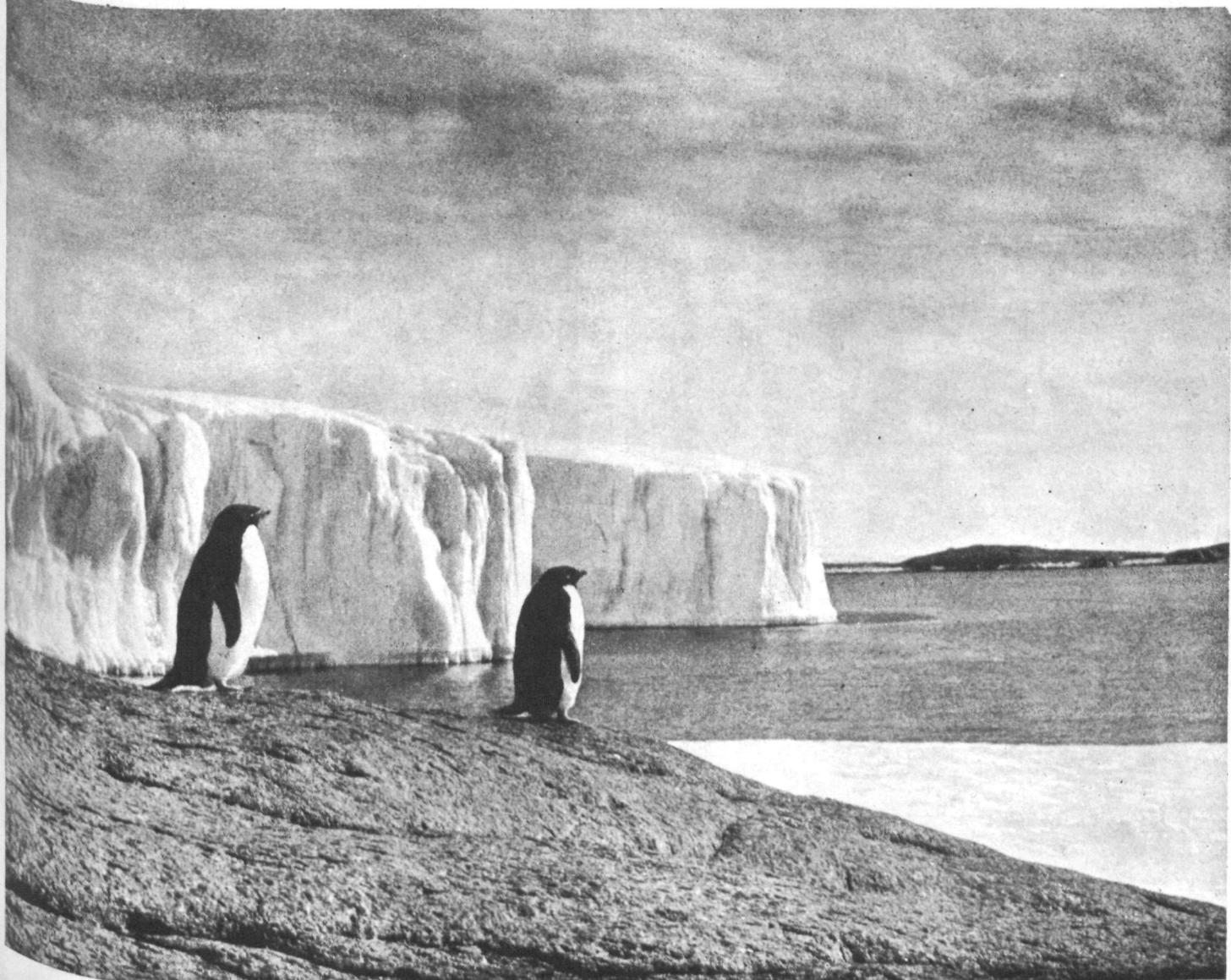


# THE POLAR TIMES



# **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:

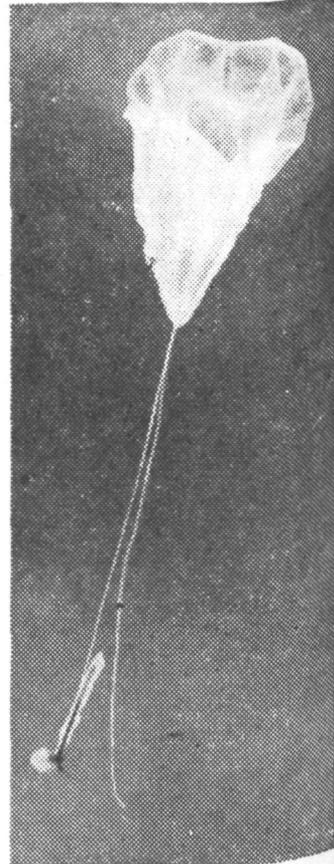
Discolored pages  
Faded or light ink  
Binding intrudes into the text

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](mailto:Library.Reference@noaa.gov)

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



A balloon is prepared for launching from the Glacier in Antarctic waters. Attached to it is one of the thirty-six rockets used over a wide area in research supervised by Dr. James A. Van Allen. Data were obtained on magnetism, cosmic rays and aurora effects.

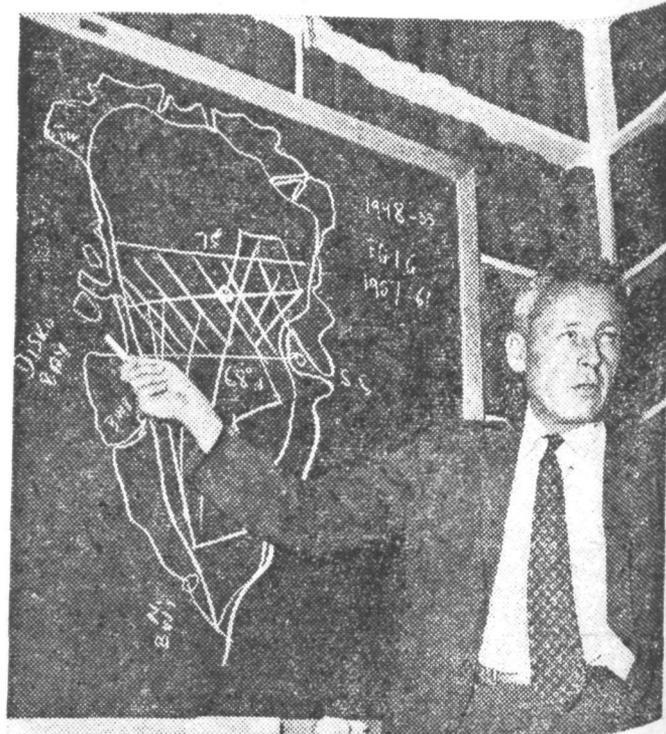


The balloon starts on its flight. Rocket was fired at an altitude of 14 miles.

U. S. Navy



Bravo with Lieut. (j. g.) John Tuck of Auburn, Mass., who was his friend at the South Pole and to whom he was presented by Navy. Bravo was born in 1956 in Antarctica.



**WILL HEAD EXPEDITION:** Paul-Emile Victor, who will lead the Expédition Glaciologique Internationale au Groenland. Group will investigate glaciers of frozen continent. Here M. Victor uses sketch of Greenland during news conference to indicate areas under study.

# The Polar Times

© 1958, by the American Polar Society.

No. 46.

JUNE 1958.

## PRESIDENT URGES ANTARCTIC PACT

WASHINGTON, May 3—The United States called upon eleven other nations today to join it in a treaty to preserve the Antarctic as a continent for scientific research and to prevent its becoming a battleground.

A note to this effect was sent to Argentina, Australia, Belgium, Britain, Chile, France, Japan, New Zealand, Norway, South Africa and the Soviet Union.

These nations and the United States are now conducting scientific work in the Antarctic as part of the International Geophysical Year.

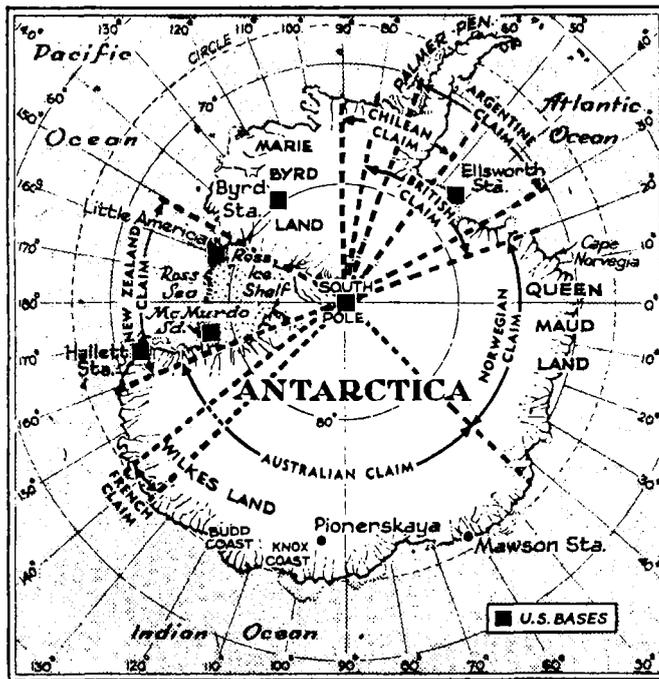
President Eisenhower said, in announcing the treaty proposal, that it was "directed at insuring that this same kind of cooperation for the benefit of all mankind shall be perpetuated" after the I. G. Y. ends Dec. 31.

Under the proposed treaty, territorial claims to Antarctica would remain in their present somewhat unresolved status and no new claims would be permitted.

The United States has no territorial claim there, nor does it recognize the claims of seven other nations. In notes to the proposed treaty nations, however, the United States said it had "direct and substantial rights and interests" there, including the right to make a territorial claim.

The notes invited the nations to a treaty conference at a time and place not specified. Officials expressed hope that it would occur within the next few months, after preliminary negotiations. They indicated that other nations might be welcome to join the treaty, but said practical considerations limited the invitation list to countries that were already working there.

The I. G. Y. participants in Antarctica include the seven territorial claimants—Argentina, Australia, Chile, France, New Zealand, Norway and Britain. Some of their claims overlap, and the overlapping has caused occasional friction.



CLAIMS IN THE ANTARCTIC: Territories sought by various nations and the United States bases in the region.

The President said the United States was "dedicated to the principle that the vast uninhabited wastes of Antarctica shall be used only for peaceful purposes."

"We propose that Antarctica shall be open to all nations to conduct scientific and other peaceful activities there," he said. "We also propose that joint administrative arrangements be worked out to insure the successful accomplishment of these and other peaceful purposes."

Speaking of the International Geophysical Year, the President said, "I know of no instance in which international cooperation has been more successfully demonstrated."

The notes said the aim of the treaty was to "assure the continuation of the fruitful scientific cooperation" already under way. They said it "could have the additional advantage of preventing unnecessary and undesirable political rivalries in that continent, the uneconomic expenditure of funds to defend individual national interests and the recurrent possibility of international misunderstanding."

"There would be advantages not only to those countries [directly concerned] but to all other countries as well," they said.

The proposed treaty would be deposited with the United Nation and officials here said the cooperation of specialized United Nations agencies would be sought.

If the United States were to claim territory, the obvious place would be Marie Byrd Land, according to authorities here. But assertion of a superior right in one spot might mean acceptance of inferior rights elsewhere. As the matter stands now, the United States asserts rights throughout the continent.

Officials said that there had been some friction in the Palmer Peninsula, where British, Chilean and Argentine claims overlap, but that those nations had agreed in recent years to minimize their disagreements.

The United States launched the treaty idea in confidential and informal consultations with the eleven nations in March. The responses were such as to justify today's formal proposal, officials said. They made no prediction that the Soviet Union would agree to confer, but said it had not resisted so far.

All but the note to the Soviet Union were signed by the United States Ambassador to the invited country and delivered by him to the country's Foreign Ministry. The invitation to the Soviet Union was delivered to the Soviet Embassy here for transmission to Moscow.

The Antarctic continent covers 6,000,000 square miles, an area almost as large as South America and almost twice as large as the continental United States. Because of its atmospheric and geographic conditions, officials here say, the continent's value is almost exclusive scientific.

## 11 NATIONS ACCEPT U.S. PLAN TO WEIGH ANTARCTIC TREATY

WASHINGTON, June 4—The State Department announced today that all eleven nations invited by President Eisenhower to discuss a new treaty for Antarctica had accepted.

Among the nations transmitting their acceptance of the invitation was the Soviet Union.

The aim of the treaty, as expressed in United States notes to the eleven nations May 3, would be to "freeze" all existing territorial claims and permit freedom of scientific investigation by citizens of all nations over the entire continent.

Such investigation is being carried out by scientists of the eleven nations under the International Geophysical Year program, but that ends Dec. 31.

According to an announcement by Moscow last night, the Soviet Union specifically reserved all its rights regarding territorial and other claims. However, the United States did the same thing in its notes. The notes proposed that "such basic rights and such claims would remain unaffected while the treaty is in force."

According to United States officials, the Soviet note expressed agreement with the Administration's aim of guaranteeing free scientific inquiry and assuring that Antarctica would be used for peaceful purposes only. This appeared to augur well for the proposed treaty.

The State Department said consultations would begin in Washington soon between the State Department and the embassies of the eleven nations to set a time and place for a formal international treaty session. The United States has expressed no preference for a site.

The State Department also said it hoped preliminary drafting work on the proposed treaty could get under way soon.

# U. S. Statement and Note on Antarctica

WASHINGTON, May 3—Following are the texts of President Eisenhower's statement on the Antarctic and the United States' note to eleven countries:

## The President's Statement

The United States is dedicated to the principle that the vast uninhabited wastes of Antarctica shall be used only for peaceful purposes. We do not want Antarctica to become an object of political conflict. Accordingly, the United States has invited eleven other countries, including the Soviet Union, to confer with us to seek an effective joint means of achieving this objective.

We propose that Antarctica shall be open to all nations to conduct scientific or other peaceful activities there. We also propose that joint administrative arrangements be worked out to insure the successful accomplishment of these and other peaceful purposes.

The countries which have been invited to confer are those which have engaged in scientific activities in Antarctica over the past nine months in connection with the International Geophysical Year. I know of no instance in which international cooperation has been more successfully demonstrated. However, the International Geophysical Year terminates on Dec. 31, 1958. Our proposal is directed at insuring that this same kind of cooperation for the benefit of all mankind shall be perpetuated after that date.

I am confident that our proposal will win the wholehearted support of the peoples of all the nations directly concerned, and indeed of all other peoples of the world.

## The Note

I have the honor to refer to the splendid example of international cooperation which can now be observed in many parts of the world because of the coordinated efforts of scientists of many countries in seeking a better understanding of geophysical phenomena during the current International Geophysical Year. These coordinated efforts of the scientists of many lands have as their objective a greatly increased knowledge of the planet on which we live and will no doubt contribute directly and indirectly to the welfare of the human race for many generations to come.

Among the various portions of the globe where these cooperative scientific endeavors are being carried on with singular success and with a sincere consciousness of the

high ideals of mankind to which they are dedicated is the vast and relatively remote continent of Antarctica. The scientific research being conducted in that continent by the cooperative efforts of distinguished scientists from many countries is producing information of practical as well as theoretical value for all mankind.

The International Geophysical Year comes to a close at the end of 1958. The need for coordinated scientific research in Antarctica, however, will continue for many more years into the future. Accordingly, it would appear desirable for those countries participating in the Antarctic program of the International Geophysical Year to reach agreement among themselves on a program to assure the continuation of the fruitful scientific cooperation referred to above.

Such an arrangement could have the additional advantage of preventing unnecessary and undesirable political rivalries in that continent, the economic expenditure of funds to defend individual national interests, and the recurrent possibility of international misunderstanding. It would appear that if harmonious agreement can be reached among the countries directly concerned in regard to friendly cooperation in Antarctica, there would be advantages not only to these countries but to all other countries as well.

The present situation in Antarctica is characterized by diverse legal, political and administrative concepts which render friendly cooperation difficult in the absence of an understanding among the countries involved. Seven countries have asserted claims of sovereignty to portions of Antarctica, some of which overlap and give rise to occasional frictions. Other countries have a direct interest in that continent based on past discovery and exploration, geographic proximity, sea and air transportation routes and other considerations.

The United States for many years has had, and at the present time continues to have, direct and substantial rights and interests in Antarctica. Throughout a period of many years, commencing in the early Eighteen Hundreds, many areas of the Antarctic region have been discovered, sighted, explored and claimed on behalf of the United States by nationals of the United States and by expeditions carrying the flag of the United States. During this period, the Government of the United States and its nationals have engaged in well-known and extensive activities in Antarctica.

In view of the activities of the United States and its nationals referred to above, my Government reserves all of the rights of the United States with respect to the Antarctic region, including the right to assert a territorial claim or claims.

It is the opinion of my Government, however, that the interests of mankind would best be served, in consonance with the high ideals of the Charter of the United Nations, if the countries which have a direct interest in Antarctica were to join together in the conclusion of a treaty which would have the following peaceful purposes:

A. Freedom of scientific investigation throughout Antarctica by citizens, organizations and governments of all countries; and a continuation of the international scientific cooperation which is being carried out so successfully during the current International Geophysical Year.

B. International agreement to insure that Antarctica be used for peaceful purposes only.

C. Any other peaceful purposes not inconsistent with the Charter of the United Nations.

The Government of the United States is prepared to discuss jointly with the governments of the other countries having a direct interest in Antarctica the possibility of concluding an agreement, which would be in the form of a treaty, for the purpose of giving legal effect to these high principles. It is believed that such a treaty can be concluded without requiring any participating nation to renounce whatever basic historic rights it may have in Antarctica, or whatever claims of sovereignty it may have asserted.

It could be specifically provided that such basic rights and such claims would remain unaffected and no new claims made by any country during the duration of the treaty. In other words, the legal status quo in Antarctica would be frozen for the duration of the treaty, permitting cooperation in scientific and administrative matters to be carried out in a constructive manner without being hampered or affected in any way by political considerations. Provisions could likewise be made for such joint administrative arrangements as might be necessary and desirable to insure the successful accomplishment of the agreed objectives.

The proposed treaty would be deposited with the United Nations and the cooperation

of the specialized technical agencies of the United Nations would be sought. Such an arrangement would provide a firm and favorable foundation for a continuation of the productive activities which have thus far distinguished the International Geophysical Year; would provide an agreed basis for the maintenance of peaceful and orderly conditions in Antarctica during years to come; and would avoid the possibility of that continent becoming the scene of international discord.

In the hope that the countries having a direct interest in Antarctica will agree on the desirability of the aforesaid high objectives, and will work together in an effort to convert them into practical realities, the Government of the United States has the honor to invite the Government of \* \* \* to participate in a conference for this purpose to be convened at an early date at such place as may be mutually agreeable.

Accept, Excellency, the renewed assurances of my highest consideration.

## British Group Honors Siple, Fuchs and Hillary

LONDON, March 17—Dr. Paul A. Siple, United States polar scientist, has been awarded the Royal Geographical Society's Patron's Medal. The society announced today Queen Elizabeth II had approved the award.

A biologist and geographer, Dr. Siple was the scientific leader at the United States South Pole base for the International Geophysical year from January, 1957, until January, 1958. It was the first party to winter at the South Pole.

The society awarded a special gold medal to Dr. Vivian Fuchs, leader of the commonwealth trans-Antarctic expedition. The Queen has announced she would knight Dr. Fuchs, who led the first crossing of the south polar continent by a surface expedition.

Sir Edmund Hillary, conqueror of Mount Everest and leader of the New Zealand expedition supporting Dr. Fuchs, was awarded the society's Founders Medal.

Auroras Are Simultaneous  
Radar stations in England and Antarctica have announced that auroras, a luminous phenomenon of various colors in the sky, occur simultaneously in the Northern and Southern Hemispheres.

## Important Discoveries Made Concerning Antarctic, Oceans, Climate, Atmosphere, Sun and Earth Itself

By Hugh Odishaw

*Executive Director, U. S. National Committee for the IGY*

We stand at the close of the first year of the International Geophysical Year's eighteen-month period of intensive scientific and intellectual exploration of earth and the space around it.

In that year, this great, peaceful adventure of unprecedented scope has focused the energies of some 10,000 scientists in sixty-six countries upon long-standing questions concerning earth's structure and shape, its climate, its atmosphere and its relationships to the sun.

The I. G. Y. has organized new scientific programs and intensified existing ones so as to compress into one short period the equivalent of decades of routine observation and experimentation. Preliminary indications from this first year promise that the final results, as they are analyzed over the next several years, will far exceed even the fondest expectations of those who shaped this global effort.

In other I.G.Y. program areas: International co-operative efforts have successfully established the first regular weather reporting for the Antarctic continent.

Estimates of the volume of ice affecting world weather there have had to be revised upwards very drastically.

Indications of significant warming trends in earth's climate have been reported.

It may be anticipated that the next six months of I.G.Y. will be at least as fruitful as these first twelve. Throughout this period, the National Academy of Sciences, which sponsors the I.G.Y. in this country, has enjoyed the support of the Congress, made available through the National Science Foundation. The imagination and generosity devoted to this support have contributed greatly to these early results and promise much for the future.

Indeed, the early successes of the I.G.Y. have prompted thought of the future. Already, the International Council of Scientific Unions, which spon-



NAS-IGY photo

Hugh Odishaw

sors the I.G.Y. internationally, has formed committees to continue the pattern of co-operative effort in Antarctic and oceanographic research. Other such committees may follow.

More than this, the I.G.Y. has captured the imagination of all mankind as an example of peoples of the world in a constructive purpose. Those who have bent themselves to the objectives of the I.G.Y.'s scientific program will rejoice if broader inspiration is drawn from their example.

By Earl Ubell  
*Science Editor*

*New York Herald Tribune*

In special hearings before Congress, just released, the leaders of the United States Committee for I. G. Y. told of the progress toward understanding this lump of rock and water we call our home.

But the data are still coming in. These scientists have been so busy measuring that they've hardly had a chance to fit the picture together. And the information is voluminous. One kind of observation produced sixty-one miles of film. Ten tons of data were shipped up from the Antarctic last March.

Dr. L. M. Gould, who heads the Antarctic program for this country, submitted a short summary of I. G. Y. work on that

cold continent. Some of the high lights:

The Russians have measured the world's record low temperature, 109 degrees below zero Fahrenheit.

The ice over the Antarctic is 10,000 feet thick at Byrd Station; the South Pole sits on 9,000 feet of ice, half of it below sea level. In one place the ice is 14,000 feet deep, the deepest ice anywhere in the world.

Instead of being a solid land mass, as previously believed, the continent consists of frozen lakes, fjords and other irregularities. In one part an ice-free valley, with living matter, has been discovered in a 9,000-foot-high mountain range.

As for the weather, a cold wind blows steadily at 20 miles an hour at the South Pole which, combined with low temperatures, makes Antarctica uncomfortable indeed.

But the South Pole may not be the coldest spot. There is a "cold pole" which the Russian station may be close to. The next job is to find this cold pole and make some measurements there.

Altogether the old figure of 3,240,000 cubic feet of ice for the entire world may be short by 40 per cent when the new discoveries about the Antarctic lump are taken into account.

William Field, chairman of the panel on glaciers, told Congress of the work on rivers of ice in both the northern and southern hemispheres. The surprises:

The Blue Glacier on Mount Olympus may be the wettest spot in the continental United States. During January it had more precipitation in the form of snow than any other place, 120 inches. That's the equivalent of 30 inches of rain.

The north polar ice has been shrinking, and perhaps by the end of the century the Arctic Ocean will become navigable by ice-breakers. But if the iced Arctic Ocean really opens up, it may start another Ice Age by feeding the glaciers with snow.

If you dig into the deep ice, about 25 to 30 feet down, and

## Record Gains As First Year Of IGY Ends

Washington, June 28 (UPI).—The first 12 months of the 18-month International Geophysical Year end Monday with the world's knowledge of the physical sciences already vastly expanded;

The organized cooperative effort of more than 10,000 scientists in 66 countries has given new life to the ancient Greek concept that the increase of knowledge eventually is of universal benefit, irrespective of nationality or locality.

A 67th country, Communist China, dropped out of the program at an early stage.

Official expiration date of the IGY is next Dec. 31.

International committees already have been established to continue scientific cooperation in Antarctica, and the study of the oceans.

Studies of solar phenomena also may have a continued international aspect. For many years, the publication and analysis of the data obtained during IGY will contribute to scientific progress.

measure the temperature, you find it is the same as the annual average air temperature. At Little America, for example, it was minus 10 degrees; at Byrd Station, minus 19 degrees; and at the South Pole, it was minus 59.

Dr. Harry Wexler, chief scientist of the Antarctic program, told of the advances in weather science during the past twelve months throughout the world:

The Antarctic is apparently warming up at the rate of about 5 degrees Fahrenheit a year, but whether it is a short or a long-term trend can't be determined now.

The Antarctic grows cold very quickly when the sun disappears for the winter. The temperature drops one degree a day, so that March's temperature of minus 65 degrees is 50 degrees below that of January's. But then, although the seasons in the southern hemisphere are reversed, the temperature begins to climb so that May is warmer than March. This is like saying that New York in December is warmer than in October. Perhaps the surrounding oceans around Antarctica have something to do with it.

# SUPPLY DIFFICULT FOR ARCTIC BASES

Both U. S. and Soviet Seek to Airlift Cargoes Before Thaw Bars Landings

By WALTER SULLIVAN

June 30

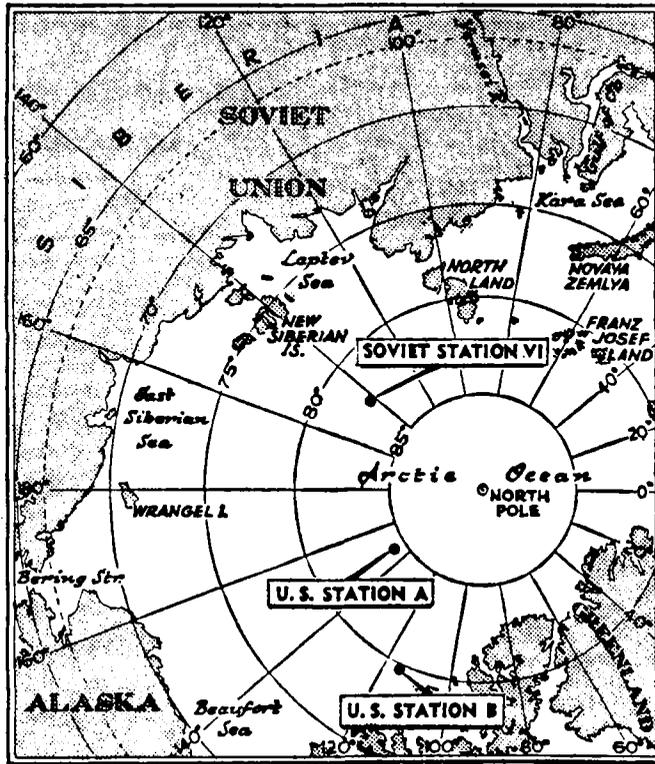
Unusually severe ice conditions, worsened by slush from spring thaws, have made life difficult for both Russians and Americans in the Arctic Ocean.

A fleet of seventeen Soviet planes, resupplying the two Russian drifting stations on the Arctic ice, has been unable to find a smooth place to land anywhere near Station North Pole VI at last reports. As a result the cargo has had to be landed on a floe almost forty miles away and ferried in by helicopter.

Station A, one of the two American drifting bases, has had to retreat in the face of creeping cracks in the floe on which it was built. Using tractors with bulldozer blades to knock down ice hummocks and drag buildings, the camp has been moved more than a half mile.

Likewise the runway has been shortened by the cracks and can no longer handle four-engine planes. This is making it difficult to resupply the station before summer thawing makes all landings hazardous. While the air strip is being rebuilt, cargo is being delivered by two-engine plane or by air drop.

At the other American drifting base, Station B on ice island T-3, the runway had to be closed earlier this month because of the thaw. The station is considerably further south than Station A. Fortunately, its resupply is said to have been virtually complete before the



**MEN AGAINST THE ICE:** Unusually severe conditions in Arctic have beset both Soviet and American drifting stations there. The Russians predict heavy ice in the way of shipping from the Kara Sea to Bering Strait. Resupply planes could land no nearer than forty miles from Soviet Station VI. Floe on which American Station A was built cracked, forcing movement of the camp a half mile.

runway melted.

Along the entire coast of Asiatic Russia, from the Kara Sea, north of the Urals, to the waters north of the Bering Strait, severe ice conditions are predicted for shipping. The Soviet newspaper Ivestia has told of pack ice moving toward the mouth of the Yenisei River, one of the chief Soviet waterways.

"In the opinion of ice forecasters," it said, "navigation during 1958 will be particularly difficult." It reported on May 11 that "even fall and winter ice is still very solid and almost two meters (six and a half feet) thick, and the polar pack ice floes are up to five meters (sixteen and a half feet) thick."

To aid in ice navigation this year the Russians say they plan to make experimental use of radiophoto and television equipment on ships and planes.

Ski-equipped LI-2 planes, a twin-engined model comparable to the Douglas DC-3, are said to have landed on the polar pack at more than a score of widely scattered points. There they set up automatic weather stations and took soundings.

The airlift to the American stations was carried out by the United States Air Force. Both Soviet and American outposts are conducting observations in connection with the International Geophysical Year.

## DR. SIPLE RECEIVES GEOGRAPHIC MEDAL

Dr. Paul A. Siple, who has perhaps spent more time on the Antarctic continent than any other man, was presented Jan. 30 with the American Geographical Society's David Livingstone Gold Medal.

Dr. Siple has taken part in five Antarctic expeditions and has spent four winter nights in the south polar region. During the last of them, which ended recently, he was scientific leader of the United States outpost directly at the Pole, where the night lasts for six months.

Dr. Siple was honored for his Antarctic work over a thirty-year period and in particular for his recent service. The medal is presented for scientific achievement in the geography of the Southern Hemisphere.

The presentation was made by Walter A. Wood, president of the American Geographical Society, at a dinner at the Ambassador Hotel. It was followed by delivery of the society's annual Isaiah Bowman Memorial Lecture by Dr. Laurence M. Gould, who heads the United States scientific program in Antarctica during the International Geophysical Year.

## GROWTH POTENTIAL OF ARCTIC STUDIED

MADISON, Wis. (UPI)—A University of Wisconsin research team has started work on a project aimed at luring homesteaders to frontier settlements north of the Arctic Circle.

Prof. Kirk H. Stone of the university's Geography Department will direct the three-year study to determine the future development potentialities of the extreme northern areas of Norway, Sweden, Finland and Alaska.

Professor Stone and six assistants will study all attempts that have been made to live in frigid climates of the North and try to come up with a success formula.

He hopes to lay the groundwork for permanent settlements in the four areas which, he says, "are of great strategic importance and significance to the free world in both war and peace."

Professor Stone started a similar project in 1941, but was cut short by World War II. The present effort has the financial backing of the United States Government, the Fulbright program and the University here.

## American Polar Society

ROBERT A. J. ENGLISH  
REAR ADMIRAL, U.S. NAVY (RET.)  
President

DR. THOMAS C. FOULTER  
CAPT. FINN RONNE, U.S.N.R.  
DR. JOHN H. ROSCOE  
Vice Presidents

AUGUST HOWARD  
Secretary

WILLIAM BRIESEMEISTER  
Treasurer

### Board of Governors

- DR. WALLACE W. ATWOOD, JR.
- LOUISE A. BOYD
- DR. MEREDITH F. BURRILL
- R. ADM. GEORGE DUFEK, U.S.N.
- HERMAN R. FRIS
- DR. NEIL D. JOSEPHSON
- DR. VICTOR E. LEVINE
- CAPT. EDWIN A. MC DONALD, U.S.N.
- FRED E. MEINHOLTZ
- COMDR. ALTON B. MOODY, U.S.N.R.
- SEN. RICHARD L. NEUBERGER
- COMDR. DAVID C. NUTT, U.S.N.R.
- DR. PAUL A. SIPLE
- CHARLES H. STOLL
- WALTER SULLIVAN
- PROF. EDWARD C. SWEENEY
- BRADFORD WASHFURN
- SIR HUBERT WILKINS

### Overseas Advisory Council

- SIR DOUGLAS MAWSON
- DR. GRIFFITH TAYLOR  
Australia
- PAUL EMILE VICTOR  
France
- DR. EIZABURO E. NISHIBORI  
Japan

## 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.

## SENATE APPROVES ALASKA AS STATE

WASHINGTON, June 30—The Senate approved tonight the admission of Alaska as the forty-ninth state in the Union. The vote was 64 to 20.

Only President Eisenhower's signature, which is assured, and approval in a territorial referendum remain before statehood is formally achieved. Test votes indicate that the issue will carry by an overwhelming majority. The Senate accepted the statehood bill passed by the House of Representatives word for word, beating down every effort to change it. Thus the bill goes directly to the White House.

It is expected that Alaska will assume full statehood by autumn or early winter. Its two Senators and one member of the House of Representatives could take their Congressional posts when the Eighty-Sixth Congress convenes next January.

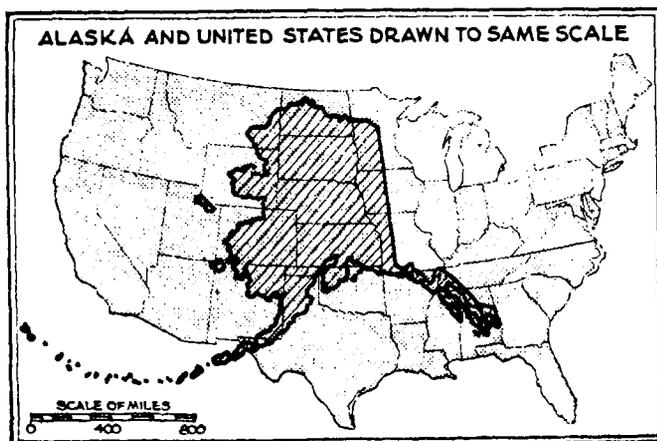
There were 35,000 Eskimos, Indians and Aleuts among the 161,000 persons estimated by the Federal Bureau of the Census to have made up Alaska's civilian population on July 1, 1956.

The Eskimo is somewhat more numerous than the others. Some ethnologists believe he may be related to Mongolian stock and perhaps came to the new world at the time Christianity was founded. The Aleut (pronounced as if it were spelled alley-oot) is considered an offshoot of the Eskimo.

The Eskimos, who follow the caribou herds, or hunt seal and whale or do whatever else is necessary to make a living, number about 16,000. They live chiefly in villages such as Barrow, in the extreme north, and Kotzebue, on the northwest — along the Arctic Ocean, the Bering Sea and on the deltas of the Yukon and Kuskokwim Rivers.

The 4,000 Aleuts dwell in the Aleutian Islands, along the Alaskan Peninsula and on Kodiak Island. Many of them live in the Pribilofs, where hundreds are employed in the Government-controlled fur sealery operations.

Since the first settlement in Alaska by the Russians in the eighteenth century there has been much intermarriage among Eskimos, Aleuts and whites. The Aleuts as well as Eskimos have preserved their own language to a great extent.



## 'Seward's Folly' After 91 Years Leads to Statehood for Alaska

ANCHORAGE, Alaska, June 30—Alaska took its first step toward statehood in 1867, but it is a safe bet that no resident—Eskimo, Indian, Aleut or white man—knew or cared.

The initial step was the purchase of Russian America—a vast, picturesque land of forests, mountains and tundra—from the czars by the Administration of President Andrew Johnson. The land had been discovered in 1741 by Vitus Bering, a Dane employed by Russia.

Its purchase by the United States became better known as Seward's Folly, for Secretary of State William H. Seward negotiated the deal and agreed to pay Russia the outlandish sum of \$7,200,000.

This money, scraped up two years after the Civil War ended, went for a 586,400-square-mile tract of "worthless, frozen waste" depleted by Russian trappers of its rich fur resources.

The Russians, having also virtually exterminated the sea otter along the coast, were viewed widely as having pulled

off a slick deal at American expense.

If Secretary Seward looked into his crystal ball and saw Alaska as an eventual member of the American union, his optimism was not shared extensively by a country to which Alaska meant the end of the earth.

This indifference to a new possession, which was to yield more than \$1,000,000,000 worth of minerals alone before statehood finally was realized, was reflected in a long period of neglect. Seventeen years after the Alaskan purchase Congress provided for the appointment of a governor and the organization of a government for the District of Alaska. Sitka was the temporary capital.

Not until 1906 did Congress empower Alaska to elect a Delegate, who would sit, without voting privilege, in the House of Representatives. The area became an Organized Territory Aug. 24, 1912. In 1913 the first territorial legislature assembled in Juneau, then, as now, the capital.

## RACE ORIGIN ADVANCED

### Soviet Expert Says People of North Alaska Were Siberian

PHILADELPHIA, June 30—A Soviet Anthropologist is convinced that a race of people in Northern Alaska 1,600 years ago was of Siberian stock and not of Eskimo origin.

The expert, Dr. George Debetz, based his conclusions on studies he conducted last fall at New York's Museum of Natural History and the University of Pennsylvania museum here.

Dr. Oebetz reported his findings at a meeting of the Permanent Arctic Committee in Copenhagen last May. What he said was made public here by Dr. Froelich G. Rainey, director of the local museum, who attended

the conference.

Dr. Rainey said that Dr. Debetz' studies proved that there was at one time a distinct race in northern Alaska remarkably different from present day Eskimos and related to an ancient race in Siberia.

### Popular Eskimo Game

Eskimos in Alaska have a popular sport called nalakutuk, or blanket tossing. A tough walrus skin is used for the blanket, and the contestant is tossed high in the air. The winner is the one who can land and stay on his feet.

### Strait Only 49 Miles Wide

Bering Strait, one of the entrances to the Arctic Ocean, is only forty-nine miles wide and twenty-seven fathoms deep.

## RADIO RELAY WEB OPENS IN ALASKA

### 3,000-Mile Network Closes Vast Communication Gap Among Defense Forces

ANCHORAGE, Alaska, March 26 (AP)—A radio relay web, the United States' \$140,000,000 answer to Alaska's vast distances, electronic barriers and defense needs, began operating over a 3,000-mile network today.

When the web was set to work at ceremonies at Elmendorf Air Force Base this morning, the radar warning outposts of the Alaskan Air Command and the Alaskan segment of the Distant Early Warning Line were linked. Great holes in this defense line were closed.

It also provided closer telephonic communications for the civilian residents of this area. These had been limited in many cases to the "bush radio," which often had long periods of inactivity because of atmospheric disturbances.

The network was turned over to the Air Force by the Western Electric Company, whose technicians have been directing the building of the project, known as White Alice, since 1955.

The system uses a beyond-the-horizon method of radio relay, employing huge antennae resembling outdoor movie screens. Signals are sent from station to station, as far as 170 miles apart. The signal shoots out toward the horizon in a straight line and bounces downward from the atmosphere to strike the next receiving screen.

The network is manned by civilian employees of the Federal Electric Corporation.

## Expeditions to Study Alaskan Glacial Ice

By the Associated Press

New York

Three expeditions set out this month to continue studying and mapping the glaciers of Alaska, the American Geographical Society of New York reported.

All three of the expeditions are part of the society's participation in the International Geophysical Year.

The frozen glacial areas may provide information about past climates on the earth, and possibly hints as to the future climates.

Measurement of the glacial ice also offers a good idea of the current balance between the ocean's water and the captive water of the glaciers. Glaciologists estimate that if the glaciers were to melt all over the world, the oceans would rise 100 to 300 feet, drowning many parts of the earth.

# Arctic Patrol Ship Sails

The government supply vessel C. D. Howe leaves Montreal June 27 with its usual cargo and passengers of oddly-assorted occupations bound for Eastern Arctic points.

Aboard will be government administrators, doctors, nurses, scientists, welfare workers, a postmaster and a school teacher, RCMP personnel and a number of Eskimos returning to their northern homes after medical treatment.

The C. D. Howe will return in early October from the 37th annual Arctic patrol, a voyage inaugurated in 1884 by the steamer Neptune four years after Britain conferred control of the Arctic islands on Canada.

The Howe's most northerly point of call will be Grise Fiord on the south coast of Ellesmere Island which lies next to Greenland. Grise Fiord is about 700 miles above the Arctic Circle.

Despite expanding Arctic air travel, the C. D. Howe still represents the only link with civilization for many of the Arctic communities. About 2,500 Eskimos will receive complete medical check-ups and talk over their needs with welfare officers.

The 12-man medical team will provide chest X-rays, physical and dental examination and inoculations.

Quarters aboard the supply vessel were enlarged last year to handle Eskimos. Cured patients from southern sanatoria and hospitals will be dropped off and new patients taken aboard.

The first patrol in 1884 did not travel beyond Hudson Strait, which connects Hudson Bay with the Atlantic Ocean.

A regular series of patrols was begun only in 1903 when Norwegian explorers challenged Canadian sovereignty in the Arctic archipelago. The vessel Arctic began the annual trips in 1922.

The C. D. Howe, first Canadian vessel built for Arctic patrols, began operations in 1950.

MONTREAL, June 26.—

The biggest Arctic supply operation yet undertaken by the Transport Department's fleet will begin this week.

A total of 75,000 tons of supplies, almost twice as much

as last year, will be shipped to weather stations, Mid-Canada and DEW Line radar stations and other Arctic outposts.

The icebreaker N. B. McLean will sail from Montreal Friday, to be followed by the supply ship C. D. Howe on Saturday. The McLean will patrol in Hudson strait, Hudson Bay and points north while the Howe will make a three-months run between James Bay and Resolute on Cornwallis Island.

During the next two weeks, the icebreakers Labrador, Ernest Lapointe and Montcalm, the supply vessel Cornwallis, eight special cargo-landing craft, four chartered tankers and eight chartered dry cargo ships will set out. In addition, 120 smaller craft, including barges, tugs and work boats, will be used in the supply run.

The d'Iberville will make the northernmost call, taking in supplies to Eureka on the west side of Ellesmere Island, only 750 miles from the North Pole.

A close second will be the Labrador, former Navy Arctic patrol vessel transferred to the Transport Department last year, which will sail to Alexandre Fjord on the east side of Ellesmere Island, almost as far north as Eureka.

The former Navy Arctic patrol ship Labrador has been refitted for civilian use at Saint John, NB, at a cost of \$575,000.

Officials said there will be no time for the Labrador to carry out any hydrographic surveys this year as she has done in the past.

## CONTROL OF D.E.W. LINE

Operation Taken Over by North American Command

COLORADO SPRINGS, Colo., Feb. 14—The North American Air Defense Command here is scheduled to assume operating control tomorrow of the 3,000-mile Arctic Distant Early Warning Line.

The Arctic radar fence is the final and most difficult link in a 15,000-mile warning loop around North America.

It is designed to warn Gen. Earle E. Partridge, commander in chief of the North American Air Defense Command of any large-scale attacks across the north polar regions by long-range bombers.

The D. E. W. Line has for several months been tested and in operation under the Alaskan Air Command and the Sixty-fourth Air Division in Newfoundland.

## SEISMIC STATION IS BUILT IN ARCTIC

Earthquake Records Sent From Concrete Vault Deep Under Tons of Snow

OTTAWA (Canadian Press)—One of the world's key stations for recording earthquakes is high above the Arctic Circle in a concrete vault covered with tons of snow in winter.

The seismic station is near Resolute on Cornwallis Island, 600 miles inside the Arctic Circle and 2,200 miles northwest of Ottawa. It replaces a small station that had been in operation there since 1950.

The entrance to the station is covered by fourteen feet of snow in winter. This problem was solved by having Eskimos build an igloo at the doorway, with a tunnel running to the surface.

Instruments valued at \$20,000 have been installed in the vault-like station to record earthquakes twenty-four hours a day. Special heating equipment keeps the instruments at a temperature just a few degrees above

freezing. The temperature outside the station in winter averages about 45 degrees below zero.

Robert Halliday, a seismologist with the Dominion Observatory, is in charge. He lives at Resolute Bay and visits the station once a day.

"In general design and spaciousness this latest station, most northerly in Canada, is the best in Canada," the Technical Surveys Department says. "The recordings from its instruments have made it one of the key stations in the world, mainly because of its geographical position near the top of the earth and its freedom from man-made vibrations."

Readings from the Arctic listening post are radioed daily by Mr. Halliday to the observatory in Ottawa. The observatory then sends the readings, along with data from other seismic stations in Canada, to the United States Coast and Geodetic Survey in Washington. About eighty world stations send daily readings to Washington, where experts try to locate centers of earth shocks.

The Resolute station is equipped with nine recording instruments, able to detect the smallest earthquakes anywhere in the world. They are picking up tremors not detected by other stations. Exact recordings are being made of earthquakes in the Aleutian Islands.

## U. S. SCIENTISTS END CANADA I. G. Y. TESTS

FORT CHURCHILL, Man., March 26 (Canadian Press)—A group of United States scientists completed a series of International Geophysical Year tests today.

They spent the long sub-Arctic winter probing the military base.

Lieut. Col. L. G. Smith of the Army Ordnance Corps, directed a rocket-launching project to explore the upper atmosphere and ionosphere. He said a camera was carried aloft in a rocket fired Monday to complete the test series.

It photographed the earth's horizon and cloud covering while descending in the parachute-equipped nose cone of a Nike-Cajun rocket. The cone was released after the missile had reached an altitude of eighty miles.

The camera, equipped to expose 400 feet of 35-mm film at the rate of two pictures a second, was ejected at 15,000 feet where the air was thick enough to support a parachute.

The nose cone was equipped with a device that enabled searchers to locate it by following a radio beacon.

Since December, forty-seven instrument-laden projectiles were shot to altitudes of fifty to 146 miles.

## Eskimos of Canada Seen Moving South

TORONTO, Feb. 8 (AP)—The Canadian Eskimo is moving south.

That's the word from Assistant Professor E. S. Carpenter of the University of Toronto, an Eskimo expert. He told a club meeting the Eskimo is being forced out of the northlands by food shortages resulting from increased population. He predicted the Eskimo population will triple in 20 years.

TB Wanes Among Eskimos MONTREAL, June 21 (AP)—

One of the miracles of modern medicine is that tuberculosis has been almost eliminated among Eskimos, says a Montreal surgeon. Dr. Ray Lawson, who examined almost 5,000 Eskimos for the Canadian Government, reports that only 2 per cent of those in the Western Arctic contract TB, once one of the worst killers there.

An Eskimo in Montreal

Charlie Anaitok, an Eskimo who lives on Hudson Bay, recently visited Montreal, his first sight of a major city. What shocked him most was seeing city people eating fried chicken without knife and fork. "I thought only Eskimos ate with their bare hands," he said.

# Soviet Cites 524 Arctic Landings

Studied Some Floes  
Within 200 Miles of  
North America

By WALTER SULLIVAN

March 15

During the three-year period from 1954 through 1956 Soviet planes landed exploration parties on Arctic ice floes at more than two dozen points within 200 miles of North America and its off-lying islands.

Groups of Russian scientists were set down off the northern coasts of Alaska, the islands of the Canadian Arctic and Greenland. They constituted part of a massive Soviet exploratory effort in which about 524 landings have been made at points that blanket the entire North Pole area, from the Soviet Union to Canada.

In contrast, the United States has made only about twenty such landings, all on the American side of the Arctic Ocean. Their purpose has been to study the moving pack ice that caps the top of the world and the ocean that lies beneath it.

Planes have also landed to set up drifting camps. Early explorers, such as Sir Hubert Wilkins, set down their planes in several places on the ice. These operations, however, were not part of a concerted survey.

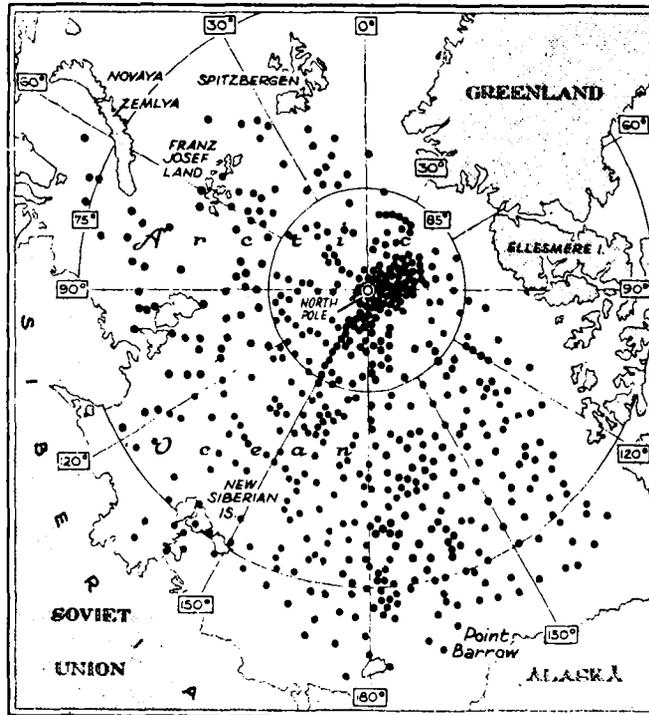
A map of Soviet aerial landings has been shown to Western scientists by Soviet delegates at recent scientific conferences.

The time covered is from 1937 to 1956, with most of the landings in the latter part of that period. Most of the landings appear to have been made with ski planes based at air strips on ice floes where the Russians maintain drifting stations.

One group of landings, however, was made with a hydroplane that set down on the leads of open water that subdivide the Arctic pack, even near the North Pole.

The chief United States effort along these lines was Operation Skijump, conducted by the Navy's Arctic Research Laboratory at Point Barrow, Alaska, in 1951 and 1952. A specially equipped two-engine Douglas transport made twelve landings on floes, the northernmost point being 550 miles from the pole.

The plane carried a power saw, a power auger and an oceanographic winch. Holes



Intensified Soviet exploration in the Arctic is shown by the number of research parties landed by air (dots on map).

were cut in the floes, which can be as much as seven feet thick, and instruments were lowered to the ocean bottom, which in places is one or two miles down.

The program came to an abrupt halt when the plane, landing on an unsurveyed floe, struck an ice ridge and demolished its landing gear. In recent weeks the Arctic Research Laboratory has begun a similar program, using small chartered aircraft. The range of the planes confines them to the belt of ice less than 200 miles offshore.

The Navy is also supplementing its studies with submarine cruises beneath the ice. Last summer the atomic-powered Nautilus sailed to within 180 miles of the Pole, remaining under the ice for almost six days. In the coming season three submarines have been assigned such cruises. In addition to the Nautilus, there will be the nuclear-powered Skate and the conventionally powered Half-beak.

One of the most interesting results of Operation Skijump was its study of temperature and saltness of deep water at the various landing points. This indicated that the water circulated within the Pacific side of the Arctic Ocean and hence suggested the existence of a submarine ridge subdividing that ocean.

The discovery of this feature, now known as the Lomonosov Ridge, was announced by the Russians shortly thereafter.

In the last two years the

United States has also placed six radio buoys on the ice north of Alaska to report weather. The signals can be tracked to observe ice movement as an aid to ships carrying cargo for stations of the Distant Early Warning radar net. Only two of the buoys were set up by air, however. The four others were placed by ship.

The Soviet program of radio beacons appears to be on a far larger scale.

The light planes flying from Point Barrow in the new Navy oceanographic program usually select frozen-over leads, which provide smooth strips for their landings. Before coming down the pilots look carefully for drifted snow, which indicates the age of the ice and hence its thickness. In some cases it is safe even though it may be only a few inches thick.

## Soviet Building New Whaler

MOSCOW, March 1 (Reuters)—A new whaling mother-ship under construction at Nikolayev is expected to be completed late this year in time for the 1958 Antarctic season. The new craft will service twenty killer ships and will carry helicopters for scouting.

## Soviet TV Aids Icebreakers

MOSCOW, Jan. 4 (AP)—The Soviet Union is using television cameras aboard planes for ice observations along northern sea routes, Tass, the Soviet news agency, reported today. The pictures are flashed to icebreakers.

## SEA ICE HELD STRONG AS FRESH-WATER ICE

WASHINGTON, Feb. 24—Contrary to a popular impression first created by a Russian scientist, sea ice is not necessarily weaker than fresh-water ice.

Recent studies by Army scientists show that sea ice, such as in the Arctic, can have twice the strength of fresh-water ice.

This finding will be reported to the first international scientific conference on ice formations in the Arctic Ocean.

The three-day conference, arranged by the National Academy of Sciences, will open tomorrow at the Tidewater Inn at Easton, Md. It will be attended by eighty scientists from nine countries, including eight from the Soviet Union. The Russians are generally regarded as leaders in Arctic research.

The emphasis will be on how to improve methods of predicting ice formation in the Arctic, with such benefits as increased and safer navigation in the Polar region.

In a paper prepared for the conference, Dr. A. Assur, a physicist with the Army Engineers' snow, ice and permafrost establishment, noted that a commonly quoted scientific rule of thumb was that "sea ice is three times weaker than fresh water." This rule, he said, can be traced to "a vague statement made by the Russian [K. A.] Moskatov twenty years ago without experimental evidence."

## SOVIET ROCKETS FIRED

### 10 Research Missiles Return North and South Polar Data

LONDON, March 7 (UP)—The Soviet Committee for the International Geophysical Year said today Russian scientists had launched ten rockets into the upper atmosphere near the North and South Poles in the last four months.

The Soviet news agency, Tass, in a report broadcast by Moscow Radio, said the committee had announced that six rockets were launched from an island near the North Pole and four from a diesel electric expeditionary ship in the South Polar region. It did not say how high the rockets went.

Tass said the rockets had transmitted information about air temperatures and pressures and then were parachuted back to earth.

# ANTARCTIC COAST A CHAIN OF ISLES

I.G.Y. Scientists Report on Ice Soundings—Land at Pole Above Sea Level

By BILL BECKER

WELLINGTON, New Zealand, Feb. 19—Half of the Antarctic coast was pictured today as a semi-circular chain of glacier-covered islands.

But the South Polar plateau was reported as a land mass generally above sea level.

Seismologists of seven nations developed this composite view at an Antarctica symposium following their work on the ice during the International Geophysical Year.

Their reports on the topography of the subglacial continent produced these principal points:

About two-thirds of Marie Byrd Land is below sea level and covered by ice from 2,000 to 12,000 feet thick.

On the Queen Mary coast, Soviet observers found the ice extended below sea level up to 800 miles inland.

Australians found two pronounced dips to below sea level well inland from the MacRobertson coast.

On the Adelie Coast, the French found their Charcot Station was on ice that extended nearly 1,700 feet below sea level.

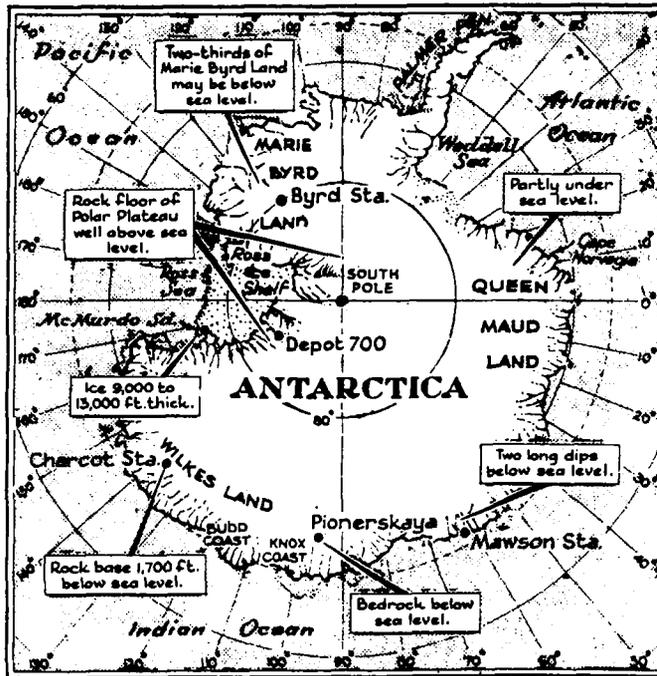
American tests on the Victoria Land plateau, at 8,900 feet, indicated the ice was 13,000 feet thick.

Seismic soundings—Measurement of the time required for sound waves, usually from a small explosion, to echo off the bedrock—provided the bulk of the data.

Toward the polar plateau, Dr. Vivian E. Fuchs' trans-Antarctic party has found that the thickness of the ice varies from 1,000 to 8,000 feet. Twenty-five miles on either side of the pole Dr. Geoffrey Pratt, the party's chief seismologist, discovered that ice was much thinner than at the pole itself, where the Rev. Daniel Linehans found the ice 8,300 feet thick on 900 feet of rock.

In its march from Weddell Sea to the pole, the Fuchs party found bedrock varied from 1,000 to 3,000 feet above sea level. Some peaks were up to 7,000 feet high and broke through as nunataks—low, bare mountains. Crevassed areas encountered apparently were on top of submerged peaks, Dr. Pratt reported.

Roughly the same conditions were reported from the pole toward Scott Base.



POLAR FINDING: Seismologists of seven nations report on what they found in probing Antarctic ice sheath.

# Glaciers in Antarctica Always on the Move

WILKES STATION, Antarctica, Feb. 26 (AP)—The ice of Antarctica is always on the move.

Over the whole continent, nearly twice as large as the continental United States, the frigid white shield writhes, stretches, thickens and thins; breaks like glass but flows like cold molasses; rises and falls like the ocean tide.

As Antarctica's glaciers flow to the sea, pieces of their fronts break off to form icebergs, some the size of cottages, some as large as a Texas ranch or a great city.

Findings of International Geophysical Year scientists about the ice movements add to the understanding of Antarctica's role in the world's weather.

Little America is built on the great Ross ice shelf, a solid glacial mass which starts near the south Polar plateau and extends northward over the Ross Sea. The farther it extends over the water, the thinner it gets. A team headed by Glaciologist William A. Cromie of Long Island City, N. Y., anchored a cable through the ice to the sea bottom. The amount paid out daily to keep the cable taut indicated the glacier ice is pushing the thinner bay ice toward the sea at a rate of 4½ feet daily.

The thick glacier ice also is

rising and falling like the ocean swells, but with movements too slow for the naked eye to see. James A. Sparkman of the University of Wisconsin employed a gravity meter, so sensitive it detects altitude changes of less than an inch.

Mr. Sparkman's meter registered two distinct and regular undulations: a rise-and-fall cycle of about one foot every 50 seconds and a wave producing a lift and drop of around five feet every six minutes or so.

Mr. Cromie and his colleagues also planted bamboo sticks at various points on the surface ice and periodically measured the distances between them. They found the thick glacier ice stretched 39 inches in six months.

The stretching of the glacier ice near its edges offsets the compressing and thickening effects of its flow farther inland. On the polar plateau snowfall adds continually to the mass, which rolls seaward like molasses. The stretching effect as it progresses prevents the mass from growing and adding to the total ice burden. However, the total amount of ice probably is changing over long periods of time, but nobody yet knows how much.

At Wilkes Station Glaciologist R. A. Honkala of Salisbury, N. H., is studying the

changes in snowflakes as they fall. At very high altitudes where it is very cold and the moisture content of the air is relatively low, the crystals stack up like a deck of cards. At lower altitudes, where the air's moisture content is heavier, the crystals show complicated branching of their six points. At very low altitude the corn- and other metal products. He whisky formations on the stars.

Mr. Honkala makes plastic castings of the various forms for future examination. Some day they may enable weather men to tell something about a snowstorm by examining a handful of snowflakes.

# 2 UNIVERSITIES ASKED TO STUDY I.G.Y. DATA

CHICAGO, April 26—The International Geophysical Year Committee of the National Academy of Science offered contracts today to the University of Wisconsin and Ohio State University for the study of Antarctic data.

The National Science Foundation would provide \$86,820 to Wisconsin institution to collate and interpret scientific observations made in Antarctica during the International Geophysical Year.

The work in Madison, Wis., would cover gravity, magnetic and seismic observations. The two-year contract is subject to acceptance by the university's board of regents, which is regarded as a formality.

Prof. George P. Wollard, university director of geophysics studies, has been named project director.

The agency at Ohio State will be under the direction of Dr. Richard Goldthwait. It will also coordinate the work at the University of Innsbruck, Austria, being carried on by Dr. Henfried Heines in the field of solar radiation and the work at the University of Michigan by Dr. James Zumberge on ice shelf deformation.

# I.G.Y. EXTENSION SOUGHT U. S. Consults With Soviet and Other Nations on Plan

WASHINGTON, April 22 (AP)—The United States is consulting with the Soviet Union and other nations on continuing scientific cooperation in Antarctica beyond Dec. 31 when the International Geophysical Year ends.

The State Department said today that John Foster Dulles, Secretary of State, had discussed the proposal with the Soviet Ambassador, Mikhail Menshikov, as well as with envoys of other countries.

## ANTARCTIC YIELDS A CROP OF LICHENS

Botanist Finds 100 Species  
but No Flowering Plants  
at 2 Northern Stations

WILKES STATION, Antarctica, Feb. 5—A botanical study of United States coastal stations in this part of Antarctica has yielded a good crop of green lichens but no flowering plants. Dr. George A. Llano of Weymouth, Mass., collected during three months in the Antarctic about 100 specimens of lichens, mosses, dryland algae and plankton. The most flourishing land vegetation was found at Wilkes and Hallet Stations, the most northerly and warmest United States bases.

"Wilkes and Hallet must have been free of ice a good long time," Dr. Llano observed. "For the most part these lichens were killed by ice, but some managed to survive in ice-free places."

At both Wilkes and Hallett the botanist found the greenish blue lichen two inches high and so thick it resembled a grass carpet. He estimated that lichens covered nearly forty acres of the Cape Hallett promontory.

The only flowering plants in Antarctica—exactly two at last count—are found in the Palmer Peninsula, which juts farther north toward the tip of South America. Botanists believe they were propagated by winds from South America.

Dr. Llano said months of study would be needed to identify fully and fix the age of his finds. Some, he said, are not dissimilar to Arctic lichens, a few of which have been estimated at a thousand years of age.

The botanist, for the first time from the Antarctic, successfully shipped frozen lichens to the Farlow Herbarium at Harvard University. There Dr. I. M. Lamb will culture the algae from these growths to determine whether they grow at the same rate as species from other parts of the world.

The main difference Dr. Llano found between the Arctic and Antarctica: the former has tundra more conducive to lower plant life; the Antarctic has only rocks.

The volcanic slag heaps in the McMurdo Sound area yielded numerous minute lichens and mosses. The periphery of penguin rookeries produced orange-colored lichen fertilized by guano dust. The rookeries themselves were too



**DEFENDER OF THE SKUA:** Carl Eklund holds one of the birds, which he studied while spending a year as scientific leader of Wilkes Station in Antarctica.

## Expert Defends Antarctic Eagle; Finds the Skua Much Maligned

By BILL BECKER

WILKES STATION, Antarctica, Feb. 4—The South Polar skua—often called the vulture of the Antarctic—has found a dedicated defender in Carl Eklund. "The skua is the miniature eagle of the Antarctic," insists Mr. Eklund, who has just completed a year as scientific leader at Wilkes Station. "All the nasty things people say about the skua are a lot of hogwash."

Mr. Eklund knows the gull-like bird literally from the inside out.

In one notable experiment he cut a skua egg in half, drained it and inserted a radio telemeter. Then he sealed it with cement and reinserted the albumen with a hypodermic needle.

The egg was replaced in the nest to allow the fond, if in this case frustrated, parents to resume the incubation process. The male skua, incidentally, shares hatching duties with the female.

The telemeter, powered by four transistor batteries, gave Mr. Eklund temperature readings inside the egg every fifteen minutes for nine days. He found a temperature average of 96.6 degrees Fahrenheit.

An adult skua has a body temperature of 106.1, Mr. Eklund had determined earlier. This high temperature, with a

corresponding metabolic rate, may explain why the skua ranges farther into the Antarctic continent than any other bird. It has been found within 120 miles of the South Pole.

Mr. Eklund probably rates as Antarctica's No. 1 bird watcher and catcher. He caught and banded 800 birds during the last year. He set the pace for a ten-nation program that aims to band 2,500 to 3,000 birds to aid migration studies in Antarctica. Each nation uses a different color band, in addition to a metal number band.

The Wilkes biologist carried his study a step further. He captured seventeen pairs and distinctively painted their wings. Of three pairs painted early in 1957 two pairs came back together to their Wilkes nest this year. Mr. Eklund is satisfied the skua is a monogamist at heart.

Like its Antarctic prey, the penguin, the skua female lays one or two eggs a season. Skuas like to nest close to penguin rookeries. It reduces the effort in swooping down for the kill on penguin chicks. It is this penchant, of course,

that has given the skua a bad reputation. Everybody else loves penguins.

Mr. Eklund believes that the skua seldom wanders beyond the ice pack and this makes the problem of food especially acute.

Mr. Eklund, assistant regional director of the Fish and Wild Life Service at Atlanta, is completing his doctor's thesis at the University of Maryland on "The Distribution and Life History of the Skua." It culminates an interest which began with his first full-year stay in the Antarctic in 1939-40.

The men of Wilkes, in recognition of Mr. Eklund's defense of the skua, conferred a title upon him: "The Eagle."

### Pain From Cold Relative

Improperly dressed for cold, a man can feel about as much pain at plus 40 degrees as at minus 40 degrees Fahrenheit, the National Geographic Magazine says. This is because the nerves that register pain from rapid loss of heat work at their limit as soon as the human body gets into trouble—which it does at about 40 degrees Fahrenheit. The warning system for overchilled bodies is like a fire-alarm bell; it rings just as loudly for a small fire as it does for a big one.

### Tern Likes Daylight

The Arctic tern probably sees more daylight than any other creature. The world's greatest traveler, it nests each summer in the North Polar regions, then flies some 11,000 miles to Antarctica for another nightless summer, the National Geographic Magazine says.

## MUMMIFIED SEALS FOUND ON ICY PEAK

WELLINGTON, N. Z., Feb. 20—The discovery of mummified seals on mountaintops near McMurdo Sound was reported today by an American scientist.

Dr. Troy Pewe, a geologist of Fairbanks, Alaska, told an Antarctic symposium here that he and his assistant, Norman A. Rivard, also of Fairbanks, had found eighty-one seal carcasses far inland, as high as 2,500 feet above sea level.

Most were well preserved, kept so by the cold, dry air.

Dr. Pewe was studying glaciers in the Taylor dry valley region when he found the strayed seals, fifty miles from water. A few had crawled into dormant volcanic craters.

"I wish somebody could tell me how they got there," Dr. Pewe said. "I don't know."

He said all had been identified as crab-eater seals, a variety usually found on pack ice far from McMurdo. He estimated they might be 100 to 200 years old.

# ANTARCTICA SEES SHIFTING AURORA

Directions Puzzle Observer Near Geometric Pole

By BILL BECKER

ABOARD THE U. S. S. ARNEB, Feb. 8—A strange Antarctic phenomenon — wandering aurora—may provide a magnetic puzzler for the rest of the International Geophysical Year.

Briefly, the observations of Ralph Glasgal at Wilkes Station indicate that aurora australis goes haywire in the vicinity of the South Geomagnetic Pole. The aurora australis is also known as the Southern Lights.

Mr. Glasgal said that many of the auroral arcs seen at Wilkes ran north to south, rather than east to west of geomagnetic latitude. No other base in Antarctica reported such disorientation and Mr. Glasgal believes none has been observed at Arctic posts.

"The direction of the rayed arcs walt completely random," the Wilkes aurora observer reported. "It was impossible to tell from one night to the next which direction the aurora would take."

One night there was a fifteen-minute waving cross with two perpendicular arcs, Mr. Glasgal said. The east-west band was lower than the north-south aurora. Both were pale green.

"The directional anomaly may be due to extreme variations in the geomagnetic field in the vicinity of the geomagnetic pole," Mr. Glasgal believes.

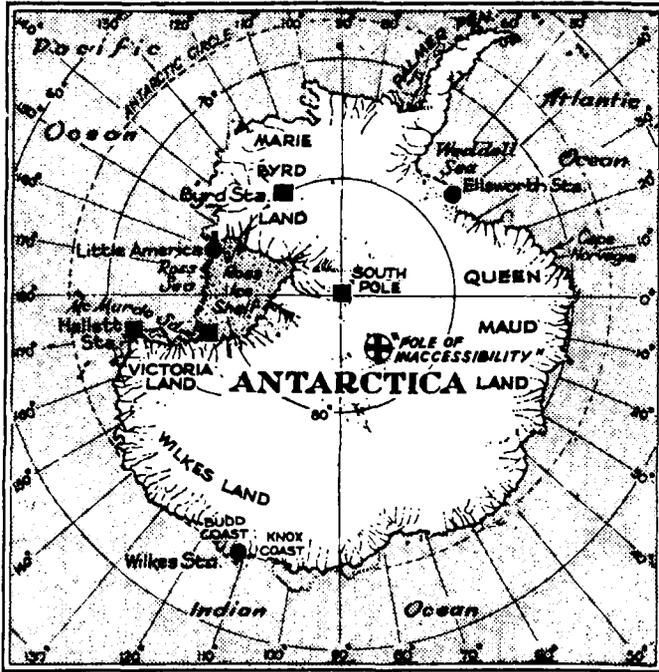
Wilkes Station is the United States I. G. Y. base closest to the geomagnetic pole. It is located almost on the same longitudinal meridian and only 12 degrees north in latitude.

The intensity of the auroral displays apparently had no effect on their direction. Shifts followed no discernible pattern.

The constant westward drift of the offline aurora led Mr. Glasgal to speculate whether it might be due to the earth's rotation in the opposite direction.

## Sight Huge Iceberg

BUENOS AIRES, Jan. 15 (AP).—The Argentine icebreaker General San Martin on an Antarctic survey mission reports it has sighted an iceberg 31x10 miles in area with estimated weight of 100,000 tons.



EXTENDED OPERATION: United States will maintain four scientific stations (black squares) in Antarctica in 1959 and close down three (black circles).

# U. S. TO CONTINUE ANTARCTIC BASES

Dufek Says They Will Be Used in '59 After I.G.Y. Ends—3 Are to Close

By BILL BECKER

CHRISTCHURCH, N. Z., Feb. 13—The United States will operate four scientific stations in Antarctica in 1959.

Confirmation that the United States will continue working beyond the International Geophysical Year was contained in an announcement today by Rear Admiral George Dufek. He said that the South Pole, Byrd, Hallett and McMurdo Sound stations had been selected for further operations.

Three bases will be discontinued: Little America, Ellsworth and Wilkes. Little America, however, will be used as a weather reporting station and its snow runway maintained as an emergency landing strip for McMurdo and Byrd flights.

Little America is the major scientific base for the eighteen-month I. G. Y. program, which ends Dec. 31. The I. G. Y. is a world-wide undertaking to study the earth and its environment.

It is assumed that the scientific emphasis will shift to McMurdo Sound, already the main American supply base.

The Navy announcement supported a recent statement by Dr. Alan T. Waterman, director of the National Science Foundation, that the United States planned to stay in Antarctica

another year. The Soviet Union had earlier declared its intention to stay on.

Admiral Dufek said the post-I. G. Y. program would be formulated by several agencies.

Besides the National Science Foundation, the Department of Commerce and the Department of the Interior were said to have an interest in the area.

The Navy will conduct operation Deep Freeze IV in support of the program. Admiral Dufek will be in command for the third year.

# U. S. AND AUSTRALIA IN ANTARCTIC PACT

WASHINGTON, May 6—The United States and Australia have agreed to operate Wilkes Station in the Antarctic jointly after the end of the International Geophysical Year on Dec. 31.

Wilkes is one of seven stations established in the Antarctic by the United States under the I. G. Y. program. Under the agreement, the United States will contribute the buildings, supplies, food, and fuel at the station. Australia will provide transportation and administer the post.

Wilkes Station lies on the Indian Ocean coast of Antarctica in an area to which Australia has laid claim.

The United States is awaiting a reply from Argentina on a proposal that the Ellsworth Station, on the Atlantic side of the Antarctic, be maintained jointly in a manner similar to Wilkes Station.

The United States plans to continue four of its Antarctic stations independently.

# ROCKS MAY LINK POLAR MOUNTAIN

Studies in Antarctica Hint a Single System Comparable to Rockies or Himalayas

Jan. 2  
Rocks being collected by parties of explorers at key points in Antarctica may establish the existence of a single mountain system spanning that continent and comparable in scope to the Rockies, Andes or Himalayas.

Similarities have been observed between the ranges of the Great Antarctic Horst, which extend for 2,000 miles on the Pacific side of the continent, and the mountains of Queen Maud Land on the Atlantic side.

In recent weeks British and United States explorers have reached some of the peaks that protrude through the ice between these regions. Preliminary reports indicate that their geology links the two mountain systems.

Rock specimens are being collected in three areas by men of the Commonwealth Trans-Antarctic Expedition, who are using dogteams to reach peaks difficult of access. Meanwhile, tractors of the expedition are nearing a rendezvous at the South Pole.

While an aircraft was helping the Fuchs party find a route past the recently-discovered Shackleton Range, a party with two dogteams set out from the plane's snow airstrip on a 220-mile dogteam journey through those mountains. Their route traversed a snowy, 4,850-foot pass that divides the range into two parts.

The rocks are metamorphic. They are capped in the west by sedimentary layers, whose samples, when studied, may prove to be similar to those from the mountains on the other side of the pole.

Meanwhile, tractors from the United States base commanded by Capt. Finn Ronne on the Weddell Sea have penetrated a range 325 miles south of that base. Last week Captain Ronne said that these and the other newly sighted ranges of that region seemed to be part of one great transcontinental system.

On the other side of the continent four dogteams that were used to scout a route for Sir Edmund's tractors have been released for exploration of the mountains of the Horst. The entire 500-mile sector of this range, from Beardmore Glacier to Skelton Glacier, has never been explored on foot.

# ANTARCTIC PEAKS FOUND UNDER ICE

By WALTER SULLIVAN

Feb. 9

American scientists, bouncing explosion echoes off the rock beneath the Antarctic ice sheet, have found that Marie Byrd Land is a region of buried mountains and mile-deep fiords. Much of it lies below sea level.

The three American tractor parties that in recent months have rolled across thousands of miles of unexplored terrain have also culled rock specimens from hitherto unvisited mountain ranges. The result should be a more accurate picture of the earth's crust in that region.

Two of the parties are in the final stretch, bound for their bases. The third has been flown out to catch a ship for home, but a relief crew has been told to start up the abandoned vehicles and strike inland to lay the basis for a transcontinental profile of the buried continent.

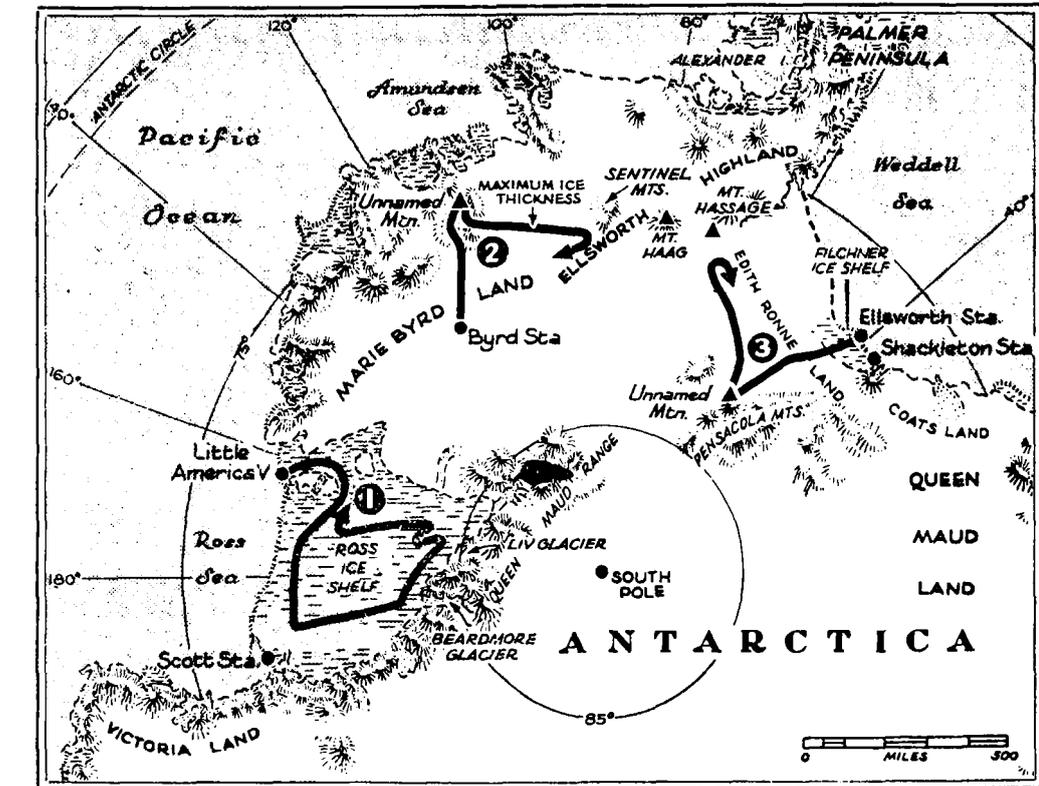
Dr. Vivian E. Fuchs, leader of the British tractor party crossing the continent, has reported detecting mountains beneath the ice on either side of the South Pole. They rose to within 1,500 feet of the ice surface, which is between 9,000 and 11,000 feet high. His finding of a depth of 7,000 feet at the Pole is close to the American finding of 8,297 feet. The profile of Marie Byrd Land under its white shroud—in many places more than a mile thick—has been reported by the party from Byrd Station that is completing its triangular trek.

Near the first corner, about 250 miles northeast of Byrd Station, volcanic rocks and lichens were obtained from an unnamed mountain. Many of the peaks protruding through the ice in this part of Antarctica have appeared volcanic from the air, but none has hitherto been visited.

The most impressive of them discovered to date is an unnamed mountain almost due north of Byrd Station that has been tentatively charted at 20,000 feet.

On the first leg, between Byrd Station and the mountain visited, the scientists detected only one stretch, about twenty miles wide, where the land beneath the ice was above sea level. Its maximum observed elevation was 607 feet.

The thickest portion of the ice sheet was 10,826 feet, with the surface 4,626 feet above sea



**LIFTING THE ICY SHROUD:** Three United States tractor parties have traveled more than 3,000 miles across the antarctic ice sheet, probing to determine land contours beneath it.

level. This was at a point on the second leg of the journey, between the mountain visited and the Sentinel Range.

The party was to cull rocks from the latter mountains—perhaps the most isolated in the world. It came within sight of the mountains, which rise to 12,500 feet, but its radio reports do not make it clear whether any specimens were obtained before starting for home base.

The extreme thickness of the ice sheet is similar to that reported earlier by the Norwegian-British-Swedish expedition in Queen Maud Land and by the Russians in the Australian sector of Antarctica. The fact that so much of the buried land is below sea level has prompted Prof. G. A. Avsyuk, of the Soviet Union to suggest that Antarctica may be an archipelago, rather than a continent.

Prof. Avsyuk heads the Soviet glaciological program for the International Geophysical Year—the world-wide scientific effort that has brought many expeditions to Antarctica. Some of central Greenland has also been found to be below sea level, beneath its ice sheet. However, if the ice were to melt, the land would presumably rise, like an unloaded barge.

This phenomenon is still taking place in the North. It has been said that each century the Czars of Russia gained a new duchy in Finland, with the gradual rise of land from the sea after the last ice age.

Another trail party, in Edith Ronne Land, has had to aban-

don its vehicles on the trail and be flown out to avoid missing the boat for home. The men were members of the group, under Capt. Finn Ronne, that manned Ellsworth Station on the Weddell Sea for the last year. It was relieved Jan. 16 and left soon thereafter.

The tractor party from that station rolled 816 miles, to a point within eighty miles of its goal at Mount Hassage, before being forced by the time schedule to turn back. Its attempt to follow a triangular route, returning directly to Ellsworth Station, was frustrated by a morass of crevasses near the coast.

Hence the vehicles returned along the outbound route. Dr. Matthew Brennan, who has succeeded Captain Ronne as scientific leader, has reported by radio that the relief crew flown out to the abandoned vehicles will attempt to drive them to a point midway between their base and Byrd Station, returning about March 15.

Next year a party from Byrd Station is to try to reach this same point, completing a transcontinental profile of the land beneath the ice.

The third trail party has almost completed its exploration of the Ross Ice Shelf. As with the other groups, it has been using explosion echoes to determine the ice thickness, backed up with periodic gravity readings. The ice shelf, however, is largely afloat.

The party has rolled from Little America, around Roosevelt Island and west to a point

south of McMurdo Sound, then south to the emergency airfield on the shelf at the foot of the Beardmore Glacier. From there they drove southeast toward last year's emergency airfield, near Liv Glacier, and then headed home.

The return route has in large measure been that used by Roald Amundsen in his 1911 dash to the Pole.

An attempt by the men at the South Pole, under Palle Mogensen, to make a sixty-mile journey was cut short at eighteen miles when a vehicle broke down.

## WHALE GUIDED BY SONAR

**Sends Out Own Sound Waves to Aid It in Navigation**

SAN DIEGO, Calif. (AP)—Navy electronics laboratory scientists say that the Pacific gray whale, which has no vocal chords or teeth, seems to be able to send out underwater sound waves and pick up the echoes as an aid to navigation.

The principle, the scientists said, seems to be the same as the navy's sonar (underwater sound device) for detecting submarines and other submerged objects.

## Catch 1,584 Whales

KOBE, Japan, Apr. 13 (AP)—Two Japanese whaling ships returned from the Antarctic today and reported a catch of 1,584 blue whales.

## SOUTH POLE TAKES A HEAP OF LIVING

Good Humor, Adaptability, Stamina Help U. S. Crews at Rugged I. G. Y. Post

by BILL BECKER

SOUTH POLE, Jan. 5—Living at the South Pole station is an adventure that takes stamina, good humor and adaptability.

This writer can so testify after having spent a fortnight at this southernmost installation of the International Geophysical Year. Moreover, the new crew of scientists and Navy men—eighteen in all—appears to have mastered the necessary knacks in less than two months. The good polar life, which has much to recommend it, includes such healthful activities as barrel rolling and snow mining at an elevation of 9,200 feet, both activities severely test a man's lung capacity.

Afterward, he can relax with a Beethoven symphony or Benny Goodman's jazz before pitching into his scientific work. The polar station has about two hundred long playing records and a hi-fi system.

A high degree of adaptability has been shown by Palle Mogensens's group of young scientists. They have had to build new desks and work tables from scrap lumber. So far they have spent as much time carpentering and soldering as on scientific studies. They should rectify this situation before long.

Fortunately, work has progressed along scientific lines, too. Kirby Hansen, chief meteorologist, of Washington, and his three assistants have put up a fifteen meter tower with more accurate thermometers and wind gauges. Paul C. Dalrymple, micrometeorologist from Port Clyde, Me., has installed a thirty-foot tower and seven miles of wiring to get the first polar readings of close to surface winds and temperatures.

Under the auspices of the Army Quartermaster Corps, Research and Engineering Division, Mr. Dalrymple will measure temperature at seventeen heights and depths—as high as twenty-six feet and as low as thirty feet under the snow.

Mr. Dalrymple, who did similar work last year at Little America, is one of two scientists at the Pole who is spending his second consecutive year in Antarctica. The other is a glaciologist, Mario Giovenetto of Argentina, who has been at Byrd Station. Other members of the scientific squad for the IGY program are:

Charles R. Greene, Hinsdale, N. H., ionosphere chief; James B. Burnham, Rutherford, N. J.

## South Pole Gets Lots of December Sun But Most of It Is Lost, Scientist Reports

WASHINGTON, March 22—The South Pole receives more sun during December than any other place in the world, an Australian meteorologist just back from the Antarctic said today.

The scientist, Dr. Herfried Hoinke, said, however, that most of this solar energy was reflected by the ice cover, which was so hard and of such fine grain that when he walked on it he left no footprints.

Where prints were left they remained sharp for weeks, indicating the small amount of evaporation. His preliminary findings indicated that 89 per cent of the solar energy received there was lost through reflection.

Dr. Hoinke reported that he had made 3,664 temperature observations over a five-month period at the Little America Station.

Some other of Dr. Hoinke's findings were that Antarctic

snow dunes moved at the rate of six and one-half feet an hour, and that moraines of rock and other fill deposited by glaciers were 10,000 years old, compared with hundreds of years for some European and North American moraines.

Dr. Hoinke said that this indicated that only very long climatic cycles affected the movement of Antarctic glaciers.

He said that he had "changed the skin of his fingertips ten times" in the course of removing frost from his radiation-reading instruments. He had to do this by applying the warmth of his bare hands, because his instruments were too sensitive to be scraped.

Dr. Hoinke is chief glacial meteorologist for the Arctic Institute of North America, a private nonprofit research organization that is sponsored by the International Geophysical Year Committee of the National Academy of Sciences.

ionosphere and geomagnetism; John A. Dawson, Cranbury, N. J., aurora specialist, and three weathermen, Stephen P. Fazekas, Defuniak Springs, Fla., Dewitt M. Baulch, Lexington, Ky., and Arthur H. Jorgensen, Roselle, N. J.

Supporting the ten scientists are eight Navy men led by Lieut. Vernon Houk, who also is medical officer. Lieutenant Houk of Firebaugh, Calif., has set a fast work pace to get everything shipshape before winter.

A new hundred foot garbage pit, eight feet deep, has been dug. All garbage is burned. A black cover on top of it attracts the sun's radiation, causing the refuse to sink into the pit instead of piling up.

A seventh structure has been added to the station. It is a small recreation Jamesway hut with a billiard table as the main attraction.

The base covers an area roughly 300 by 100 feet and is almost entirely snow covered. An emergency Jamesway hut, 210 feet away, is kept stocked with extra cots and sleeping bags in case of fire. All supplies are divided into three caches for the same reason.

The nearest neighbors in winter are nearly 800 miles away and the Polar Plateau, bigger than Texas, stretches bleakly to the horizon in every direction.

Religious services are scheduled each Sunday with Stanley Greenwood, radioman 1/C in charge, and Mr. Greene playing hymns on a recently acquired electronic piano.

Movie nights will be Tuesday, Thursday and Saturday.

## South Pole's Heat Wave Hits Record 5.5 Above

A record high temperature of 5.5 degrees above zero, Fahrenheit, has been reported by the United States outpost at the South Pole.

The "heat wave" struck on Jan. 12. According to the National Academy of Sciences in Washington, which is responsible for the program of the International Geophysical Year, this was the first time in the last year that the mercury at the pole had risen above zero.

## FIRST RUSSIAN AT POLE

Meteorologist Invited to U. S. Station by Navy

SOUTH POLE, Jan. 5—Vladimir Ivanovich Rastorguev today became the first Russian to set foot on the South Pole.

Mr. Rastorguev, 32-year-old meteorologist, was invited to fly to the United States station here by Capt. E. M. (Pat) Maher, area Naval commander.

Mr. Rastorguev has been the Russian exchange meteorologist in the Antarctic weather central at Little America for the last year.

He plans to leave soon for his home in Moscow.

He visited polar installations for several hours today before returning by Navy P2V to McMurdo Sound.

## MINUS 55 AVERAGE FOR COLD AT POLE

But 8 Months Were Lower Last Year—102.1 Degrees Sept. 18 Set Record

McMURDO SOUND, Antarctica, Jan. 5—The average temperature at the South Pole during 1957 was 55.8 degrees below zero Fahrenheit.

However, eight months were below average. In fact, winter could be said to last from March through October. Each of those months averaged colder than 63 below, with September the lowest at 80 below.

Of the other four months, November and February were the polar autumn and spring respectively. November averaged minus 34.5 and February minus 36.8.

Summer, of a sort, showed up in December and January. It warmed to minus 13.3 in December, whereas January averaged minus 18.1.

Kirby Hansen, chief meteorologist at the United States Pole Station during the 1958 International Geophysical Year, theorized that the long winter and lack of other seasons might explain why the temperature did not go below minus 102.1.

This world record low set Sept. 18 was shy, however, of minus 120, which Dr. Paul A. Siple also had estimated the years' average would be 60 below.

Mr. Hanson expressed the opinion that if the seasons were more normally balanced, as they are in temperate latitudes, the cold might become more intense in winter. He added, however, that "it is dangerous to draw this type of conclusion from only one year of data when talking about a general weather picture. One more year of data should help prove or disprove the temperature curve we now have."

The year's high temperature was minus 2 degrees, recorded on Dec. 15. The average wind was fifteen miles an hour from the north-northeast.

Precipitation, mostly in the form of light snow or ice crystals, totaled only 2.3 inches. The highest single day fall was .4.

CHRISTCHURCH, N. Z., Jan. 26 (UP)—The South Pole "tourist season" ended today. The last flight of the season took off from the pole, leaving eighteen Americans to spend a lonely winter at their isolated base.

Two United States Navy Neptune planes, the last to leave the pole before the winter closes in, carried eighteen sled dogs from the expedition of Dr. Fuchs.

## 18 AT POLE AWAIT MIDWINTER NIGHT

Men at U.S. Antarctic Site  
to Get Christmas Fare

By BILL BECKER

June 21

The deepest night of the year will be celebrated today by eighteen men at the South Pole. With the temperature outside in the 90s—90 below zero, that is—the observance of Midwinter Night will be held in the snug mess hall of the United States station for the International Geophysical Year. It also will mark the half-way point for most of the United States contingent spending a year at the bottom of the world.

"We're all fat and foxy," Lieut. Vernon Houk, Navy leader at the station, said in a short-wave radio conversation this week. Both he and Palle Mogensen, scientific leader, said spirits were high despite the dropping temperatures.

It was 95 below zero as the conversation was held. "And winter won't officially begin until Sunday," Mr. Mogensen added. The low thus far this year was —99.2.

The menu tonight will virtually duplicate the feast of last Christmas, Lieutenant Houk said. There will be turkey, ham, vegetables, pies, cake and added refreshments. The last will include Navy bourbon and brandy.

The party celebrates the lowest dip of the sun—23 degrees, 26 minutes below the horizon. Technically, it's the longest night, although it has been dark for more than two months and will continue to be so for at least two more.

Lately, however, the moon has been bright enough to allow the men to see well outside with a flashlight. The weathermen have to go out daily to check gauges, and garbage must be disposed of. These are missions of a few hundred feet or less. Otherwise, the men spend almost all their time under cover.

One outdoor chore is shared by all—snow-digging. Fortunately, steady winds of 16 to 21 miles per hour have blown an almost constant supply into the garage driveway. Lieutenant Houk said the powdered supply had been so good that the men had given up digging in the snow mine—to the sorrow of no one.

Most of the snow in the mine under the station, especially at the bottom of the ninety-foot shaft, is compressed into ice, which required pick plus shovel

## Winter Falling Early At Pole With 90 Below

Winter is coming early to the South Pole. It is only April and temperatures are down to 90 below.

A radio report received by Navy headquarters in Washington April 21, said it was so cold at the United States scientific station that tractors and other machines could not be operated.

Nevertheless, three scientists recently put up an extension on the meteorological mast. It took eight hours to do a normal five minutes of soldering.

Darkness is setting in at the bottom of the world, and the coldest time is yet to come. The record low, set last Sept. 17 as winter was ending, is 102.1 degrees.

work. The snow, reduced in a melter, furnishes the station's water.

Lieutenant Houk, who also is the station physician, said most of the men had gained back the weight they had lost in the first months of hard work. He said general health was good and that there had been no major sickness since last November.

That was when the present group began relieving the first eighteen men to spend a year at the pole station. The newcomers brought in colds from the outside world.

Mr. Mogensen, of Alexandria, Va., said there were as yet no spectacular aurora displays or other scientific findings to report. There are ten scientists including five weather observers at the station. Eight Navy men round out the complement.

The men at the pole had heard about the —108.6 temperature recorded by the Russians at their Sovietskaya base in East Antarctica. This exceeded the —102.1 recorded at the pole last Sept. 18.

Kirby Hanson of Washington, D. C., chief meteorologist, indicated there was a good chance of a colder record at the pole. Thus far, temperatures are running below those of last year, and the winds have continued brisk.

For the last three months there has been a continuous fall of ice crystals, Mr. Hanson said. But the fall has been so light that the total is measurable in inches, rather than feet.

The scientists also maintain continuous observations in the ionosphere, glaciology and seismology. The Navy men are overhauling tractor motors and other equipment for outdoor use when the weather warms up to, say, —50 in several months.

For recreation, all hands have movies, record equipment, books and Blizzard. Blizzard is a Husky mascot. He arrived

## ANTARCTICA GETS A RECORD WINTER

Temperature Has Hit -108.6  
and Winds 133 M.P.H.—

Season Is Still Young

By BILL BECKER

May 10

Scientists in Antarctica are beginning to suspect that they are in for a really long, cold winter.

In the last two weeks, reports of record or near-record temperatures and winds have come from observers there. They indicate that last winter, as some scientists believe, may have been a comparatively warm season.

Officially, with the six-month winter only a fourth gone, these marks have been reported:

¶A temperature of minus 108.6 degrees Fahrenheit at Russia's Sovietskaya base.

¶Temperatures of 100 below at the United States station at the South Pole.

¶Winds of at least 133 miles an hour at Wilkes Station, another United States outpost.

The Sovietskaya temperature, reported by the Soviet news agency Tass, would be the lowest ever observed on earth if verified by officials of the International Geophysical Year, the eighteen-month study of the earth and its environment.

This reading surpasses the minus 102.1 recorded last September at the South Pole.

This report is not totally unexpected by Antarctic scientists. Sovietskaya lies at an elevation of about 12,500 feet, some 3,000 feet higher than the pole.

What is unexpected is the early onslaught of winter. Last year's coldest figures at most Antarctic stations were not recorded until mid-winter; that is, from July through Sept. 22. The minus 120 forecast by some scientists may well be attained in 1958.

Sovietskaya is deep in the interior, near the so-called Pole of Inaccessibility, in the Australian-claimed sector of Antarctica south of the Indian Ocean. A dozen Soviet scientists are reported spending the year there.

a mere pup weighing perhaps twenty-five pounds. He is up to sixty now.

Everything seems to be thriving except Lieutenant Houk's cotton crop. A rancher from Firebaugh, Calif., the Navy man tried to grow cotton by sunlight through a sky-window, and later, when night fell, by sun-lamp. The stalks, he reported, developed upside down and died.

Latest short-wave radio reports from the South Pole indicate that the eighteen men at the United States station are adjusting well to the extreme cold.

The ten scientists and eight Navy men continued routine duties during the cold snap in late April. They reported that the temperature in the tunnels that connect station buildings was minus 77.

They even managed to repair a tractor fuel line at these temperatures.

Palle Mogensen of Alexandria, Va., the station's scientific leader, took star shots with his theodolite several times a day. This data will be used to pinpoint the geography of the polar plateau.

At Wilkes Station, winds were so violent that the recording pole was blown over. Two Jamesway huts—canvas and frame Quonsets—were ripped apart by gusts estimated at 145 m. p. h.

Before the recorder was lost, the wind had reached 133 m. p. h. This topped the high of 114 m. p. recorded at Hallett Station in 1957.

This peak, however, is only for American stations. Both Russian and French coastal stations have recorded winds of 140 m. p. h. or stronger.

The sun, of course, is now down for all major bases in Antarctica. At Little America, nearly 100 men bade it farewell in a special ceremony April 24. It will return in August for coastal stations, but not until September for the pole and inland bases.

There are about 340 men at seven United States stations, 175 at five Russian bases, and probably about 200 other men at various New Zealand, Australian, Norwegian, British, Belgian, Japanese, Argentine and Chilean bases.

This is doubtless the largest year-round population Antarctica has ever had. But a total of 715 is hardly overcrowding an area of nearly 6,000,000 square miles.

## U.S. Plane Down In Antarctica

AUCKLAND, N. Z., Jan. 21. A United States Navy Dakota was forced down by engine failure in the wastes of Antarctica today while on its way to the South Pole, it was reported from Scott Base.

The Dakota was on its way to pick up two members of the British Commonwealth Transantarctic Expedition and their 18 dogs. The party, led by Dr. Vivian Fuchs, reached the Pole early Monday.

Another U. S. Dakota is being sent to the downed plane with repair gear.

# Ronne Leans to Belief In Divided Antarctica

WASHINGTON, March 5  
New support to an old theory that Antarctica may be divided by a solidly frozen body of water was advanced yesterday by Capt. Finn Ronne, United States naval commander and scientific leader of Ellsworth Station in the South polar regions.

Capt. Ronne, one of the great contemporary explorers of the Antarctic, announced his latest position on the question at a luncheon sponsored in his honor by the Washington Board of Trade in the Mayflower Hotel. It was his first public appearance after 15 months of studies in the polar waters as part of the International Geophysical Year.

Capt. Ronne conceded that 11 years ago when he flew over the southeastern part of Weddell Sea, he felt that because of the presence of high ground inland no such strait existed.

But in the past year, discovery of an island near Ellsworth Station, plus seismic soundings to the west, indicate that a narrow, non-navigable strait from 3,000 to 5,000 feet deep may indeed separate Palmer Peninsula from the Antarctic mainland between the Ross and Weddell Seas.

The explorer-scientist hailed the joint efforts of IGY scientists studying the world's last earthbound frontier.

"This is just a preview of what co-operative efforts in the scientific fields can produce," he said. "It forms a bond of friendship that joins men of all nations together."

Among the more than 200 persons joining in the ceremony—similar to the one which started Capt. Ronne off 15 months ago—were scientific and government leaders of every strata.

Capt. Ronne was hailed in turn by Dr. Paul A. Siple, a fellow veteran explorer of Antarctica and scientific leader of the IGY-South Pole Station; Dr. Joseph Kaplan, chairman of the United States National Committee for IGY, and many others present.

Senator Case, Republican of South Dakota, a principal speaker, noted further that Capt. Ronne had a hand in what probably was this country's "most definite step" toward proclaiming anything like sovereignty over Antarctica—establishment of a United States Post Office (fourth class) at Oleona Base in 1946.

**By Herbert B. Nichols**  
*The Christian Science Monitor*

One of the world's leading polar explorers, Captain Ronne returned from Buenos Aires by air following the relief of his

party by Dr. M. J. Brennen, meteorologist from Rutgers University, and nine other physical scientists. A station complement of 30 officers and enlisted men replaced the 39 who went with Operation Deepfreeze II during the 1956-57 season.

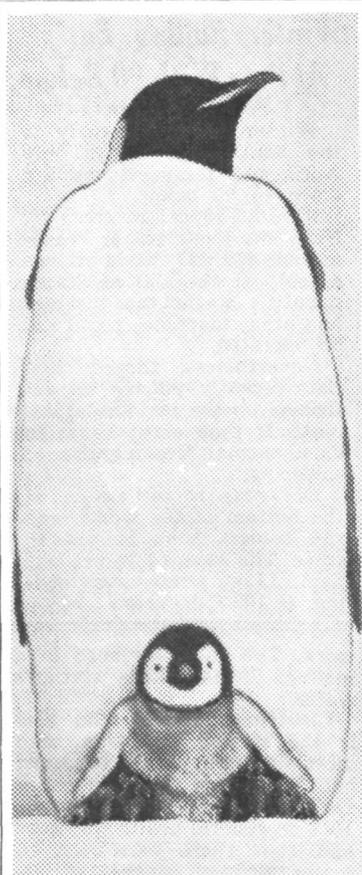
In command of the Weddell Sea Group once again was Capt. Edwin A. McDonald (USN) of Medford, Ore. His flagship for both Deepfreeze II and III was the USS Wyandot, an attack-cargo ship. After taking in the relief party and bringing out the veterans, Captain McDonald, aboard the icebreaker Westwind, carried out a naval reconnaissance mission south and west of the Palmer Peninsula near Marie Byrd Land.

Captain Ronne, who led his own research expedition to Marguerite Bay on Palmer Peninsula in 1946-48 and accompanied Rear Admiral Richard E. Byrd on two earlier explorations, stated here that he was very pleased with the research work accomplished at Ellsworth during the portion of the International Geophysical Year he served as station and scientific leader. "The entire program was carried out as outlined by the United States national committee operating under the National Academy of Sciences," he said.

"The traverse party, which took to the field in October, covered 1,100 miles in 80 days in the area south and west of Ellsworth. Transportation of men and equipment was accomplished by two Tucker SnoCats, full-track vehicles for over-the-snow operations. Under the field leadership of Dr. Edward Thiel, seismologist from Wasau, Wis., the group completed a seismological profile of the area and took gravity meter readings every five miles throughout the trip."

The group also made gravity readings during a traverse of part of a large island, about 200 miles in diameter, discovered by Captain Ronne during a flight southwest of Gould Bay. Highest point on the island yet unnamed was described as a peak of some 3,200 feet.

The party also had an opportunity to establish ground contact with a 7,000-foot mountain discovered by Captain Ronne and described by him as "part of the range of mountains extending from Cape Norvegia in



**SELF-WARMING** — There's really no heating problem for this Emperor penguin chick. The small one is resting on its mother's feet and stays there even when she walks. The picture was taken by an official U. S. Navy photographer near Ellsworth Station in Antarctica where the Navy is supplying scientific teams of the International Geophysical Year.

Queen Maud Land, clear across Antarctica to the southern part of the Ross Sea." The position of the peak was given as 51 degrees west longitude, 82 degrees 38 minutes south latitude.

While exploring in this area, Noel Aughenbaugh, expedition geologist, found that the south side of the mountains contain some sedimentary rocks, though the range itself is mostly igneous, the result of solidification of molten magma.

Principal objective of the trail party was study of the 760-foot-thick ice sheet which extends for 75 to 100 miles north of the Antarctic continent in the Weddell Sea area.

## Norwegian Whaling Is Off

Whaling expeditions from Norway were less successful in the Antarctic this year than in 1957, according to the Norwegian Information Service. They processed 530,000 barrels of oil as compared with 713,000 barrels in the corresponding period of 1957.

# ANTARCTIC PANEL SPURS ICE STUDY

Experts Hope to Complete Mapping of Continent for Thickness in 1958

By BILL BECKER

WELLINGTON, N. Z., Feb. 22 —Ice and weather-mapping programs will probably dominate Antarctica studies for the rest of the International Geophysical Year.

This was the consensus of scientists today at the final session of an international Antarctic symposium.

Dr. G. de Q. Robin of Britain moderated the final discussion of future Antarctic problems. Prof. P. A. Shoumsky of the Soviet Union summed up the hopes of glaciologists that 1958 would see the rest of the continent mapped for ice thickness.

Ronald Taylor of Los Angeles said that another year of operation by the international weather center at Little America should bring greater understanding and better forecasting of Antarctic weather.

Professor Shoumsky was chief glaciologist at Russia's Mirny base on Davis Sea. Earlier this week he and scientists of six other nations reported discoveries indicating ice depths so great that the outer fringe of the continent might be a chain of islands.

Mr. Taylor and other United States weather experts tend to believe that another year of study may dispel the notion that Antarctica is the refrigerator of the Southern Hemisphere. There are signs that Antarctic air masses tend to remain in the vicinity of the icy continent, producing the region's own cyclones and anticyclones and having relatively slight effect north of 60 or 55 degrees South Latitude.

Dr. Trevor Hatherton of New Zealand was chairman of the five-day symposium. It drew more than sixty scientists from seven nations. Also represented were Australia, South Africa and France.

Ronald Viets of Washington, leader of the United States delegation, said he thought the "give-and-take" exchange very helpful to all of us.

All attending agreed that for thoroughness the Russians gave the outstanding presentations, particularly in oceanography. The United States has barely touched the subject in Antarctica.

The voluminous display of maps, graphs and photographs produced by the Soviet scientists confirmed the recent impression obtained at Mirny that they were operating an Antarctic program second to none.

## ANTARCTIC RANGE LOFTY AS ROCKIES

Discovery by U.S. Scientists  
and by Navy Fliers Fills In  
Huge Blank in the Map

McMURDO SOUND, Antarctica, Feb. 14 (UP)—American scientists and pilots filled in a huge blank area on Antarctic maps today with the announcement of the discovery of a mountain range comparable in size to the Rockies.

The spiny mountains rise from 12,000 to about 17,000 feet above sea level, although some seem lower to the eye because ice hides their bases to 5,000 feet.

The range starts at the previously located Sentinel Mountains on the Ellsworth highland and extends toward the already plotted Pensacola Mountains. There were indications that all belong to the same system.

Some of the newly discovered mountains were measured by scientists on a 1,100-mile trek by tractors from Byrd Station at Little America on the Ross Sea. Others were sighted by United States Navy fliers from the Byrd base.

The six-man-science party was led by Dr. Charles R. Bentley of Rochester, N. Y., a seismologist, and Vernon H. Anderson of Laramie, Wyo., a glaciologist. Made the long trip from the Byrd base to the mountains, a feat almost as difficult as the cross-Antarctic trek being made by Dr. Vivian Fuchs and his eleven-man British expedition.

### Link to Andes Surmised

The Antarctic mountain range just discovered runs parallel to the south coast of the Weddell Sea. The discovery raises the question of whether the range is a continuation of the Andes. Geologists consider the mountains that form the spine of the Palmer Peninsula to be an extension of those South American mountains.

Their geology is similar and the formation can be traced under the intervening waters of Drake Passage. The extent to which this underwater formation reaches into the hinterland of Antarctica has been a mystery.

Another possibility is that the newly discovered range is linked, geologically, to the Great Antarctic Horst. This mountain system, only partly charted, runs across Antarctica from a point south of New Zealand for 2,000 miles or more.

It is a section of the earth's crust lifted directly upward, without folding, and is marked by horizontal beds of low-grade



New mountain range (broken line) found in Antarctica

coal.

By WALTER SULLIVAN

March 9

Photographs of a newly discovered Antarctic mountain range, thought to be at least 500 miles long, show that it may present a formidable obstacle to a projected tractor journey from Byrd Station.

The extent of the mountain chain is still unknown. It can be described as the most isolated in the world, but American geologists early this year obtained extensive rock samples there. They recently completed a trek from Byrd Station.

The task of the trail party that must cross this chain is to complete the final link in a transcontinental profile of the continent beneath its shrouding ice sheet. The route was laid out several months ago before the mountains were discovered. The party is to set out in the Antarctic spring, which coincides with fall in the North.

The men from Byrd Station collected their rocks from outlying summits almost completely buried beneath the ice. They lay near the northern end of the range, where Lincoln Ellsworth reported seeing an isolated mountain cluster on his transcontinental flight of 1935. He estimated the highest peak to be about 13,000 feet and named it for his wife, Mary Louise Ulmer. The group was designated the Sentinel Range.

The trail party, which a few weeks ago was the first to reach the mountains, said the peaks spread "as far as the eye could reach," according to George R. Toney, until recently scientific leader at Byrd Station. He has returned to his home in Washington, D. C. Up to fifty peaks were visible, he added.

A flight in January to survey

the route of the next traverse revealed the extension of this range in a great crescent toward the Pensacola Mountains, 500 miles to the southeast.

The scouting flight reached to within about 140 miles of the rendezvous between the transcontinental profiles. The ten-man party from Ellsworth Station, on the Atlantic side of the continent, may already have reached that point. At last report they were within sixty miles of it.

### Explorer Visits a 9,000-Foot Glacier Chasm Compared With the Grand Canyon

By BILL BECKER

March 9

A Grand Canyon of the Antarctic has been explored in the hinterlands west of McMurdo Sound.

The glacier-cut gorge, nearly 9,000 feet deep and thirty miles long, was described recently in Wellington, New Zealand, by Dr. Troy L. Pewe, University of Alaska geologist.

Dr. Pewe verified the existence of the gorge earlier in February after landing there in a United States Navy helicopter. The canyon is located about sixty miles northwest of the McMurdo Sound base.

Like the Grand Canyon of the Colorado, the antarctic chasm has sheer sides, some rising 4,000 to 8,000 feet from the canyon floor, according to Dr. Pewe. The canyon varies in width from two to three miles.

At least nine glaciers flow into the chasm. At the top of the canyon, Dr. Pewe says, 1,000-foot ice falls feed the

largest of these glaciers at an elevation of between 8,500 to 9,000 feet.

The total relief slopes downward to a dry lake only 300 feet above sea level, he added.

The 39-year-old geologist termed it "the most exciting discovery of my life." The area promises to be happy hunting ground for geologists and glaciologists in forthcoming antarctic summer sessions. It is safely accessible from about December through February.

Geologically, the antarctic canyon has two similarities to Arizona's. It has been cut into a granite bottom; and it is overlain by stratified rocks—some granitic, some marble.

The difference is that this gorge was cut by glaciation, rather than a turbulent river. Glaciers once filled the canyon, Dr. Pewe says. Now there is only comparatively slight melting from the remaining side glaciers.

However, during the summer months this is sufficient to send a swift-flowing stream, fifteen to twenty feet wide, coursing down the granite floor.

Dr. Pewe was one of the United States scientists attending an International Geophysical Year antarctic symposium in Wellington.

The canyon was discovered and first photographed in February, 1947, by Navy planes whose crews were struck by its resemblance to the Grand Canyon of the Colorado. Dr. Pewe nevertheless appears to be the first man to have set foot there.

### U. S. QUILTS AIRSTRIP AT M'MURDO SOUND

Dispatch of The Times, London.

SCOTT BASE, Antarctica, Feb. 16—United States aircraft have evacuated the landing strip at McMurdo Sound because the ice there is beginning to break up.

The American planes flew here last night to join aircraft of the British and New Zealand expeditions.

No further Globemaster flights are expected this season and it is unlikely there will be any more airdrops over the South Pole until the Antarctic spring.

The Americans disbanded the airfield installations after a vehicle track across the ice was severed by several hundred yards of water.

The Scott Base runway is still protected by several miles of fast ice. If this should break up, the aircraft will operate from the permanent Ross Ice Shelf.

However, the deterioration in the ice might hamper the trans-Antarctic expedition of Dr. Vivian Fuchs, who, instead of having a relatively easy approach to Scott Base across the bay ice, would have to find a passage through the pressure ridges.

# CLIMATE WARMING IN THE ANTARCTIC

## 5-Degree Rise Over the Last Half Century Is Recorded at Little America

By WALTER SULLIVAN

An analysis of weather records from Little America shows a steady warming of climate over the last half century. The rise in average temperature at the Antarctic outpost has been about five degrees Fahrenheit.

Dr. Harry Wexler, director of Meteorological Research at the Weather Bureau, believes this to be the first evidence of warming in the Antarctic comparable to that which has been observed at the opposite end of the world. Dr. Wexler is in charge of the extensive American scientific program in Antarctica.

He also reports that, on the basis of temperature measurements in a shaft drilled 1,013 feet into the Marie Byrd Land ice sheet, the climate seems to have been getting warmer since the days of Leif Ericson. The only indication of a slight cooling was in the top 265 feet.

Soundings of the South Polar ice sheet by the expeditions now in that area have shown that it is far thicker than had been supposed, reaching more than 10,000 feet in many areas. Dr. Wexler believes that its melting would raise oceans throughout the world about 240 feet.

The drilling was done at Byrd Station with a modified oil well rig. A thermal drill, which has been proposed by the Snow, Ice and Permafrost Research Establishment of the Army Corps of Engineers, may be able to sink a shaft 10,000 feet. This would reach ice formed from snow that fell in perhaps 8,000 B.C. and would make it possible to trace climate changes in Antarctica and Greenland back to the dawn of civilization.

Since the drilling would be done with heat, the hole would have to be left several months to allow its ice walls to resume their typical temperature before measurement.

The hole at Byrd Station was drilled during the last Antarctic summer, which coincides with the northern winter.

Glaciologists made temperature measurements in the upper part of the shaft and found that the ice became cooler from about the 165-foot level to the surface. The drillers who made measurements down the remaining distance found that the ice

## Area 300 Miles From Pole May Yield Clue to Past

By WALTER SULLIVAN

Valleys almost entirely free of snow and ice have been discovered within 300 miles of the South Pole. It is hoped that they will provide clues to Antarctica's past and to its potential for the future.

Dr. Laurence M. Gould, who heads United States research in the polar regions during the International Geophysical Year's studies of the earth and its environs, believes the valleys will become a "mecca for geologists." He hopes that the nearby emergency airstrip at the foot of the Beardmore Glacier can be made into an all-year station.

This would bring the valleys within the range of helicopters or small planes. No man has ever set foot in their vicinity, but Dr. Gould believes that they may harbor fossils resolving the mystery as to what sort of animals—if any—roamed the prehistoric forests of Antarctica.

One of the valleys, reaching north from Mill Glacier, is large enough to shelter a good-sized town.

The valleys have been discovered on flights that have supplied the lonely United States scientific station at the South Pole. The planes have crisscrossed hitherto unexplored mountains of the Great Antarctic Horst, straddling all ap-

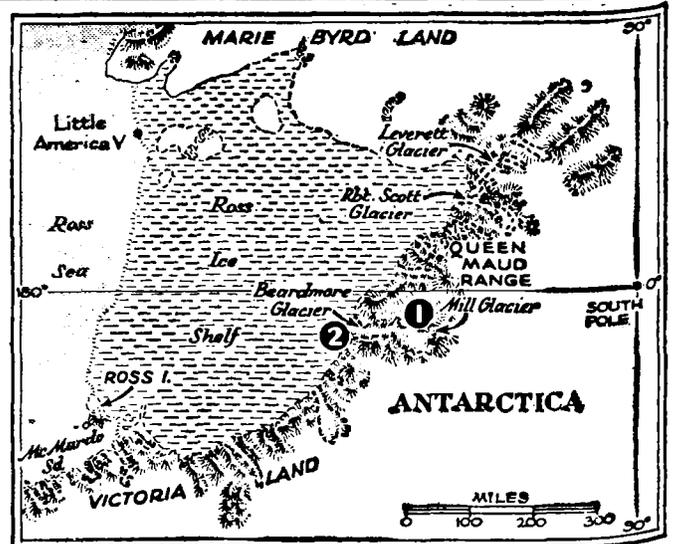
proaches to the pole from Little America or McMurdo Sound.

became steadily warmer from the bottom of the shaft upward. The total variation was in the neighborhood of two degrees centigrade, but this was enough to reflect a definite change in climate.

Dr. Wexler and his associates are not certain about the reasons for the slight change in temperature down to a depth of 165 feet. It might either represent a period of warmth about a century ago, or cooling from the top down, because of a few severe winters in more recent times.

Below 165 feet the temperature dropped sharply for a few score feet, then declined at a moderate but steady rate to the bottom of the shaft. Somewhere farther down, perhaps at a depth of about 5,000 feet, the drop in temperature must give way to a rise, Dr. Wexler believes, since the bottom of the ice sheet receives heat from the molten core of the earth.

Dr. Wexler's report on the change in climate at Little America was based on records from the six scattered years when that outpost has been occupied. They were: 1911, when the Norwegian Expedition of Roald Amundsen was there;



The valley reaching north from Mill Glacier (1) would be accessible from airstrip at foot of Beardmore Glacier (2).

proaches to the pole from Little America or McMurdo Sound.

In 1929 Dr. Gould discovered coal in these mountains. Coal, leaf impressions and fossilized trees found elsewhere in the mountains have shown that the region was once densely forested. Nevertheless, it is still not known whether vertebrate animals lived in the forests.

Antarctica is so remote from other land masses that some believe its animal life may have been meager. Near-by New Zealand has no native land mammals. It has been suggested that penguins evolved

in Antarctic forests where they were free from land enemies.

Charles Darwin, in his writings on evolution, suggested that Antarctica might have been the birthplace of modern plants. He noted that such plants seemed to have appeared suddenly, without direct antecedents, in other parts of the world. Exploration of the Horst valleys may shed light on his suggestion.

If mineral deposits sufficiently accessible to be of value are found in Antarctica, the valleys may be the place for such discoveries. As Dr. Gould put it, exposed land in that part of the world is "extremely rare."

1929, 1934 and 1940, when the Byrd Expeditions were there; and 1956 and 1957, when the area has been occupied by United States participants in the International Geophysical Year.

The five-degree rise in annual average temperature is not comparable to the warming in Spitsbergen in the Arctic, Dr. Wexler points out. Since 1912, for example, average winter temperatures have risen twenty to twenty-five degrees in Spitsbergen and the year-around average has gone up eleven degrees.

This dramatic change, he says, seems to be caused by increasing southerly winds. Lesser rises have been observed in other parts of the Atlantic Arctic. Whether the Little America rise represents warming of the entire bottom of the world will not be clear until the observations now being made there as part of the I. G. Y. have been continued for a number of years.

### 1 Per Cent of Water in Ice

One per cent of the world's water supply is locked in the thick ice fields that cover one-tenth of the earth's surface.

## Navy Scientist Saved From Floe

AUCKLAND, New Zealand, Mar. 4 (P).—Lt. Comdr. Albert Crary of Boston fell 60 feet into Kainan Bay at Little America last Friday but was rescued uninjured, the United States Navy said today.

A report reaching Navy headquarters at Christchurch, New Zealand, said Comdr. Crary scrambled from the bay onto a small ice floe and was carried a mile out to sea before two men in a raft paddled out to get him.

Comdr. Crary, the scientific leader at Little America, and civilian scientist Stephen Hartog were making a water study at the ice edge of the bay when a 15-foot section broke off. Mr. Hartog went 2½ miles for help and when he returned Comdr. Crary was drifting rapidly out toward the Antarctic Ocean.

Capt. Eugene Maher and scientist Charles Wilson paddled out to Crary.

## ANTARCTICA GETS GRAVEL AIR STRIP

Planes Make First Landings in Area on Solid Ground

By WALTER SULLIVAN

For the first time aircraft have landed on solid ground on the Antarctic continent. Two small United States Navy planes set down Jan. 31 on an air strip bulldozed smooth on the boulder-strewn shoulder of Marble Point.

The site, on the west shore of McMurdo Sound, is the most promising yet found for an all-year airfield to link Antarctica with other continents. Its preliminary development coincides with United States-Brazilian negotiations that may lead to a transpolar air route between South America and Australia.

Such a route would slice about 6,000 miles from present commercial airline service between such cities as Rio de Janeiro and Melbourne.

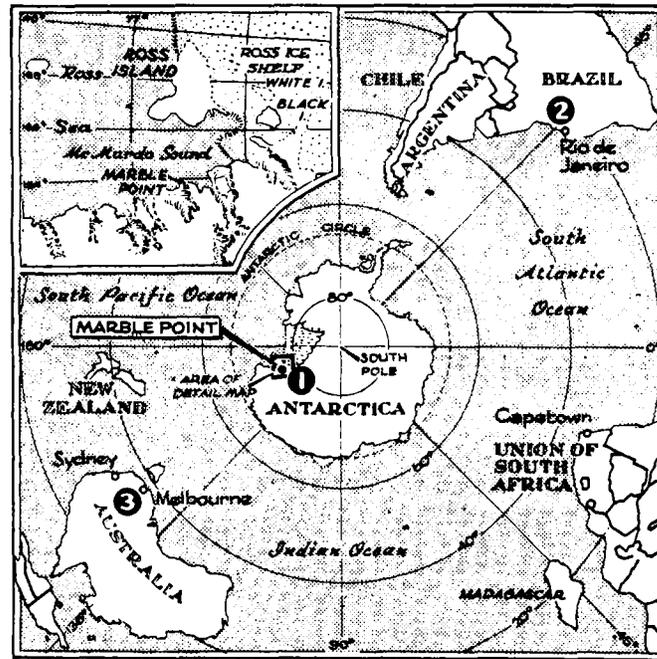
Although aircraft have operated in Antarctica, on and off, for thirty years, they have used snow or ice runways that were subject to sudden cracking or disappearance. In 1956 the runway smoothed out by the Navy on the bay ice of McMurdo Sound, about fifty miles southeast of the new strip, broke up and blew out to sea only a few hours after the planes based there had fled to New Zealand.

There has always been a fear that a storm might do this to the airfield while planes were in the air over the South Pole, giving them no place to land on their return.

In one of the two planes to set down at the new strip were Rear Admiral George J. Dufek, commander of the Navy task force in Antarctica, and Sir Edmund Hillary, leader of the New Zealand expedition. Sir Edmund's presence pointed up the political problem deriving from the fact that New Zealand claims the entire sector that embraces McMurdo Sound.

The United States does not recognize this claim, but has worked closely with New Zealand in establishing Antarctic bases for the International Geophysical Year. New Zealand was advised in advance of the American intention to survey the potential airfield site.

This is one of the few areas of bare ground in Antarctica suitable for a major airfield. It was originally estimated that it might cost about \$300,000,000 to build a field there—roughly the cost of the air base at Thule, Greenland. The fact that a 1,200-foot strip has been leveled off in five days suggests



The Navy's Seabees have built the first solid-ground airfield in Antarctica at Marble Point (1). It would enable the planes flying from Rio de Janeiro (2) to Melbourne (3) to save 6,000 miles. Marble Point area shown in inset map.

that a less ambitious installation might be less expensive than the Thule base, with its 10,000-foot runways.

The possibility of airline service across Antarctica has long been discussed, but the potential traffic over such routes is so much smaller than that across the Arctic that there has been far less demand for such service. Several months ago the United States concluded an agreement with Australia providing for an extension of the present service flown by Pan American World Airways from California across the Pacific to Australia.

The only gravel runway known to have been laid out in the Antarctic region is the 800-yard strip built by Sir Hubert Wilkins on Deception Island. It was from this island, in 1928, that he made the first airplane flight over Antarctica, but the strip is not on the mainland.

The building of the new strip was described Jan. 31 in a radio interview with the Rev. Daniel J. Lineham, S. J., a seismologist who is working there. Father Lineham said the work was done by a reconnaissance unit of twenty-one Navy Seabees under Comdr. Henry E. Stevens of East Greenwich, R. I.

Most of the work was done by two huge, forty-four-ton D-9 tractors that were floated ashore from the cargo ship Greenville Victory. Nevertheless, Father Lineham said, it was necessary for the men to hand-pick 5,000 boulders from the runway.

They landed on Dec. 13 to examine the site and have been living in seven Jamesway huts, shaped like Quonset huts, but made of padded canvas covering a wooden frame.

## LIVE BACTERIA FOUND IN ICE AT SOUTH POLE

McMURDO SOUND, Antarctica, Jan. 15 (UP)—A Navy bacteriologist announced today that he had discovered living bacteria between 800 and 3,000 years old ninety-five feet beneath the ice at the South Pole.

Capt. Charles E. Myers, a member of the staff at the Navy Biological Laboratory at Berkeley, Calif., said that he could not identify the bacteria, "But I am treating them with respect."

He said that he had taken samples of the bacteria in a snow mine dug at the pole for glaciological studies. He said he was extremely careful to make certain that the bacteria was not introduced at the time of digging.

He said that the diggers had used face masks and sterile equipment.

Glaciologists estimated that the age of the ice at that depth is between 800 and 3,000 years old and that the bacteria apparently had been lying dormant in the ice all that time.

Capt. Myers said he could not be sure how the bacteria became frozen in the ice. However, he speculated that it had fallen with the original ice crystals.

### Ross Ice Shelf Moving

The Ross Ice Shelf, on which stands Little America in Antarctica, moves north at the rate of about four feet a day. The Ross Ice Shelf is about the size of California.

## BASE IN ANTARCTIC SHIFTS PERSONNEL

U. S.-New Zealand I. G. Y. Team Begins 12 Months at Hallett Station

By BILL BECKER

HALLETT STATION, Antarctica, Jan. 16—The changing of the guard was completed today at another International Geophysical Year station in Antarctica.

Fifteen newcomers were established at Hallett Station, the joint scientific venture of the United States and New Zealand at Cape Hallett. Hallett is on the coast of Victoria Land 400 miles north of McMurdo Sound.

The new scientific leader is Kenneth J. Salmon of Wellington, N. Z., an electronics engineer and instructor.

Mr. Salmon heads a group of two New Zealand scientists and one American. Eleven United States Navy men, including three weather specialists, complete the roster. They will spend the next twelve months at Hallett.

The first year of the cooperative venture was termed "very successful" by Dr. James A. Shear, Mr. Salmon's predecessor as scientific leader. Dr. Shear, Associate Professor of Geography at the University of Kentucky, left aboard the U. S. S. Arneb tonight. The others of the party also have left.

The major attraction was Hallett's huge penguin rookery, where more than 25,000 birds have made their home since last October. Half of the Adélie penguins were fuzzy gray chicks. They will turn black and white before their first birthday.

Dr. Shear, incidentally, is bringing back a one-in 100,000 rarity, an Albino penguin, which he plans to present to a museum. Dr. Shear headed a group of three New Zealand scientists and three Navy aerographers.

He praised their work and also the recent geological efforts of a New Zealand party of eight headed by Dr. Larry Harrington on the Victoria Land plateau.

This party has reported finding fossilized limestone about 2,500 feet above Cape Hallett. It is the first fossil find in this area of the continent and indicates that more extensive sea life and perhaps even vegetation once flourished here. Antarctic fossils have been found previously on the Palmer Peninsula and as close as 200 miles to the South Pole.

# ANTARCTICA DATA ON QUAKES SIFTED

U. S. Coast and Geodetic Study Indicates Mountains Are Source of Tremors

By WALTER SULLIVAN

June 24

A preliminary examination of seismic records from the South Pole and Byrd Station indicates that the Antarctic continent, beneath its heavy mantle of ice, is a generator of earthquakes.

This may account for some of the more startling experiences of earlier explorers, sledging across the inland ice sheet. On occasion the surface, seemingly as far as the horizon, has dropped beneath their feet with the sound of an approaching freight train. Their dogteams were thrown into panic.

Last July 19 a local earthquake was recorded at Byrd Station, near the center of Marie Byrd Land. Its point of origin seems to have been about 450 miles away. Another quake, recorded at the Pole Dec. 18, is thought to have been only 325 miles away.

These distances suggest that both quakes may have originated in the Great Antarctic Horst, where that 1,500-mile mountain system passes between Byrd Station and the Pole. There is an active volcano near the Horst at McMurdo Sound.

The United States Coast and Geodetic Survey, which is to analyze the seismic records from Byrd Station and the Pole, has only received them for the first six months that those stations have been occupied. Altogether six Antarctic stations are sending reports of quakes.

The others are the United States base at Wilkes Station, New Zealand parties at McMurdo Sound and Cape Hallett and the Soviet base at Mirny. The Coast and Geodetic Survey has asked Moscow to check the Mirny records to see if they show the quakes of July 19 and Dec. 18. If so, it may be possible to pinpoint the location.

The entire Antarctic program is part of the eighteen-month effort known as the International Geophysical Year.

Although both the Pole and Byrd Station seismographs rest on ice more than a mile thick, this has not impeded their observations. Leonard M. Murphy of the Coast and Geodetic Survey in Washington notes that "technically" ice is a rock. It has transmitted to the seismographs shock waves from as far away as Greenland and Siberia, at the opposite end of the globe.

One of the reasons for air-



**QUAKE HATCHERY:** Somewhere in the Antarctic, possibly beneath the mountains of the Great Antarctic Horst, there appears to be a crack in the earth's crust that generates earthquakes. Reports from seismographs at the points underlined may pinpoint the location.

lifting or sledding the equipment to these remote stations was to record just this sort of long-range shock.

It is hoped that in the analysis, waves will show up that have passed directly through the center of the earth. This may help settle whether, as some believe, the core of the earth is compressed into solidity.

Another task of the Antarctic stations is to help locate the great, meandering cracks in the earth's crust that produce earthquakes and volcanic activity. From a first glance at the records received so far it would appear that one of these cracks may pass beneath Antarctica itself and another may lie close to the coast of Marie Byrd Land.

According to Mr. Murphy the origins of about fifteen quakes were near that coast. This may join with a similar line of quake centers that runs south off the coast of Chile with one that passes near New Zealand.

To pin down these earthquake belts, the Coast and Geodetic Survey receives data on about 25,000 quakes a year. Because of physical limitations only about 1,300 can be plotted. It is hoped that, with punch card techniques, it may be possible to increase that number several fold.

Already the annual plots show a striking alignment of quake centers along the ridges that crisscross the ocean floor. The locations of many such ridges are being found concomitantly by I. G. Y. oceanographic expeditions. The end result

should be a clearer picture of fault patterns in the earth's crust.

The cracks seem to run deep, for analysis of some quakes places their origin 300 miles down.

Seismicity in the Antarctic phy. Nevertheless he believes the records just received are does not appear comparable to the first indication that an earthquake belt lies in that region.

In underlining the importance of studying even the lesser quake areas, he says that "the small quakes of today may become the big quakes of fifty years hence."

The Antarctic observations have been complicated, at times, by a traffic problem that was reminiscent of the one which plagues seismologists at Fordham University and the College of the City of New York.

Trucks on Fordham Road and Convent Avenue create quakes of a strictly local nature and the same has been true of tractors at the polar camps.

## I. G. Y. Provides Water of 1650s

PONCA CITY, Okla. (P.—Mrs. Mary Knack has a bottle of old water.

Her son, Joe Knack, who is near the South Pole with the International Geophysical Year expedition, sent her a bottle of melted ice drilled from deep in an ice cap. Scientists said it came from water frozen in the 1650s.

# COSMIC RAY TRAIL TAKING SHIP AFAR

Navy Craft on I.G.Y. Mission Checks on Meson Around Its Special 'Equator'

By BILL BECKER

ABOARD THE U. S. S. ARNEB, Feb. 7—For the third successive year a three-ton mass of lead and paraffin is capturing cosmic rays on an around-the-world cruise.

The neutron monitor counter on this ship is a key device in the International Geophysical Year research on cosmic rays. That research is concentrating on study of the sun's effects on the high energy particles.

The counter on the Arneb, Navy attack cargo ship that has just been to Antarctica, is in the custody this year of W. Michael Henebry, physicist from Enrico Fermi Institute of Nuclear Studies, University of Chicago.

The Arneb's route was prepared to give the cosmic counter maximum opportunity to measure the neutron energy of incoming meson particles. Leaving Norfolk Nov. 18, the ship went through the Panama Canal and down the west coast of South America. Then it followed the cosmic ray equator.

This gave the counter the opportunity to verify the data of the two previous years, which it did, according to Mr. Henebry. The cosmic ray equator still meanders a fluctuating course, ranging from ten degrees north to ten degrees south of the geographical equator.

Only high energy particles reach the earth at the cosmic ray equator. At either pole high and low energy particles are received from the cosmos, outer space. The earth's magnetic field, in effect, acts as a spectrometer on cosmic ray particles.

From Australia the Arneb will cross the Indian Ocean to South Africa and proceed homeward by the east coast of South America. Mr. Henebry, a 21-year-old graduate of the University of Illinois, expects his duties as custodian of the pile to continue through May 25.

His ship headquarters is a compact steel, air-conditioned structure kept at a constant 70 degrees. Cosmic rays penetrate the top, a steel plate five-eighths inch thick, and strike the lead pile, which is about nine feet long, three feet wide and three feet high.

Imbedded in the pile are twelve tubes filled with boron gas. These do the actual counting.

# Americans See Soviet Polar Base

## 200 From Icebreaker Greeted at Mirny—Equipment Hailed

By BILL BECKER

MIRNY, Antarctica, Jan. 30 —The first American visit to the main Russian base in Antarctica was a social success.

This consensus was reached early today by some 200 Americans and a like number of Russians after a sixteen-hour visit by the U. S. S. Burton Island, a Navy icebreaker.

The hospitable Russians, with Eugene Tolstikov, the Antarctic program leader, setting the pace, let American scientists and newsmen see everything they asked to see.

Georgi Matveychuk, Mirny operations chief, conducted a tour of the station's main facilities after the American advance party, headed by Navy Capt. Gerald L. Ketchum, had been guests at a vodka brunch.

The Americans also stayed for dinner and a Russian movie. Afterward at least half the Russians came aboard the Burton Island for ship inspection and an American movie.

American scientists made no sensational discoveries at Mirny —no indications of rocket-launching plans or the like. But the visiting Americans found that in oceanography, meteorology, and glaciology the Russians were well advanced. In some fields, however, they appeared to be lagging behind United States' programs. Mirny appears as well organized as Little America, the largest United States scientific station in the Antarctic.

Its eighteen prefabricated buildings are as sturdy and more homey than those at any United States polar base. However, Mirny has the exterior sloppiness of McMurdo Sound, the United States Antarctic supply base. Like McMurdo, Mirny is a funnel for articles moving to inland stations.

The Russians reported that a team had drilled the deepest hole yet reported in the Antarctic. They said that they had extracted ice core samples from a depth of 1,200 feet at Pionerskaya, a station 250 miles inland from Mirny.

At last reports a United States team was nearing the 900-foot mark at Byrd Station, on the opposite side of the continent.

The Russians disclosed that a tractor-train team of thirty-two men was expected to reach the site of the proposed Sovietskaya station in two weeks.

This site is hundreds of miles short of the original planned location at the Pole of Inaccessibility, the point in Antarctica farthest from the sea.

In addition to Sovietskaya, and Pionerskaya, the Russians have established or hope to establish stations at Bungee Oasis, Vostok, and Komsomolskaya.



Americans visited the Russian base at Mirny (cross). Soviet Union stations in Antarctic are shown by triangles.

The Russians also reported ascension of a balloon to thirty-eight kilometers during the last year. This would be 125,000 feet, well above the present American South Pole record of about 10,700 feet.

Their radiosonde transmitter was comparable to but not so compact as American equipment. Reports were taken manually rather than by automatic instruments at the station. Otherwise, Russian meteorological equipment seemed on a par with that at the United States bases.

Visiting American scientists also were struck by the apparent efficiency of two tracked

snow vehicles—the Penguin and the Vezdekod. The latter, which was translated as "The Goes Everywhere," is slightly larger than the Army Weasel used by American stations and will hold up to ten passengers. It seemed to have more climbing power and maneuverability.

The Penguin is a large towing vehicle used mainly on inland traverses and was reported capable of hauling loads up to fifty tons.

At Mirny emphasis has been placed on ice crevasse studies. The Russians were using stress and deformation gauges that Richard L. Cameron, glaciologist of Laconia, N. H., described as "topnotch."

Mirny has two oceanographers, Michael Izverkov and Vladimir Lebedev, and a program that far outstrips anything the United States has ashore in Antarctica, according to Robert B. Starr, Navy hydrographer from Washington.

Mr. Starr, who has been sounding and sampling Antarctic waters from aboard the Burton Island, found the Russian hydro equipment extremely modern and complete, especially that for making chemical analyses.

The Russians also gave Mr. Starr some hydrographic manuals that indicated that their

thorough study of these waters began with the voyage of the Slava, a whaling factory ship, in 1947 and 1948. Their data on icebergs and ice fields appeared exhaustive.

The Mirny radio station was equipped with a five-kilowatt transmitter. The most powerful United States transmitter down here is eight kilowatts. Ionospheric sounding machines struck Carl R. Eklund as antiquated. He said equipment was much inferior to that used at Wilkes Station, where he was scientific leader last year.

Visitors also were surprised to find no aurora-observations tower. The Russians had an all-sky camera implanted on a promontory to film the southern lights during the winter nights. But they did not appear to have a coordinated spectrometer installation.

The Soviets say they have mapped 23,000 square miles in setting up their posts.

Scientifically the Vostok station at the geomagnetic pole may prove to be most fruitful and investigators hope the earth's magnetic field may yield important new data.

The Russians already have indicated a desire to extend their Antarctic I. G. Y. program through 1959. Beyond that, speculation on their future plans must take into account the Russians' past performance in the Arctic and proven tenacity in scientific and political affairs.

As far as living conditions are concerned, Russian scientists at Mirny, with wallpaper, carpets and heat, live at least as comfortably as their American colleagues in Antarctica.

Externally the Russians have left their frame buildings unpainted. The Americans have painted theirs orange.

But inside most of the eighteen living and working quarters numerous homier touches are visible in the Russian buildings. There are more rooms—with only one or two men to a room—and on the whole more space to work.

Virtually every room in the Russian buildings has a window—an Antarctic luxury—and metal beds instead of bunks. The décor is rather drab and Midwestern gothic by American standards. Many of the rooms are decorated with small rugs on the wall as well as floors.

There are oilcloth and decorated china in the dining room. Nothing is fancy except the caviar and vodka for brunch and later electrically cooked veal cutlets for dinner. Portraits of Lenin, Bulganin and Voroshilov look down on the diners.

One novelty is the self-service fountain where raspberry soda, a favorite Russian soft drink, can be drawn and mixed to taste. It was not in great demand, however, the day American visitors were there.

# Hillary Reaches South Pole By 70-Mile Forced March

Dispatch of The Times, London.

SCOTT BASE, Antarctica, Jan. 3—Sir Edmund Hillary, conqueror of Mount Everest, reached the South Pole tonight after a forced march of seventy miles. He drove his train of tractors and his four New Zealand companions continuously for more than twenty-four hours on the last lap. When he finally decided at 8 P. M. New Zealand time (3 A. M. Eastern standard time) to halt for the night the round tower of the American station at the South Pole was in sight. The buildings of the base could be seen as a black blob on the snow two miles ahead.

[After a night's sleep, the New Zealanders finished their trip Saturday and joined seventeen Americans at the polar station, The Associated Press reported.]

The 38-year-old New Zealander's team thus became the third one ever to reach the South Pole by the overland route—and the first to do it in forty-six years.

The last group, led by Capt. Robert F. Scott of Britain, reached the Pole on Jan. 17, 1912. All of that party perished in a blizzard on the way home.

Captain Scott's group had lost in a race with a team led by Roald Amundsen of Norway, who arrived at the Pole on Dec. 14, 1911.

When Sir Edmund reached his polar destination tonight he had left only one drum of gasoline—enough for twenty miles. In his words, when he called Scott Base at 10 P. M.:

"We were cutting it rather fine due to the very soft snow experienced."

When the tired New Zealanders had turned in to bed within sight of their objective, no one at the polar station knew of their arrival. Conditions were misty and all the personnel at the polar station, including four newspaper correspondents from London, New York and San Francisco, slept.

Since all time zones converge at the pole, there is no real time. Arbitrarily, most Antarctic stations pick a time schedule, such as that of New Zealand, with which they are in frequent touch.

"Steering by the sun from earlier fixes we came bang on to the base," Sir Edmund reported. "We are all very tired but well, and very pleased to have ar-

rived.

"The success we have had could not have been possible without the help we have had from everyone from the time the expedition was first planned. My thanks go in particular to every member of the expedition whose support in Antarctica has put us where we are now.

"The Ferguson tractors are showing signs of wear and tear but they have gone on magnificently in quite unsuitable conditions."

The New Zealand tractor team arrived at the South Pole with all three tractors, together with the caboose and two sledges.

The journey of 1,200 miles was begun on Oct. 14 with four vehicles in the train. They were driven out from Scott Base on McMurdo Sound by Sir Edmund, Ron Balham, Peter Mulgrew and Murray Ellis.

During the next seven weeks the tractor train and the Beaver aircraft of the Royal New Zealand Air Force combined to lay five depots in support of the expedition's traverse party led by Dr. Vivian Fuchs of Britain.

Dr. Fuchs' expedition last reported it was about 200 miles from the pole, according to a message received yesterday by his London headquarters.

Injuries caused some temporary changes to the Hillary tractor team, and the party was strengthened to allow at least one relief driver on the trail. Finally the members for the pole dash settled down to Sir Edmund, Mr. Mulgrew, Mr. Ellis, Jim Bates and Derek Wright.

The five New Zealanders scorned comparisons between their feat and those of Amundsen and Scott.

In the intervening years, they agreed, Antarctica has become just "another place." Airplanes, they pointed out, "have flown in most parts of the continent and mechanical transport can carry men here in a way undreamed of half a century ago."

But while the Hillary team may not have experienced the terrors that beset the two pioneer explorers, they encountered many alarms. For long periods they had to pick their way through dangerously crevassed country.

They took risks, calculated risks that had to be taken if the job was to be done. Yet they

# HILLARY RECOUNTS FIRST LEG OF TREK

## Tells of Trials on Trip From Scott Base Up Glacier to South Polar Plateau

By SIR EDMUND HILLARY

Dispatch of The Times, London

SCOTT BASE, Antarctica, Jan. 12—On Oct. 14 our tractor train of one Weasel and three farm tractors set off from Scott Base across the Ross Ice Shelf.

We left behind a complete lack of confidence in our onward progress. Indeed, at Scott Base and the neighboring American camp at Hut Point the opinion was widely held that we would not get more than fifty miles out onto the Ross Ice Shelf.

But we of the old firm—Murray Ellis, Jim Bates, Peter Mulgrew and myself—had worked on our vehicles all winter, had tried them out on a late autumn trip to Cape Grazier, and had tested our modifications in a long spring depot-laying trip to the north.

Our start was not an auspicious one. We left Scott Base towing loads of three tons per tractor and made our very laborious way across the area of pressure ridges formed where the shelf flowed into the bay ice, and then onto the flat going of the Ross Ice Shelf itself.

We camped the first night a mere seven miles in a direct line from Scott Base and knew that all the experts were saying, "I told you so."

The second day was little better. We struck deep soft snow and in the first two hours succeeded in covering one only mile. I decided that drastic action was called for and we pushed eight drums of fuel weighing one and a half tons off our sledges and left them lying in the snow.

We camped the second night having succeeded in covering twenty-three miles and being, at least, out of sight of Scott Base.

We entered areas of high sastrugi [hard snow ridges], but the snow was firm and our trac-

were overawed by their formidable surroundings.

As Sir Edmund said one bright, sunny day, reclining his six foot four inch length in the caboose and clutching a mug of hot cocoa:

"You know, it's really pleasant on the plateau."

"Or it would be," he added thoughtfully, "if it were not for the niggling worry of the crevasses."

tors revealed in the rough going while the Weasel labored to keep up. The Weasel was proving very troublesome and obviously needed a major overhaul.

We decided to make a dash for our Skelton Depot and carry out the work there. For thirteen hours we drove steadily onward toward the great peaks of the Western Mountains and the mouth of the Skelton Glacier. We were traveling at night and the midnight sun, low on the horizon, sculptured the waves of sastrugi in light and shadow and our ears became attuned to the steady drone of our tractors.

At seven in the morning of Oct. 20 we completed our fifty-mile run and were greeted at the Skelton Depot by the welcoming howls of eighteen husky dogs, flown in the previous day by our Beaver aircraft.

Their drivers, Bob Miller and Dr. George Marsh, thrust cups of tea into our hands and I drank mine with the satisfaction that comes from seeing the first stage of the journey done. We had 180 miles behind us.

For two days, our mechanics, Bates and Ellis, labored on the Weasel. A rough tripod was erected and the engine was lifted out of its bed and a broken part mended. By the evening of Oct. 22 we were ready to move on again.

At 4:50 P. M. we left the Skelton Depot behind and started up the glacier. The surface was extremely hard and very rough. Vehicles and sledges were racked and twisted as we followed a center line up the middle of the glacier keeping well away from the continuous crevasses that fringed the great rock bluffs on either side.

Oct. 23 was an enforced day of rest, with mist and snow and sudden, fierce squalls of up to fifty knots.

The following morning was a little better and around midday the weather had improved considerably. The dog teams moved off at 1 P. M. and disappeared into a cloud of mist.

Half an hour later we started out and were soon enveloped in blinding drift. The traveling was extremely rough and we caught no sight of the dog teams but by determined driving we covered five miles in the first hour.

It was impossible to stand on the slippery surface without a firm grip on a tractor or sledge.

After several miles of this, we were glad to get out of the area and to start climbing steadily upward amongst magnificent scenery. When we camped at 8 P. M. on firm snow once more we had covered nineteen and a half miles and the wind had reduced to a fresh breeze.

In the next few days we toiled up the slope that led to the plateau and finally emerged through the fog and drift to chug into our Plateau Depot at 8,200 feet.

As we turned off the ignition switches I have rarely felt a greater sense of achievement.

# TRACTORS PULLED HILLARY THROUGH

'Faithful' Vehicles Overcame Perils in Final Trek From Plateau to South Pole

By SIR EDMUND HILLARY  
Dispatch of The Times, London.

SCOTT BASE, Antarctica, Jan. 13—We arrived on the Polar plateau on Oct. 31, having covered a total distance of 390 miles. But because of our westerly trend, we were still only ten miles nearer to the Pole than Scott Base.

For twelve days the tractors remained at the plateau depot while our Beaver aircraft flew in load after load of gasoline, oil, dog food and man rations for Dr. Fuchs and ourselves.

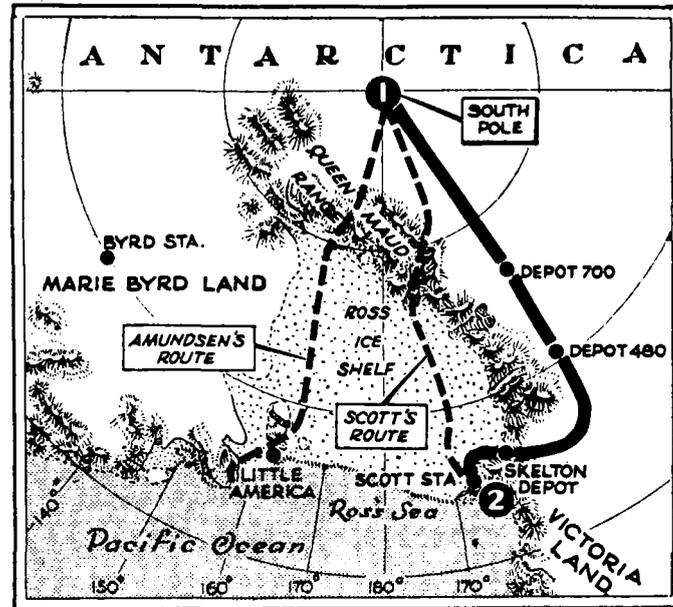
Bad weather constantly interfered with flying operations and delayed our departure, while a series of minor accidents depleted my party. P. O. Mulgrew broke some ribs; M. Ellis strained his back and Dr. R. W. Balham was returned to his biological research. Gawn and Wright flew in as replacements, but this still only gave us the minimum requirement of four men to drive four vehicles.

On Nov. 8, the dogs moved off. There were four teams now, as J. H. Miller and Dr. G. March had been joined by H. Ayres and R. A. Carlyon, whose teams had been flown direct to the plateau depot. Each day their progress was extremely laborious in spite of light loads. Their dogs were having great difficulty in coping with the deep soft snow at this unaccustomed altitude.

By Nov. 15, we were only thirty-five miles out, and we had consumed large quantities of gasoline getting there. The Weasel had now come into its own and was pulling almost as much as the three tractors together. It appeared that our journey was about to come to an ignominious end. We swung on to a southwesterly heading, and the surface surprisingly improved and the tractors gained a new lease of life.

We were traveling along the rim of the great catchment area draining down to the east to the Ross Ice Shelf. We were crossing long stretches of hard, knobby sastrugi (ridges of hard snow) and it was quite apparent that this was a region of constant winds.

The ever-present strong westerly wind, with ground drift and temperatures minus 20 degrees Fahrenheit, gave us very unpleasant traveling. However, the firm surface suited our tractors, and we started to do



POLAR ARRIVAL: Hillary party, third to complete overland route, reached South Pole (1) after trek from Scott's Station (2).

thirty miles each day.

The dog teams had warned us of crevasse areas, so we were able to dodge them and our main problem was the poor weather and bad visibility. The rough surfaces were playing havoc with our heavily laden sledges, and two runners were broken, requiring temporary repairs.

On Nov. 19, we caught up to the dog teams, who had been seriously retarded by the bad weather, and then we went on ahead. For four days we fumbled our way along in miserable conditions, but we were encouraged by the fact that we had encountered no major crevasse areas. Even this consolation was soon denied to us, and early on the morning of Sunday, Nov. 24, two of our tractors broke through the bridges covering some enormous crevasses and were only saved by a whisker from being engulfed.

We retreated from the area and then struck west in an attempt to find a safe route. The visibility was still rather flat, and we ended up with two vehicles on one side of a ten-foot crevasse and two on the other. As we were all very tired and not a little scared, I decided that a good sleep was the first requirement, so we camped where we were.

On Nov. 25, we reached an area suitable for aircraft landings, and as we were now about 210 miles from our plateau depot we decided that this would do for Depot 480.

On Dec. 6, we were on the move again. In a determined effort to try to increase our daily mileage, we drove ourselves and our tractors for long hours and succeeded in covering ninety-three miles in the

first two days. But the effort was too much for the Weasel, and unpleasant grating noises in the clutch and differential made us expect the worst.

With lighter loads we pushed on. For ten miles we clattered through hard icy hummocks and ridges with every indication that there were crevasses in the area. We were not disappointed. We started breaking through lines of crevasses, thinly bridged and dropping away into bottomless depths. Few of them were more than 4 feet wide, but in spite of mental reassurances that they were not large enough to take a whole tractor, it was difficult to remain completely unaffected as a tractor lurched violently across them.

The next ninety miles was a trying experience. Deep snow in the hollows forced us to relay; the hard surface of the ridges was all too frequently split by crevasses and we had many unpleasant moments.

On Dec. 30 we were less than 200 miles from the South Pole and we started running into areas of deep soft snow. Our progress slowed right down and our gasoline consumption rose alarmingly. We decided to depot everything we possibly could.

At mid-day Jan. 4, we drove through the last few miles American South Pole Station. I do not think that any of us were sorry to climb out of the tractors for the last time.

## Only 2 Had Won Before

Roald Amundsen of Norway and Capt. Robert Falcon Scott of Britain led the only two previous expeditions to reach the South Pole by the overland route. They accomplished their journeys forty-six years ago.

Both journeys are considered classics in the struggle of man

against nature. Amundsen's venture ended in triumph, Scott's in tragedy.

Amundsen set out for the South Pole on Oct. 19, 1911. His party included fifty-two dogs and four sledges. The dogs proved a most reliable form of transport and the men in the party, relieved of the burden of moving their supplies, were able to ride the sledges or coast along on skis.

Amundsen was a professional explorer and the men he chose to accompany him were men experienced with cold, ice, snow skiing and dog driving.

They pioneered the route and at one time were caught in a maze of yawning crevasses. Amundsen kept them going in the midst of a blizzard and despite painful frost sores on their faces.

On Dec. 14 they reached the South Pole and planted the Norwegian flag. Their return journey was fairly uneventful.

The smooth accomplishment of Amundsen was in marked contrast to the ordeal of Scott's party. Scott's men left for the pole on Nov. 3, 1911, with nineteen ponies, thirty dogs and three motor sledges.

However, the motor sledges broke down and the ponies proved almost useless. Scott's men had to pull the supplies themselves. The men, apparently suffering a dietary deficiency, became weak. They experienced intense cold and sharp winds.

When they arrived at the pole on Jan. 17, they found that Amundsen had already arrived. It was a bitter disappointment. Scott wrote in his diary:

"The pole. Yes, but under very different circumstances from those expected. Great God! This is an awful place and terrible enough for us to have laboured to it without the reward of priority. Now for the run home and a desperate struggle. I wonder if we can do it."

Scott and his men all died on their journey back from the pole. Scott's journal told of their suffering, of the frost bite and the hardship caused by the weather.

The last entry in the journal, written on March 29, read:

"Every day we have been ready to start for our depot eleven miles away, but outside the door of the tent it remains a scene of whirling drift. I do not think we can hope for any better things now. We shall stick it out to the end, but we are getting weaker, of course, and the end cannot be far.

"It seems a pity, but I do not think I can write more.

"For God's sake look after our people."

The frozen bodies of Scott and his men were found by a search party the following spring.

The next person to view the South Pole was Admiral Richard E. Byrd, who flew across it on Nov. 28, 1929.

## Fuchs Arrives at South Pole; Hillary and Dufek Greet Him

By The Associated Press

WELLINGTON, New Zealand, Monday, Jan. 20.—The British polar expedition led by Dr. Vivian Fuchs reached the South Pole today.

Sir Edmund Hillary, New Zealand conqueror of Mt. Everest, and members of the American Antarctic group who have established a South Pole base, went out in snow weasel vehicles and tractors to welcome the party.

The Britons had covered more than 900 miles on a trip begun Nov. 24 from the Commonwealth Shackleton base on the Weddell Sea.

The South Pole correspondent of the "New Zealand Herald" said Dr. Fuchs and his party drove to the pole with flags flying and seemed taken aback at the welcome.

"I say, this is rather unexpected," Dr. Fuchs said as he faced a battery of cameras.

"Hello, Bunny," said Sir Edmund as they warmly shook hands.

The Fuchs party traveled by snow tractor and sled over terrain on which no man ever previously had set foot. They stopped periodically to take seismic soundings of the Antarctic ice cap.

The British team was the fourth in history to reach the Pole by land. It missed by one day the forty-sixth anniversary of the arrival at the Pole by Capt. Robert F. Scott of the British Navy, Jan. 18, 1912. Capt. Scott raced by sledge in an attempt to be the first man to reach the South Pole. He lost to Roald Amundsen, of Norway, who arrived there Dec. 14, 1911.

Sir Edmund was accompanied by four other New Zealanders on his push to the

Pole. He and Rear Adm. George Dufek, United States commander of Operation Deep Freeze, flew over the British party Saturday night before landing at the Pole to be on hand to greet Dr. Fuchs.

Also waiting at the Pole were congratulations sent in advance by members of the Antarctic Club in London, who were so sure Dr. Fuchs would make it that they sent him messages wishing him good luck for the second half of the trip to Scott Base.

Dr. Fuchs will be fifty next Feb. 11. His specialty is geology and his scientific trips have taken him before to the Arctic and Africa. A Cambridge man, he was the geologist with the Cambridge expeditions to East Africa from 1930 to 1932 inclusive and on later expeditions in the 1930s to Lake Rudolf in Kenya and Lake Rukwa in Tanganyika.

Those expeditions made him valuable for early service with the British Army in World War II in Africa. His later service in Europe won him mention in dispatches. He came out of the Army a major.

His Antarctic experience previous to his being named leader of the Commonwealth expedition in Antarctica was as leader of Britain's survey of the dependencies in the Falkland Islands which Argentina claims as its territory. He won the Royal Geographical Society's Polar Medal for that work in 1953.

He is still listed as director of the Falkland Islands Dependencies Scientific Bureau, a post he received in 1950. But he makes his home at his beloved Cambridge, where he relaxes by playing squash rackets and swimming.

Finishing the journey with Dr. Fuchs were the dog teams he has always insisted on having on his polar trips.

SOUTH POLE, Jan. 20 (UP)—As soon as he arrived, Dr. Fuchs sent a cable to Queen Elizabeth in London, telling her all his men were in good health and heart and that he expected to start the second half of the trek in a couple of days.

The Queen answered swiftly. "My husband and I send our warm congratulations to all members of the commonwealth trans-Antarctic party and our best wishes for the next stage of your journey to Scott Base," she said.

## FUCHS DESCRIBES TRIP TO THE POLE

### He Calls 350 Miles at Outset the Hardest Because of Numerous Crevasses

By DR. V. E. FUCHS

World © by The Times, London.

SOUTH POLE, Jan. 21—Leaving South Ice on Christmas Day, we have traveled 575 miles to reach the South Pole on Jan. 19. We are therefore 932 miles from Shackleton.

From South Ice our two dog teams moved up to seventy-five miles ahead of our vehicles column. Their task was to give radio warning of any crevassed areas to be avoided by the main column. As they progressed, they built snow cairns every five miles, which ensured that we could follow their route even though the sledge track had become invisible. Later, the dog teams joined the main column.

Shortly after we left South Ice our air party moved in and awaited suitable weather for their flight across the continent. On the first attempt, John Lewis was compelled to turn back owing to heavy icing, but a few days later we were delighted to hear of his Otter's safe arrival at Scott Base—an outstanding flight of 1,400 miles for so small an aircraft.

### Four Britons Fly One-Engine Plane Over South Pole

AUCKLAND, New Zealand, Jan. 6 (AP).—Four British airmen made history today by flying across Antarctica via the South Pole in a small, slow, single-engine plane.

They flew the aircraft, a Royal Air Force Otter, 1,600 miles from South Ice, the British base near the Weddell Sea, to Scott Base on the other side of Antarctica. The plane has a top speed of 160 miles an hour.

It took them just under 11 hours to make the flight never accomplished before by a small plane.

The plane, piloted by Squadron Leader John Lewis, passed over the United States base at the South Pole at 2,000 feet, then set course for Scott Base.

On the ground our seismic sounding of the ice shows that the ice thickness increases steadily southward. But in the vicinity of Lat. 88 degrees 30 minutes S. the rock base appears to rise to within 2,000 feet of the surface, whereas the general ice depth is of the order of 6,000 feet.

These soundings have been made at approximately thirty-mile intervals. But gravity stations have been maintained at ten to fifteen mile intervals. Our main problem has been a lack of sleep. Slow movement over great expanses of sastrugi (snowridges)—the widest was unbroken for sixty-five miles—or in white-out conditions (blinding blizzard) means long hours of driving.

Usually we pitch camp between 9 and 10 P. M. then bore a thirty-six-foot hole in which a seismic shot is fired. This takes two to three hours as the three-inch-diameter ice cores have to be laid out for glaciological examination by Hal Lister.

The firing of the shot is delayed till morning so that Mr. Lister's thermometers may remain in the bore overnight. At that depth he finds temperatures down to -52 Fahrenheit.

Vehicle repairs and relashing of sledge loads, refueling, radio schedules, and other tasks keep everyone busy until midnight.

By the time pemmican has been eaten and we are settled for the night there remains but six hours for sleep.

We believed that the most difficult part of the journey was 350 miles between Shackleton and South Ice. So far this remains true, for since leaving South Ice crevasses have been absent and we have had only to contend with belts of sastrugi at right angles to our route and with periods of white-out when even the surface before one is invisible and steering is by magnetic compass alone.

We were surprised to find that the last of the undulations and rough fields of sastrugi disappeared only fifty miles from the pole.

Two days before our arrival at the Pole on Jan. 19, Admiral Dufek, commander of United States antarctic activities, and Sir Edmund Hillary flew from McMurdo Sound to the Pole station. Together with the administrative and scientific commanders, Dr. Houk and Major Mogensen, they came out to meet us at a point some three miles from the Pole.

WELLINGTON, N. Z., Friday, Jan. 24 (Reuters)—Dr. Vivian Fuchs left the South Pole last night after a blizzard had delayed his departure.

The British explorer originally planned to leave at noon yesterday for the second stage of his coast-to-coast trek across the Antarctic continent.

## Neither Snow Nor Ice...

By the United Press.

SOUTH POLE, Jan. 20.—George Lowe, a member of the Antarctic expedition led by Dr. Vivian Fuchs, arrived at the South Pole yesterday after a 1000-mile trek across the frozen wasteland, and received his first mail since Nov. 24. It was an income tax statement from the New Zealand government.

# Fuchs Completes 2,100-Mile Journey Across Antarctic on the 99th Day



Dr. Vivian E. Fuchs when he arrived at South Pole.

By The United Press

SCOTT STATION, Antarctica, Sunday, March 2—Dr. Vivian E. Fuchs and his British expedition arrived here today, completing man's first overland crossing of the icebound Antarctic Continent.

Dr. Fuchs and his eleven companions reached the station on McMurdo Sound at 1:47 P. M. (8:47 P. M., Eastern Standard Time, Saturday). Ninety-nine days ago they had left Britain's Vahsel Base at Shackleton Station on the Weddell Sea, 2,100 miles from McMurdo on the other side of the continent.

The expedition, which was sighted two hours before the arrival as it appeared over the white horizon, made the last twenty miles of its trek under clear skies and in comparatively warm weather. The temperature was about 10 degrees above zero Fahrenheit.

Dr. Fuchs's group was surrounded immediately by members of the New Zealand scientists stationed here and Americans from near-by Operation Deepfreeze headquarters.

The New Zealanders formed a small band and played martial music as the Fuchs Sno-cat vehicles rode into camp.

The Americans presented Dr. Fuchs with a cake baked for the occasion by chefs at the Deepfreeze camp. The cake was decorated with red, white and blue icing and had the flags of Great Britain and

New Zealand.

Dr. Fuchs and his party had covered twenty miles in their last day's march. In the final leg of their journey they had been joined by Sir Edmund Hillary, New Zealand explorer and conqueror of Mount Everest.

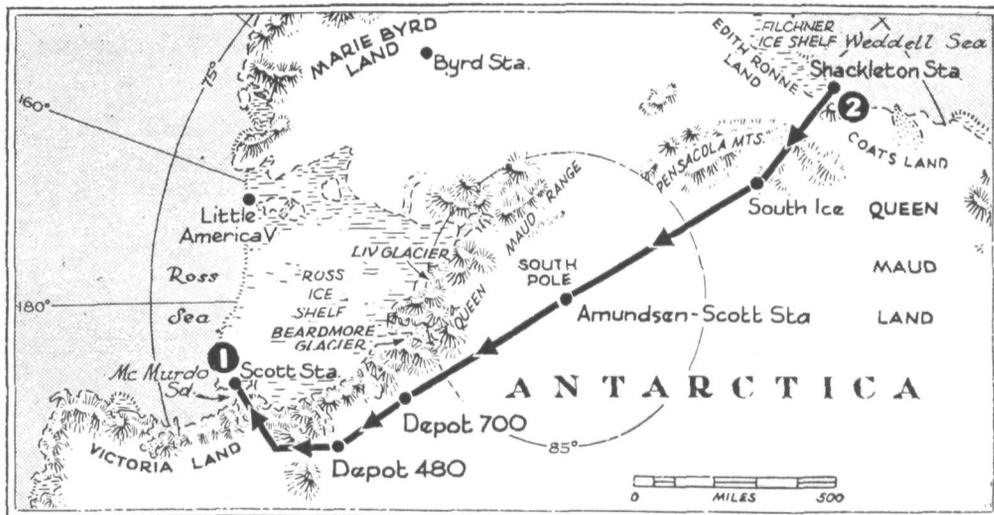
They broke camp at 10 A. M. at White Island, where they had rested for the final push. The 50-year-old Dr. Fuchs radioed that he was on the way and was sighted a short time later coming over the horizon. The observers had about two hours in which to make their final preparations for Dr. Fuchs' arrival. Besides best wishes, handshakes and back-slaps the Fuchs group was given what they appeared to appreciate most of all—hot food, warm huts and hot showers.

The group had been on the trail since Nov. 24.

Behind them lay untold snow-covered crevasses, each of which was a death trap, bitter cold, "whiteouts" that were worse than the heaviest fogs known in the western world, blinding snowstorms, and the fact that they were racing the oncoming Antarctic winter.

Time and again, the tractors broke down or tumbled into crevasses and had to be laboriously fished out.

During the early stages of the trip, the party crossed a 500-mile stretch called South Ice. There were no maps. The area never had been charted and no human foot ever had trod it.



Dr. Fuchs's Antarctic expedition reached its goal at Scott Station on McMurdo Sound (1), after a ninety-nine-day journey across the icy waste from Shackleton Station (2).

## FUCHS CELEBRATES ANTARCTIC CROSSING

SCOTT BASE, Antarctica, March 2 (Reuters)—Dr. Vivian E. Fuchs and his party celebrated today their 2,100-mile crossing of the Antarctic continent with a caviar-and-champagne party.

The 50-year-old explorer was told while taking a bath that he would be made a knight by Queen Elizabeth.

The Queen said in a message of congratulation:

"You have made a notable contribution to scientific knowledge and have succeeded in a great enterprise. Well done."

Dr. Fuchs replied that the Queen's words "make complete our happiness on this day."

AUCKLAND, New Zealand, Mar. 5 (AP).—Commonwealth Explorers Vivian Fuchs and Sir Edmund Hillary sailed from Scott Base for New Zealand today aboard the expedition ship Endeavour. The vessel is due in Wellington March 17.

## ANTARCTICA DATA CITED BY BRITONS

LONDON, April 16—Observations made by Dr. Vivian Fuchs on his recent overland in the South Pole have convinced most British scientists that Antarctica is a continent.

The alternative view was that Antarctica was composed of ice piled high around and above a number of mountainous masses.

However, it is not yet known whether the center of the continental block has been pushed

below sea level by the weight of the ice dome.

Also, it is not known whether Western Antarctica, bounded by the Pacific Ocean, is directly connected to Eastern Antarctica, mostly bounded by the South Atlantic and Indian Oceans, or divided by a trough running from the Ross to the Weddell Seas.

Dr. Fuchs may be able to clarify some of these problems when he returns to Britain May 12. He has already stated that the rock surface was "everywhere above sea level" along his route from "South Ice," his inland base in the Weddell Sea sector, to the Ross Ice Shelf at the other side of the pole.

## FUCHS IS WELCOMED BY BRITISH THROGS

LONDON, May 12—Dr. Vivian E. Fuchs received a hero's welcome today on his return to Britain after making the first overland crossing of Antarctica.

Dr. Fuchs and his party landed from the liner Rangitoto at Southampton, where they received a civic welcome. A special train brought the explorers to London, where hundreds waited at Waterloo Station to see the 50-year-old geologist and other British members of the Commonwealth Expedition who covered about 2,100 miles of frozen wastes to cross Antarctica in ninety-nine days. They broke their journey for four days at the South Pole.

LONDON, May 15—Queen Elizabeth II bestowed today the accolade of knighthood on Dr. Vivian Fuchs, who led the first land crossing of the Antarctic continent last winter. Nineteen members of the expedition received Polar Medals at the investiture at Buckingham Palace.

## BELGIUM SETS UP ANTARCTICA BASE

**Expedition to Map Unvisited Mountain Range and Join 10-Nation I.G.Y. Work**

June 1  
Despite formidable ice conditions that trapped its ships for almost a month, a million-dollar Belgian expedition has established a base in Antarctica.

The expedition's twofold purpose is to explore one of the most magnificent mountain ranges on that continent and to carry out observations during the International Geophysical Year.

The range has hitherto been seen only once or twice by ship-based fliers. American Navy pilots reported in 1947 that some of the peaks rose 13,000 feet. The photographs they took showed extensive areas free of ice and snow.

The expedition base is fourteen miles inland from the Princess Ragnhild Coast of Queen Maud Land. Its leader is Comdr. Gaston de Gerlache de Gomery, son of the Belgian explorer who led the first expedition to winter in Antarctica. The ship of the elder de Gerlache, the Belgica, was trapped in the ice for a year.

Both Commander de Gerlache and his deputy, Capt. Xavier de Maere d'Aertrycke, served in the Belgian underground during the war. Their pilot is Prince Antoine de Ligne, a member of the royal family. The cook, Baron Guy della Faille d'Huyss, is a man in his early thirties who volunteered to go along, no matter what his duties.

The explorers are equipped with three tracked vehicles—two American-made Sno-cats and one Canadian-made Muskeg. They have a single engine Auster plane on skis, a Bell helicopter, and twenty-four Greenland huskies.

The helicopter crash-landed on its first day of flying because of a "whiteout"—a visibility condition peculiar to the polar regions. It was repaired in four days, however.

A United States Army officer, Lieut. Col. James F. Wolaver, accompanied the expedition as American observer and has returned to this country. Reached yesterday by telephone in San Francisco, he spoke warmly of the hospitality of his Belgian hosts. The baron's cooking, he said, was magnificent.

Two Norwegian sealing ships, the Polarhav and Polarsirkel, brought in the men and their 450 tons of supplies. After struggling for six days in pack ice they reached the coast at Breid Bay on Dec. 26 and chose

## Russia Reports Biggest Iceberg

LONDON, Apr. 7 (UP).—The Moscow radio reported today that a giant iceberg—possibly "the largest discovered in our century"—had been spotted by the Soviet Antarctic Expedition near the Shackleton glacier.

The broadcast heard here said the iceberg, sighted by a Soviet expedition aircraft, was estimated to be some fifty-four miles long, eighteen miles wide and about 120 feet high. It was presumed to have split off from a ice shelf near the Shackleton glacier.

a spot for the camp. The site was fourteen miles southwest of their unloading point.

During helicopter flights between the ships and camp the mountains were clearly visible, about 200 miles inland, Colonel Wolaver said. Present maps disagree as to their location, but the Belgians hope to do a good mapping job on the area within 300 miles of their base.

Their camp is known as King Baudouin Base, in honor of their sovereign. They have renamed the bay King Leopold Bay for the previous ruler, who abdicated.

The worst encounter with the ice was when the ships started home. On Jan. 12, the day they departed, they became trapped in the drifting ice pack after having gone only fourteen miles. During the next twenty-nine days they were able to move only seven miles.

Fearful of being held in the ice pack throughout the winter, like the elder de Gerlache, they caught penguins for added food. Finally, however, they escaped and reached Capetown on Feb. 21.

The scientific observations scheduled at King Baudouin Base are typical of such stations in the polar regions. They include studies of the ice, the weather, geomagnetism, the aurora and other upper air phenomena.

The expedition, the first Belgian venture on the continent, is private, but four fifths of its million-dollar budget came from the Belgian Government. The rest was donated by industry.

Belgium has made no claim to Antarctic territory but, like the United States, recognizes no other claims and reserves its right to make one later.

The base consists of three prefabricated huts, made in Danbury, Conn. The first trip into the mountains will probably be made in the spring,



**NEW OUTPOST:** Belgium has based its million-dollar Antarctic expedition (cross) fourteen miles in from the coast of Queen Maud Land.

since winter is now upon them. The plan is to take extensive mapping photos from the air. Observations from the ground will pin down locations of landmarks.

Although the huts were up before the ships left, only recently were the installations completed and the first weather reports sent out by radio.

The mountains were first photographed by Navy fliers from the seaplane tender Currituck on Feb. 22, 1947. They reported two ranges parallel to the coast, the higher lying further inland.

Norwegian fliers saw at least one of these ranges on an earlier flight. The ranges appear to be part of a massive mountain system that extends for at least 1,000 miles across Queen Maud Land.

Five of the expedition members are technicians from the Belgian armed forces. The rest are now civilians.

Commander de Gerlache has been serving as legal adviser to a textile company and is still mayor of his home town of Mullem—very much in absentia.

## British Researchers Back From Antarctic

SOUTHAMPTON, England, May 14 (UP).—The royal research ship Shackleton returned to Southampton today from the Antarctic with twenty-one scientists and technicians on board.

## Italy Plans Antarctic Study

ROME, Jan. 9 (UP).—Italy will send a fourteen-man expedition to the Antarctic in 1958 to carry out scientific studies, the Polar Geographic Institute said yesterday.

## FRENCH POLAR HEAD HAILS COOPERATION

Paul-Emile Victor, director of French exploration in polar regions, said here May 22 that cooperation between Russian expeditions and those of ten other nations in Antarctica had been "excellent."

Weather data are exchanged daily, he reported, but mutual assistance "has not been only in words." He told of emergencies in which one expedition had assisted another. All are working together as part of the International Geophysical Year program.

M. Victor has been here and in Washington to coordinate the scientific efforts of French and United States expeditions at both Poles.

While the I. G. Y. ends next Dec. 31, nations with expeditions in Antarctica have agreed to continue research there. M. Victor said, however, that the French, because of a lack of funds, would not be able to continue manning Charcot, a coastal station where the temperature last winter went to 76.9 below zero.

In the last eleven years M. Victor has sent out fifteen expeditions. Only two men have been lost.

## Iccap 10,000 Feet Thick

PARIS, Jan. 18 (Reuters).—The French expedition in Adelle Land on the Antarctic continent has taken seismic soundings showing the iccap is almost 10,000 feet thick in some places. It was announced here today.

## Argentina Runs Antarctic Tours

BUENOS AIRES, Mar. 6 (AP).—The Argentine government offered something new for tourists this year—cruises to the Antarctic.

Two groups of 100 each spent vacations on an Argentine government ship touring Antarctic waters in January, which is summertime here. Hundreds more who wanted to go were turned away.

The tourists were flown from Buenos Aires to Ushuaia, southernmost Argentine city. There they were put aboard ship for a 10-day cruise. They traveled in perpetual daylight and were issued special clothing, boots and headgear to protect them from the bitter cold.

## Japan Whalers Short of Goal

TOKYO, March 17 (Reuters).—Six Japanese whaling fleets caught 4,700 tons of blue whale—155 tons less than their objective—in the 1958 Antarctic season that ended yesterday. It was announced here today.

## A 200-Mile Glacier Found in Antarctic

By WALTER SULLIVAN

June 7

Australian explorers in Antarctica have discovered a glacier that they estimate to be 200 miles long—comparable to the distance from New York to Boston.

This would be more extensive than any previously charted glacier in the world.

The discovery, and other recent achievements in the assault on the continent at the bottom of the world, were disclosed this week by Phillip Law, director of the Antarctic Division in Australia's Department of External Affairs. He has administered five successive expeditions that have operated on the Antarctic mainland.

Mr. Law was interviewed during a stopover in this city en route to England.

Lambert Glacier, as the new discovery is called, discharges into the Amery Ice Shelf, which, in turn, dumps its great, flat-topped bergs into the Indian Ocean. So far the Australians have mapped 140 miles of the glacier and the mountains flanking it on either side.

Mr. Law says the peaks bordering the glacier resemble dog's teeth. One, on the west side, contains horizontal beds of coal and beacon sandstone.

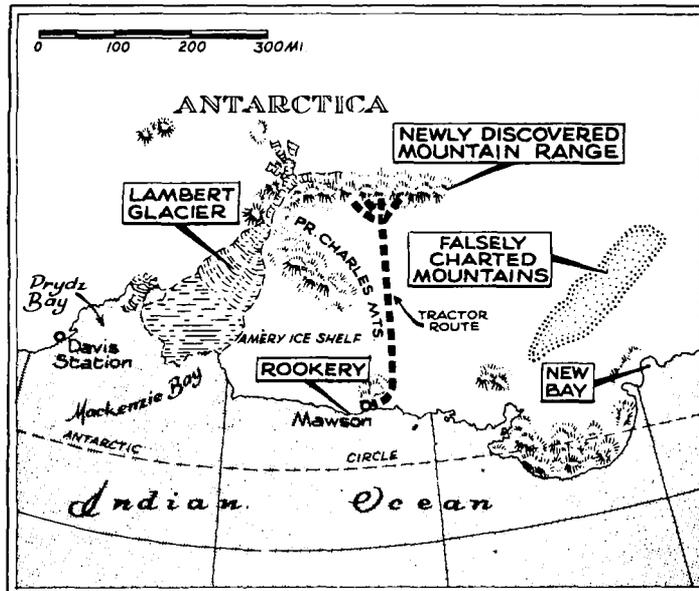
This combination is the geographic insignia of the continent's chief mountain range, the Great Antarctic Horst, on the far side of the central land mass. The discovery of this on the Indian Ocean side suggests that this mountain system may be more extensive than hitherto suspected.

The coal was described by Mr. Law as a six- to eight-foot vein of medium-grade soft coal. Its remote location makes its importance more scientific than economic.

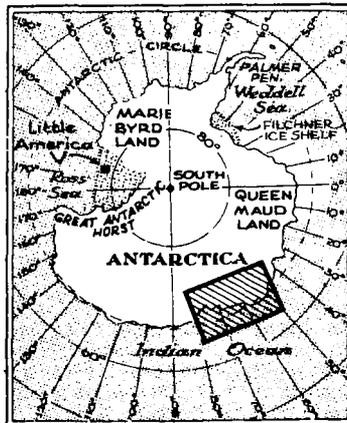
Among other achievements reported by Mr. Law were the following:

• Establishment of an automatic weather station at Lewis Island on the Coast of Wilkes Land in Longitude 133 degrees East. Batteries to operate the radio transmitter and instruments are recharged by a windmill. The station has been operating unattended for five months.

• Discovery of what is thought to be the largest Emperor Penguin rookery yet found. It is believed to be occupied by 24,000 of the bulky birds during the winter breeding season. They assemble on sea ice held fast by grounded icebergs twenty-five miles northeast of the main Australian base at Mawson.



Lambert Glacier flows between rows of mountains toward Indian Ocean. Its Australian discoverers also report finding a new Emperor penguin rookery, believed to be largest ever sighted, and a bay thirty by thirty-five miles in extent. Ice-sounding party traveled south from Mawson until blocked by 11,000-foot mountain range 400 miles inland.



Area of detailed map is shown by diagonal shading.

• Discovery of a bay about thirty-five miles deep and thirty miles wide, west of Amundsen Bay on the coast of Enderby Land. The bay has been explored by a party of men left there for ten days by a plane from Mawson, 350 miles to the east.

• Discovery that sea elephants congregate in Antarctica. These gigantic seals, often weighing more than a ton, were hitherto thought to be only occasional visitors. However, beaches have been found near Davis, the Australian station in the Vestfold Hills, where 400 or more haul out to moult in the summer.

• Completion of an ice-sounding trail journey to a mountain range 400 miles south of Mawson. The rock floor beneath the ice sheet was found to be mountainous and generally above sea level. At only two points, between sixty and 100 miles inland, was the rock below sea level. At the highest point traversed the ice surface was 9,500

feet above the sea and the ice sheet was 8,500 feet thick.

This journey, which was completed in February, encountered the same type of soft snow that helped block the attempt of a Soviet tractor train to reach the Pole of Inaccessibility. The Australians used two D-4 Caterpillar tractors, each of which hauled four sleds.

So heavily bogged down did they become on the plateau 300 miles inland that at times it was necessary to unhitch all the sleds and drive the tractor forward alone. Then the sleds were hauled slowly forward, one at a time, by a cable attached to the tractor winch.

The convoy had enough fuel to go another 200 miles, but was blocked by these conditions and by mountains, which rose to 11,200 feet from beneath the ice sheet.

The soft snow suggests to Mr. Law and other scientists that both the Russians and Australians have been nearing the "weather pole." This is the region of light winds at the center of weather circulation at the bottom of the world.

At the South Pole station manned by American scientists winds have been strong and steady and the snow surface has been comparatively hard packed.

At Mawson the winds have reached 140 miles an hour and perhaps more. In a storm last June the auroral observation hut, mounted atop the radio physics hut, was swept away.

The ice-sounding party of six was led by Keith Mather, who was in command at Mawson. New teams have now moved in, with twenty-nine men wintering at Mawson and four at Davis.

## AUSTRALIA EYES ISLAND

Hopes Russians Will Allow Station on Discovery

MELBOURNE, May 25—Sir Douglas Mawson, Australian Antarctic explorer, said tonight that an island the Russians claim to have discovered north of the Antarctic continent would be Russian property.

"But we've always found the Russians most helpful and they may well be prepared to give or lend it to Australia for a weather station," he said. "But it may be covered with ice and unsuitable for a station."

## COMPACT SOLAR STILL

Australian Antarctic Expedition Used It to Make Fresh Water

Solar energy has been utilized to operate a still for transforming salt water into fresh by the scientists of the Australian expedition at Davis Base in Antarctica, according to United Nations Educational, Scientific and Cultural Organization.

The still was manufactured in an Australian factory in Victoria on the basis of a simple, compact design. It is capable of making small quantities of purified water in any climate or conditions at low cost.

The apparatus can be erected and set in operation in thirty minutes. Once erected, it needs no maintenance except occasional cleaning.

## Fire Razes Antarctic Base

SANTIAGO, Chile, March 11 (AP)—Fire caused by an overheated stove destroyed the Chilean Antarctic base Dario Risopatron yesterday, the Foreign Ministry announced today. There were no injuries and equipment used for observations in the International Geophysical Year was removed without damage. O'Higgins Base now becomes the main Chilean Antarctic outpost.

## Whiteblooded Fish Found

MOSCOW, March 20 (AP)—Soviet biologists have found in the Antarctic a hitherto unknown species of whiteblooded fish, the Tass news agency said today. The agency said eighteen of the fish with no hemoglobin, the element that makes corpuscles red, had been found by members of the Zoological Institute of the Soviet Academy of Sciences.

## Dane Discovered Alaska

Alaska was discovered in 1728 by a Dane, Vitus Bering, under the sponsorship of the Czar of Russia. Russians made the first settlements at Kodiak and Sitka.

# ANTARCTIC AREAS FOUND VOLCANIC

Russian Thinks Two-Thirds of Land Off East Coast Was Once Eruptive

By BILL BECKER

WELLINGTON, N. Z., Feb. 21—Two-thirds of the area off the coast of eastern Antarctica is believed to be volcanic in origin.

This idea was advanced today by Dr. A. V. Jirago of the Soviet Union's oceanographic ship Ob. The area is dotted with comparatively young volcanoes, he told an Antarctic symposium.

He said that the area between the Heard and Prince Edward Islands was extremely complicated. Extinct underwater volcanoes ranged up to 3,000 meters in height, Dr. Jirago reported. Lava beds surround them, core samples of the bottom showed.

Dr. Jirago was chief marine geologist aboard the Ob, which has been conducting oceanographic studies in the Antarctic.

He also observed a deep depression more than twelve hundred miles long from the Davis Sea to King George V Land. He said this "represented the earth's crust rift along which Antarctic continent movements take place, caused by variation of its ice load."

Prof. V. G. Kort, chief oceanographer aboard the Ob, headed a group of Russian scientists who reported on Antarctic work during the International Geophysical Year. The eighteen-months study of the earth and its environment will end next December.

Soviet oceanographers emphasized the depth of Antarctic waters. In most places it was found to be up to 1,600 meters deep along the coast, or three times as deep as most continental waters—about 4,000 feet.

Other reports were by both United States and Russian geologists. Soviet scientists said that a number of samples of precambrian rocks had been obtained along the coast from Enderby Land to Cape Hallett. These are believed to be the most exhaustive collection of sedimentary rock yet made in east Antarctica. Most of these were first spotted by aerial reconnaissance.

## Whales Like Company

Sperm whales usually run in large schools, numbering perhaps several hundred.

# Russians Report Finding Island Between Antarctic and Australia

Scientists Seek Data on Area —See It as Ideal Weather Station Outside Ice Pack

By WALTER SULLIVAN

May 24

The Soviet expedition ship Ob is reported to have discovered an island in the vast open sea area between Australia and Antarctica.

If confirmed, it will be a remarkable discovery. The site is 450 miles from the nearest land—the Vincennes Bay area of Antarctica. Present charts, based on meager soundings, show the ocean to be more than two miles deep in the area where the island is reported to be.

Sir Douglas Mawson, Australia's noted Antarctic explorer, has said the island is believed to have an area of eighteen square miles. The Russians reported it lay 1,150 miles east-south-east of Heard Island, in Latitude 59.5 degrees south, Sir Douglas told an American colleague in a letter.

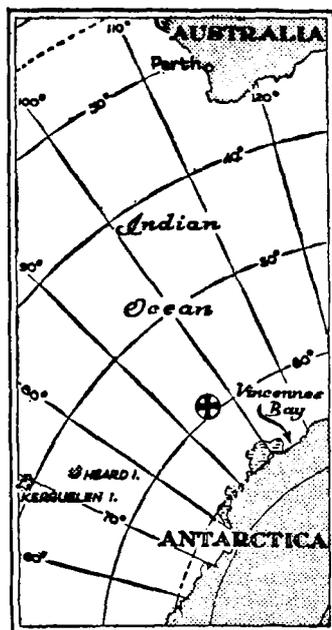
Australian scientists have written to Moscow, asking for more information about the island and its suitability as a weather station. Sir Douglas noted that it lay in an ideal location for such a station. Not only is it in a great blank area on weather maps, but also it is outside the belt of Antarctic pack ice and thus would be accessible all year.

The Australians maintained a station on Heard Island for several years, but closed it down because of its proximity to a French outpost on Kerguelen Island. Heard is largely capped with ice, except for a neck of land at one end, which was site of the station. The towering crater of Big Ben, an active volcano, dominates the island.

If existence of the new island is confirmed, Australia will undoubtedly hasten to establish a station there, for strategic as well as scientific reasons.

The Ob visited Adelaide, Australia, in March and then resumed exploring waters off the Antarctic coast. Sir Douglas said the island was discovered in April. He has, on occasion, exchanged messages with the Soviet expedition, but did not say how he learned of the discovery.

The Ob has been making ob-



The approximate location of reported island (cross).

servations along a series of lines extending seaward from the coast of Antarctica. These are designed to establish profiles of change in the ocean with movement toward more temperate waters.

Americans and Australians concerned with Antarctic exploration were surprised at the discovery of an island in this rather well-traveled region. Vincennes Bay is the site of an American station established for the International Geophysical Year. Exploratory ships have crisscrossed the general area and whaling ships have also combed these waters.

The Australians saw three whaling fleets during their Antarctic operations this last season. Novices are sometimes deceived by Antarctic icebergs, which often resemble islands.

The Russians are not likely to have made such a mistake, especially with the Ob. The ship's sonic sounding devices would show whether or not the bottom shoaled towards a suspected island.

## 114° BELOW REPORTED

Moscow Says Temperature Sets Record in Antarctica

LONDON, June 23 (Reuters)—The temperature plunged to a record of 114 degrees below zero recently at the Soviet base in Antarctica, Moscow radio said today.

The radio asserted the temperature was the lowest ever recorded.

# CONTINENT THEORY OF ANTARCTICA HIT

Ice Measurements by Soviet I.G.Y. Team Raise Idea of Area as Island Chain

MOSCOW, June 7—The theory that Antarctica is not really a continent but a string of islands covered by a huge ice sheet will get some support from Soviet findings in the Antarctic region.

This was suggested here with the publication of a sketchy preliminary report of Soviet discoveries during the International Geophysical Year. The report entitled "Initial Results" was compiled by V. A. Troitskaya, scientific secretary of the Soviet I. G. Y. committee, and published in the latest issue of the Journal Nauka i Khizn (Science and Life).

Soviet explorers were said to have measured the Antarctic ice at points as far as sixty-two miles "inland" from their main base at Mirny. The thickness of the ice cap was said to have varied from about 660 feet near the coast to nearly 5,000 feet at the farthest point from the sea. Throughout the area the lower edge of the ice glacier was found to be below sea level.

The report itself said that these findings again had brought up the old question of whether the rock surface beneath the Antarctic ice did not really amount to an archipelago of islands. Soviet scientists indicated they would not presume to answer the question without looking over evidence collected by other nations, but they thought that I. G. Y. expeditions would finally produce an answer.

Other glaciological studies near Mirny were said to have shown that the bottom of the Shackleton Ice Shelf lies below the ocean and that only some of its sections rest on rocky jutting. These studies were described as "comprehensive" and were said to have included seismic sounding of the ice cap.

## Red Launchings

By the Associated Press.

McMURDO SOUND, Antarctica, Jan. 9.—The Russians have notified American scientists they launched two meteorological instruments—apparently short-range rockets—with the aid of the ice-breaker Ob on Dec. 31 at Mirny, a Soviet station on the Davis Sea 1600 miles from here.

# SOVIET CONSIDERS ANTARCTIC TREK

## Scientists Will Watch Winter Before Seeking to Reach Pole of Inaccessibility

MOSCOW, March 22—Soviet scientists have indicated that they have not yet decided whether to press on in Antarctica later this year to establish a base at the Pole of Inaccessibility.

The Russians have a camp about 250 miles from that "pole" — the point in Antarctica farthest from the sea, which they had hoped to reach by now. The experience of the nearest station, called Soviet-skaya, in the coming Antarctic winter, will be the key factor in determining whether the Russians try to penetrate further, it was said here this week.

There are six Soviet bases in Antarctica. The directors of Antarctic and Arctic research reported on their activities at a news conference here today.

They pressed the previously made Soviet suggestion that the International Geophysical Year be extended because many countries had begun their research late and because "time is running short." The eighteen-month international cooperative scientific effort is due to end next Dec. 31.

The Russian scientists also said preliminary data had convinced them that Antarctica played a major role in influencing the weather of the world and that they therefore would intensify their interest in research there.

Prof. Boris Dzerdzhevsky, head of all meteorological research in the polar program, said the notion that either the arctic or antarctic was a "kitchen" cooking up regular changes in the weather was a great oversimplification. But preliminary data collected around both poles definitely show, he said, that no "wind barrier" or other phenomena prevent a constant exchange of atmosphere between the Northern and Southern Hemispheres.

Dr. Mikhail Somov, the chief of the combined antarctic research, said the Soviet expedition ship Ob had explored about two-thirds of the sea ringing Antarctica and that it had taken ocean soundings to a depth of more than 30,000 feet.

Soviet operations in Antarctica are based at Mirny Station. Another major station called Vostok is at the Geo-

magnetic Pole. Between Mirny and Vostok are two way stations, Pioneerskaya and Kom-somolskaya, named respectively for the Communist children's organization and the Young Communist League. The sixth, base, called Oasis, is on a part of Antarctica not covered by ice.

The following other points were made at the conference:

Soviet expeditions in Antarctica have found no fossils or remains; they have found the corpse of a walrus 100 feet from the coast and are studying it; Soviet expeditions in Antarctica have done no prospecting and have found no mineral or oil deposits; Soviet scientists are organizing twenty-three expeditions to Arctic regions this year including four ship cruises; a high-latitude air expedition will leave in a few days to relieve scientists who have spent a year at the Soviet floe station near the North Pole.

## RED STAR ON POLAR ISLE

### Soviets Land on an Antarctic Strip Claimed by Britain

LONDON, Jan. 4 (AP)—Soviet scientists were reported today to have landed on a bleak Antarctic island claimed by Britain.

The Moscow radio said the scientists had gone ashore on the uninhabited island of Zavadvovsky. The broadcast said that the island had been discovered 127 years ago by a Russian expedition under Admiral Thaddeus von Bellingshausen.

In London the Colonial Office said Zavadvovsky appeared to be one of the South Sandwich Islands claimed for Britain in 1775 by Capt. James Cook.

The Moscow broadcast described Zavadvovsky as almost inaccessible and covered with snow and ice. It said the scientists, attached to a research ship with a whaling flotilla, stayed ashore only long enough to collect scientific data and to erect a twelve-foot sign surmounted by the Russian star.

## Tokyo Welcomes Antarctic Ship

TOKYO, April 28 (AP)—The Japanese Antarctic expedition ship Soya, carrying 49 scientists and 79 crewmen, was welcomed home today.

Also aboard the icebreaker were 17 Japanese huskies, two canaries and a cat. The huskies include a mother dog and eight pups airlifted from Ongul Island, Japan's South Pole base.

The Soya limped home at about eight knots with one blade of a propeller broken and its rudder slightly damaged after it battled the Antarctic's thick ice packs to get into the open sea.



STRANDED in sea of ice, the Soya looks like this from the air. Photo of struggling ship was taken January 14, this year.

## Japanese Ship Blasts Out of Ice In Antarctica

TOKYO, Feb. 6 (AP)—The Japanese Antarctic expedition ship Soya radioed she broke into the open sea today from an icepack that trapped it for 46 days 1,500 miles from the South Pole, the Maritime Safety Board said.

The Soya, carrying a 50-man scientific expedition, jammed in the ice in Lutzow-Holm Bay off Cook Peninsula December 23, and later snapped the blade from a propeller trying to free herself.

Using dynamite and her reduced power, the 2,700-ton ship worked her way slowly out of the ice.

By the Associated Press.

TOKYO, Feb. 12. — Eleven Japanese scientists were evacuated by seaplane from the Antarctic expedition station today and flown to the Japanese rescue ship Soya Maru, expedition headquarters here reported.

The plane also carried six sled dogs and the headquarters here said efforts would be made to evacuate 18 dogs left behind at the base.

The Burton Island reached the Soya Maru Friday after the Japanese ship broke free from ice which held it for 46 days.

## URANIUM IN ANTARCTICA

### Japanese I. G. Y. Expedition Reports the Discovery

TOKYO, March 26—Japanese scientists reported today that they had discovered uranium in the Antarctic near the Japanese base on the Prince Harald Coast. Samples of the ore are being brought to Tokyo on the expedition's ship, the icebreaker Soya, for analysis.

Dr. Seiji Kaya, chairman of the Japan Academy of Science, made the announcement at a meeting of the academy's Antarctica Committee today. The Japanese sent an expedition to Antarctica as part of this country's contribution to the International Geophysical Year.

Dr. Kaya said that outcroppings of pitchblende had been found in beds of pegmatite on the Prince Harald Coast facing Lutzow-Holm Bay. He located the discoveries at points twenty-five and fifty miles south of the Japanese base at Ongul Island.

The scientists collected two to three kilograms of the ore for examination in Tokyo, Dr. Kaya said.

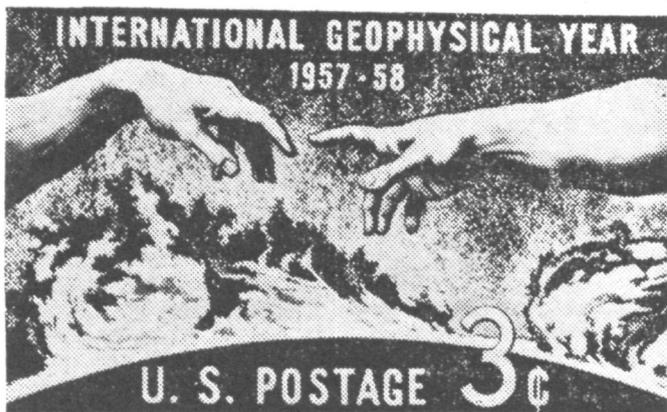
## Japan Plans Antarctic Trip

TOKYO, June 23 (AP)—Japan is planning another scientific expedition to the Antarctic this year, the Education Ministry said today. The team of thirty-eight scientists will be accompanied by one or two American scientists.

## Whales Great Travelers

Antarctic whales move thousands of miles each year to breeding areas in tropical waters.

## Stamp Inspired by Michelangelo



In the design for the stamp, Ervine Metzl incorporated a photo of the sun and detail from a work by Michelangelo.

WASHINGTON, March 28 (AP)—The Post Office Department said today that the 3-cent International Geophysical Year commemorative stamp would depict the sun in combination with a spiritual theme.

The stamp will go on sale May 31 in Chicago.

The central design is based on a photograph of the sun showing an area of intense solar activity. This is one of the phenomena being studied during the eighteen-month I. G. Y. period.

Superimposed over the solar disk is a segment from Michaelangelo's fresco, "The Creation of Adam." The segment shows the hands of God and Adam reaching out to each other.

Ervine Metzl of New York, who designed the stamp, explains:

"In the small confines of a postage stamp we have en-



**SPECIAL CANCELLATION**  
—I. G. Y. first-day postmark in Chicago May 31 includes a novel design.

deavored to picture a man's wonder at the unknown, together with his determination to understand it and his need for spiritual inspiration to further his knowledge."

Mr. Metzl has been a member of the Citizens' Stamp Advisory Committee since its inception in 1957. He is a free-lance artist, illustrator and designer.

The I. G. Y. stamp will be printed horizontally in special delivery size, and in two colors, black and orange.

## Eskimo Carries Mail 100 Miles by Dogsled

At least one mailman doesn't expect to benefit from the Post Office Department's modernization plans.

This mailman couldn't even use a mailbag, carrying cart or scooter if the Post Office supplied him with one.

Chester Noorwook, a 22-year-old Alaskan Eskimo, spends about seven months a year delivering mail on his 100-mile route by dogsled.

Chester handles what Postmaster General Summerfield says is the last of the Alaskan dog sled routes. About twice a week Chester and his 10 Huskies mush the 50 miles between Savoonga and Gambell, two villages on remote St. Lawrence Island.

The island is in the Bering Sea, 120 miles from the Alaskan mainland and about 150 miles below the Arctic Circle.

A contract carrier, Chester

lives in the Eskimo village of Savoonga. From November through May he and his dogs skirt the northern coastline of the island to Gambell. He usually takes a day to make this trip, unless they're slowed by a storm or a "soft trail."

The return trip from Gambell to Savoonga usually takes two days because the load, around 300 pounds, is heavier. Chester's heaviest load was in 1956, when he first began carrying the mail. A new missionary had more than 5,000 pounds of parcel

## Postmark Is Much in Demand

By RENNIE TAYLOR

AT THE SOUTH POLE (AP) — A corner of the mess hall at this IGY station contains the post office with a magic name for millions of people around the world. It has the coveted postmark "Pole Station, Antarctica."

It is the target of stamp collectors everywhere. People stirred by curiosity write to the station to find out how its 18 men live in the world's most hostile climate. Lonely women write in the hope of striking up "pen pal" friendships. And the station always gets its full share of official mail and packages from home.

Occupying a space less than 10 feet square, this post office probably is the most elemental of all operated by Uncle Sam. Its equipment consists of a hand-operated stamp cancelling machine, a bathroom scale, a letter box, a cabinet containing about 50 pigeonholes and a few rubber stamps.

The pigeonholes are for out-going, not incoming mail, because the Pole station sends back more letters than it receives. Stamp collectors send their covers to the station in packages. The covers, stamped and addressed by the senders, have to be sorted into bundles according to the states or countries of their destination.

This means more work than the postmaster, Louis B. deWit, Navy commissary steward from Ogden, Utah, can do. So other men of the station take turns helping him.

The stamp collecting part of the operation has become so heavy that the Navy has imposed a limit. Individuals are held to no more than five covers in each consignment. However, some of them have circumvented this by sending packages of five to several of the men here.

But the abuses are being overcome gradually. When deWit gets a package obviously containing large numbers of covers, he stamps it for return to the sender and it goes back unopened. Sometimes the scattered consignments from one

post sent to him at Savoonga. Chester and the dogs had to cart it in December weather. It took more than one trip.

From June through October, Chester carries the mail over the open sea in an Alaskan skin boat.

His boss, Savoonga Postmaster John Waghiyi, says Chester "has never had an accident although he has had trouble." The trouble, explains Mr. Waghiyi, is usually a storm or trail conditions.

"No wolves on island," he adds.

person are collected, repackaged and returned to the sender without benefit of the magic postmark.

From the financial standpoint, deWit says, the government is doing well on its polar post office. This is mainly because it has no scales that will weigh ounces or fractions of an ounce. A man who mails a letter hefts it and guesses its weight. To make sure it won't be stopped en route for insufficient postage the sender always errs on the side of generosity in using stamps.

Since Nov. 16, when deWit took charge, the polar post office has received 1,036 pounds of mail. In that time it has sent out 645 pounds of mail and has another 200 pounds ready to go. About 75 per cent of the outgo is addressed to stamp collectors.



### Argentina to Issue I. G. Y. Stamps

BUENOS AIRES, June 28 (AP).—Argentina next month will issue 5,000,000 40 centavo (4 cent) stamps symbolizing the International Geophysical Year. In black and red they show a map of the Antarctic.



OTTAWA, Jan. 25—A microscope symbolizing Canada's contribution to the International Geophysical Year program forms the design of a new stamp announced yesterday by William Hamilton, Postmaster General.

The stamp will be blue. To be issued March 5, it will be of the 5-cent denomination.

Under study in Canada is the I. G. Y. program in the North Magnetic Pole in the Canadian Arctic and the Maximum Aurora Belt.

## AL CHEESMAN, 58, CANADIAN PILOT

Aviator for Wilkins on Arctic  
and Antarctic Trips Dies—  
Twice Survived Crashes

TORONTO, April 3—Al Cheesman, Canadian bush pilot who flew planes in the Arctic and Antarctic for the famed Australian explorer, Sir Hubert Wilkins, died in a hospital yesterday in his home town of Fort William. He was 58 years old.

Mr. Cheesman was born in New Brunswick, left school early, but soon became an expert engine mechanic and turned to flying. His first formal job as pilot was with the Ontario Provincial Government Air Service, spotting forest fires.

He joined Western Canada Airways in 1926 and three years later was chosen by Sir Hubert for Antarctic work. After a spell of fisheries patrol work in British Columbia, he came back to Ontario and began prospecting and flying charter service out of Port Arthur.

In 1937, Sir Hubert called him North to aid the fruitless Arctic hunt for six Russian fliers who had vanished on a trans-polar flight.

Mr. Cheesman enlisted in the Royal Canadian Air Force in 1940 and was injured in a crash in which crew mates died. In 1943, he and two others were forced down in Labrador but were rescued by a ground party eight days later.

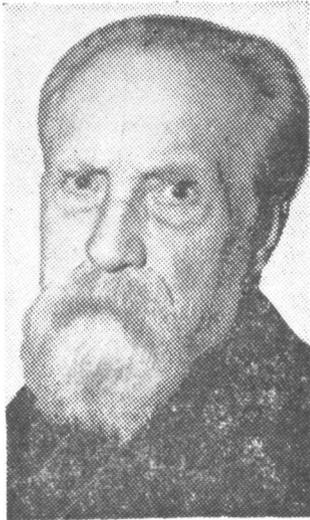
Versatile and self-reliant, Mr. Cheesman invented a pedestal that helped the attaching of skis to aircraft and had recently written a book on how to survive in the North.

### EUGENE F. McDONALD JR.

CHICAGO, May 15 (AP)—Eugene F. McDonald Jr., founder and chairman of the Zenith Radio Corporation, died tonight of cancer after a long illness. He was 68 years old.

To advertise a new short-wave set Mr. McDonald, in 1923, persuaded Admiral Donald B. MacMillan, explorer, to carry one on an expedition to Labrador. Two years later the radio man accompanied Admiral MacMillan as second-in-command of his National Geographic expedition to the Arctic. The expedition achieved the (then) remarkable feat of communicating with a United States Navy vessel in New Zealand waters, 12,000 miles distant.

The experiment sold Navy officials on the use of short-wave radio for communications purposes.



DR. HENRYK ARCTOWSKI

## HENRYK ARCTOWSKI, EXPERT ON WEATHER

WASHINGTON, Feb. 22 (AP)—Dr. Henryk Arctowski, an expert on world weather, died Thursday night in Suburban Hospital, Bethesda, Md. His age was 86.

Dr. Arctowski was attending the International Union of Geodesy and Geophysics in Washington in September, 1939, when his native Poland was overrun by the Nazis and Russians in World War II. He and his wife, who was an American by birth, never returned to Poland.

The couple lost everything they owned in the war, including Dr. Arctowski's records and library of more than 20,000 volumes. He was head of the department of meteorology and climatology at the University of Lvov, and director of the Geophysics Institute there, when he left to attend the Washington conference.

His collection of data on world-wide variation in atmospheric pressure, rainfall and temperature was begun when Dr. Arctowski was a young geologist on the Antarctic exploring ship Belgica in 1897-99. In 1951 an Antarctic peninsula was named for him by the United States.

Dr. Arctowski became a research associate with the Smithsonian Institution, where he studied the direct effects of changes on the sun on world climatic conditions. He served as a research associate for ten years.

### CARL DREUTZER

CHICAGO, May 16—Carl Dreutzer, retired lawyer and explorer, died yesterday. His age was 72.

Mr. Dreutzer, a former president of the Adventurers Club of Chicago, made several Arctic expeditions in which he collected seal specimens for the Field Museum of Natural History

## WEATHER MAN DIES ON ARCTIC ICE FLOE

WASHINGTON, Jan. 21—An American who had wintered in both polar regions died a week ago on a drifting ice floe near the center of the Arctic Ocean.

An Air Force plane was en route to him at the time, bearing a physician and an oxygen tent. The man's death was attributed to pulmonary edema, a congestion of the lungs with excessive body fluids.

The victim, Robert H. Jones, 25 years old, was a Weather Bureau meteorologist. He had spent the last winter night in Anarctica at Byrd Station, an outpost in the heart of Marie Byrd Land. He then volunteered to help man a station on an ice floe in the Arctic. Since seasons alternate north and south of the equator he pursued the winter night from one pole to the other.

Mr. Jones was a veteran of Arctic drift, having been stationed on T-3, an ice island that moves slowly through the Arctic Ocean. He left Boyd Station in November, reaching the ice floe on Jan. 5 to relieve another Weather Bureau observer.

A week later, after releasing a high-altitude balloon that was to radio weather information back to the station, he complained of feeling ill. His condition worsened rapidly and, although the Air Force medical corpsman on the ice floe attempted to give him oxygen, he died within twenty-four hours.

His home was in a rural area of Surry County, Virginia. He was unmarried.

### GEN. C. L. STURDEVANT

SILVER SPRING, Md., April 1 (AP)—Maj. Gen. Clarence L. Sturdevant, who supervised construction of the Alcan Highway between the United States and Alaska, died at his home here Monday. His age was 72.

General Sturdevant was assistant chief of Army Engineers at the time the highway was built early in the World War II period. A native of Neillsville, Wis., he was graduated from West Point in 1908.

He is survived by his widow, a daughter, a son, a brother, a sister and three grandchildren.

### World Whalers Confer

THE HAGUE, the Netherlands, June 25 (Reuters)—The international whaling conference here is expected to fix the number of blue whale units to be caught in the coming season at 14,500—the same as last season—delegates said here today. They said that the United States delegation would probably submit the proposal and voting would take place Friday—the last day of the conference, which is being held behind closed doors.



Lt. Comdr. Peter Bol

## CHAPLAIN AIR VICTIM

Comdr. Bol of Navy Was to  
Be Honored for Work

NORWALK, Calif., Feb. 2 (AP)—Lieut. Comdr. Peter Bol, a victim in the aircraft collision last night, was to have been honored in Washington, D. C., next Saturday night as "Navy Chaplain of the Year."

He was assigned to Port Hueneme after his return last fall from two years' duty in the Antarctic. A Protestant, he was pastor of the El Monte Trinity Reformed Church from 1951 to 1953.

## Sandy Smith, 99, Explorer and Prospector, Dies

SAN JOSE, Calif., June 24 (AP)—A famed Alaskan prospector and explorer, Alexander Malcolm (Sandy) Smith, died in the County Hospital today at the age of ninety-nine. Death was attributed to complications resulting from a broken leg suffered while visiting the Santa Clara home of violinist Yehudi Menuhin.

Several books have been written about him, he appeared in a dozen movies and had friends over all the world.

In the early 1920s, he once said, he was prospecting too close to Siberia, was arrested by the Russians, stripped of his belongings and imprisoned for three years. He escaped and stowed aboard a cargo ship bound for Shanghai.

Smith was second in command of the Sir Hubert Wilkins North Pole expedition in 1926, was a trail blazer for the Royal Canadian Mounted Police and was a member of the first geological party to go up the Yukon River in 1902.



National Academy of Sciences

Scientists who completed 1,000 mile trek from Byrd Station have taken rock samples from this newly discovered range. Survey flight, during which this photograph was taken, indicated that the range was at least 500 miles in length.



U. S. Navy

Fed by a series of glaciers, visible at left, this chasm, almost 9,000 feet deep in places, was visited recently by Dr. Troy L. Pewe, University of Alaska geologist. Some of the cliffs at right of the thirty-mile-long canyon rise 8,000 feet.