nile Albright and J. Hirst, all from New York.

The men were expected to reach the island today. From Churchill, on the southwest shore of Hudson Bay, they took a 1,900-mile route via Coral Harbor, Resolute Bay and Alert Bay, all northern Arctic outposts.

Dr. Terrence Moore, former president of the University of Alaska and a veteran of Arctic exploration, is expected to join the group in three weeks.

Few Eskimos in Canada

The 1951 census counted only 9,733 Eskimos in all of Canada.

FOUR-YEAR VOYAGE INTO ARCTIC BEGUN

NEW WESTMINSTER, B. C. (Canadian Press)—A sturdy little trading vessel, the motorship Fort Hearne, is off on her third trip into the Arctic and will not be back for four years.

She loaded with general cargo for church missions, Royal Canadian Mounted Police and Air Force detachments, Department of Transport signal and weather stations and Hudson's Bay Company trading posts.

The 145-foot Fort Hearne was built in Shelburne, N. S., in 1949 and is strengthened for service in northern, ice-filled waters. The Hudson's Bay Company owns her.

Included in her crew of eleven are three Eskimos who were flown here from the north. More Eskimos will be added to the crew after she reaches Tuktoyaktuk, near the mouth of the Mackenzie River. Cyril Jardine of Newfoundland, who learned his trade on the east coast, is captain.

If ice and weather permit, the Fort Hearne should penetrate about 800 miles east of the Mackenzie River delta. She last left Vancouver in July, 1953, and for four years carried supplies between remote Arctic settlements, holing up in the ice for the winters.

CANADIAN ESKIMOS GET NEW LANGUAGE

MONTREAL (Canadian Press)—Dr. Gilles Lefebvre, linguistics professor at the University of Montreal, has developed a new language medium to help orient Canada's 9,000 Eskimos to modern life.

He was asked by the Northern Affairs Department to weld together the many Eskimo dialects into a unified language that would be familiar to all tribes.

The job took the 30-year-old professor three years, including a summer spent in the Belcher Islands in the Northwest Territories.

Dr. Lefebvre said his system is patterned after one introduced to Greenland's 25,000 Eskimos in 1872 by a German missionary.

By teaching the Canadian Eskimo to read and write without the confusion of several dialects, the Canadian Government hopes to accomplish the same, Dr. Lefebvre said.

"Life for our Eskimos has changed radically. Modern weapons have reduced game, and government industry in the north has opened up employment. For the first time Eskimos must spend money to acquire goods they need, instead of acquiring them through hunting and trade."

Submarine Nautilus Sails Under North Pole

WASHINGTON, Aug. 8 — History's first undersea voyage across the top of the world, a distance of 1,830 miles under the polar icecap, was disclosed at the White House today.

The trip was made in four days by the Nautilus, the world's first atomic submarine. The voyage pioneered a new and shorter route from the Pacific to the Atlantic and Europe — a route that might be used by cargo submarines. It also added to man's knowledge of the subsurface of the Arctic basin.

The voyage took the Nautilus under the North Pole. The overall trip began at Pearl Harbor July 23 and ended at Iceland Aug. 7.

The Nautilus went under the icecap at Point Barrow, Alaska, and surfaced four days later at a point in the Atlantic between Spitzbergen and Greenland.

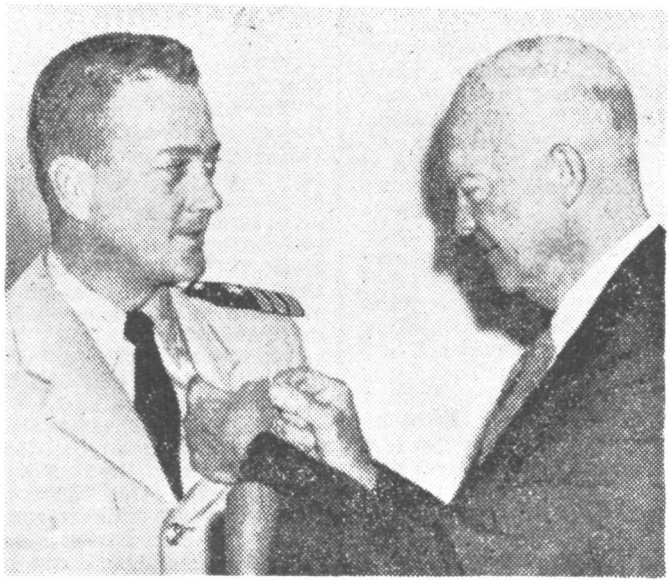
The feat of the Nautilus, with 116 crewmen and scientific observers aboard, was revealed as President Eisenhower decorated the submarine's skipper, Comdr. W. R. Anderson, with the Legion of Merit. A Presidential Unit Citation—the first ever conferred in peacetime—went to the submarine, with a ribbon and special clasp in the form of a golden "N" to all who participated in the cruise.

The Presidential citation to Commander Anderson said that the Nautilus under his leadership had pioneered a submerged sea lane between the Eastern and Western Hemispheres. It added:

"This points the way for further exploration and possible use of this route by nuclear powered cargo submarines as a new commercial seaway between the major oceans of the world."

A few minutes after the award, Commander Anderson, admittedly "a little dazed" by the speed of events that brought him here overnight by helicopter and jet plane from Arctic waters, was telling his story of "Operation Northwest Passage."

Commander Anderson began the story of Operation Northwest Passage as it got under way from Pearl Harbor in the predawn hours of July 23 under highest secrecy. He recounted briefly how the Nautilus had cruised submerged on a northerly course past the Aleutian Islands and through the Bering Strait between Alaska and Siberia toward the brittle fringe of the ice pack and then beneath it.



Comdr. Anderson receives Legion of Merit from President

From Pearl Harbor to the Bering Strait, some 2,900 miles, the Nautilus maintained an average speed of "almost 20 knots." Commander Anderson said it was his original plan to make "a straight shot" for the polar crossing from the Bering Sea. However, observations showed a stiff northerly wind had pushed the ice pack farther south than anticipated.

Looking back, Commander Anderson said that the Nautilus probably could have gotten through on that route, but that he wanted to find the best possible "highway" and the search for it took him from the vicinity north of the Bering Strait over to the coast of Northern Alaska and Point Barrow.

At this point Commander Anderson said that he had discovered the "lead" that normally opens into deep water at this time of year was easily accessible. The Barrow Sea Valley, a deep canyon in the ocean floor, was located and followed from a point just north of Point Barrow to its entry into the true Arctic Basin.

Once in the Barrow Sea Valley, the skipper explained, "we were in our true element and able to cruise fast and deep—we were on our way."

The Nautilus surfaced only in the Point Barrow area to photograph the area and to track the ocean floor for the sea valley. It periscoped off the Diomedes Islands between Alaska and Siberia and for about thirty seconds sent up its radar for checking bearings.

"If the Russians detected us they are awfully good," Commander Anderson said in answering a question. He explained that the submarine had been in international waters throughout the trip and well on the American side of Bering Strait while traversing that waterway.

Above the Nautilus the covering icecap was plainly visible over the vessel's closed-circuit television, the six months period of Arctic daylight making visibility no problem. Now and then great holes appeared in the icecap but the Nautilus sped on.

The Nautilus skipper was interrupted repeatedly with questions. His answers disclosed among other things that the Arctic Sea at the North Pole was considerably deeper than had been supposed. Precision measurements placed the true depth at 13,410 or 1,927 feet greater than earlier estimates.

Commander Anderson indicated a distinct lack of curiosity about the precise make up and penetration of the icecap below the surface of the sea. It ranged in thickness from ten to fifteen feet and loses about three feet of its winter depth in summer. But pressures caused by wind and tide sent it to a depth of fifty feet in uncharted places and these were well above the submarine, he explained.

Hitherto unknown underwater mountain ranges were found to crisscross the Barrow Sea Valley from its beginning near Point Barrow to a point where it enters the Arctic Basin. These ranges were apart from the previously known Lomonosov Ridge extending from Canada almost directly across the Pole into the Soviet Union.

It was exactly at 11:15 P. M. Eastern standard time last Sunday that the atomic-driven submarine passed directly beneath the North Pole with a larger company than ever had been on the spot before. It neither paused nor notified Washington until the Nautilus surfaced some thirty-six hours later in the Greenland Sea.

The entire voyage under the icecap—a distance equivalent to that from Chicago to San Francisco—was without a close call or mishap of any kind and without casualty or illness.

As he told his story Commander Anderson said that he wanted to "brag a little about our navigators."

"I really think that this is the most remarkable job in ship navigation that has even been done," he added.

"A trip across the North Pole, where there is no opportunity to observe anything outside of the ship, no opportunity to observe stars or do any type of electronic navigation, presents a very formidable problem—or what has been up to now a very formidable problem," the skipper explained.

"For example, it would be possible for a ship equipped with conventional navigation equipment to become so confused at the North Pole that they might actually work themselves around in a slow circle, thinking that they were going in a straight line, and end up coming into perhaps the ice-locked coast off Greenland, or even more disappointing, back where they came from."

"By having superb navigation equipment—superb compasses—by having this advanced inertial type navigation system, and by having such a complex of navigation equipment to check one thing against the other, and the other thing against something else—repeated over and over again, that we knew we were in business," Commander Anderson replied.

An inertial guidance system is made up of gyroscopes and other devices that automatically determine a submarine's position even on long submerged cruises.

The Nautilus skipper said that no contacts of a hostile nature had been made throughout the nineteen days and 8,146 miles covered from Pearl Harbor. Contacts not of a hostile nature were made, but Commander Anderson did not explain what these might have been.

Commander Anderson was casual but careful in describing the performance characteristics of his submarine. Its cruising depth and average speed were only generally described because of security reasons.

"I am able to tell you," the skipper said at one point, "that the Nautilus cruises at lower than 400 feet. I am able to tell you that we made better than 20 knots. The speed is somewhat faster in cold water."

NAUTILUS CROSSED A SHALLOW OCEAN

Shifting Packs of Ice Cover Sea Around North Pole—Floes Open Occasionally

The ice-clad ocean that has been traversed by a submarine for the first time is perhaps the shallowest, and certainly the least explored of any on this planet.

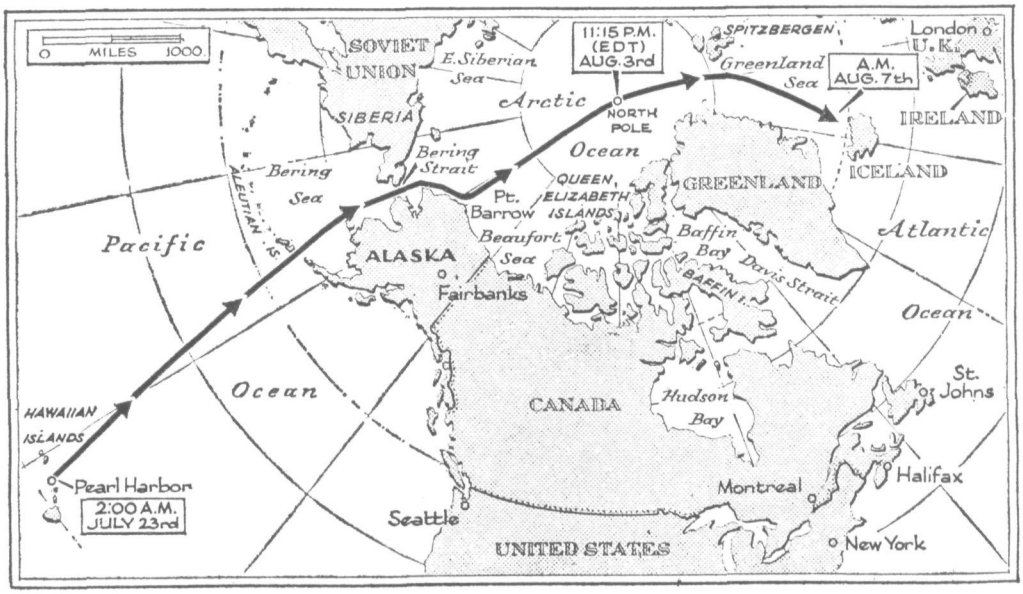
It has been said that the South Pole is a lump on the earth and the North Pole is a dent. The bottom of the world is capped by a continent and the pole there is almost 10,000 feet above sea level, on a mountain-ringed plateau.

The North Pole is in the midst of an ocean covered by ever-shifting pack ice. The ice floes—jig-saw fragments of frozen ocean carpeted with snow—draw apart here and there, opening leads and pools of ice-free water. The leads soon close when the wind shifts, or freeze over when the temperature drops.

The ice ranges in thickness from the skim on these newly frozen leads to twenty or thirty feet in ridges where pressure has buckled the floes. Most of the floes are from five to fourteen feet thick.

Beneath the ice and the water the ocean floor is subdivided by at least two major mountain ranges. The chief one, the recently discovered Lomonossov Ridge, extends from the Soviet Union toward Canada and Greenland, dividing the ocean into two great, rotating current systems.

Despite the forbidding climate of the polar pack ice, the hardiest of warm-blooded creatures range far across it. Nansen, the first man to explore deep into the polar pack by ship in the Eighteen Nineties, saw polar bears not far from the Pole. Usually the footprints of the Arctic fox can be seen following the bears to scavenge the leavings of their kills.



NEW PASSAGE: Heavy line traces the Nautilus' route from Pacific to Atlantic Oceans

According to Explorers, Trip Was 'Under' Pole

Can you sail under the North Pole? Such a feat has been attributed to the submarine Nautilus.

If one considers the Arctic Ocean and its icy covering as part of the earth, the answer is yes. The definition of the Pole is the point where the axis of the earth traverses the earth's surface.

Arctic explorers have long accepted the view that a submarine route across the Arctic Ocean would pass "under" the Pole. The book in which Sir Hubert Wilkins described his projected submarine expedition in 1929 was entitled "Under the North Pole."

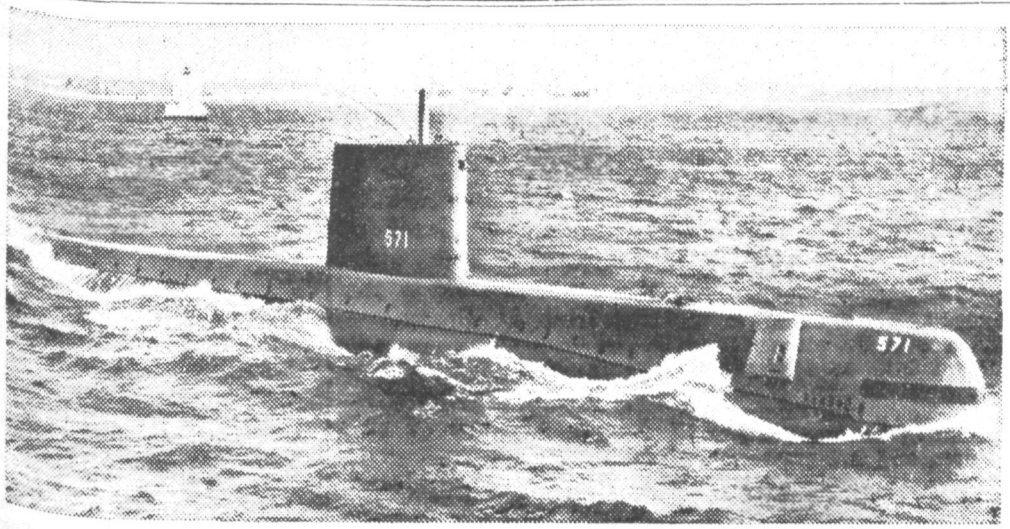
It has been reported, on the basis of scanty information, that the arctic pack ice is 40 per cent thinner than it was at the start of this century and 12 per cent less in acreage, because of a warming of the climate.

This has led to speculation that the ice may melt altogether in summer, before many decades have passed.

The Nautilus may have passed directly under one or more of the drifting stations established on the Arctic floes by the United States and the Soviet Union. At last report one of the two American stations and one of the two Soviet stations lay close to the direct route from the Bering Strait to the North Pole.

Each of these stations is on an immense floe of several square miles. This makes it possible for heavy aircraft to supply the stations when the season is cold. At present the ice runways tend to be too slushy for landings.

The other two Soviet and American stations are on ice islands. These are platters of ice that grew to a thickness of 100 feet or more while attached to the coast, then broke adrift. There are probably less than a half dozen in the entire Arctic Ocean.



The Nautilus cruising off New London, Conn., during a trial run.

Anderson Sent a Letter To President From Pole

WASHINGTON, Aug. 8 (UPI)—The White House made public today a letter written to President Eisenhower by Comdr. William R. Anderson while his submarine Nautilus was traveling under sea beneath the North Pole.

The text follows:

Sunday, 3 August, 1958.

Dear Mr. President:

It is an honor and a privilege to report to you that the U. S. .S. Nautilus will, in a few minutes, reach the North Pole while making the world's first transpolar voyage.

We submerged under the Arctic ice pack off Point Barrow, Alaska, on 1 August and expect to emerge in the Greenland Sea on 5 August.

I hope, sir, that you will accept this letter as a memento of a voyage of importance to the United States. It would not have been possible had it not been for your personal interest, approval and support. All of the men of the Nautilus join me in wishing you Godspeed in your continuing fight for world peace.

Very Respectfully,
W. R. Anderson,
Commander, U. S. Navy
Commanding Officer

(Signed at the North Pole at 11:15 P. M. Eastern daylight time.)

Skate Crosses the North Pole; Surfaces in Ice Gap and Reports

WASHINGTON, Aug. 12—A second United States nuclear submarine has sailed under the North Pole.

The Navy announced tonight that the crossing had been made by the U. S. S. Skate. She reached the pole at 9:47 o'clock last night, Eastern Daylight Time.

The Skate approached the pole from the east, the opposite way from the Nautilus. She sailed from New London, Conn., on July 30, passed between Iceland and Greenland to a point forty miles past the pole, where she is continuing under-ice explorations.

The Skate did not enter the Pacific. She will return under the polar icecap and thence to the Atlantic and New London.

The announcement of the Skate's trip said the submarine had surfaced in an ice gap near the pole and radioed home the news of her crossing. The Nautilus started on her trip at Pearl Harbor, went under the icecap at Point Barrow, Alaska, and did not surface until she was in the Atlantic.

The skipper of the Skate is Comdr. James F. Calvert, 38 years old, of Cleveland. He has been in command of the submarine since she joined the Navy as the fleet's third atomic-powered submarine.

The Skate carried a crew of ten officers, eighty-seven enlisted men and nine civilian technicians.

The Skate is considered a production-type nuclear submarine. Her predecessors, the Nautilus and the Seawolf, were more experimental prototypes.

The Skate's accomplishment was as well-kept a secret as the pioneer trip by the Nautilus. The news came less than twenty-four hours after the polar crossing, as compared with a five-day delay in the case of the Nautilus.

A Navy spokesman said tonight that the Skate had only surfaced twice so far in the polar area—the first time a few days ago to check her radio transmission facilities.

The Skate is equipped with an inertial navigator, the same device that allowed the Nautilus to chart her way through the sub-Arctic waters without sighting on the stars or guiding by radio.

Since her commissioning earlier this year, the Skate has made one high-speed run to England and back under water. She then was with the Atlantic Fleet for some time until she sailed north for polar exercises with a conventional submarine, the Halfbeak.

Comdr. James F. Calvert

The Skate has logged about 22,000 miles on her nuclear powerplant, compared with 49,000 miles for the Seawolf and more than 128,000 for the Nautilus.

Tonight's announcement was, of course, something of an anti-climax after the spectacular news of the Nautilus' trip. But it has significance of its own.

The fact that two submarines have made the trip within eight days—the Nautilus crossed at 11:15 P. M. Aug. 3—emphasizes the feasibility of the trip. It makes even more likely the swift development of transpolar routes for commercial as well as military purposes.

Nuclear engines make submarines for the first time genuine undersea ships. They can sail under water almost indefinitely without surfacing to recharge batteries or take fresh air for the crew.

The Skate, which holds the record, sailed thirty-one days under water without surfacing.

The Skate was built by the Electric Boat Division of the General Dynamics Corporation at Groton, Conn.

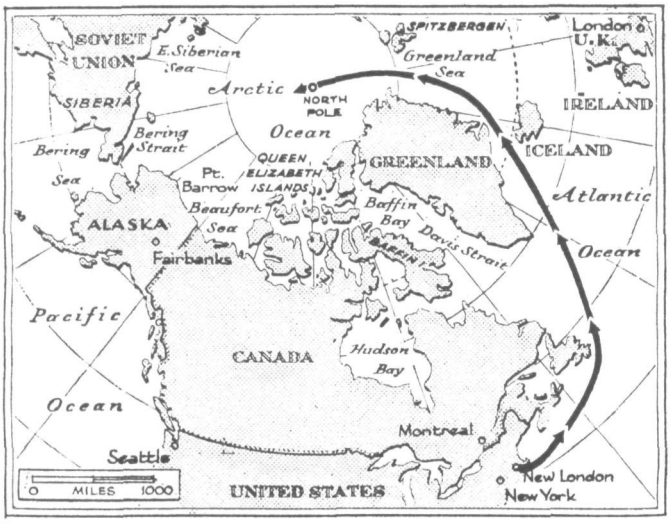
The Skate, with a displacement of 2,400 tons, a length of 265 feet and a twenty-five-foot beam, is about 25 per cent smaller than the Nautilus, though her silhouette is almost the same. She looks in outline like the shadow of the Nautilus.

The Skate, a slate-gray vessel, has a nuclear power plant based on the pressurized water concept that proved successful in the Nautilus, but she has a new and improved reactor compartment design and arrangement and a control apparatus affording better flexibility.

The Skate can travel 60,000 miles — equal to three times around the earth—without refueling.

She was the world's first nuclear submarine designed for assembly line production, and, as such, foreshadows the United States' now abuilding nuclear-powered submarine fleet.

Symbol of modernity and progress though she be, the Skate is about as comfortable as a wooden shoe a half-size too small. Her berthing spaces are, for the most part, tucked into odd corners amid pipes and valves and vital equipment.



The heavy line denotes the approximate route of the Skate

A-Sub Visits Floating Isle

By the Associated Press

Washington

The atomic submarine Skate popped up through a crack in the Arctic ice again Aug. 15, this time to visit 29 military men and scientists manning a floating ice island about 300 miles below the North Pole.

Comdr. James F. Calvert, skipper of the submarine which already has crossed the North Pole, reported to the Navy that he has moored to the island with iron stakes driven into the ice and that he planned to spend the night there.

Earlier Commander Calvert reported finding an opening in the ice about 295 miles south of the pole and surfacing near 136 degrees west longitude. The Skate found its first hole in the Arctic ice about 40 miles from the pole Monday night.

Commander Calvert, in a message to the Chief of Naval Operations, paid tribute to the navigation job done by Comdr. John H. Nicholson of Reno, Nev. He said Commander Nicholson "guided us directly to the front yard of Drift Station Alpha." This is the name of the ice island, also referred to by the Air Force as T-3. It is used by International Geophysical Year scientists.

Commander Calvert said "it was an incredible sight when my periscope broke water to see Quonset huts of the ice station all around. In a few minutes all 29 of the ice station personnel were on the banks waving and photographing."

The surfacing contrasted with Skate's emergence through a crack in the ice Aug. 14 only a few miles away. When the submarine surfaced Aug. 14, Commander Calvert reported, the submarine was "accompanied by one seal."

The ice island has a temporary population of civilian scientists, Navy and Air Force officers, and men who are conducting a wide range of research in oceanography, ice, and biology.

Watched Building of Skate

WASHINGTON, Aug. 12 (AP) — Commander Calvert, a veteran submariner, watched the nuclear-powered submarine Skate being built. He set records in the vessel before taking her on the Polar cruise.

He lives with his wife, the former Miss Nancy King of Annapolis, Md., and three children, James F. Jr., Margaret Ann and Charles Lance, at Mystic, Conn.

Commander Calvert attended Oberlin College for two years before going to the Naval Academy. He reported to the Navy's submarine school at New London right after his graduation in June, 1942, under a wartime accelerated program.

In World War II, he served on the submarine U. S. S. Jack on eight war patrols. Later, he was executive officer of the U. S. S. Haddo, and was on hand for the Japanese surrender ceremonies at Tokyo Sept. 2, 1945.

U. S. BLIMP PROVES WORTH IN ARCTIC

Snow Goose Supplies Base Planes Could Not Reach 500 Miles From Pole

A ghostly glitter in the golden Arctic sky, a Navy blimp dipped its huge silver hulk below the horizon on Aug. 9 and lazily circled ice island T-3, a floating chunk of nowhere 500 miles from the North Pole.

Never in history had a non-rigid aircraft ventured that far north, The Associated Press reported.

The nearest land was Borden Island, 400 miles to the east in the Canadian Archipelago. The nearest airport, Resolute Bay on Cornwallis Island, was 450 miles to the south.

Averaging fifty miles an hour, as slow as a trailer truck on the new Massachusetts Turnpike near the blimp's home base at Weymouth, the Snow Goose had waddled 4,250 miles to prove that lighter-than-air craft still deserve a place in the jet age.

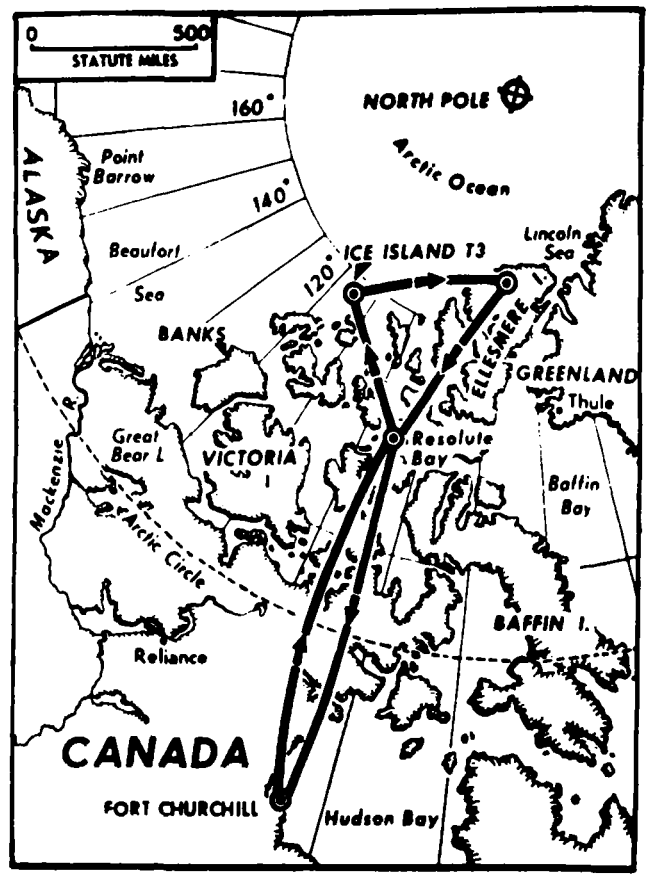
Blimps can do things no other conventional aircraft can. They fly low and slow and stay in the air for days.

Two years ago a Navy blimp remained aloft for more than ten days without refueling. They cannot explode, because the bag is filled with a million cubic feet of inert helium, not inflammable hydrogen.

The public always seems to remember the dramatic disasters of dirigibles but to forget that the Germans had commercial passenger service on airships as early as 1910, before planes even flew mail; that the dirigibles Norge and Italia both flew over the North Pole in the Nineteen Twenties when aviation was in its infancy; that the Graf Zeppelin logged nearly a million miles, crossed both the Atlantic and the Pacific, and never had an accident, and that not a single ship was lost in any convoys escorted by blimps in World War II.

Perhaps this was in the mind of Lieut. Comdr. Henry Collins of Conshocken, Pa., as the sandy-haired command pilot leaned forward to maneuver his block-long ship down through the heavy morning haze that had settled over the ice island, a dingy white blotch in the polar pack's eerie mosaic of green and blue sea ice.

"Keep going down until you see the station," said the expedition commander, Capt. H. B. Van Gorder of Canandaigua, N. Y. The rest of the eighteen crewmen, scientists and observers crowded about windows and portholes, with cameras and light meters poised.



This is a United States Navy blimp's flight plan via Resolute Bay to Ice Island T3, a floating weather station in the Arctic Ocean.

For the first time since the blimp had left Weymouth two weeks before, all nine bunks in the top deck were empty of off-duty snoozers. Even the cribbage players, whom neither polar bears nor walrus could distract, had deserted the wardroom tables, and the cook, Seaman Wendell Dunlevy of Columbus, Ohio, had left a pile of potatoes in a state of semiundress on his galley work bench.

Suddenly a low, long hut, painted a garish orange, came into view. Then another and another, until a whole street of little houses stretched across the ice, like a grotesquely misplaced suburban development.

Men could be seen pouring out of the huts, waving frantically, happily, as the blimp's back cargo doors swung open and Lieut. H. D. Koza of Lyman, Neb., began pushing out mail and supplies.

An off-season visit by Santa Claus could hardly have caused more excitement for the twenty-five scientists and technicians manning this lonely outpost as part of the International Geophysical Year research program. It had been four months since the last plane touched down on their icy runway, now turned to slush by the summer sun, and two months since their last mail drop.

The Snow Goose also brought them a new batch of homework. After a brief exchange of radio messages, it stood out to sea and hunted an opening in the ice pack so Guy Harris of the Navy underwater sound laboratory at New London, Conn., could drop hydrostatic depth charges.

Every hour Harris pitched his pineapples out the tail bay from an elevation of 400 feet, while scientists on T-3 measured their acoustical effect to learn more about the depth and bottom of the Arctic Ocean.

After numerous false starts and embarrassing detours to Akron and Lakehurst—because warm air over the Hudson Valley had forced it to release helium and lose lifting power—the Snow Goose had carried out its mission.

It had supplied a Far North base at the height of the summer sun season, when airplanes cannot land, and given the geologists and glaciologist aboard a comfortable roomy laboratory plus an unprecedented view.

Had it arrived six days earlier, the blimp might have been over the polar pack at the same time the atomic submarine Nautilus was under it.

The Arctic flight opened up the possibility of using blimps to supply submarines in polar regions, to drop scientists on the ice for much shorter periods than summer flying conditions permit with conventional aircraft, to carry out search and rescue missions along transpolar commercial routes, even carry a helicopter atop the bag where some blimps now carry heavy radar equipment.

As added proof of its endurance and perhaps to make up for earlier delays, the blimp flew all the way home from T-3 to Weymouth in seventy-eight hours, with only a one-hour stop for refueling, which means it was airborne for nearly three and one half days.

Dubbed the "Reluctant Rubber Rocket" when it seemed unwilling to leave the United States, the blimp finally lived up to the name given it by the crew—the Snow Goose—the fat bird that has found a home above the Arctic Circle.

EDUCATORS TO SCAN ARCTIC KNOWLEDGE

An eighteen-month study designed to bring knowledge of the Arctic up to date for teaching purposes was announced Nov. 27 by Teachers College, Columbia University.

H. Phillip Bacon, Associate Professor of Geography, will direct the project. It will be financed by the Link Foundation, which provides grants for many studies in education and aviation.

"The changes and developments in the Arctic over the past two decades have not been made part of geography in the elementary grades," Dr. Bacon said. "Our research is aimed at filling the gaps."

The study will pay particular attention to the changes that aviation has brought to the Arctic since World War II. The regions to be examined include the North Pole area, the Arctic Ocean and its islands, northern Canada, Alaska, and large parts of Siberia and Greenland.

Greenland To Get DEW Extension

Reuters

COPENHAGEN, Aug. 14 The DEW line Western radar defense system stretching across northern Canada, will be extended across Greenland, the Danish Ministry for Greenland announced today.

Negotiations for the construction of additional air-warning posts in Greenland were started by the United States and Denmark in late 1957, the announcement said.

It now has been agreed to extend the DEW—Distant Early Warning—system to cover Greenland, the statement added. Construction of the new posts is expected to be completed in a few years.

20 Rescued as Ice Island Splits; Planes Save I. G. Y. Arctic Team

FAIRBANKS, Alaska, Nov. 7 (UPI).—Twenty men, plucked from a floating ice island in a hazardous air rescue 300 miles from the North Pole, were flown today to Thule, Greenland, where all were reported in good condition.

Ladd Air Force Base officers said a plane which blasted off the ice with jet-assisted takeoff landed at Thule at 10:18 a.m. Thirteen of the men were transferred to another plane, due to reach Westover Air Force Base, Massachusetts, tomorrow.

They had been on Drifting Station A, an International Geophysical Year base 960 miles northeast of Point Barrow, Alaska, and 600 miles northwest of Thule.

The island broke in half Sunday, marooning the men on a chunk of ice about 1,000 feet square and separated by one and one-half miles of open water from the section of the island carrying the plane runway.

The floe was first manned as a floating scientific station in the spring of 1957. At that time it was 550 miles north of Barrow. Since then its location has been determined only by wind and water movement.

The scientists have made the first photographs of the ocean bottom in the central polar region and collected samples of sediment.

It had been hoped that the ice island would drift across the North Pole. It was within 300 miles once, but seasonal changes in wind and current reversed its direction.

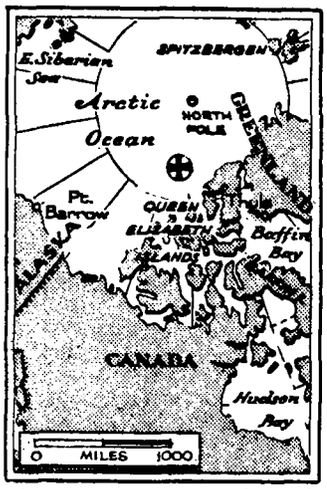
Columbia Man Is Chief

FAIRBANKS, Nov. 6 (AP)—Ladd Air Force Base gave the following identification today of the marooned men:

Capt. James F. Smith of Oklahoma City, station commander; Staff Sgt. Thomas A. Boger of Haddenfield, N. J.; Airman 2/C William A. Sprague of West Palm Beach, Fla.; Airmen 1/C George Coleman of San Antonio, Tex.; Raymond E. Wise of Mount Vernon, N. Y.; Albert J. Marcus of Meriden, Conn.; Ronald N. Beaupre of Tucson, Ariz.; John M. Cecil of Ypsilanti, Mich.; M. F. MacNeel and C. O. Williams, radio operators; Staff Sgt. Richard Van Natta of Decatur, Ill., and Airman 2/C Wright, radio repairman.

The civilians were:

George Cvijanovich of Columbia University, chief scientist;



Approximate area (cross) where 20 men were saved from ice floe in the Arctic.

Thomas R. Stetson of the Woods Hole Oceanographic Institute in Massachusetts; Jorge Scholten of Argentina's Antarctic Institute; Arnold Hanson, oceanographer of the University of Washington and four civilians identified as Naeuffer, Williams, Johnson and Wallenbarger.

WASHINGTON, Nov. 7 (AP) Flarepots strung along the 2,200-foot landing strip on the ice enabled the crew of the twin-engine transport to slide in for a ski landing in the Arctic night. They hustled men and valuable records aboard the plane and took off with an assist from rocket boosters.

Because of the load of passengers, the plane made a refueling stop on the return trip at an emergency field.

The runway at ice island Alpha had originally been longer than 2,200 feet. When a violent gale broke the island in two, the runway's length was cut. The camp at which the scientific party had been operating was on the other part of the island. All equipment was left behind, possibly to be picked up later when daylight and better weather return to the North Pole region.

The Rev. Thomas Cunningham of Barrow, Alaska, an expert on polar ice and a Roman Catholic priest, who was among those rescued, said tonight by radio from Thule that "all of our prayers have been answered."

George Cvikanovich of Columbia University, chief scientist on the expedition, said the rescue plane "was the most welcome sight I have ever seen coming out of the air."

"About 30 per cent of the floe was lost when we had our first storm about two weeks ago," he said. "Another 40 per cent was lost in the storm Sunday."

The storms broke up the ice island on which the party had been floating across the top of the world making scientific observations.

Mr. Cvikanovich said the break-up of the island, which separated the base camp from the runway, "made all operations on the island perilous."

Colder weather froze stretches of open water and made it possible for the men to reach the runway and meet their rescuers, he said.

"We experienced no trouble going from the camp site to the runway as the extremely low tmperatures had frozen the water between the floes until it would hold a man's weight," Mr. Cvikanovich said.

"The entire party walked across the ice surrounding the open water to the runway floe. We are extremely proud to have been associated with the Air Force personnel assigned to our party. They are extremely dedicated people and their quality of work was most commendable."

When the Air Force received word by radio from the party that the island was breaking apart, an "air cover" was organized. From Thule, two transport planes and a weather reconnaissance craft were assigned to fly above the island constantly, until the rescue plane could remove the party.

Two C123's were flown to Thule from Harmon Air Force Base, Newfoundland, one to make the rescue attempt, the other as a spare plane.

POLAR CASTAWAYS 'LIVED LIKE KINGS'

11 of 20 Picked From I.G.Y. Ice Isle Land Here, Telling of Calm, 6-Day Wait

By BILL BECKER

Their world was cracking all around them, but the twenty men waiting for rescue from a floating ice isle near the North Pole kept calm.

"We were snug and comfortable," Capt. John S. Smith of Lawton, Okla., Air Force commander of an International Geophysical Year team, said here Nov. 9 "We just recognized that the next storm might put us out of business."

The scientific leader, George Cvijanovich of East Orange, N. J., conceded that it was a trifle disconcerting to have the ice crack virtually through the middle of the camp.

"The noise sounded like a freight train coming through," Mr. Cvijanovich said.

There was no morale problem, it seemed, while the twenty men waited six days for rescue by the Air Force

"We lived like kings," Mr. Cvijanovich said. "We ate heartily and drank 'Ice Skates' and 'Old Rusty Throats.'"

An "Ice Skate," it developed, was pear juice and vodka. An "Old Rusty Throat" was an Arctic version of hot buttered ru

The pilot of the rescuing C-123J, Capt. Joe B. Sullivan of Kansas City, Mo., admitted that the landing on the 2,200-foot ice runway last Thursday was "sort of a hairy one."

"It was the first time I ever landed on the ice in total darkness," Captain Sullivan added.

He used wheels rather than skis, with which the plane is equipped, on the radioed advice of Captain Smith. The wheels permitted faster braking action.

The runway was marked by railroad fusees and flare pots. A hovering C-54, piloted by Maj. Basil L. Commons of Hopkins, Mich., helped guide the rescue craft in.

The take-off from the ice was assisted by two auxiliary jet engines that the C-123J carries near its wingtips. The members of the I. G. Y. team were flown back to Thule Air Force Base in Greenland, about 600 miles to the southeast and thence to the United States.

Mr. Cvijanovich, a geophysicist with the Lamont Geological Laboratory of Columbia University, bemoaned the fact that scientific equipment had to be left behind.

"Perhaps we can go back for it next spring," he said.

Where Ice Station Alpha will be then is problematical. When last seen, it was broken up to floe-size, 800 by 1,000 feet, according to Mr. Cvijanovich. When the I. G. Y. camp first was established in April, 1957, Alpha measured two miles by five miles.

Since last August, three big chunks have broken off. The camp of twenty-one structures, mostly huts, had to be shifted twice, the last time about a month ago.

The scientists measured ocean depths, the earth's magnetic field, the aurora borealis, temperatures and ice movement.

Brown Gets Whaling Relics

PROVIDENCE, R. I., Oct. 4 —Mrs. Carleton D. Morse of Needham, Mass., has presented to Brown University her late husband's collection of over 1,000 books, letters, log book and relics relating to the whaling industry. The gift will be kept in the university's library as a memorial to Mr. Morse, who was graduated from Brown in 1913.

FIRST SUPPLY SHIPS REACH THULE BASE

July 12

The first units of a supply armada of the Military Sea Transportation Service have crashed their way through packed ice fields to reach the crew that mans this country's military base at Thule, Greenland.

The installations of the Department of Defense's top-of-the-world bastion have been iced-in since last September. Since then they have been using supplies landed a year ago. This is the ninth provisioning of Thule by sea since the base was set up.

The Navy agency announced here that the icebreakers Edisto and Glacier had plowed through 150 miles of ice fields to reach the base. In the convoy were the Navy LSD's (Landing Ship, Dock) Rushmore and Casa Grande, both loaded with food, petroleum products and stevedoring equipment.

The ships completed their unloading over the week-end and are now on their way out. Standing by also at this time to make a delivery to the base is the John Sergeant, whose entry to the treacherous port is expected soon.

The Thule landings open a summer-long operation during which the M. S. T. S. will resupply all of the United States bases in the Arctic region. The operation is under the control of Rear Admiral Donald T. Eller, commander of the Atlantic Area of the M. S. T. S.

5 IN HELICOPTER KILLED

Bodies of Service Men Found at Greenland Crash Scene

SPRINGFIELD, Mass., July 27 (UPI) — The bodies of five men who were aboard a helicopter that crashed in Greenland Friday were found today, according to a radio report to Westover Air Force Base near here.

A tractor-treaded "weasel" reached the crash scene 175 miles east of Thule Air Force Base. The helicopter was on a routine training mission.

Killed were four Air Force men and a passenger, Army Lieut. James Alger 3d of Washington, the son of Capt. James Alger Jr., maintenance officer of the Coast Guard Academy in New London.

The airmen killed were Lieuts. Harry De Wald of Sarasota, Fla., and Eugene Sullivan of Oak Creek, Colo.; Sgt. John Mustain of Indianapolis and Airman John De Pew of Auburn, Ind.

Dog Power for Eskimo Sleds

Traditional dog-pulled Eskimo sleds may be as long as eighteen feet.

German Scientist Pays Call on His U.S. Captor

WASHINGTON, Sept. 23—A German scientist who was captured in World War II arrived in Washington today on his way to a job provided by the United States Coast Guard officer who was his captor.

Dr. Walter Sander and eleven other Germans set up a weather and ice observation post on the east coast of Greenland in 1944, expecting to stay four or five years.

They lasted five days. Their captor was Capt. Charles Ward Thomas, now a rear admiral (retired), who is working on an Arctic program for the National Academy of Science in support of the International Geophysical Year.

Dr. Sander called on Admiral Thomas here today.

Dr. Sander and a party of six will be stationed on Drifting Station Alpha, some 1,500 miles from Fairbanks, Alaska. They will be only about 150 miles from a similar station manned by Russians.

Dr. Sander and Admiral Thomas have corresponded regularly since the end of the war.

Ice Cap Tunnel Carved to Test Its Livability

WASHINGTON, Dec. 29 (AP).

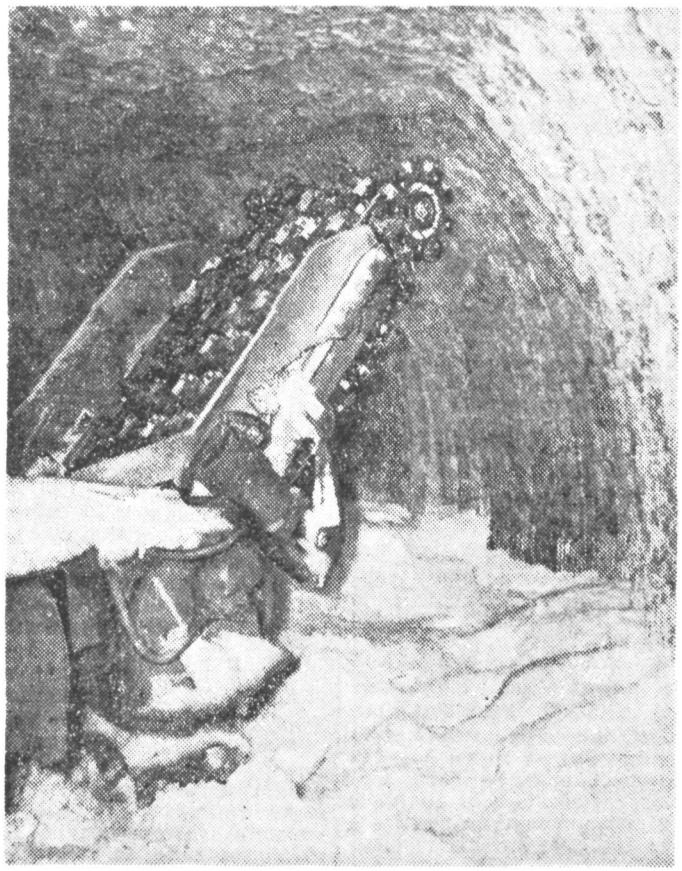
The Army engineers have carved out a 1,150-foot tunnel under the Greenland ice cap to try to determine how it would be for military men to live and work in a permanent deep freeze.

The tunnel starts near the big Air Force base at Thule, on the northwest coast of Greenland. It contains three huge rooms each 7½ feet from floor to ceiling, 21 feet wide and from 200 to 300 feet long.

The Army conducted similar experiments in previous years digging much deeper into the ice. The tunnel dug this past summer is about 60 feet nearer the surface of the ice cap than the earlier tunnel entrances.

The engineers reasoned that pressure nearer the surface would be less than at lower depths and that the closure rate of the ice, caused by the gradual movement of heavy ice formations, would be less.

The engineers, studying the work done during the brief, relatively warm weeks of the year, will return to Greenland next summer to see whether their expectations are realized



U. S. Army Photo

As a project of the Army's Snow, Ice and Permafrost Research Establishment, the Corps of Engineers has carved out a 1150-foot tunnel in the Arctic Ice Cap.

NEW PORT PLANNED FOR GREENLANDERS

COPENHAGEN, Denmark, Sept. 2—The Danish Government approved today a contract between Denmark and Atlantic Ore, Ltd., for the construction of a port on Rype Island just south of Godthaab, Greenland.

The port will serve as a transshipment base for iron ore from the Ungava Bay deposits in northern Quebec.

Certain details still have to be approved by the Economic Committee of the Danish Parliament and certain technical investigations would be carried out by Atlantic Ore. The company was represented by Cyrus S. Eaton Jr.

Under the contract a Danish company will be organized to supervise the construction of the port and Danish or Greenland workers must be employed on the project. The cost is estimated at $20,000,000 to $25,000,000.

WASHINGTON—Fewer people live in Godthaab, the capital of southern Greenland, than in an ordinary American housing development.

Yet, with only 2,000 population, Godthaab is Greenland's largest settlement, and it is experiencing a surge of growth after 237 quiet years, the National Geographic Society says.

A new port is planned. The Danish Government recently contracted with a British concern for construction of port facilities on an island in Godthaab Fjord as a transshipment base for iron ore from Quebec.

Shipping is the lifeblood of Greenland, for Denmark's island province must import all its consumer goods.

The oldest Danish settlement in Greenland, Godthaab, was founded in 1721 by a beloved missionary, Hans Egede. A steepled church and a statue of Egede, dressed in ruff and gown and gazing steadily seaward, are modern Godthaab's most conspicuous landmarks.

World War II brought the world to the doorstep of Godthaab and Greenland. The huge island became a base for Allied submarines, planes, radio and radar installations, and meteorological stations.

Now Godthaab has completely made the transition from the Stone Age to the modern era. Nearly everyone wears European dress. The town throbs to the sounds of engines, electric drills, and hammers.

Stone and turf huts have all but disappeared from Godthaab. The hut dweller of yesterday probably has a sturdy, insulated wooden house, comfortable furniture, electrical appliances, a radio, and motor boat. Nearly every ship sailing from Denmark to Greenland since the war has carried a cargo of new motorboats on deck.

Give Antarctic Base to Argentina

Associated Press.

WASHINGTON, July 16.—The United States and Argentina have agreed to cooperate in operating the Ellsworth Scientific Station in the Antarctic.

A joint announcement by the two governments said yesterday the United States would contribute all buildings, facilities, supplies, fuel and food remaining at the station at the end of the International Geophysical Year. The Argentine government has agreed to provide logistical and administrative services needed for continued operation.

LONDON, July 7 (AP).—Britain has approved conditionally an American move to transfer to Argentina an American base in British-claimed territory in Antarctica, officials here said today.

Britain's condition: any American-Argentine agreement to effect the transfer must not prejudice British sovereinty in the area.

The American base, known as Ellsworth Station, is on the Weddell Sea and in Falkland Island Dependencies. Britain administers these icebound islands as colonies, but Argentina and Chile long have contested its claim of sqvereignty there.

Officials said the United States has advised Britain of its intention to transfer Ellsworth Station to Argentina before talks on the subject were opened between Washington and Buenos Aires.

According to official sources, part of the American personnel will be evacuated during the next Antarctic summer, in a transcontinental air and tractor journey to Little America.

The new crossing is to be made by tractor to Byrd Station, a distance of more than 1,000 miles, with frequent echo-soundings and other ice sheet studies. The remaining 647 miles will probably be covered by plane. That stretch has already been thoroughly studied by earlier tractor trips.

Two single-engine Otter planes are to fly the entire route, making landings as necessary. Others at Ellsworth will be taken out by icebreaker.

Argentina has a base, General Belgrano Station, only forty miles east of Ellsworth Station. It is said to be less fully equipped and may ultimately be closed down.

This country is planning to turn over Ellsworth Station (cross) to Argentina. Part of the American personnel will return home by crossing continent (broken line) to Little America. Other tractor journeys (triangles) into Horlick Mountains and Victoria Land are scheduled.

The Shackleton Base of the Commonwealth expedition, still further east, is already closed down and the future of the only other outpost on the Weddell Sea, the scientific station of Britain's Royal Society at Halley Bay, is uncertain.

The United States has already completed arrangements to transfer Wilkes Station, on the opposite side of Antarctica, to Australia. This will limit American activities to the South Pole itself and to the sector south of the Pacific Ocean.

The transcontinental journey is part of a revised program for the trail trips to begin next October. They may settle, at last, the controversy as to whether Antarctica is one or two continents.

It was long argued that there might be a link between the waters of the Atlantic and Pacific through an ice-covered strait joining the Ross Sea and Weddell Sea. Flights by Rear Admiral Richard E. Byrd and Capt. Finn Ronne have eliminated such a possibility, because the height of the ice inland showed that it could not be floating on water.

Nevertheless, ice soundings in Marie Byrd Land during the last year have shown that, even where the surface of the ice is 5,000 feet above the sea, the rock beneath it may be 5,000 feet below sea level.

Hence the possibility remains that west Antarctica—the area south of the Western Hemisphere—may be separated from the rest of Antarctica by a great ice-filled channel.

The ice soundings of the Commonwealth expedition showed the rest of Antarctica to be a true continent, largely above sea level. Some believe west Antarctica may be a mountainous, ice-covered archipelago comparable in extent to the islands that span the Canadian Arctic.

The tractors presently at Byrd Station are to make a triangular journey, one leg of which is to run for 200 miles along the northern foothills of the Horlick Mountains.

These mountains have been charted solely on the basis of sightings by fliers, nearing the outbound limit of long flights. Their location, height and composition is uncertain.

They were named by Admiral Byrd for William Horlick, the malted milk manufacturer. This journey would cross part of the potential route of an ice-buried strait.

Another tractor journey is to be made from the base at McMurdo Sound, up the Skelton Glacier and then deep into Victoria Land. Aircraft are to place a major fuel and food depot at the top of Skelton Glacier. The glacier was proved feasible as a tractor route by Sir Edmund Hillary's segment of the transcontinental expedition.

The Victoria Land trek will be led by Dr. Albert P. Crary, director in the field of American scientific efforts in Antarctica.

Navy Mobilizes For Antarctic Trip

United Press International.

WASHINGTON, Aug. 26.—The United States is priming for a new series of experimental missions at the South Pole. The Navy announced yesterday that 2700 men had been mobilized for this winter's Antarctic operations which will cap International Geophysical Year activities and kick off a United States Antarctic research program of indefinite duration.

Nine ships and 34 aircraft will start leaving American seaports and airbases for New Zealand and the Antarctic in a few days, the Navy said.

The United States will keep four of its seven Antarctic science stations going indefinitely. They are the South Pole station, the air facility at McMurdo Sound, Byrd Station in Marie Byrd Land, and Hallett Station on Cape Hallett in the Ross Sea.

British Antarctic Plane Bought by U.S. Navy

By Reuters

London

The United States Navy has announced here it had bought the Otter aircraft used by the British Commonwealth trans-Antarctic expedition.

The plane is the one used in the history-making flight by British Air Force squadron leader John Lewis on Jan. 6 when he became the first man to fly across Antarctica in a single-engined aircraft.

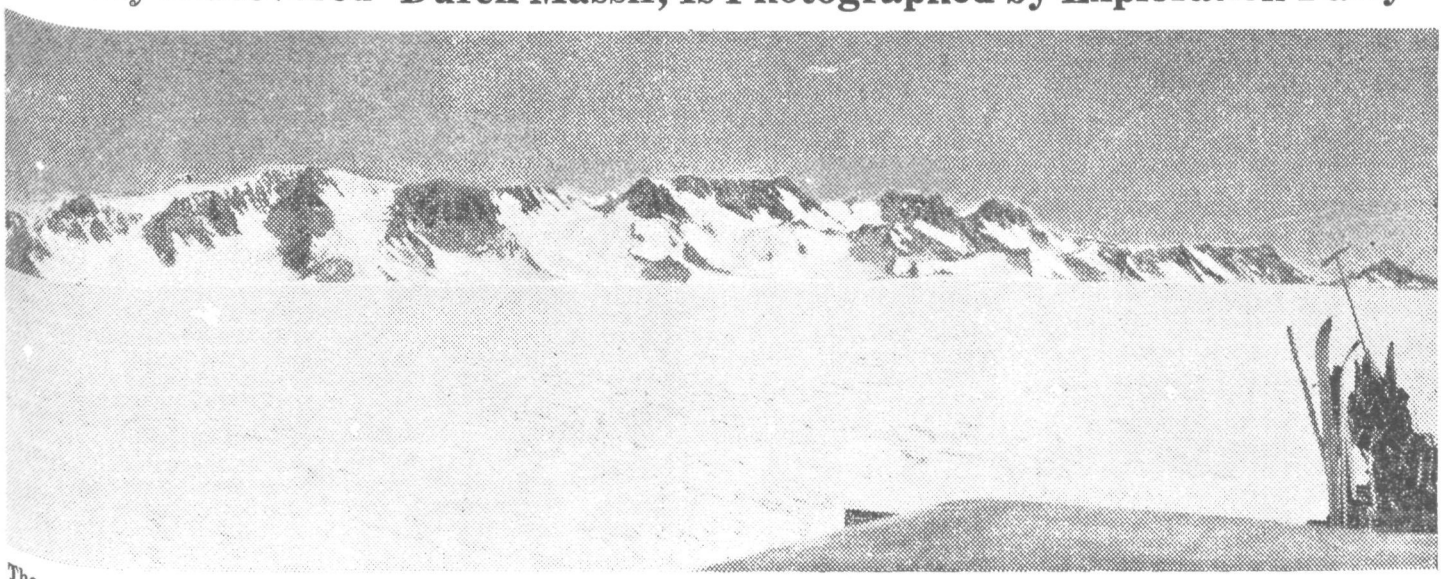
The United States Navy bought the plane — original cost $125,000—for $70,000 and it has been turned over to the Navy base at McMurdo Sound.

The Americans will continue to use the plane for ice reconnaissance and short-range air support of traverse parties, the announcement said.

Antarctic Survey to Continue

WASHINGTON, July 17 (UPI)—The Coast Guard and Geodetic Survey announced today it would keep men and equipment in Antarctica next year to continue studies of magnetism and earthquakes.

Newly Discovered Dufek Massif, Is Photographed by Exploration Party



The peaks, as seen from north, rise 5,000 feet above ice sheet and 9,000 feet above sea level. Photos were made by Paul T. Walker, a geologist and glaciologist in the party.

July 31

Photographs of an imposing, newly discovered Antarctic mountain range have been received from members of a party that reached it last Dec. 10 on a tractor journey from Ellsworth Station on the Weddell Sea.

The range has been identified as the Dufek Massif, first sighted by a Navy plane on a transcontinental flight from McMurdo Sound the previous January. It was named for Rear Admiral George Dufek, commander of the military units supporting the United States Antarctic effort during the International Geophysical Year.

The range seems to have been misplaced about 100 miles to the northeast by the Navy fliers. This is a common mistake on exploration flights of such length in a region without navigational aids.

The range is marked by striking horizontal bands of black and rust-colored igneous rock, largely diorite. Its eastern end seems from a distance to be overwhelmed by the northward-flowing ice. On closer examination the explorers found that on the north side, sheltered from the ice flow, were extensive snow-free and ice-free areas largely covered with waterlogged gravel.

This has been broken up into a polygon pattern by successive freezing and thawing so that the region seems paved with huge cobblestones. In one of these ice-free valleys there is a tarn about 100 yards wide, resembling a skating rink.

The range is roughly 300 miles from the Weddell Sea and 500 miles from the South

Pole. Its jagged peaks extend for thirty miles, with the range ten miles wide at its broadest point.

The party stayed in the mountains a week.

The tractor group was a five-man scientific team led by Edward C. Thiel, a seismologist.

The other participants in the journey, which covered a total distance of 816 miles before the team was flown out, were Nolan B. Aughenbaugh, John Behrendt, Hugo Neuburg and Paul T. Walker. Specimens and data they collected are being studied at the Ohio State University Research Foundation.

4 Planes Down in Antarctica

WELLINGTON, New Zealand, Oct. 10 (Reuters)—Four United States Globemaster aircraft made forced landings 450 miles from McMurdo Sound in Antarctica last night. They were returning from an airdrop in the center of the continent when the weather closed in unexpectedly. A United States Dakota plane at Cape Hallett, 450 miles inland from McMurdo, was able to talk the Globemasters down to the emergency ice runway there.

Siple Sees Antarctic As Nuclear Center

Latter-day Magellans are looking toward the South Pole as the world's last frontier, an Antarctic explorer said Sept. 11

The ice cap, Dr. Paul A. Siple predicted, may soon be the center of nuclear research and industry, as well as affording new land to a crowded earth.

"The South Pole is ideally suited to nuclear development," the scientist told the National Security Industrial Association in the Mayflower Hotel, "because accidents down there would offer minimum danger to human life." Dr. Siple also pointed out that the ice cap offered excellent facilities for the disposal of radioactive wastes produced by such industries.

Dr. Siple revealed that he is at present working on Project COHN, which is aimed at making the Antarctic suitable for colonization. "The letters stand for carbon, oxygen, hydrogen and nitrogen," he explained. "Once these elements can be freely synthesibed, the South Pole will be independent of the need to import goods of any kind. Compounds of these four will provide the bulk of man's requirements for living—food, fuel, power and clothing," he said.

Another important function the Antarctic will fulfill, Dr. Siple said, is that of a satellite tracking station. He said a weather satellite in orbit over the pole could relay vital information on weather fronts and cloud patterns. Dr. Siple explained that the weather eye passing over the Antarctic would be able to communicate about every hour, rather than once in 12, as would be the case in any other orbit.

"Many regard the polar regions as dismal wastes of ice and cold rocks," Dr. Siple said. "But there are far-sighted individuals who believe the Arctic Ocean will be the Mediterranean of the future."

CHRIST CHURCH, N. Z., Sept. 12. (UPI).—Rear Adm. George Dufek, commander of the United States Antarctic operations, said today he was hoping for congressional approval of a portable nuclear power reactor for use at the South Pole.

Adm. Dufek said such a reactor would be used for heating and power generation at the small township fort buildings which have a peak summer population of more than 300 men. He said the reactor would cut the enormous fuel bill and pay for itself in a year.

He said the Navy has to hire Military Sea Transport ships at $2,000 a day for an average sixty-day trip to carry fuel.

Antarctic Crash Killing Six Gave No Warning

AUCKLAND, New Zealand, Oct. 17 (AP).—A rescue party struggled today to reach three survivors in a wrecked United States plane after a helicopter took out four other survivors of an Antarctice crash. Six airmen died in the crash.

A ground party in three tracked vehicles got within four miles of the downed C-124 Globemaster at one point but had to turn back and detour around an impassable icefield. Snowstorms made going difficult, United States Air Force officials in Auckland said.

The three men reported by emergency radio they were huddled in the tail of the four-engine plane but were in good condition with sufficient food and medical supplies.

The helicopter made the 10-minute flight from the joint United States-New Zealand station at Cape Hallett during a break in stormy weather. The weather balked rescue attempts yesterday after the plane went down on a flight from Christchurch, New Zealand, to drop supplies to United States bases in the Antarctic.

Two of the men flown out were injured, officials said. They were identified as Airman 2c Joel Bailey of Belton, S. C., in serious condition, and Capt. James T. Quattlebaum of Columbia, S. C., in fair condition.

Donaldson Air Force Base at Greenville, S. C., listed the dead crew members as: S/Sergt. Leonard M. Pitkevitch, flight engineer, Lawrence, Mass.

Airman 1/c Richard J. Deangelo, flight mechanic, Pittsfield, Mass.

Scene of plane crash (cross)

Airman 2/c Kelly Slone, load master, Garner, Ky.

In addition, three maintenance men who were passengers on the flight were listed among the dead. They were:

S/Sergt. Nathaniel Wallis, Greenville, S. C.

T/Sergt. Iman A. Fendley, Prichard, Ala.

Airman 2/c Robert L. Burnette, Louisburg, N. C.

CHRISTCHURCH, New Zealand, Oct. 18 (AP) —The 13 Americans on a Globemaster transport plane had no warning when they plowed into an Antarctic hillside, killing six of them, the aircraft commander said today.

"One moment I was talking by radio to Cape Hallett," Maj. George Bone said. "The next thing I remember, I was hanging upsidedown in my straps and the copilot was saying to me, 'are you all right, boss?'"

Maj. Bone and the other six survivors told of a day spent in the plane wreckage before they were rescued yesterday by a helicopter from the joint United States-New Zealand station at Cape Hallett, 30 miles from the crash scene.

They were flown from Cape Hallett to the main United States Antarctic base at McMurdo Sound and then brought today to Christchurch, the supply base for American operations in Antarctica.

Maj. Bone praised his crew's courage and toughness. Although dazed, those who escaped injury immediately began giving aid to the injured, he said.

Only the sturdiness of their Douglas C124 plane saved the lives of the six men in the crew compartment, Maj. Bone said. The six men killed and one survivor were in the cargo compartment of the huge four-engine plane.

Maj. Bone said the plane "hit a rock that did not show up on our radar." If the plane had hit 200 feet lower on the snow-covered hill it might have been impossible for anyone to walk away, he added.

Antarctic Survivors Better

CHRISTCHURCH, New Zealand, Oct. 18 (Reuters)—The three badly injured survivors of a United States Air Force Globemaster that crashed in Antarctica two days ago were reported out of danger in a hospital here today.

Navy Picks a New Antarctic Chief

Rear Adm. David M. Tyree

WASHINGTON, Oct. 27 (UPI)—The Navy announced today that Rear Admiral David M. Tyree would replace Rear Admiral George J. Dufek as commander of United States forces in the Antarctic next spring.

Admiral Dufek, veteran of the Antarctic and Arctic expeditions since 1939, is retiring.

The Navy said Admiral Tyree, 54 years old, would return next month from his post as commander of naval support forces in the nuclear bomb test area at Eniwetok.

He will be assigned to the office of the Chief of Naval Operations in Washington until he takes over the Navy's Antarctic support base at Christchurch, N. Z., about April, 1959.

Admiral Tyree was decorated with the Legion of Merit and Bronze Star for his exploits as a gunnery officer in World War II.

18 MEN HAIL SPRING AT SOUTH POLE POST

CHRISTCHURCH, New Zealand, Sept. 23 (UPI)—Eighteen men and two sledge dogs at the South Pole celebrated the first day of spring today and saw the sun for the first time in six months.

Seventeen of the men are Americans. One is an Argentinian.

They last saw the sun March 22 when the long Antarctic fall and winter set in.

They have seen no other person in eight months and have received no mail since last January.

Today, the ten scientists and eight United States Navy men took a holiday from their chores and slept late instead of rising for breakfast.

They even played a game of baseball—in temperatures that ranged to 90 degrees below zero Fahrenheit. Tonight they had a party.

Most of the men have been at the United States South Pole station for nearly a year.

ANTARCTIC TREK IS ON

Large Tractor Train Set Out on 600-Mile Trip

WASHINGTON, Sept. 30 (UPI)—The Navy announced today that the largest tractor train in Antarctic history was traveling between Little America and Byrd Station, a 600-mile trip through the Antarctic waste.

The Navy said the tractor train had left the Little America station five days ago carrying 206,825 pounds of cargo, or 127,000 pounds more than any previous Antarctic tractor train.

The train, including its cargo, weighs more than 1,000,000 pounds. It includes eight thirty-eight-ton sleds along with five other vehicles. It is traveling over the icy terrain of the Rockefeller Plateau. The Navy said the temperature at times is more than 43 degrees below zero. The train is manned by nineteen officers and men.

WELLINGTON, New Zealand, Oct. 1 (Reuters)—A violent storm today disrupted the start of a new American trek in the Antarctic.

Admiral George Dufek, expedition leader, succeeded in reaching McMurdo Sound from New Zealand after his four-engined Skymaster bucked the storm for twelve hours. But several other flights by American task force units scheduled to follow him were deferred for at least twenty-four hours.

A United States Navy ship stationed midway on the flight to Antarctica reported that waves up to thirty-five feet high damaged the vessel's hull and swept away an eighty-foot radio antenna.

---

59 Penguins Safe

United Press International.

CHRIST CHURCH, New Zealand, Nov. 13.—A United States Air Force C-124 Globemaster made an emergency landing here today four hours after it took off for the United States with 59 penguins for the Portland (Oreg.) Zoo.

8 U. S. SCIENTISTS FLY TO ANTARCTIC

New Chief of Pole Research and Traverse Party Head Arrive for the Summer

By PHILIP BENJAMIN

McMURDO SOUND, Antarctica, Nov. 2—The scientists are flying south for the Antarctic summer. Today, for example, eight American Scientists arrived here from New Zealand aboard a Navy four-engine Skymaster.

One of them was Julian Posey, who will become scientific leader at the South Pole, replacing Palle Mogesen. Another is William H. Chapman, who will be the topographical engineer with a traverse party.

All together, seventy scientists and technicians will have arrived within the next few weeks, either to augment the "disciplines"—International Geophysical Year jargon for scientific activities—or to replace scientists who have wintered over.

McMurdo Sound, a bleak, bustling Navy station, accepts human and inanimate cargo and deals it out to various stations in the Antarctic with as much dispatch as is possible in a frigid land where plans often go wrong.

For instance, Mr. Chapman, who is from Sacramento, did not, for reasons of weather and logistics, arrive at McMurdo in time to join his trail party before it started out. However, he will be flown to his party by a ski plane of the Navy's air development squadron here.

Mr. Chapman will do the navigating for a party making a triangular traverse south from Byrd station in Marie Byrd Land, east along the Horlick Mountain range and then north back to Byrd. No human has set foot on that ice before.

As the party proceeds Mr. Chapman will also record the positions and elevations of Nunataks—outcroppings of rock from the ice sheet—and of mountains.

These will be coordinated with aerial reconnaissance photographs of the area being traversed, and a map will be made.

"You can't make maps without ground control," Mr. Chapman said today. He is ground control.

During his non-Antarctic periods he works for the United States Geological Survey, an agency of the Department of the Interior.

Meantime, word came today from a trail party trekking across the Ross Ice Shelf. It reported that it was suffering from colds and sore throats smuggled in from the outside world. The word came from Albert P. Crary, leader of the traverse and deputy chief scientist of the United States Antarctic Scientific Program.

In the icy climate of the Antarctic there seem to be no cold viruses except those brought in by newcomers — "summer tourists," as the people who have wintered over have it.

It is suspected that the cold viruses were carried either in mail from home delivered last week on the ice shelf ski plane or by some visitors who were flown out to meet the trail party.

In any case, Mr. Crary asked for help, and a ski plane from McMurdo will fly medical supplies to the five-man group.

President Sends Greetings

WASHINGTON, Nov. 3 (AP) —President Eisenhower has sent personal congratulations to United States scientists and military personnel engaged in International Geophysical Year projects in Antarctica.

The Defense Department said today the greetings were conveyed last Thursday by Edward Bacon, Deputy Assistant Secretary of the Army, who flew to McMurdo Sound.

The President's message said: "To those engaged in our International Geophysical Year activities in Antarctica, I send greetings. These activities, both logistical and scientific, are among the greatest achievements in modern polar exploration.

"As they are coordinated with the efforts of other nations, I am sure they will contribute substantially to man's knowledge of his surroundings and to the peaceful advancement of the world. It is a pleasure to send my congratulations and best wishes to those serving in Antarctica."

Navy Ski Pilots Shed Beards in Antarctic

McMURDO SOUND, Antarctica, Nov. 7—Sadness and smooth shaven faces prevailed today among the fliers of the Navy's ski plane squadron here.

Both conditions were the result of an order from Capt. Robert J. Slagle of Providence, R. I., the squadron commander. He told all bearded members of the squadron to remove them forthwith.

Some of the fliers had spent the winter months cultivating and delicately pruning their beards. Now all have gone with the blade.

However, one flier has derived some satisfaction. He has a dog and the dog has whiskers. Around the dog's neck the flier has hung a sign that says, "I'll be damned if I'll shave."

Lloyd V. Berkner

SCIENTISTS TO BEGIN TOUR IN ANTARCTIC

McMURDO SOUND, Antarctica, Nov. 6—Six leaders of the International Geographical Year program arrived tonight to begin a month's tour of United States scientific stations in the Antarctic.

Arriving from Christchurch, N. Z., were Dr. Lloyd V. Berkner, vice chairman of the special committee for the International Geophysical Year of the International Council of Scientific Unions; Dr. Harry Wexler, chief scientist of the United States I. G. Y. Antarctic program; Alan H. Shapley, a member of the United States I. G. Y. Antarctic committee; Harry Sellery, a member of the I. G. Y. program directorate; George Rigsby, a glaciologist with the naval electronics laboratory at San Diego, Calif., and Thomas Jones, director of the United States Antarctic research program.

Also arriving aboard the Navy Superconstellation was J. Tuzo Wilson, a polar research specialist and a member of the Canadian Defense Ministry Research board.

Sir Vivian Fuchs Honored

BERLIN, Dec. 2 (Reuters) Sir Vivian Fuchs, head of the British expedition that completed the first land crossing of the Antarctic early this year, received a gold medal today from the Berlin Geographical Society to mark a "great human achievement and scientific deed." At a ceremony in West Berlin's Free University, he was presented with the Richthofen Medal, named after Ferdinand von Richthofen, geographer.

DAMAGE TO TEETH BY COLD DOUBTED

Antarctic Dentist Reports Fuchs Lost a Filling, but Would Have in London

McMURDO SOUND, Antarctica, Nov. 9—Sir Vivian E. Fuchs, the Briton who last March led the first overland crossing of the Antarctic continent, suffered the loss of a gold filling on the trek.

This overdue bit of information on the historic traverse came out today in a discussion of the effect, if any, of the extreme cold on teeth.

It came from Dr. Lee Vermilion, the McMurdo dental officer, who has wintered over with Operation Deepfreeze III and is about to his tour of duty in the Antarctic.

The discussion concerned reports that the Antarctic cold resulted in the loss of many fillings.

Dr. Vermilion, a 28-year-old Navy lieutenant from Newark, Ohio, took the negative.

"During my winter here and during visits to other bases, I saw nothing to indicate that fillings shrank from the cold," he said.

The dentist reported that the incidence of dental trouble appeared no greater here than anywhere else.

I had a chance to examine Vivian Fuchs when he came through here last March," Dr. Vermilion said. "His gold filling had fallen out, but from what I saw it would have fallen out whether he was in the Antarctic or in London."

Dr. Vermilion also reported that there had been no significant increase in infections following extractions and that the length of time it toook for wounds to heal was not affected by the climate.

During his tour in the Antarctic, Dr. Vermilion was a dental circuit rider. He flew to the South pole and other stations to make dental repairs.

On his rounds he took with him a field dental chair, motor and drill and an X-ray machine.

Dr. Vermilion was also McMurdo's postal officer, a member of the examination board and a member of the promotion board.

Polar Dogs for Norway

Eighty husky dogs who accompanied the British expedition to the South Pole this year have been given to Norway, where they will draw ambulance sledges.

Huskies Sleep in Snow

Huskies, or Eskimo dogs, sleep in the snow in the most severe weather.

U.S. HOST TO SOVIET IN THE ANTARCTIC

Russians Land at McMurdo Sound Base After Flight Across Polar Continent

CHRISTCHURCH, New Zealand, Oct. 25—A twin-engined Soviet airplane landed at the United States Antarctic base at McMurdo Sound today.

Operation Deepfreeze IV headquarters here reported that the plane, an Ilyushin IL-12, which is similar to the American DC-3, touched down at 9:49 A. M. after a flight of nearly fourteen hours.

The plane had taken off at 7:55 last night from Mirny, the Russian antarctic base on the Indian Ocean. The plane arrived over the United States base at the South Pole at 5:14 A. M. and then continued to the Navy station at McMurdo.

CHRISTCHURCH, New Zealand, Oct. 26 — The Soviet Union's chief scientist in the Antarctic urged yesterday that all nations conducting research there pool the results of their efforts.

In a news conference at the United States Naval air facility at McMurdo Sound, Dr. Eugene Tolstikov also urged the nations to extend their scientific research beyond the International Geophysical Year, which ends Dec. 31.

Dr. Tolstikov headed a party of eight that flew from the Soviet base at Mirny on the Indian Ocean to McMurdo Sound. Their course took them over the South Pole, where the United States station served as a radio check point.

The flight was made in a twin-engined Ilyushin IL-12 over a distance of 2,140 miles.

Dr. Tolstikov declared that it was essential that the momentum achieved in Antarctic research and exploration during the I. G. Y. be maintained.

However, he said "the nations studying the Antarctic continent should pursue the scientific objective together, but each should continue to work in the regions where their respective I. G Y. programs have been pressed."

The news conference was reported by radio to the Navy's Operation Deepfreeze IV headquarters here.

Eleven nations are taking part in Antarctic research.

The purpose of the Russian flight was to survey routes for a proposed tractor trek to the Bellinghausen Sea during 1959-60.

Official United States Navy

Rear Admiral Dufek (Center) With Two Soviet Visitors

M'MURDO'S NIGHTS GIVE MEN 'BIG EYE'

InsomniaAffectsNewcomers Struck by Antarctica's 6 Months of Daylight

McMURDO SOUND, Antarctica, Nov. 6—"In winter I get up at night/ And dress by yellow candlelight/ In summer quite the other way /I have to go to bed by day."

To a newcomer in the Antarctic it seems impossible that Robert Louis Stevenson wrote this quatrain as a nursery rhyme for "A Child's Garden of Verses." He must have had some experience in polar regions.

For his verse illustrates precisely the situation of McMurdo Sound and at other Antarctic stations.

During most of the winter it is night all the time and during most of the summer it is day all the time. This has resulted in an occupational disease that mainly afflicts recent arrivals. The disease is known as the Big Eye, or Antarctic insomnia.

At this season the sun neither rises nor sets. It just goes round and round. Since there is no sundown, the flag here flies all night long.

Brave and pitiful attempts are made to simulate nightfall. Many of the huts have only small windows at each end. In some of the huts dark blue cloth has been placed over the windows, giving the effect of a somewhat stagey night—a little too blue, more of a memory of night than night itself.

Because it is daylight at 10 P. M. or 11 P. M. or midnight, some people wander about aimlessly in the snow-covered lanes —when it is not too cold—or sit up with other nonsleepers chatting desultorily and abetting insomnia by drinking the coffee that the Navy provides twenty-four hours a day.

Newcomers here find it difficult to adjust to daylight all the time.

"I keep thinking, I have to take that picture before it gets dark," a man said the other day. "I keep forgetting I can get almost as good a shot at three in morning."

Owing to the constant daylight, this base is busy all the time. When the weather is good, airplane flights are as likely to be scheduled for 2 in the morning as 2 in the afternoon. Fliers and maintenance personnel are always getting up or going to bed.

The sound of engines is heard at all times. The generator house thrums constantly and can be heard all over this fairly small base. All this, too, contributes to the Big Eye.

However, according to Lieut. Frederick W. Ackroyd, the base medical officer, who has spent the winter here, most of the long-time inhabitants of McMurdo have no trouble sleeping.

"No one has ever asked me for a sleeping pill," Dr. Askroyd went on. "The men's élan vital was very good all winter. The 112 men here went about their jobs, ate heartily and weren't homesick—until the first mail came in. Then they got anxious to go home. Home and family became a reality instead of something quite distant."

Dr. Ackroyd confessed that he himself was perhaps the loneliest member of the wintering-over party.

"The reason," he said, "is that I was the only doctor here. Doctors like to sit around and chew over cases and learn from each other. I couldn't do that. However, I had an excellent medical library."

Dr. Ackroyd said that illnesses had been infrequent. He had two unusual cases, he said—both, oddly enough, tropical diseases. One was a case of malaria, the other amoebic dysentry.

"It seemed odd until I questioned the men," he said.

"The malaria case had had it before—got it in the Philippines and hadn't said anything about it when they sent him down here.

An Antarctic Antic: Steam Bath to Snow

The 250 Club—a group of the icy elite—is a br-r-risk innovation at Little America this year.

About forty of the men at the United States Antarctic station are parboiling more or less regularly in a steam bath, estimated temperature about 210 degrees.

Then they pop outside to roll in the snow and vigorously rub themselves dry. The rubbing has to be vigorous because the average temperature outdoors, now that winter has arrived, is 40 below zero.

Certificates are awarded to those who withstand a 250-degree spread. Hence the name of the club.

The present record for hardiness, Little America reports, is a 278-degree spread.

The club was the idea of Capt. Thomas D. Slagle, Navy medical officer, who thinks it is a valuable aid to adaptation to cold.

Year at the Pole Shows Man Outlasts Machine

By Palle Mogensen
(As Told to United Press International)

McMURDO SOUND, Antarctica, Dec. 6 (UPI).—I have just returned after spending a year and seven days at the South Pole with nine other International Geophysical Year scientific personnel and eight United States Navy men.

When we left the Pole on Thanksgiving Day, the temperature was about 30 degrees below zero. The temperature at the bottom of the earth rarely rises above zero and during the winter night, when the sun doesn't shine for four months, we recorded a low of 101.7 degrees below zero on two occasions. The mercury rose above zero only once, on Jan. 12, when it was 5.5 above. That was a heat wave for the Pole.

It was completely dark from May 12 to Sept. 2, with an additional six weeks of twilight, when the sun disappeared and then began to rise again. The winds weren't as high as we expected; their highest velocity was only around forty-five miles per hour. But we experienced the highest average wind speed of all the more than fifty I. G. Y. bases in Antarctic during the year, with a mean wind speed of 14.7 m.p.h.

Despite the extreme temperatures, we lived fairly comfortably throughout the year. We all got along fine, and any one who goes to the Pole for a year with an open mind cannot fail to improve himself.

But you don't have to go outside the entrance of our almost buried base to experience the savagery of South Polar weather. Once during the winter night, when I was carrying out some astronomical observations, it started out at 28 degrees below zero in my enclosed shelter. However, in fifteen minutes, the temperature had dropped to 95 degrees below zero. My fingers and toes received third-degree frostbite.

You're not going anywhere if the temperature is 100 below and a fifteen-knot wind is blowing. I threw a cup of water into the air when the mercury dropped to 90 below. It hissed through the air and changed into ice crystals before it reached the ground.

We had washing machines and hot showers in addition to many other comforts of home, but our main luxury was food. We had banquets on special occasions much as Thanksgiving, Christmas, sundown, midwinter, and the return of the sun.

Movies were shown five times weekly, and we managed to avoid seeing all of them twice. The extreme cold caused the colors in many movies to blur, making them unusable.

We held weekly "happy nights," which included listening to music and drinking a glass of brandy after a special meal.

We kept busy with our heavy schedule of work in various scientific fields, including weather, glaciology, aurora and ionosphere studies. We won't know the true value of our work for quite some time because our main task was to collect information which will be analyzed and interpreted.

I feel the I. G. Y. activity in Antarctica will result in a better understanding of the whole earth.

Our glaciologist dug to a depth of 165 feet under the snow and estimated that the snow at that depth accumulated there in the middle of the fifteenth century.

It took me about three months to learn that what I needed was humidity. The air up there at an altitude of some 9,200 feet is almost completely devoid of humidity. I made my own humidifying system by placing a pan of water and a damp towel over the stove to distribute some moisture.

At this altitude, the dry atmosphere caused some bad effects. When you exert yourself in that climate, you have coughs, nosebleeds, a humming in the eardrums and dizziness.

Our base medical officer, Lt. Vernon Houk, of Firebaugh, Calif., suffered after-effects of frozen lung membranes for eight days after he worked twenty minutes at 80 degrees below zero.

Ham radio was one of the biggest morale boosters we had during our long isolation. Through the ham operators in the states, our men were able to talk to their families regularly.

Seventeen-year-old Jules Mady, of Clark, N. J., placed a long-distance call for me from Clark to Copenhagen and then switched the call to the South Pole through his powerful radio equipment. I was able to talk to my brother for about fifteen minutes, and it was just like talking to some one next door.

As far as news from the outside world was concerned, we followed the main events, but were unable to get an over-all picture because news came in bits and pieces.

The only look we had at Russians came in late October when a Russian plane en route from Russian Antarctic headquarters at Mirny zoomed over the base lower than any plane I've seen here. We could see faces of people in the plane. The pilot was so close to the base he appeared to tip a wing to clear our radio masts.

The only thing we managed to grow at the Pole was an onion cultivated by our electrician in his workshop. Although it didn't reach full maturity, it grew for quite a while and was duly admired and photographed by all.

We found that men outlast machines at the Pole. We haven't yet been able to develop a machine that can withstand the temperatures. The equipment we used won't be much good next year. Whenever you go out on the trail, you need two of everything just in case one breaks down, as is usual.

Because the base is sinking into snow, sagging and cracking open, due to the terrific ice and snow pressures, eventually the base may be abandoned. The only solution to the problem for the immediate future would be to put the whole base on skis, and then move it from year to year to prevent the snow from burying it.

Record of 135.4 Below Found Over South Pole

WASHINGTON, Oct. 19—A temperature of 135.4 degrees below zero Farenheit, believed to be the lowest ever recorded, was registered thirteen miles above the South Pole last July 16, the United States Department of Commerce disclosed today.

The temperature was recorded by an airborne instrument launched by the Weather Bureau. It was three degrees below the previous record low, established by a balloon-carried instrument in the Antarctic stratosphere in August, 1957.

Such temperature figures from the Antarctic add to the scientific knowledge of the mid-stratosphere (from twelve to eighteen miles above the earth) which is being collected by the Weather Bureau during the International Geophysical Year.

Tremor Proves Land Mass at Pole Is Solid

SCOTT BASE, Antarctica, Dec. 27 (AP).—Is the land under the enormous Antarctic ice cap a solid mass or just a group of islands?

The leader of the New Zealand scientific station here says more than half the question has been answered—by an earthquake.

The western part of Antarctic, Dr. Linden Martin reports, is a solid mass covering about 4 million square miles, making it roughly a million square miles larger than the continental United States.

This finding, Dr. Martin says, was made possible by an earthquake that occurred in the Indian ocean last year.

The quake waves were recorded with seismographic equipment at three Antarctic stations—Scott Base, the Russian Camp at Mirny and the joint United States-New Zealand installations at Hallett.

"An earthquake wave travels at a certain speed through a certain mass," Martin said. "Through a group of islands," it would travel more rapidly than through a solid mass.

"This is a virtually infallible method of determining mass. And it has not been established, from these seismographic studies, that Western Antarctica is definitely a continent.

"We have no strong thoughts yet about the eastern part (an area covering about 2 million square miles."

Until the quake waves were recorded and studied, Martin said, the composition of the western land base was a matter of open speculation.

This method of determining mass was never employed here before for a very simple reason: Until the international geophysical year began, the necessary equipment had never been available on the continent.

Walrus a Big Animal

A full-grown walrus may measure ten or eleven feet in length and weigh more than a ton.

AGE OF TV ARRIVES IN THE ANTARCTIC

Transmitter on Helicopter Helps U. S. Icebreaker Go Through Pack

McMURDO SOUND, Antarctica, Nov. 16—Television has come to the Antarctic.

Closed-circuit system based on the Navy icebreaker Glacier has been transmitting pictures of ice, seals, penguins and antarctic landmarks.

A transmitter was installed on a helicopter for the primary purpose of televising ice conditions in the icebreaker's path in the Ross Sea during the voyage from New Zealand.

Capt. Joseph Houston of Fort Lauderdale, Fla., the Glacier's skipper, said that the experiment had worked well. The Glacier arrived here Nov. 10.

An ice expert was sent aloft during the trip to spot likely openings through 600 miles of pack ice. Pictures of the leads were transmitted to a television receiver on the bridge of the ship.

Watching the TV system was Lieut. Comdr. Harold R. Walker of the Naval Air Development Center at Johnsville, Pa., where the system was developed.

The visit to the Glacier of Rear Admiral George Dufek, commander of the naval support force here, was televised "in true newsreel fashion," Commander Walker said.

"We were able to photograph his arrival in an Otter [a single-engine ski plane], his descent to the ice and his arrival over the side of the Glacier," Commander Walker said.

The helicopter television transmitter also broadcast pictures of seals and penguins on the ice, the hut built at Cape Royds by Sir Ernest Shackleton's 1907 expedition and the hut remaining at Cape Evans from Robert Falcon Scott's 1911 expedition.

Commander Walker said that he had found telephone equipment of 1911 vintage at Cape Royds, apparently part of a system that Scott had set up between his hut at McMurdo sound and Cape Royds.

"It's interesting to note that Scott brought the first telephone to the Antarctic in 1911," Commander Walker said. "And its a curious twist of fate that the first television equipment was used forty-seven years later in the same area as the first telephone."

Commander Walker had copied out parts of Scott's diary concerning the telephone hookup. He read the following entry for Aug. 1, 1911:

"Two telephones now in use. Bare aluminum wire and earth return. At 5 o'clock hut point telephone bell suddenly rang. In a minutes or two communication was established. It seems wonderful in this primitive land to be talking to our fellow beings fifteen miles away."

Commander Walker also said that he had made a descent into the icy waters of McMurdo Sound. Dressed in an immersion suit, he went down to examine the Glacier's screws, which were thought to have been damaged in breaking through nine-foot ice. He found the screws undamaged.

"The water temperature was 27 degrees above zero," he said. "I remained in the water for five minutes and suffered only from cold fingers."

THE ACTIVE LIFE—At McMurdo Sound, in the Antarctica, crewmen of the icebreaker U.S.S. Glacier are playing a mighty cold game of football on the ice—to keep warm. At left is their ship, and Mount Erebus, a 13,350-foot active volcano, is in background.

LITTLE AMERICA IS DUE TO CLOSE

Navy Icebreaker Arrives to Remove Equipment—Men to Leave Dec. 31

LITTLE AMERICA, Antarctica, Nov. 19—The Navy icebreaker Glacier arrived here today after a 400-mile trip from McMurdo Sound.

The Glacier immediately began unloading 65,000 gallons of Diesel fuel. Little America is due to be closed at the end of the International Geophysical Year on Dec. 31. However, supplies are being laid down so that the station could be reopened promptly.

Meteorologists are trying to convince the United States Government that Little America should remain in operation, since it has the longest history of Antarctic scientific observation.

In the meantime Little America will serve as a depot for rescue and survival use. Enough supplies will be stored to support at least fifteen men for a year.

The Glacier will spend two days taking on 150 tons of cargo, including Little America's scientific equipment. A tractor train is now on its way to McMurdo from here with other equipment.

The Glacier left McMurdo on Monday.

The going was slow in the early stages because of the thickness of the sea ice—about six feet. Breaking through the ice the Glacier was guided by the Bell holicopter that acts as its lookout. Its job is to spot likely "leads"—lanes of open water in the ice—and radioing back the information to the bridge.

When there were no leads the Glacier simply forced her 8,600 tons against the ice, her ten Diesel engines turning her twin screws relentlessly.

The Glacier has no keel, it is round-bottomed. It does not cut through the ice, its spoon-shaped bow, made of six-inch cold-rolled steel, rides up on top of the ice, smashing it and shoving it aside or under.

As the Glacier leaned against the ice, long cracks opened ahead, running along as swiftly as a beam of light. Great pieces of ice heaved, dripping, out of the water and then turned over and dove under. The underside of the ice was yellowish brown, stained with life—millions of microscopic diatoms or plankton, organisms on which fish feed.

Sometimes the Glacier would come upon small colonies of Adelie penguins, and the penguins would stare and then waddle away across the floes in terror of the gray behemoth.

As the Glacier ripped over the ice, large cubes would skittle across the unbroken sheet farther out, as if dice were being rolled by a huge and invisible hand.

Sailing in a chill wind under a gray, cloudy sky, the Glacier at length sighted "water sky"—a portion of the sky that was dark because open water was reflecting on it instead of white ice. In two hours the Glacier was out of the ice.

ADMIRAL DUFEK ENDS ANTARCTIC MISSION

McMURDO SOUND, Antarctica, Wednesday, Nov. 26 (AP) — Rear Admiral George J. Dufek, commander of the United States Navy's Antarctic operation, today completed his mission at the bottom of the world.

Admiral Dufek, who has commanded the American expeditions in Antarctica in the International Geophysical Year, which ends Dec. 31, is being succeeded by Rear Admiral David M. Tyree.

Speaking over a public address system that frequently failed to carry his words through the whistling wind, the Admiral told the men of McMurdo station:

"Stand at ease for a few minutes and let's all warm our ears."

The two-star Admiral's flag was lowered from a short pole on a shack and Admiral Dufek boarded a weasel for a two-and-one-quarter-mile ride across the ice to a waiting plane, which took off for New Zealand.

ANTARCTIC TEAM 'LOOKS' UNDER ICE

Three Set Up Most Southerly Oceanograph Station on Bay Near Little America

WELLINGTON, N. Z., Sept. 27 (Reuters)—A scientist, a former ice-breaker captain and a Navy physician, the three senior United States representatives in the Antarctic, recently returned from a five-day camp on Kainan Bay, a few miles from the main station at Little America.

Reports received here said the team had established the most southerly and first mid-winter oceanograph station.

The men lowered sleds by hand down the seventy-five-foot cliff at the edge of the Ross ice shelf and dragged them across the bay to set up a standard International Geophysical Year station in what was described as "other than standard conditions."

An analysis of their findings showed that they had recorded one of the lowest temperatures known under the ice.

Albert Cary, United States deputy chief scientist for the Antarctic, was preparing to set up his mid-winter oceanographic station the same time as Capt. Eugene Maher, Navy commander, and Capt. Thomas Slagle, the physician, were planning to compare modern mechanized travel with the man-hauling techniques of forty years ago, and estimate the value of survival equipment.

After weeks of planning, fitted between routine tasks at Little America, the team pulled heavy sleds at night across a crevassed valley, down the barrier and onto the ice.

A tent was pitched for sleeping and eating and another as a laboratory for scientific studies. Working in temperatures 55 degrees below zero Fahrenheit, they chipped holes four feet square in four feet of ice and blasted out fifteen feet of underlying slush so they could lower instruments to the freezing water below.

Each morning they had to bail out gallons of slush that had accumulated for twenty-four hours.

A bottle with two thermometers was lowered by hand-winch for temperature readings at ten levels and samples to measure the salinity of the water from the surface to a depth of 1,100 feet.

To do this the cable carrying the bottle had to be cranked 1,000 times to bring it to the surface after each reading. This was so exhausting that the men had to take turns.

The second phase of each day's studies was the repeated lowering of a current meter to depths of 1,200 feet to determine the speed and direction of the Ross Sea current.

Simultaneously, observations were made of the change in the elevation of the ice shelf by repeated readings of a gravity meter.

The determination of the volume of water by the current and gravity readings should give an idea of the area extent of the ice shelf.

Vegetable Plot Being Coddled In Antarctica

AUCKLAND, New Zealand (AP).—An American sailor is growing vegetables in the wastes of Antarctica.

The New Zealand Press Association said recently that James W. Brown, of Asheville, N. C., chief electrician at McMurdo Sound, was growing tomatoes, beans, peas and radishes in boxes filled with soil from Connecticut.

The boxes are kept in shower cubicles in the power house. The soil is warmed by heat lamps, and infra-red lamps simulate sunshine. Moisture from the showers compensates for the dryness of the Antarctic air.

If Brown's garden is a success, it may be the forerunner of vegetable plots at all Antarctic bases, where the shortage of fresh vegetables is a problem.

AIR FLOW EASES ANTARCTIC COLD

Circulation From Adjoining Seas Tends to Moderate Winter Temperature

McMURDO SOUND, Antarctica, Nov. 14—The savage cold of the Antarctic winter has been found to produce its own tempering mechanism.

This was reported today by Dr. Harry Wexler, chief scientist of the United States International Geophysical Year Antarctic Program. Dr. Wexler, Dr. Lloyd V. Berkner, vice chairman of the I. G. Y. Committee of the International Council of Scientific Unions, and four other scientists returned to McMurdo Sound after a week's tour of Little America and Byrd Station and visits to traverse parties in the field.

The group will continue its tour for another twelve days.

Dr. Wexler said meteorological studies indicated that temperatures in the Antarctic were moderated by a "compensating" mechanism.

What happened, he said, was that the frigid air pouring down from the polar plateau during the winter months created violent cyclones in the surrounding oceans. That pushed warm air back onto the continent.

Were is not for this system, Dr. Wexler said, the Antarctic would be far colder than the low of 125 degrees below zero recorded at the Soviet station at Vostok.

Dr. Berkner, who was with the first Antarctic expedition of the late Admiral Richard E. Byrd thirty years ago, reported on the experiences of a traverse party heading south from Byrd Station in Marie Byrd Land toward the Horlick Mountains.

He said the party, which was traveling over virgin territory, had found that in its first hundred miles that the elevation dropped 1,000 feet, indicating a possible deep valley under the ice sheet.

This may add to the weight of evvidence indicating a deep trough cutting through the continent from the Weddell Sea to the Ross Sea.

PARTY SEEKS DATA ON ROSS ICE SHELF

But Antarctic Expert Sees 100 Years of Study Needed Before Facts Are Known

ON THE ROSS ICE SHELF, Antarctica, Nov. 8—The man who probably knows more about the Ross Ice Shelf than anybody else conceded today that it would take at least a hundred years to reach any solid conclusions about this frigid phenomenon.

But Albert Crary of Canton, N. Y., looked far from discouraged as he strode about on this vast white prairie with the mercury well below zero.

Mr. Crary deputy chief scientist of the United States International Geophysical Year Antarctic program, is chief American scientist in the Antarctic and scientific leader at Little America.

He talked about the ice as he helped unload supplies from a ski plane from McMurdo Sound. The shelf is a mass of ice fronting on the Pacific Ocean along a 400-mile length between McMurdo and Little America.

It pushes out as much as 500 miles from the coast and at some points is 1000 feet thick.

It is about the size of France and appears to be a floating portion of the continental ice sheet. Mr. Crary is crossing the shelf, as he did last year, as the leader of a six man tractor party.

The party is making seismological soundings to determine the depth of the ice and of the water underneath it and is taking ice core samples for clues as to the shelf's age.

Questions for which the scientists are seeking answers include these:

¶Was the shelf once a mammoth glacier or was it formed from parallel glaciers that flowed out over the sea?

¶Did the sea freeze over and just never thaw again?

¶Does the shelf grow from the bottom because of the freezing of the ocean?

"These are all questions that will take perhaps a hundred years to answer," Mr. Crary said. "We have just really gotten started."

Mr. Crary and his party were unloading supplies that had been flown across the shelf to a point eighty miles from the United States base at McMurdo Sound in a Navy twin-engined ski plane.

The scientists are traveling in three Sno-cats—tracked vehicles—one of which is equipped with a crevasse detector.

The Navy pilot, Lieut. Earl D. Dryfoose of East Greenwich, R. I., brought the supply-laden R4D in for a smooth landing alongside the tractor party. This reporter and Philip Smith of the National Science Foundation were his passengers. Also on the flight was Lieutenant Dryfoose's German shepherd dog, Utz.

Mr. Crary's party left Little America on Oct. 15. Others in the bearded group are Charles R. Wilson of Washington, chief glaciologist; Stephen L. Den Hartog of Concord, Mass., a glaciologist; Lyle D. McGinnis of Kaukana, Wis., a seismologist, and Frank C. Layman of Pittsburgh, a tractor mechanic. Sgt. John Duff of New Zealand is also a member of the party.

12 Men Leave for Pole

McMURDO SOUND, Antarctica, Nov. 16 (UPI)—Six American scientists and six Navy men flew to the South Pole from this base today for a year's stay at the lonely outpost.

Three more Navy scientists will fly to the polar base Tuesday. The planes will bring back the eighteen men who have completed a year at the base making cientific tests in connection with the International Geophysical Year.

It was believed that the United States intends to man the base permanently. The Russians, who originally wanted a base at the pole, probably would move in if the United States pulled out.

ICE DIGGERS SEEK ANTARCTIC DATA

Scientists Burrow Into Shelf for Cores to Help in Study of Age and Formation

LITTLE AMERICA, Antarctica, Nov. 23—A tall drill rig dominates the skyline at Little America. In fact, except for a weather observation dome, it is the skyline, for Little America is built underground or, strictly speaking, under snow.

The operators of the drill, which pokes out from a silver-colored tent, do not expect to find oil and hope they do not strike water. What they are after is what there is plenty of all around—ice.

They are boring down through the Ross Ice Shelf, on which Little America is built, and bringing up ice cores, cylinders of ice four inches in diameter. From studying the cores for density, stratification, grain character and other symptoms, scientists hope to learn more about the ice shelf. This is a four-hundred-mile long extension of the Antarctic ice sheet floating on water and 500 to 1,000 feet thick.

Some things the scientists hope to learn are the ice shelf's age and how it was formed. The project at Little America is being led by Richard Ragle of the Snow, Ice and Permafrost Research Establishment of the Army Corps of Engineers at Willamette, Ill.

Mr. Ragle told of a discovery yesterday in a section of ice core. The drill pole is now 617 feet deep. The discovery was made at about 570 feet.

"We found a dirt band on a core section," Mr. Ragle said. "It appears to be volcanic ash, perhaps from a large volcanic eruption in Antarctica or India or maybe New Zealand.

"The volcano may have erupted quite a while ago when the layer now 570 feet down was on top. Or the volcanic ash could have been carried on one of the glaciers that feed, or fed, the ice shelf."

Here at Little America, when a core is brought up, it is placed in a long wooden trough, where it is measured and photographed. It is then sawed into short lengths and placed on a "light table"—a table from under which light is beamed—for stratographic interpretation.

After that the core is placed in a metal tube and stored for shipment to the United States.

Mr. Ragle led the way down a flight of snow steps to a small room curved out of ice. It was like a small wine cellar. Metal tubes containing ice cores were stored horizontally on wooden racks built into two ice walls.

The temperature in the room was five degrees below zero Fahrenheit.

"We like to keep it well below zero so the grains won't change," Mr. Ragle said.

The first core was taken out Nov. 1, he said, and not many more days, or feet of ice, remain to go.

"We will drill down to 750 feet and stop before we hit water," he said.

The chief driller on the project is Jack Tedrow of Medicine Lodge, Kan., who has had a lot of experience in drilling for water.

Some modifications had to be made for ice drilling, he said—changes in the bits and in methods for removing ice chips, for example.

"And we have to hold back on the weight," Mr. Tedrow said. "We don't want to put too much strain on the ice, which is already under a pressure of fifteen to twenty atmospheres."

Air pressure at sea level is one atmosphere.

When Little America closes early in January, the rig will be taken to McMurdo Sound for possible drilling on the ice shelf there.

U. S. Navy photo

Ice laid down many years ago is brought to the surface by an ice auger at Kainan Bay Antarctica. Dr. Willis Tressler is adjusting the sampling drill.

ANTARCTIC LOSES AERIAL PIONEER

Navy Retiring First Plane to Land at South Pole—Museum May Get It

LITTLE AMERICA, Antarctica, Dec. 4—An Antarctic work horse that had a moment of glory two years ago was retired today.

The twin-engine C-47 Navy transport plane, Que Serà Serà, made its final trip as it flew home from here to McMurdo Sound, 400 miles away. It will be dismantled and shipped to the United States for reassembly and exhibition.

On Oct. 31, 1956, Que Serà Sera became the first plane to land at the South Pole. It carried Rear Admiral George Dufek, commander of naval support forces in the Antarctic, who thus became the first person to set foot at the Pole since Robert Falcon Scott did so in 1912. Scott and his party perished on the return trip from the pole.

The pilot on the historic flight two years ago was Lieut. Comdr. Conrad Shinn of Spray, N. C., and the co-pilot was Capt. William Hawkes of Jersey City.

The name Que Serà Serà was taken from the title of a popular song of several years ago.

In Italian it means "what will be will be."

The craft has been in Navy service since 1943.

Ice Shaft Reveals the Past

BYRD STATION, Antartica, Dec 11—You can climb down into the late nineteenth century here. One feature of this small, isolated scientific outpost in Marie Byrd Land is a six-foot-square pit dug seventy feet into ice.

It is the work of two glaciologists, William E. Long of Reno, Nev., and Frederic L. Darling of Arlington, Va.

The pit reaches down to ice formed from snow that fell perhaps in the latter part of Queen Victoria's reign. The walls of the pit have been studied for stratification, ice temperatures and ice character.

However, this pit is as a pock mark compared with the 1,013-foot shaft drilled here last year. Ice from its bottom may be compressed snow that fell in the reign of Alfred the Great.

Even this shaft may have to take second place. In 1960 the feasibility of a 10,000-foot hole will be tested by the Snow, Ice and Permafrost Research Establishment of the Army Corps of Engineers. The proposed hole may be dug by means of an electric coil that would melt the ice around a drill core.

Linked to U.S. by Ham Phone

LITTLE AMERICA, Antarctica Dec. 12—The most public telephone conversations originate in the most secretive continent.

Since Operation Deep Freeze I began more than three years ago, United States Navy personnel and scientists of the International Geophysical year have been able to span the 10,000 miles between ice-covered Antarctica and home by means of amateur shortwave radio.

The Little America ham station—call letters KC 4 USA—is operated chiefly by Russell A. Whitman of Hancock, Mass., and John L. Morrison of Cambridge, Ohio, Navy radiomen first class.

The conversations are monitored by ham operators at both ends and are frequently overheard by other hams. There are about 300,000 hams in the United States.

According to Radioman Whitman, the shack here averages ten calls a day or nearly 4,000 a year.

There are eight American ham stations in the Antarctic—one here, two at McMurdo Sound and one each at the South Pole, Byrd, Hallett, Wilkes and Ellsworth Stations.

SCIENTISTS STUDY ANTARCTIC GLOW

Find Incandescent Lithium, Possibly Resulting From a Nuclear Explosion

By WALTER SULLIVAN

Nov. 29.

Glowing lithium, possibly produced by a nuclear explosion, has been detected in the twilight sky over six Antarctic stations and one in southern New Zealand.

The phenomenon may be another of the widespread effects observed when a nuclear device is detonated at extremely nigh altitudes. Earlier this month a British scientist reported that artificial aurora and a magnetic storm had appeared over the central Pacific area when a bomb was detonated at what was said to be 100 miles elevation.

This may help confirm the theory of particle trapping within the earth's magnetic field, which was elaborated yesterday at a meeting in Chicago of the American Physical Society. Those discussing it were Dr. James A. Van Allen, in charge of American satellite radiation observations, and Dr. N. C. Christofilos of the Radiation Laboratory of the University of California in Livermore, Calif.

Dr. Norman J. Oliver, who is in charge of United States auroral observations in the Antarctic, emphasized yesterday that the lithium glow observed there had not been produced in the same manner as the aurora sighted over Samoa according to the British report. Lithium is not normally found in the upper air, but it could not be said with certainty, he said, that it came from a bomb.

The glow was first observed and reported, independently, by a French scientist in Adélie Land and the joint United States-New Zealand station at Cape Hallett.

Both the stations noticed in their spectographs the sudden and unexpected characteristics of lithium—a typical product of a nuclear explosion. All six United States Antarctic outposts, except Little America, found that their instruments had recorded it too.

A similar report came from Invercargill, at the southern tip of New Zealand. In all cases the glow was observed at twilight, when substances in the upper air were electrically excited by sunlight, but the earth below was darkened.

Dr. Oliver believes the lithium may be charged and thus travel along the lines of the earth's magnetic field.

The British report, published in the Nov. 15 issue of the magazine Nature, stated that at roughly the reported time of an explosion 100 miles above the Pacific, the magnetic instruments at Apia, in Samoa, had recorded a "sudden commencement"—a radical change in the magnetic field characteristic of the onset of a magnetic storm.

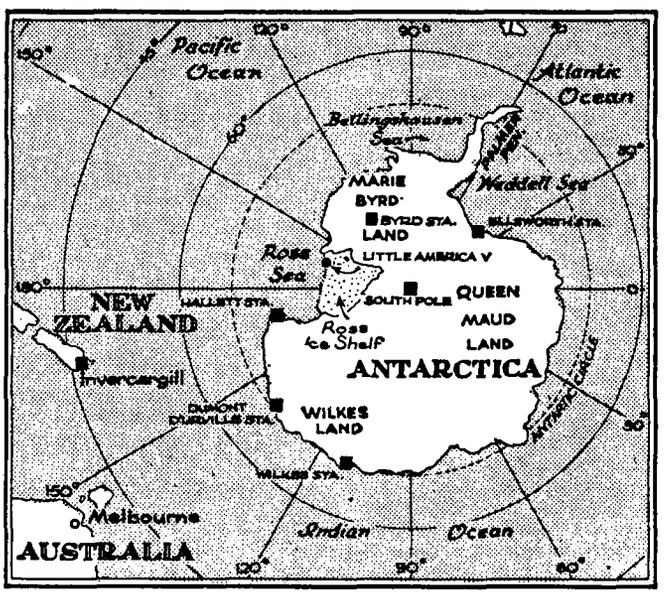
A minute later there was an extensive display of aurora in the sky that was clearly of artificial origin. The electrical composition of the upper atmosphere was disturbed, for radio fadeouts continued for from one to several hours.

The effect does not appear to have extended beyond the Pacific area.

Dr. Van Allen, in reporting on observations with the Explorer satellites, attributed the daily auroral displays near the polar regions to a leakage of particles from the radiation belt detected largely above the lower and middle latitudes. The spectacular displays that extend deep into low latitudes, he said, seem to be due to the influx into this radiation zone of material ejected by the sun.

Thus it would appear that a similar effect might have been produced by a nuclear explosion at high elevation.

Dr. Christofilos proposed the launching of a satellite bearing a low-current electron accelerator to probe the contours of the earth's magnetic field.



SOUTHERN AURORA: Sudden and unexpected light of glowing lithium was observed during recent nuclear tests in Pacific, at seven stations in or near Antarctica. They are shown by black dots. Little America, which will be closed in January, did not detect the phenomenon.

All Antarctic dispatches in this issue are by Philip Benjamin, the New York Times reporter on Operation Deepfreeze IV, except those otherwise credited.

PLANES COMPLETE ANTARCTIC DROPS

Air Force Finishes Mission of Supplying Isolated Bases at Pole and Byrd Station

By PHILIP BENJAMIN

IN FLIGHT OVER THE SOUTH POLE, Nov. 12 — The cargo hatch of the huge Globemaster plane slid open and a blast of paralyzingly cold air rushed in. When the count-down reached zero, thousands of pounds of cargo clattered down the roller ramp and parachuted to the South Pole Station below.

Today was the last day of air-drops by the Fifty-second Troop Carrier Squadron to isolated stations in the frozen Antarctic. Then it was home to Donaldson Air Force Base at Greenville, S. C.

Two Globemasters took off three hours apart to drop thirty tons of cargo to the pole. The cargo consisted of scientific equipment, hardware, tools and books—including "The Climate of Eurasian Northlands" and "The Climate of American Northlands."

With the two final drops the Air Force had racked up this score: 890 tons of food, fuel, equipment and hardware dropped; sixty-seven sorties to the South Pole and Byrd Station in Marie Byrd Land; 2,500 hours of flying airdrop missions.

The squadron had started operations Oct. 9 with ten Globemasters and ended today with nine. On Oct. 17 a Globemaster crashed near Hallett Station with the loss of six lives.

This reporter was aboard the first Globemaster taking off today for the South Pole. The "State of Tennessee" left McMurdo Sound shortly after 8 o'clock this morning with a crew of ten, five passengers and fifteen tons of cargo.

At the controls were Maj. Herbert T. Levack of Hartford and Capt. John H. Flatness of Portland, Ore. The passengers included Capt. Edwin A. McDonald of Medford, Ore., commander of the Ross Sea Ship Group, and Comdr. John P. Barron of McLean, Va., chief staff officer of Task Force 43 at Christchurch, New Zealand.

The four-engine Globemaster flew at 19,000 feet to get above the overcast between McMurdo Sound and the Beardmore Glacier. Some of the passengers aboard the unpressurized aircraft found the rarefied atmosphere a bit trying. The slightest exertion caused them to gasp for breath like beached fish. They frequently took draughts of oxygen from tubes fixed to the bulkheads.

Then the clouds evaporated and there was the magnificent Beardmore Glacier, twelve miles wide and 100 miles long.

Flying directions to the South Pole from McMurdo Sound are sometimes given succinctly as follows: "Just fly to the Beardmore Glacier and turn right." That was precisely what the plane did, turning right and threading its way up the blue-white glacier between the Queen Alexandra mountain range on the right and the Commonwealth and Dominion ranges on the left.

Then the polar plateau, vast, white, a frozen desert broken by icy blue-green canyons, crevasses, ridges and sastrugi, ridges formed by the wind.

And finally, four and one-half hours and 830 miles after leaving McMurdo, the South Pole. Descending to 1,500 feet —but still 10,000 feet above sea level—the pilot steadied the plane as it approached the drop zone. With the hatch open, forty degree below zero air numbed ungloved fingers. The cavern of the cargo deck was suddenly illuminated by the white light from the ice-covered plateau.

The cargo rumbled along the rollers and dropped out. Then the plane circled for perhaps ten minutes to get into position for the next drop.

Then the drop crew rushed up to the flight deck for hot soup or coffee and the "State of Tennessee" turned tail for McMurdo and home.

ANTARCTIC PARTY NEARS MOUNTAINS

But Crevasses Bar the Way to the Horlicks, Never Visited by Humans

By PHILIP BENJAMIN

MARIE BYRD LAND, Antarctica, Nov. 26—The American traverse party here in Marie Byrd Land is one of three at work trying to fathom the secrets of a continent shielded by an armor of ice up to 14,000 feet thick.

This reporter joined the party last night at a point 300 miles from the pole and within sight of the western part of the unexplored Horlick Mountains—territory never before traveled by man.

The trip in was made in a twin-engined Navy ski plane piloted by Lieut. Com. Robert M. Epperly of Enumclaw, Wash.

The undulating plateau had looked like rough blue-white plaster from the air, but on the ground it could be seen that the roughness was caused by sastrugi—ridges of hard snow piled up by the wind.

When the plane took off a short time later all that remained in the vast cold emptiness were three orange Sno-Cats—tracked vehicles—three sledges carrying equipment and a cooking wanigan, or hut on runners, and seven persons, six of them members of the traverse party.

The party's leader is Dr. Charles R. Bentley, a seismologist from Rochester, N. Y.

There are two brothers, both glaciologists, William E. Long of Reno, Nev., and Jack B. Long of Richmond, Calif.; Fredric L. Darling, a meteorologist of Arlington Va.; Leonard LeSchack, a siesmologist of Westport, Conn., and William H. Chapman, a topographical engineer of Sacramento, Calif.

The cook is whoever happens to feel like cooking.

After a cold night's sleep in the Sno-Cats, the scientists were up early this morning, as they have been every day since Nov. 1, when they set out from Byrd Station.

They have been sounding the depth of the ice and making ice studies. Today the seismology Sno-Cat went on a tooth-rattling trip over the Sastrugi with high explosives bouncing around inside.

Mr. LeSchack assured the passengers that the explosives would explode only when he wanted them to.

At a spot about ten miles from camp, the seismologists went to work.

Mr. Leschack used an auger to bore a hole in the ice thirteen feet deep and four inches across.

Meanwhile, Dr. Bentley had laid out 1,100 feet of wire to which he attached twelve geophones at intervals.

Mr. Leschack lowered a pound of explosive into the deep blue hole and ran a wire from the explosive to a detonating box. Inside the Sno-Cat Dr. Bentley prepared his seismograph.

The explosion made a thump. The sound sped downward through the ice until it hit bedrock and then bounced back up.

The interval between the explosion and the echo was the measure of the ice thickness—in this case about 4,900 feet. This was repeated a dozen times along a ten-mile stretch during the day. It was long, hard work in bitter wind and cold.

At intervals Dr. Bentley also took readings on the gravimeter, a delicate instrument owned by Columbia University and insured for $40,000.

This instrument is essentially a spring and weight, but it is capable of detecting a change of one three-millionth in the gravitational pull.

At the end of a twelve-hour workday, the Sno-Cat bucked back to camp, The scientists ate hot stew and prepared for the next day, which may see an attempt to cross a crevasse field that lies between us and the long, flat-topped barrier of the Horlick Mountains twenty miles away.

Weather Curbs Party

MARIE BYRD LAND, Antarctica, Nov. 27—Threatening weather kept the Byrd traverse party in camp today, but it was not a day of rest. Dr. Bentley and Mr. Leonard Leschack continued their seismic soundings, and two of the glaciologists, Mr. Darling and William E. Long, dug a pit in the ice 10 feet deep and 6 feet square for their glaciological studies. Mr. Chapman, the party's topographer, spent the day squinting through his instruments and Jack B. Long kept radio contact with Byrd Station and prepared supper in the Wanigan.

The glaciologists' pit was a pleasant place because it was sheltered from the wind. Mr. Long and Mr. Darling studied the stratified ice. Pointing out alternately hard and soft layers, they explained that the hard, dense layers had been deposited in winter and the softer layers in summer. At the bottom of the pit they bored a hole and measured the temperatures of the core at various levels.

Later they measured the density of the ice.

All this was repetition of work the party has been doing ever since they left Byrd Station on a triangular traverse they have pushed south for 320 miles, bringing them near the Horlick Mountains.

The party will shortly turn east, skirting the mountains for three hundred miles and then trek back to Byrd Station—in all a thousand-mile, two-and-a-half-month journey.

Jittery Party Blazes Antarctic Snow Trail

McMURDO SOUND, Antarctica, Dec. 8 (AP).—An eight-man trail-blazing party arrived here today after a suspense-filled 470-mile trip from Little America.

The party led by Army Maj. Merle Dawson spent more than three weeks on the journey. They made the first 400 miles across the sprawling Ross ice shelf with little trouble. Then last Monday a 38-ton tractor carrying two men tumbled into a crevasse. The men escaped serious injury.

The crevasses, often concealed by layers of snow, kept the party jittery for the next 24 miles. One day the team moved only 1½ miles. Each time an electronic detector indicated a crevasse ahead, the men would stop and set off charges of explosives to try and uncover the hidden danger.

"We put 50 pounds in each charge," Maj. Dawson said. "We felt if 50 pounds didn't break through, then we could get the weight of our train through. In the 24-mile area where it was really bad we used 4,100 pounds of explosives."

"When you can see something," Maj. Dawson went on, you're satisfied. But when you're walking along on a crust of snow and feeling you may fall through any minute, you're worried.

"The men on this trip were tops. They really weren't scared even after the tractor fell with two boys. Of course, we were all just a little jittery."

The purpose of the crossing was to open a trail to be used during the evacuation of the station at Little America next month.

Crevasses Block Way

MARIE BYRD LAND, Antarctica, Nov. 28—A hidden crevasse blocked attempts by the Byrd traverse party today to reach the Horlick Mountains to get rock samples.

A crevasse detector is fixed to one of the three Sno-Cats. It consists of four large metal bowls fixed to wooden beams that push out ahead of the vehicle. The instrument sets up an electrical field that is distorted by the crevasses.

After being completely blocked about fifteen miles from the mountains, Dr. Bentley decided to call it a day and attempt to get nearer to the mountains, tomorrow from a point six or seven miles east. The Sno-Cats lurched back to camp for a belated Thanksgiving dinner of chicken and cranberry sauce, eaten in the wanigan.

Vehicle Breaks Down

MARIE BYRD LAND, Antarctica, Nov. 29—A near plunge into a crevasse and the breakdown of a Sno-Cat plagued further attempts by the Byrd traverse party today to reach the Horlick Mountains.

Having been stopped yesterday a tantalizing fifteen miles from the range of flat-topped, ice-capped mountains by a field of hidden crevasses, the party pushed east fourteen miles today, hoping to find a solid highway of ice.

The party broke camp and set out in the three Sno-Cats, dragging three heavy sledges of two-and-a-half tons each, containing all the party's supplies.

After a wide swing to the east, the party headed south toward the mountain. It looked this time as if there might be a chance to get through when abruptly, and with no warning from the crevasse detector, the right front pontoon on the lead Sno-Cat opened up a crack in the snow.

It kept on going but the right front runner of the heavy sledge it was hauling dropped down about two feet into the crevasse, concealed by a snow bridge less than two feet thick.

Two of the men unshipped two 4-by-4 beams carried on the sledge. Digging out notches in the snow on each side of the hole, they put the beams across and under the dangling runner. Then the Sno-Cat was driven slowly ahead and the sledge runners slid over the beams to solid snow.

But the Sno-Cat was found to have a broken "fifth wheel," the horizontal plate on which the pontoons turn.

It was decided to make camp on the spot and radio Byrd Station for a ski plane to come out with a replacement part. And the Horlick Mountains continued to face us coldly and serenely from fifteen miles away.

Whale Tusk a Mystery

The male narwhal, a small whale, has a long spiral tusk growing out of its upper jaw. Medieval Europeans mistook the javelinlike armament for the horn of the mythical unicorn. Scientists still puzzle over the spear's function, says the National Geographic Society.

ANTARCTIC PARTY GETS AID BY AIR

Spare Parts Put Sno-Cats Back in Operation—2 Men Off to Study Mountains

By PHILIP BENJAMIN

MARIE BYRD LAND, Antarctica, Dec. 1—New parts and a portable arc welder flown out 600 miles by a Navy ski plane from Little America put the Byrd traverse party back on its tracks today.

The plane brought a new spring for one Sno-Cat and a "fifth wheel" for another. The "fifth wheel" is a metal plate on which the vehicles' tracked pontoons turn.

In addition to the frustration the six-man party has suffered in being prevented by crevasse fields from reaching the base of the Horlick Mountains fifteen miles away, it also has been pestered by a series of mechanical breakdowns.

This reporter has been accompanying the expedition into virgin territory for a week as it makes seismic soundings of the depth of the ice sheet and the profile of the bedrock beneath it, studies the density and other characteristics of the ice and carries on other scientific research.

The bearded young scientists of the group are being led by Dr. Charles R. Bentley of Rochester, N. Y., a seismologist.

After working south from Byrd Station for 320 miles, the party is within sight of the purplish battlement of the Horlick Mountains. They are named for William Horlick, the malted milk manufacturer who helped support the 1934 Antarctic expedition of Rear Admiral Richard E. Byrd.

Attempts to thread the three Sno-Cats between crevasses to the foot of the unexplored range have failed. Two days ago the party nearly lost a sledge to a bottomless crevasse.

However, yesterday the party's two glaciologists, Frederic L. Darling of Arlington, Va., and William E. Long of Reno, Nev., both mountain climbers, donned red, down-filled suits, hoisted packs on their backs and roped together, set off on foot to investigate the mysteries of these flat-topped mountains and bring back rock samples.

Meanwhile, a plane from Little America arrived today with parts requested by radio. Jack S. Long of Richmond, Calif., younger brother of William, performed some mysteries of his own with the portable arc welder brought by the ski plane.

Mr. Long had the Sno-Cats in shape in comparatively short order.

Range Yields Petrified Trees

McMURDO SOUND; Antarctica, Dec. 29—Four members of the Byrd traverse party have become the first persons to ascend into the Horlick Mountains, 300 miles from the South Pole.

They reported finding petrified trees, leaf fossils, seashells and coal beds, giving further evidence that Antarctica was once a lush forest.

The four climbed 4,000 feet to the top of the range, 10,066 feet above sea level. Their findings indicated that 6,000 feet of rock was below the level of the ice.

The climb was described here today by Frederic I. Darling of Arlington, Va. He recently left the party, which is on the final leg of a triangular traverse from Byrd Station.

The ascent was made Dec. 8 by Dr. R. Bently of Rochester, the traverse leader and chief seismologist; William E. Long of Reno, chief glaciologist and geologist; Jack B. Long of Richmond, Calif., William Long's brother, assistant glaciologist and mechanic, and Mr. Darling, a meteorologist.

The group spent nineteen hours in the mountains, which were found to be composed of sedimentary rock overlying granite basement rock. Sedimentary rock is formed from the consolidation of sediment derived from living organisms as well as from older rock. Granite is igneous, formed from the molten material of the earth's interior.

U. S. PARTY TO SET UP BASE IN ANTARCTIC

LITTLE AMERICA, Antarctica, Dec. 29 (AP)—A ten-man ground party left today to set up a United States auxiliary base 160 miles from here on the trail to Byrd Station.

The new base, to be used for summer support activity, will be named Camp Rockford, after the Illinois town where Rear Admiral George Dufek makes his home. Admiral Dufek is the commander of the United States Antarctic naval support force.

MCMURDO SOUND, Antarctica, Dec. 29 (UPI)—A United States Navy plane arrived at the South Pole today to rescue Rear Admiral Tyree of Sebring, Fla., who flew to the pole yesterday from this base, but was unable to take off again when his plane developed engine trouble.

Admiral Tyree will succeed Admiral Dufek next April as commander of the Navy's Operation Deepfreeze.

FLIERS DISCOVER ANTARCTIC ISLES

'Copter From Icebreaker Glacier Reports Sighting 2 in Terra Nova Bay

LITTLE AMERICA, Antarctica, Dec. 7—Two previously uncharted islands have been discovered in Terra Nova Bay on the Ross Sea.

The discovery was made December 1. It was reported by radio by the United States Navy icebreaker Glacier.

The islands were sighted by Capt. Edwin A. McDonald of Medford, Ore., commander of the Ross Sea Ship Group, and Dr. Henry Dater of Washington, a historian in the Antarctic Projects Office, while on a helicopter flight from the icebreaker.

Terra Nova Bay is on the coast of Victoria Land about 200 miles north of McMurdo Sound. The Glacier is making oceanographic studies in the bay area in connection with the International Geophysical year.

The Glacier also reported the discovery of an emperor penguin rookery in which more than 50,000 penguins were sighted.

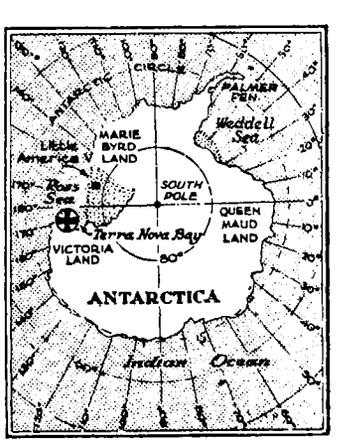
This discovery was made by Capt. John Cadwalader of Philadelphia, Capt. McDonald's Chief of Staff, and John Dearborn, a biologist from Stanford University.

The rookery was believed to be the largest of ten known emperor penguin rookeries in the Antarctic. It was sighted between Coulman Island and the Lady Newnes Ice Shelf north of Terra Nova Bay.

Also reported was the disappearance of more than 1,000 square miles of the Lady Newnes Ice Shelf. A check of charts that were made in 1912 showed that in the last forty-six years a block of ice 300 feet thick and ten times the size of the District of Columbia had vanished.

The Glacier is in the Terra Nova Bay area to select a landing site for a New Zealand survey group that will make geological studies and map surveys.

The area has not been visited since the 1941 expedition of the late Admiral Richard E. Byrd.



Terra Nova Bay (cross)

ANTARCTICA SUMMER STILL MIGHTY CHILLY

McMurdo Sound, Antarctica, Dec. 17—(AP)—The weather in this part of Antarctica is comparatively mild in the summer, which is approaching its peak here.

The average temperature during the last two Januarys was 26. Once, in January 1957, it went to 40. The minimum that month was 10.

At the South Pole, some 800 miles from here, it's a different story.

The warmest it's ever been at the pole, since humans began poking around there, is 7 above zero. This happened during a heat wave last year.

EXPLORER AT 20

Eagle Scout Joins Club as Its Youngest Member

A 20-year-old Boy Scout who spent a year in the Antarctic became the newest and youngest member of the Explorers Club Nov. 19

Eagle Scout Richard Chappell of Eggertsville, Erie County, N. Y., returned last February from Little America, where he assisted an International Geophysical Year team. He was admitted to the Explorers Club under the sponsorship of Boy Scount Executive Earl Allyn of New York.

Mr. Chappell is now attending Princeton University under a Navy scholarship. He plans to enter the field of nuclear physics.

Cold Task Eased

McMURDO SOUND, Antarctic, Dec. 17 (AP).—Reveille, an annoying sound on any continent, is being softened at the South Pole by a cup of tea in bed. Personnel at the United States scientific station there were pleasantly pulled out of sleep the other day by members of the night crew bearing cups of tea.

NEW ZEALAND SET TOPUSHI.G.Y.STUDY

To Continue in the Antarctic After Year Ends Despite Financial Difficulties

WELLINGTON, Aug. 23 (Reuters)—The New Zealand Government, despite financial difficulties, will provide special funds to enable the country to carry on its work in the antarctic after the International Geophysical Year ends Dec. 31.

Philip Holloway, Minister in charge of scientific and industrial research, has announced that Scott Base will be occupied "for the next two years at least" and a team recruited immediately to go south next summer.

Plans so far adopted include:

¶The appointment of J. Holmes Miller, deputy leader of Sir Edmund Hillary's trans-Antarctic expedition party, to a special position as Antarctic executive officer to organize future activities.

¶The continued occupation of Scott Base by New Zealand scientists, who will carry out a modified program related to I. G. Y. activities as wel as special research on matters of particular interest to New Zealand.

¶Further geological surveys and exploration in the Victoria land coastal area during the next two summers.

¶Continued close cooperation with the United States, including the continued joint occupation of the I. G. Y. station at Cape Hallett by New Zealand and American scientists.

Much of the work to be done in the next two years will be extension of current I. G. Y. research and the field work of special geological and mapping teams last summer. However, there also will be new features arising from the growing interest in Antarctica generally and its special importance and significance to New Zealand.

The proposed new program will be put into effect by the Geophysics Division of the Department of Scientific and Industrial Research, under its divisional director, Dr. E. I. Robertson, who also is chairman of the Ross Dependency Research Committee.

Working under Dr. Robertson as a special executive officer, Mr. Miller will organize the over-all activities in collaboration with New Zealand's chief Antarctic scientist, Dr. Trevor Hatherton.

The New Zealand Ship Endeavour again will be used as a supply vessel and it also will carry out oceanographic research during the 1958-59 season.

About thirty-one men will be required for service—nineteen for the summer months only and twelve for the whole of 1959. They will travel south in various parties from the end of November onward.

The research program proposed includes the study of the lower regions of the ionosphere, which affect radio communications by absorbing certain lower radio frequencies. Dr. J. B. Gregory, a senior lecturer in physics at Canterbury University, who already has done much research in this direction, will spend the summer months at Scott Base installing special equipment and training the men who are to remain there for the winter in its use.

Another new project will be the study of "Whistlers"—radio waves from lightning flashes that appear to travel along the earth's lines of magnetic force thousands of miles from the earth's surface. Until recently, it was believed that these could not be received much further south than New Zealand. But there have been doubts about this theory since I.G.Y. staffers heard whistlers at Scott Base a few weeks ago.

The dominion physical laboratory is building special equipment that will be installed at Scott Base to record them next year.

The dog teams at Scott Base will be increased by breeding and by taking further huskies there from New Zealand. The aim is to increase their number to about forty, which should provide enough teams for a major program of field work by New Zealanders in the 1959-60 summer.

Biologists, working under the direction of Dr. R. A. Falla, director of the Dominion Museum, will study plants, animals and birds in the McMurdo Sound area during the next two summers.

Three New Zealand scientists will replace the present party led by K. J. Salmon, at Hallett Station, which is mannned jointly by New Zealand and the United States.

Two New Zealand parties, each of six men, will be flown into Victoria land by helicopter from an American icebreaker next summer to explore and map 309 miles of unknown coastal area between McMurdo Sound and Hallett Bay. Each party will consist of one geologist, one surveyor, and four members with mountaineering experience.

British Ship Off for Antarctic

SOUTHAMPTON, England, Oct. 5 (Reuters)—The research ship Shackleton left today on her annual relief voyage to the Antarctic. On board were nineteen scientists and technicians who will spend two and a half years at British bases.

U.S. Geographic Society Giving Medal to Fuchs

Sir Vivian E. Fuchs

WASHINGTON, Oct. 26 (AP)—Sir Vivian E. Fuchs, British explorer who led the first overland crossing of Antarctica, has been awarded the Hubbard Medal of the National Geographic Society.

This, the society's highest geographical award, will be presented to Sir Vivian when he comes here to make a speech on Feb. 6.

Earlier this year, Sir Vivian and his twelve-man party crossed 2,158 uncharted and frozen miles from Shackleton Base on the Weddell Sea to Scott Base on Ross Sea via the South Pole. Their epic feat took ninety-nine days.

The Hubbard Medal commemorates Gardiner Greene Hubbard, founder and first president of the society.

HILLARY IS APIARIST

Famed Mountaineer Changes His Listing in Who's Who

WELLINGTON, N. Z. (Reuters)—Sir Edmund Hillary has changed his occupation in the current Who's Who from explorer to apiarist.

Questioned on the change, the co-conqueror of Mount Everest said:

"There's a difference. Beekeeping is my profession, exploring is my hobby.

"Beekeeping is how I make my living and how I should be listed, even though I've done more knocking about in the last few years. I still regard exploring more in the nature of a pastime rather than a life's work."

Red Pilot Rescues Belgian Explorers

Brussels, Dec. 16—(AP)—A Soviet pilot found four Belgian explorers who crashed in the Antarctic and flew them back to their home base today. Moscow radio said "All four are well."

Viktor Perov spotted them in Queen Maud Land, picked them up and returned them to King Baudouin base on the Antarctic coast south of Africa

The four are members of the Belgian expedition taking part in the international geophysical year. They took off from Baudouin base Dec. 6 to establish a scientific station in the interior. They crash landed their small plane in the Crystal mountains.

The nearest large expedition was the Soviet one at Mirny, about 1,400 miles around the coast to the east. The Russians sent two search planes.

Perov found the crashed plane Saturday. A note in it said the men had set out to walk 80 miles to a Belgian supply cache. They had covered 55 miles across terrain cut by dangerous crevasses when Perov spotted their tent.

He landed his L-12 ski plane, a Soviet version of the twin-engine American DC-3. With him were the Belgian expedition commander and doctor, Moscow radio reported. The rescued men were Capt. Gaston de Gerlache, Prince Antoine de Ligne, Jacques Loodts and Charles Hulshagen.

Belgians Off for Antarctic

OSTEND, Belgium, Nov. 15 (Reuters)—The Norwegian icebreaker Polarhav left here today with twenty-two members of a Belgian Antarctic expedition. They will replace ten Belgians who have spent a year in the Antarctic making observations for the International Geophysical Year.

BRUSSELS, Belgium, Dec. 29 (Reuters)—The 658-ton Norwegian icebreaker Polarhav, carrying twenty-two Belgians on their way to relieve the sixteen-man team of the Belgian Antarctic expedition, is stuck in pack-ice thirty miles from the expedition's base at King Baudouin Station, it was announced here today.

Volcanoes Elusive

LONDON, Aug. 13 (AP)—A Soviet scientist claims two volcanoes reported discovered by Norwegians on the Antarctic's Amery Shelf glacier in 1931 do not exist. Radio Moscow quoted Prof. Konstantin Markov as saying Soviet explorers have mapped the whole glacier without finding a trace of them.

RUSSIANS REPORT ORE IN ANTARCTIC

Rich' Iron Veins Described in Ice-Free Oases—Plan for Removal Studied

By WALTER SULLIVAN

Oct. 26

Soviet scientists have reported the discovery of "rich veins of excellent iron ore" in Antarctica. They also believe a large iron ore basin lies beneath the ice covering the continent's interior.

This was reported in an article published in Moscow by Prof. M. Ravich and recently received in this country. He summarizes the results of far-reaching Soviet geological explorations during the last two antarctic summers.

Planes and helicopters were used, he said, to lift teams of scientists to the foothills of rocky mountains and to remote "oases" free of snow and ice. They were thus able to examine the structures of "the most inaccessible mountain peaks," he said.

The survey extended from close to the site of the Japanese station in Queen Maud Land, almost to the mountains of Victoria Land, where United States and New Zealand scientists have been working. The exact locations of the discoveries were not given.

One of the most interesting finds was of formations similar to the diamond-bearing deposits of South Africa and of the northern part of the Yakutsk Republic in the Soviet Union. These consisted, the report said, of "hundreds" of steep veins of comparatively young karroo dolerites, cropping through crystalline shales.

An immense layer of this shale, roughly ten miles thick, was examined. It was described as one of the oldest such strata on earth. The iron deposits were in veins of tegmatite connected with enormous granite formations.

The evidence for a hidden basin of iron ore beneath the hinterland ice was said to have been found among boulders deposited around the mountains and barren oases by flowing ice that has since vanished.

On the basis of earlier explorations, it has been estimated by Western scientists that, underlying the South Pole, there may be one of the world's largest deposits of low-grade coal.

The chief problem lies in extracting such deposits economically. Preparations are being made in the Canadian arctic to exploit some of the richer deposits.

Likewise, under the pressure of dwindling resources, techniques have been developed to exploit the vast lower grade coal and ore deposits close to industrial areas in America and Eurasia.

The antarctic is far less accessible than the arctic and any move to exploit even rich deposits there would have to compete with such enterprises.

Almost all Soviet activity to date has been in the sector claimed by Australia. Neither the United States nor the Soviet Union recognizes the antarctic claims made by other nations.

British TV Signals Caught in Antarctic

By Reuters

London

British scientists at Halley Bay, Antarctica, have picked up television signals from Britain, some 8,000 miles away, the British Royal Society disclosed here.

During the last Antarctic winter, from April to September, when ionospheric conditions were favorable, sound reception from London was possible for several hours a day at the society's base on the shores of the Weddell Sea. Visual signals were picked up occasionally.

72, GOING TO ANTARCTIC

Veteran of Two British Trips to Join U. S. Expedition

WORCESTER, England, Oct. 24 (Reuters)—Sir Raymond Priestly said today that he was going back to the Antarctic.

He is 72 years old, the only man now living who took part in Sir Robert F. Scott's 1902-04 expedition and Sir Ernest Shackleton's 1908-09 expedition He was a geologist on those expeditions.

At his home in near-by Bredons Norton, he said today that he was "delighted to accept" a British Government invitation to leave in December for observer duties with the United States "Deep Freeze Four" expedition.

Asked if he would travel with the Americans to the South Pole, which he never reached, he replied that he would go "like a shot" if they asked him, but did not expect they could because of transport requirements.

He expects to leave for New Zealand in December and stay in the Antarctic until March.

SOVIET REPORTS LOST CONTINENT

Researchers Assert Africa, Eastern Antarctic and Australia Were Linked

By HARRY SCHWARTZ

July 6

Soviet Antarctic researchers have concluded that an ancient continent once probably linked into one land mass the Eastern Antarctic, Africa and Western Australia, Pravda reports.

This conclusion can be asserted "with great confidence," Pravda says on the basis of extensive Soviet geomorphological research on what has been found to be the "extraordinary complexity" of the ocean bed in the relevant area. These investigations have completely refuted earlier notions that the ocean bottom was smooth or had a gentle wavelike pattern, Pravda said.

In its summary of a recent report on Soviet International Geophysical Year investigations in the Antarctic presented by D. I. Shcherbakov, academician, to the Soviet Academy of Sciences, the Pravda article said that if the Antarctic was a continent its size was far smaller than formerly believed.

Soviet scientists reported last February evidence suggesting that the section of the Antarctic coast on which they were working was a chain of islands. Pravda adds the information that the main Soviet coastal base of Mirny is on an island lying about 250 miles away from the true coast of the continent, if there is actually an Antarctic continent.

During 1956 and 1957 Soviet researchers measured the thickness of the Antarctic ice cover at several points up to a distance of about 225 miles from the present Indian Ocean coast. At a distance of about sixteen miles from the coast they found a thickness of more than 3,000 feet. At about sixty miles, they found a thickness of more than 4,500 feet; at about 120 miles, a thickness of about 7,000 feet; and at about 225 miles, a thickness of about 11,000 feet. A record thickness of 13,000 feet had been reported earlier by other investigators.

Using aerial photography as a basis for their work, Soviet investigators have completely mapped about one-third of the total Antarctic coast, the section lying between 40 and 166 degrees East Longitude. Pravda contends this is the first trustworthy map of the area involved.

Soviet investigators have found that at a given time the temperature at different points on the Antarctic ice mass differs sharply. Pravda cites data for last May 10 when temperatures at different Soviet stations ranged from about 18 degrees above zero fahrenheit at Oasis to 112 degrees below zero fahrenheit at Sovetskaya more than 10,000 feet above sea level well inland from the coast on which Oasis is located.

Some parts of the Antarctic have very large numbers of living creatures, Pravda reports, citing one area where Soviet investigators found a density of birds equivalent to more than 50,000 birds a square mile.

Sendoff For Soya

Nov 12

The Soya sailed from Tokyo port today on its third expedition to the Antarctic in another attempt to land a party on Ongul Island.

The ship is carrying a crew of 92 under Captain Mitsuji Matsumoto and an observation team of 37 led by Dr. Takeshi Nagata.

The Soya has been remodeled into a miniature aircraft carrier. It carries two large Sikorsky S58 helicopters, a single-engined Beaver DHC2 and two smaller Bell 47G2 helicopters.

They will be used to fly men and supplies from the ship to Showa Base on Ongul Island.

The vessel is scheduled to arrive in Cape Town December 22, where Daniel J. Meloy, a US State Department official, will join the group as an observer.

Leaving the South African city before December 28, the ship is expected to arrive off the Antarctic continent January 7.

A wintering team of approximately 12 men is to be left behind when the Soya sails for home about February 18. It is due back in Tokyo in April.

Statue Honors Huskies

OSAKA, Japan, July 6 (Reuters)—A white marble statue was unveiled here today in memory of fifteen husky dogs who had died of starvation when a Japanese scientific expedition was forced to leave them stranded in the Antarctic this spring.

Soviet Antarctic Trek Ends

MOSCOW, Dec. 28 (UPI)—Soviet Antarctic explorers have completed a three-month trek to their Vostok station near the magnetic South Pole, the Soviet press agency Tass reported today. The party returned to the Soviet Mirny station on the Antarctic coast after traveling nearly 2,000 miles to supply the Vostok base.

SOVIET GIVES U. S. PENGUIN SECRET

Explorer Warns Scientists to Fly High Over Birds Brooding in Antarctic

WASHINGTON, Oct. 4—A Soviet explorer told United States scientists this week of a new Russian doctrine for aircraft in the Antarctic: fly high over brooding penguins.

Dr. Mikhail M. Somov, who led the first of the current series of Soviet expeditions to Antarctica, described a disaster in the penguin world that occurred recently near the Soviet base at Mirny.

Emperor penguins, he explained, lay their eggs on ice and then brood them, embedded in folds of flesh in the abdomen. He observed that they had no fear of anything approaching on the surface—even the most fearsome tractor. But this nonchalance did not apply to something in the air.

The Russians found a rookery whose population Dr. Somov estimated at about 20,000 of the great, eighty-pound birds, all brooding. To make an accurate count, the Russians sought to obtain an aerial photo, but when the plane came over, "thousands of the birds panicked," Dr. Somov said.

As a result, the ice was covered with scrambled eggs and further attempts at aerial photography were abandoned. The emperor penguin lays only one egg a year, and mortality among the resultant chicks is heavy in the harsh polar climate. Hence the species holds precarious grip on existence.

Dr. Somov spoke to those who are to man the various American scientific stations in Antarctica during the coming year. They are assembled here for outfitting and for final briefings by scientists and polar specialists.

Perhaps the most important geographical revelation by Dr. Somov was the discovery that the area that has been described as the Pole of Inaccessibility is heavily crevassed. The area is near the crest of a dome-shaped plateau of ice that blankets the Antarctic hinterland.

It had been found to be utterly featureless by both Soviet and American aerial explorers, rising to almost 14,000 feet at its highest point about 9000 miles from the sea. No peak is known to break the surface anywhere in this vast region, but multiple cleavage of the ice near its summit suggests that a great mountain range lies buried there.

Dr. Somov said aerial surveys had indicated that the actual summit of the ice was midway between this area and the present location of Station Sovietskaya, the most remote of the outposts. Hence it is proposed, in the coming weeks, to shift Sovietskaya about 220 miles to that summit, rather than the 440 miles to the Pole of Inaccessibility as originally planned.

EXPEDITION BY SOVIET

Scientists Begin Observations Deep in the Antarctic

LONDON, Nov. 30 (Reuters)—Sleighs and snow vehicles of the third Soviet trans-Antarctic expedition have reached the inland base of Sovetskaya after an 850-mile journey, the Soviet news agency Tass reported today.

Dec. 15— Moscow radio announced that Soviet Antarctic explorers reached the Pole of Inaccessibility and set up an observation station.

The pole—deep in the Antarctic land mass 600 miles from the real South Pole on a line with the Indian Ocean—got its colorful name for being the spot regarded by explorers as the most difficult to reach overland.

The Soviet expedition of 18 members covered 1,366 miles over ice and snow to get to the remote position, starting from the Soviet Mirny Observatory in the Antarctic, Radio Moscow said.

They set out Dec. 3 in a sledge and four caterpillar tractors. According to statistical data received in Moscow, they covered ground never before trodden by man at a speed of about 97 miles a day.

On reaching the pole the explorers set up a little building, hoisted the Soviet state flag, and put up a bust of Lenin. The altitude of the bleak spot was given as 3,510 meters (11,495 feet).

The explorers will measure the thickness of ice in the region and study meteorological and magnetic phenomena.

LONDON, Dec. 3 (UPI)—Moscow radio said today that a transport sledge and tractor train of the thirr Soviet Antarctic Expedition was on its way to the area of the magnetic South Pole. The broadcast, monitored here, said twelve Polar explorers were accompanying the train.

125.3 BELOW ZERO

London, Aug. 26 — (AP)—A temperature of 125.3 degrees below zero Fahrenheit, the lowest ever recorded, was reported last night by Radio Moscow. The broadcast said it was recorded by Soviet polar explorers at Vostok, a Russian scientific base in the region of the south magnetic pole.

QUIET, PLEASE: Emperor penguins brooding eggs in Antarctica. Penguin holds its egg at abdomen, and when so engaged is easily frightened by low-flying airplanes, though not by vehicles on the ground, Soviet explorer said.

Australia Notes Its Mirny Claim

MELBOURNE, Dec. 26 (AP) Australia hopes Russia will not stay at Mirny, its base in Australian Antarctica territory, Foreign Secretary R. G. Casey said today.

Bidding farewell to Australia's 1959 Antarctic expedition, Casey described the Russian occupation of Mirny as "temporary." Russia established the base 18 months ago for the International Geophysical Year.

Casey admitted Australia's right to the Antarctic territory has never been recognized by the United Nations. "But we have been there 50 years—the Russians have been there only 18 months," he said.

Australia has chartered two ships for trips to its Antarctic research station in 1958-59.

POLES TO JOIN STUDY

Antarctic Research Base Given to Warsaw by Moscow

MOSCOW, Dec. 8—The Soviet Union has given Poland one of its Antarctic research bases and thus raised to thirteen the number of nations active in Antarctica or its off-flying islands.

Polish scientists were said to be preparing to sail south on the Soviet ship Mikhail Kalinin with the regular Soviet expedition. The Poles will take charge of Station Oasis, so-called because it is located on Bunger Oasis, a part of the subcontinent not covered by ice.

The Oasis is about 225 miles east of the main Soviet base, Mirny, and about half way between Mirny and Wilkes Station, the nearest United States base.

CHILE IS PLANNING ANTARCTIC CRUISE

SANTIAGO, Chile, Nov. 29—The Antarctic will be opened to tourists on a very small scale in early February, it has been announced here.

Chile intends to send a ship with seventy-two passengers for a week's visit to this nation's bases there. Air excursions to the interior are being considered.

The ship will sail from Valparaiso, with a brief stay at Punta Arenas at the strait of Magellan, which calls itself the southernmost city of the world.

Requests for tickets have been heavy even though the details of the trip have not been settled.

Two years ago the Chilean air line flew non-stop round trips to O'Higgins Base with great success.

NEW ZEALAND CITY KEY TO ANTARCTIC

Christchurch's Interest In South Pole Work Keen Since Turn of Century

CHRISTCHURCH, N. Z., Oct. 31—To the people of this city, the continent of Antarctica is their own demesne.

Since the days of Robert Falcon Scott and Sir Ernest Shackleton, in the first decade of this century, Christchurch has served as the jumping-off spot for expeditions to the south polar continent.

In the last three years, Christchurch has seen nearly 10,000 American Navy and Air Force men on their way to and from the south polar continent.

Although Christchurch, city of 200,000 population, is only 108 years old, it has the look of an English town. That look was carefully planted by its founders and nurtured by their descendants. Rosy-cheeked girls bustle about on bicycles and boys in short pants and school caps gangle along the streets.

The city has many Antarctic heroes. Scott, the Englishman who went to the Pole in 1912 and died on the return trip across the ice, is one. There is a statue of him in a Christchurch park. Sir Edmund Hillary, the New Zealander who made an overland trek to the Pole last year, is another.

A third is Rear Admiral George Dufek, commander of Task Force 43, which provides the logistical support for American scientific research in the Antarctic.

Operation Deepfreeze, the popular name for the United States naval-scientific effort, is big news nearly every day in Christchurch's two newspapers. Much space is given to interviews with Admiral Dufek, American scientists, Navy and Air Force officers and politicians.

A young New Zealander had this to say the other day:

"I was brought up on books on the Antarctic, just as I'm bringing up my son on them. We've always felt close, spiritually and geographically, to the Antarctic."

Christchurch is about 2,200 miles from McMurdo Sound, the "Pennsylvania Station" of the Antarctic.

Antarctic exploration has also meant a good deal to shopkeepers here, particularly those who operate sport shops. They have provided a large amount of gear for explorers, scientists and news men, including sleeping bags, ski pants, heavy woolen sweaters ("smell it, sir, you can smell the sheep"), woolen mittens and fleece-lined boots.

Polar Exploring Extension Pact Announced Here

WASHINGTON, Dec. 25 (AP).

The United States and New Zealand agreed yesterday to cooperate for another year in scientific exploration in Antarctica.

The two governments exchanged diplomatic notes spelling out in more formal terms the arrangements they have had to carry out experiments during the current International Geophysical Year.

The State Department in announcing the agreement said it came after a joint survey to improve operations at three stations currently being maintained in the Ross Sea area: The United States naval air facility in McMurdo Sound, the New Zealand Scott base and the jointly operated Hallett station.

New Zealand agreed to continue making available staging facilities on its territory for United States Antarctic operations. In turn, the United States offered to continue supply and transport support for New Zealand expeditions.

The agreement is the third of its kind signed by the United States in the past six months. Similar understandings were made with Australia and Argentina extending for another year operations they have been conducting in co-operation with the United States.

State Department officials said separate agreements were necessary to satisfy the three governments that the co-operation will not prejudice the territorial claims each has made in the Antarctic area.

Ice at Antarctic 9,500 Feet Thick

LONDON, Dec. 27 (AP)—Soviet explorers reported today the ice at the Antarctic "pole of inaccessibility" is more than 9,500 feet thick.

This is the point remotest from any shore of the frozen continent.

The Soviet expedition, Moscow radio said, started back during the day to their permanent base at the Mirny observatory. They faced a 1,250-mile journey across a desert of ice.

LONDON, Dec. 29 (Reuters)—The Soviet Union plans to establish a new Antarctic research station called Lazarev at Queen Maud Land, Tass, the Soviet news agency, said today.

WHALERS IN ACCORD

Soviet Accepts Quota of Fifth of Five-Nation Catch

LONDON, Nov. 27—The International Whaling Conference ended in agreement today with the Soviet Union accepting one-fifth of the catch taken by five nations.

This arrangement struck British sources as a surprise. Although it was felt that the Soviet Government had won a generous allotment of the total authorized catch of whales in the Antarctic, there had been little expectation of Moscow accepting the quota system.

As it turned out, the Soviet Government was the only participant to the conference that agreed to a stipulated percentage of the total. The other four countries—Britain, Norway, the Netherlands and Japan—must still reach agreement on their shares of what remains.

JAPAN OPPOSES PACT

Will Not Approve London Accord on Whaling

TOKYO, Nov. 28 (Reuters)—Japan's delegation has received instructions not to sign an agreement reached at a London conference on Antarctic whaling, a spokesman for the Japanese Ministry of Agriculture said Friday.

Under the agreement, the total annual catch authorized by the International Whaling Convention of 1946 would be allocated among the five nations represented at the talks—Britain, Norway, the Soviet Union, the Netherlands and Japan.

An official communiqué issued after the talks yesterday said 20 per cent of the annual total catch would be allocated to the Soviet Union. There will be further discussions about the allocation of the remaining 80 per cent with a view to concluding an agreement before next June 1, the communiqué said.

Antarctic Whaling Argeement

SANDEFJORD, Norway, Aug. 22 (Reuters)—An agreement on Antarctic whaling has been reached for the coming season by Britain, Norway, Japan and the Netherlands, the headquarters of the International Whaling Association announced today.

A total of 215 whale catchers—one more than last year—will be operating. Britain will have thirty-seven in three expeditions, Norway ninety-five in nine, Japan sixty-nine in six, and the Netherlands fourteen in a single expedition.

N. R. Bugge, chairman of the organization, said that all attempts to get the Soviet Union to join in the agreement had been fruitless. He added that from talks with a Russian delegate at The Hague meeting of the International Whaling Commission in June, he thought the Russians would reduce the number of their boats possibly to nineteen from twenty-five last season.

Books—Authors

Richard Lee Chappell, an Eagle Scout, served as a junior scientific aide to the scientists of the International Geophysical Year program in Antarctica. He spent the long winter night and summer of 1957-58 on the ice-bound waters of the Antarctic continent, where he celebrated his nineteenth birthday. His own account of his experiences will be published March 16 by Dodd, Mead. It will be called "Antarctic Scout."

Antarctica is also the subject of a book by Sir Vivian Fuchs and Sir Edmund Hilary, which Little, Brown plans to publish in February. Titled "The Crossing of Antarctica, "it is an account of the expedition that traversed the continent by land. Sir Vivian led the Commonwealth Trans-Antarctic Expedition that set out for the Pole from Shackleton Base on the Weddell Sea. Sir Edmund led the New Zealand support party that blazed a trail from the Ross Sea to the Pole.

An account of the first atomic submarine's voyage from the Pacific to the Atlantic beneath the Arctic ice pack is planned for publication in January by World. It will be called "Nautilus 90 North." The authors are Comdr. William R. Anderson, captain of the Nautilus, and Clay Blair Jr. The book's title is taken from the code message by which Commander Anderson informed Washington that the Pole had been crossed. The book will have seventy photographs taken by crew member John Krawczyk, official photographer of the submarine.

In 1915 Vilhjalmur Stefansson suggested to Sir Hubert Wilkins that specially designed submarines could "do wonderfully" in the polar ice pack to find a route linking the Eastern and Western hemispheres. In 1931, Sir Hubert made an unsuccessful attempt to open such a route under the Arctic. In August of this year, the Nautilus did it.. Mr. Stefansson chronicles in "Northwest to Fortune," the vision and the 500-year struggle that made the achievement of the Nautilus possible. The book was published Oct. 31 by Duell, Sloan & Pearce.

The Yukon, about 2,300 miles long, is the largest river in Alaska.

Sir Hubert Wilkins Dead at 70; Explored Polar Regions by Plane

First Flier of America-Europe Arctic Route Tried Submarine Trip Under Ice Cap in '31

FRAMINGHAM, Mass., Dec. 1—Sir Hubert Wilkins, the noted polar explorer, was found dead of a coronary occlusion today in his hotel room here. He was 70 years old.

The bearded veteran of many polar explorations had been working as a geographer and consultant at the Army Quartermaster Corps Research and Development Center in neighboring Natick.

A chambermaid found the body in the explorer's room at the Park Central Hotel. The body was fully clothed, including an overcoat. Police Chief Edward T. McCarthy of Framingham said Sir Hubert apparently had been stricken when he returned to his room yesterday afternoon.

Sir Hubert's wife, Lady Susan Wilkins, who lives in their New York apartment, was notified. She is the former Susan Bennett, an artist, singer and actress.

Maj. Gen. Andrew T. McNamara, Quartermaster General of the Army, in a statement in Washington, said that Sir Hubert's contributions were reflected in the "countless improvements in rations, clothing and other quartermaster supplies and equipment."

Pioneer Polar Flier

Sir Hubert was one of the pioneers in polar flying. In the Nineteen Twenties, in planes that would make a present-day pilot shudder at their inadequacy for use over the polar wastes, Sir Hubert, with a copilot, repeatedly risked his life. On more than one occasion he flew in, was forced down and walked out. Once or twice he barely made it.

These flights provided a foundation of knowledge upon which later airmen in the Arctic and Antarctic regions were able to build in order to achieve success where Sir Hubert and other pioneer polar fliers often had failed.

One of Sir Hubert's early flights was spectacularly successful. In April, 1928, Sir Hubert, then Captain Wilkins, and Carl Ben Eielson, an Alaskan mail pilot, completed a 2,100-mile flight from Point Barrow, Alaska, to Spitsbergen, an island group 400 miles north of Norway, in twenty and a half hours.

It was the first flight over the polar regions from North America to the European region. The flight was made in a Lockheed Vega monoplane powered by a Wright Whirlwind engine. For this feat the Australian-born Captain Wilkins was knighted on June 14, 1928, at Buckingham Palace by King George V of England.

Although a kindly and modest man, Sir Hubert was rugged-appearing, stockily built and wore a black beard. He said he grew the beard after a little girl said that she thought that beards were appropriate for explorers.

Many of Sir Hubert's adventures in exploration resulted from an extraordinarily lively youthful imagination. He pictured himself flying over or submarining under regions of the world where, if man had penetrated at all, he had slogged there and back on foot.

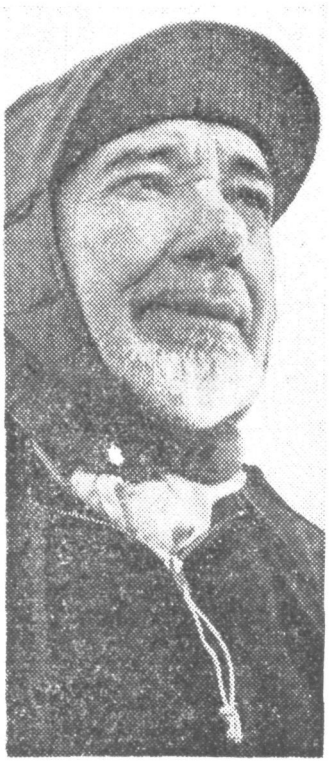
It was the veteran polar explorer, Vilhjalmur Stefansson, who first gave Sir Hubert the idea of actually trying to pass under the polar ice cap by submarine. It was Mr. Stefansson who, in fact, trained Sir Hubert as an Arctic explorer. Sir Hubert once wrote of Mr. Stefansson that "he taught me to work like a dog and then eat the dog."

In 1931, Sir Hubert tried to open the Arctic submarine route in an experiment that foreshadowed the successful completion of such a trip by the atomic-powered United States submarine Nautilus, which surfaced near Iceland last August after having passed under the North Pole.

Sir Hubert had obtained from the United States Navy the O-12, a World War I type of submarine. He named her the Nautilus in honor of the Jules Verne craft and equipped her for an attempt to pass under the polar ice cap.

But Sir Hubert's Nautilus had no atomic power and had to depend on frequent surfacing to recharge her batteries. After a few adventurous short-distance penetrations under the ice cap, Sir Hubert abandoned the venture, received Navy permission to sink the old O-12 and sent her to the bottom.

George Hubert Wilkins was born at Mount Byran East in Australia on Oct. 31, 1888. A severe drought ruined his father, a sheep and cattle rancher, and young Hubert could not go on to a secondary school. Night study at the School of Mines in Adelaide at a later period provided him with the rudiments of an engineering education.



Sir Hubert Wilkins

In 1912 and 1913 Hubert Wilkins was with the Turkish Army in the second Balkan War, making motion pictures of the fighting. His eagerness and hardihood impressed Mr. Stefansson, who took him on a Canadian Arctic expedition that lasted from 1913 to 1917. Young Mr. Wilkins then returned to Australia, learned to fly and joined the Australian Flying Corps. He was soon a captain.

While serving as a military photographer, Captain Wilkins was twice mentioned in dispatches and won the Military Cross with bar. In 1919 he competed unsuccessfully for The London Daily Mail prize of $50,000 for a flight from Australia to England.

His first visit to the Antarctic was made as second in command of the British Imperial Antarctic Expedition of 1920 and 1921 under Sir Ernest Shackleton. During the course of the expedition Sir Ernest died and little was accomplished.

Between 1933 and 1939 Sir Hubert, who received many honors from learned societies, was manager of four Antarctic expeditions undertaken by Lincoln Ellsworth.

WILKINS' RITES HELD

Polar Explorer's Funeral Is in Framingham, Mass.

FRAMINGHAM, Mass., Dec. 4 (AP)—Many scientists were among the mourners who thronged St. Andrew's Protestant Episcopal Church today for the funeral of Sir Hubert Wilkins, famed polar explorer.

Sir Hubert, who was 70 years old, was found dead of a heart attack in his hotel room Monday.

After cremation, the ashes of the explorer will be placed in London's Westminster Abbey. Lady Wilkins, the explorer's widow; Dr. Harold M. Dudley and Wilhjalmur Stefansson, Arctic explorer, were among the mourners.

DR. MAX GROTEWAHL, ARCTIC EXPLORER, 63

KIEL, Germany, Sept. 8 (AP)—Dr. Max Grotewahl, Arctic explorer who was founder and director of the Kiel Archive for Polar Research, died here last week-end. His age was 63. The cause of death was not announced.

The Kiel research institute, which was established by Dr. Grotewahl in 1926, developed into one of the four major Arctic study centers in the world.

Dr. Grotewahl was born in Kiel on Oct. 30, 1894. He received degrees from the Universities of Kiel and Goettingen, specializing in mathematics and physics. He married the former Helga Blockmann and they had one son.

In 1923-24 Dr. Grotewahl served on a magnetic survey of the Baltic Sea, and the next year he was leader of the German Spitsbergen Expedition. He was a member of the Danish East Greenland Expedition of 1930, leader of geomagnetic preparations for the Graf Zeppelin polar flight of 1931 and organizer of a German polar station in 1932-33.

ANDREW L. NELSON

UNION, N. J., Aug. 27—Andrew L. Nelson of 2019 Kay Avenue, former chief navigator and later commander of the British research ship Discovery II, which made three trips to the Antarctic, died yesterday at St. Barnabas Hospital, Newark, after a long illness. His age was 54.

Mr. Nelson was a former lieutenant commander in the British Navy. He had been an oceanographer with the Lamont Geological Observatory, Palisades, N. Y. He also had participated in ocean surveys by other American research organizations.

DOUGLAS MAWSON, EXPLORER, 76, DIES

Australian Who Led Trips to Antarctica Survived Plunge Into Crevasse

MELBOURNE, Australia, Oct. 14—Sir Douglas Mawson, noted Antarctic explorer, died tonight in Adelaide. His age was 76.

Between 1907 and 1931, Sir Douglas made three trips to Antarctica and helped to place 2,250,000 square miles of that continent on the map as Australian territory.

Trained Scientist

Until the South Polar researches during the current International Geophysical Year, Sir Douglas was the only leader of major Antarctic expeditions to have been trained as a scientist. Like many Antarctic explorers, he nearly met death in the continent that so fascinated him.

Douglas Mawson was born in Yorkshire, England, on May 5, 1882. His parents took him to Australia when he was a child and he received a degree in mining engineering from Sydney University in 1901.

For a while he was a demonstrator in the chemistry department at the university. In 1903 he went on a geological exploration of the New Hebrides Islands in the South Pacific, east of Australia.

His first Antarctic experience came in 1907 as a member of the expedition of Sir Ernest Shackleton. In 1908, while Sir Ernest was trying for the geographic South Pole, Sir Douglas, the expedition's physicist, went with two other members to the vicinity of the magnetic South Pole. Previously, Sir Douglas had ascended Mount Erebus, a volcano on Ross Island in the Antarctic.

Soon after his return to Australia, Sir Douglas organized his own Antarctic venture, the Australian Antarctic Expedition. The expedition left Tasmania in 1911 as Robert Falcon Scott, British explorer, was nearing the South Pole on an overland trek. Scott and his companions died on the return from the Pole.

Sir Douglas established a base at Cape Denison on the Indian Ocean. During two winters there his party recorded average winds of 60 miles an hour and gusts of up to 200 miles an hour.

At the same time, Sir Douglas set up what became Antarctica's first radio contact with the rest of the world. Sixty-five-foot radio towers were erected on Cape Denison and a relay station was set up on an island halfway to Australia.

Sir Douglas Mawson

Sir Douglas' most famous journey came during this expedition. In November, 1912, he set out with Lieut. B. E. S. Ninnis and Dr. Xavier Mertz on a sledging trip along the unexplored coast of the Antarctic on the Indian Ocean. The party started out with seventeen dogs and three sledges.

They skied and rode for 300 miles without mishap. Then, soundlessly, Lieutenant Ninnis, his dogs and his sledge vanished. Sir Douglas and Dr. Mertz discovered that Lieutenant Ninnis had fallen into a crevasse. The lost sledge had carried all the party's dog food, its tent and much of its provisions.

Sir Douglas and Dr. Mertz decided to travel back to Cape Denison as fast as possible. For two weeks they plunged on, eating their husky dogs one by one and feeding the remaining dogs with leather straps and pieces of fur.

Then Dr. Mertz became ill and the explorers had to stop. Sir Douglas tried to drag his companion on the sledge but was too weak. After a few days, Dr. Mertz died, and Sir Douglas buried him in the snow.

Sir Douglas continued across a glacier, later named Mertz Glacier. Part of the way through the trip the snow collapsed and Sir Douglas plummeted into a crevasse. But the harness attached to his sledge arrested his fall. He again climbed up. As he reached the top, the snow crumbled again and he fell, once more dangling in the crevasse.

Exhausted, Sir Douglas thought of ending the struggle by slipping out of the harness into the void below. Writing of this later, he said he was tempted "to quit small things for great—to pass from the petty exploration of a planet to the contemplation of vaster worlds beyond."

But he resisted the temptation and finally wriggled out of the crevasse feet first and made his way back to camp.

In 1929, Sir Douglas, who had been knighted in 1914, returned to Antarctica with the intention of securing a large part of the continent for Australia. His men landed at five points on the coasts south of Australia and annexed "The Australian Antartic territory in the name of King George V." However, no country has yet recognized any claims by any other country in the Antarctic.

From 1920 to 1954 Sir Douglas was Professor of Geology and Mineralogy at Adelaide University. He was a past president of the Australian and the New Zealand Association for the Advancement of Science and held the King's Polar Medal.

In 1914 he married Paquita Delprat. They had two daughters.

Dr. Daniel P. O'Brien, Physician, Dies; Member of 1926 Byrd Arctic Expedition

TORRINGTON, Conn., Aug. 19—Dr. Daniel P. O'Brien, who retired in 1947 as administrator of the medical science and research division of the Rockefeller Institute for Medical Research in New York, died on Saturday in Acapulco, Mexico, where he had been vacationing since May.

Dr. O'Brien, a native of Torrington and a resident of Cook Street here, died of a diabetic stroke. His age was 61.

He was a graduate of Yale and the Johns Hopkins University Medical School and also studied in Paris as a Johns Hopkins fellow. In 1926 he served as medical officer to the expedition of Rear Admiral Richard E. Byrd when the admiral and Floyd Bennett flew over the North Pole from Spitsbergen, and back.

Dr. O'Brien traveled extensively for the Rockefeller Institute, which he joined in 1927.

He also had served with a Johns Hopkins hospital unit in Labrador and was a former president of the American Medical Society in France.

A sister, Mrs. Maurice Fitzgerald of Winsted, survives.

GEORGE V. DOUGLAS DIES

Geologist, Teacher Went to Antarctic With Shackleton

TORONTO, Oct. 10 (Canadian Press)—George Vibert Douglas, who served with the Sir Ernest Shackleton expedition in the Antarctic and conducted geological research in South Africa and Rhodesia, died here Wednesday of a heart attack. His age was 64.

He had lived here since his retirement from the Dalhousie University faculty last year. He lectured in geology there and since his retirement did part-time lecturing at the Unversity of Toronto.

A graduate of McGill University, Mr. Douglas was the author of more than fifty papers on geology. He received the Military Cross during World War I and was mentioned in dispatches several times.

Survivors include his widow, two daughters, two sons and a sister.

CLIFFORD EASTON DEAD

SCARBOROUGH, N. Y., Aug. 21—Clifford H. Easton, who accompanied the late Dillon Wallace, explorer, on a trip through unexplored Labrador in 1905, died here yesterday after a long illness. His age was 75.

Mr. Easton was a student at the School of Forestry in Biltmore, N. C., when he joined the Wallace expedition.

During a 2,000-mile journey by canoe and dog-sled the group went through the interior of Labrador as far as Lake Michikamau and along the George River to Ungava Bay. They returned overland by dog sled during the winter. Later Mr. Wallace wrote a chronicle of the journey entitled "The Long Labrador Trail."

Mr. Easton subsequently worked in the forestry field and was an expert landscape designer. He was a member of the Explorers Club.

He is survived by his widow, Elizabeth, and a son, Donald.

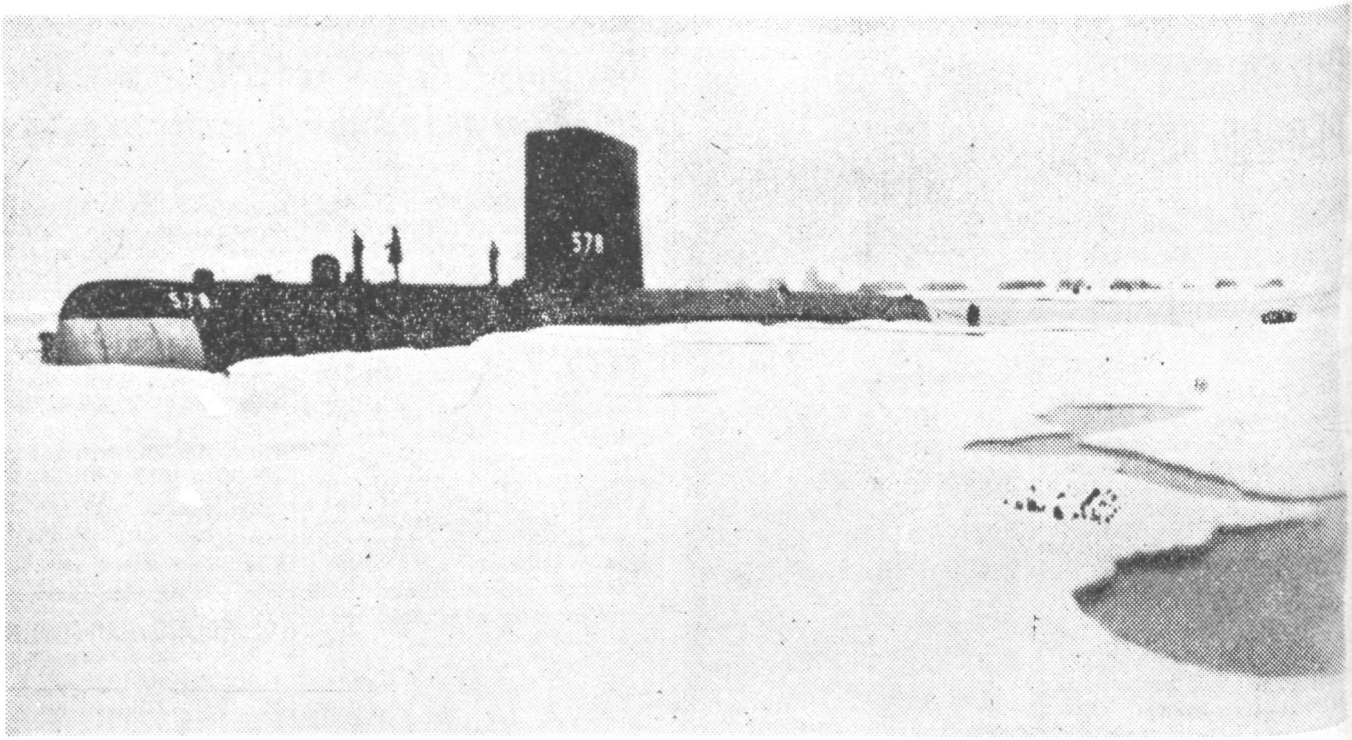
Gen. Cavalli-Molinelli Polar Explorer, 93

ALESSANDRIA, Italy, Aug. 11 (AP).—Gen. Achille Cavalli-Molinelli, 93-year-old former polar explorer, died at nearby Sale di Tortona yesterday of a heart attack.

In 1898 and 1899, as physician in the Italian navy, he took part in Italian expeditions to the Arctic led by the Duke of Abruzzi.

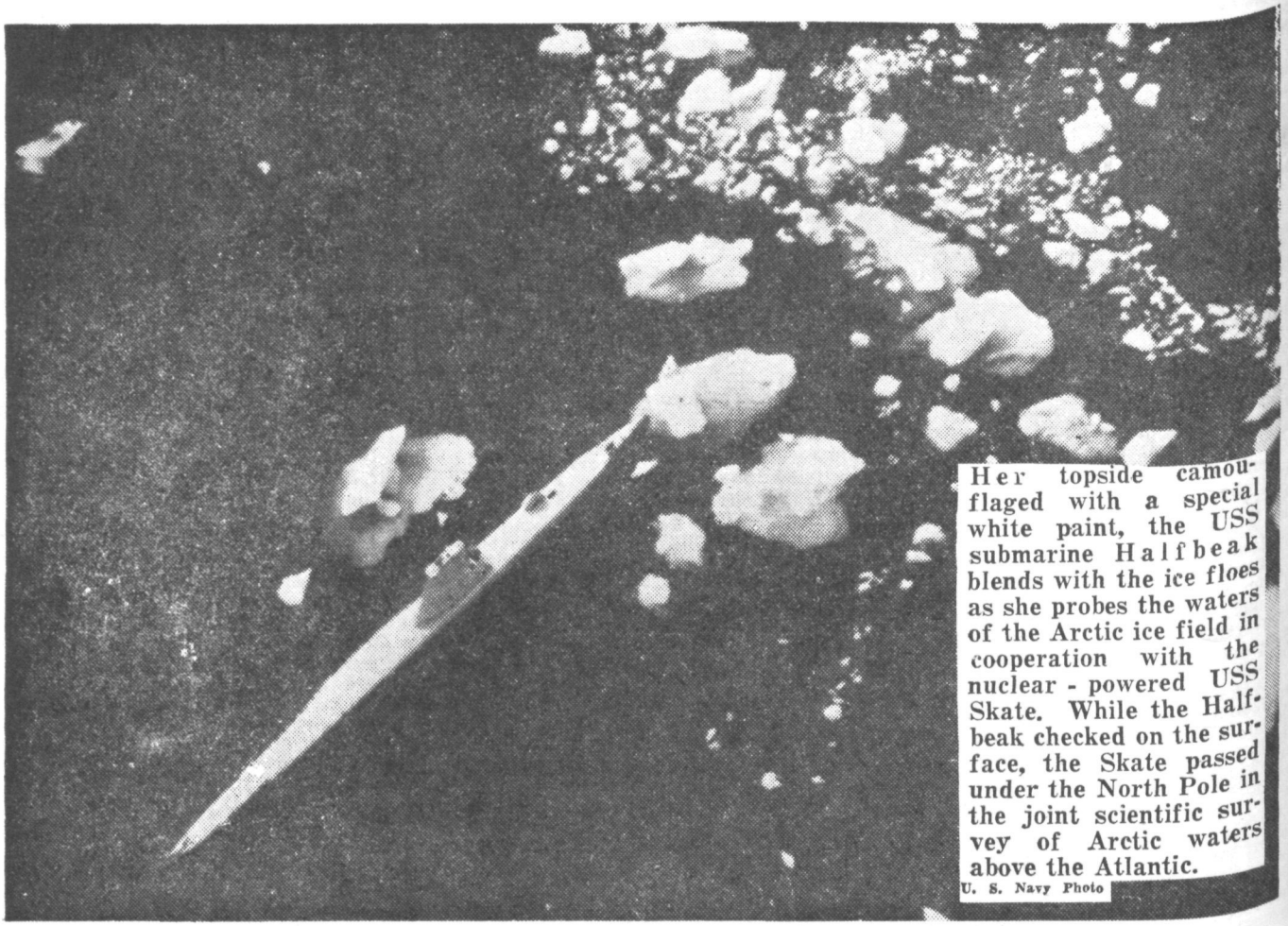
Charles Camsell, 82

OTTAWA, Dec. 20 (AP). — One of Canada's best-known geologists, Dr. Charles Camsell, 82, died at his home here last night. He was deputy minister of the Canadian Mines and Resources Department and commissioner of Canada's Northwest Territories from 1937 until his retirement in 1946.



NEAR THE TOP OF THE WORLD: The nuclear-powered submarine Skate moored in Arctic after surfacing through opening in ice pack near site of a remote weather station. Quonset huts of the International Geophysical Year installation are in the rear. Skate surfaced nine times through openings in Arctic ice, passing under the North Pole twice on recent 10-day, 2,405-mile voyage.

U. S. Navy



Her topside camouflaged with a special white paint, the USS submarine Halfbeak blends with the ice floes as she probes the waters of the Arctic ice field in cooperation with the nuclear - powered USS Skate. While the Halfbeak checked on the surface, the Skate passed under the North Pole in the joint scientific survey of Arctic waters above the Atlantic.

U. S. Navy Photo