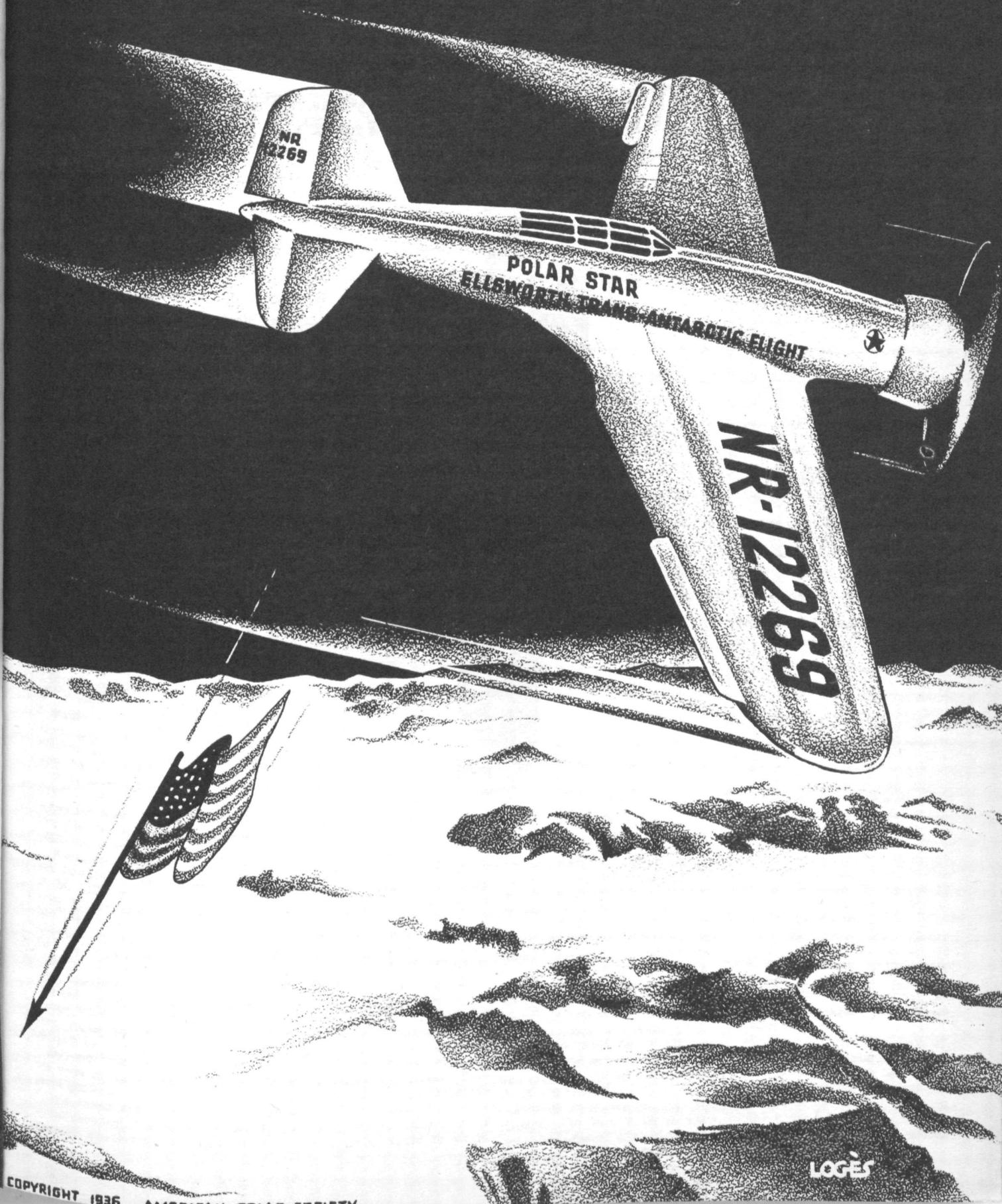


THE POLAR TIMES



NR
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POLAR STAR
ELLSWORTH TRANS-ANTARCTIC FLIGHT

NR-12269

LOGES

National Oceanic and Atmospheric Administration

The Polar Times

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No. 2

JANUARY 1936.

ELLSWORTH TELLS THE STORY OF FLIGHT ACROSS ANTARCTIC

Forced to Land 4 Times on Trip to Little Amer- ica, Once for Week.

By LINCOLN ELLSWORTH.

ABOARD THE DISCOVERY II, in the Bay of Whales, Antarctica, Jan. 17.—At last the transantarctic flight has been accomplished, but not without some difficulty. We were forced to land four times on the way and we were held up once for seven days, for three days of which a blizzard raged. On a previous landing we had been delayed for two days by bad visibility and snowstorms.

Finally our fuel gave out at Lat. 78 degrees 45 minutes S. and Long. 163 degrees 36 minutes W., which is about twenty-five miles from Little America. We remained for four days with the plane, doing our best to get in communication with the outside world, but our trail radio set proved ineffective and we had no more gas with which to run either the plane engine or the emergency engine for the radio.

Walked to Little America.

Failing to receive a response from our signals, we packed our sledge, hauled it to Little America and there found the radio shack in first-class condition, and in it we lived comfortably until yesterday, when the roar of an airplane overhead let us know that our lonely wait was over.

We realized that our plane radio set had failed shortly after 4:15 P. M. [all times given are Greenwich Mean] on the day we started, but there was nothing we could do about it in the air and all we could do was to continue.

Shortly after passing the plateau beyond the Hearst Land coastal range we crossed another range, which extended for seventy-five miles and the peaks on it ranged to 13,000 feet.

Beyond that to Little America we were above an enormous fairly level plateau.

We found our food and equipment excellent. The Polar Star performed wonderfully well and Hol-



Lincoln Ellsworth

lick-Kenyon [Herbert Hollick-Kenyon, his co-pilot] and I, except for a slight cold I picked up a few days ago, are in excellent health and are looking forward to joining the Wyatt Earp [Ellsworth's supply ship] on Sunday.

Flew Over High Plateau.

After passing the mountains of Hearst Land on our flight on Nov. 23 we flew at an altitude of 10,000 feet over a high plateau with isolated mountains at intervals. Then these gave way to an unbroken plateau.

At 4:15 P. M. we found that the radio transmitter failed to work,

and later we discovered that the switch and the antennae lead were defective.

At 5:45 P. M. I dropped the Stars and Stripes on hitherto unclaimed territory. At that time we were near another mountain range. At 7:35 we were right opposite the mountains, which seemed to extend for at least seventy-five miles and some of the peaks were 13,000 feet in altitude. The visibility so far on the flight was excellent and we could see for about 130 miles.

At 9:05 P. M. we ran into bad visibility and went down to 6,400 feet, then lower, and at last we

Explorer Becomes Only Man to Span Both the Polar Regions

ABOARD THE WYATT EARP, in the Antarctic, Friday, Jan. 17.—That Lincoln Ellsworth and his pilot, Herbert Hollick-Kenyon, are alive and well at Little America was the heart-quicken message flashed from the wireless of the Royal Research Society ship Discovery II to the Wyatt Earp, Ellsworth's supply ship, today.

The commander of the Discovery II is doing all possible to expedite the return of Ellsworth and Hollick-Kenyon to the ship.

That Ellsworth and Hollick-Kenyon are safe at Little America after the flight on which they set out from Dundee Island in the Weddell Sea Nov. 23 and have completed their oft-attempted transantarctic air journey is a record that reaches a high point in modern polar exploration.

Ellsworth has achieved his lifelong ambition and his flight is a magnificent contribution to Antarctic discovery. He is now the only man who has made both the transantarctic and the transarctic air journeys.

Details of his discoveries may not be available until he has had time to check his notes with the radio messages sent to his base ship during the flight, and since Ellsworth himself is not yet in close contact with a means of communication.

Walter Lanz, the radio operator on board the Wyatt Earp, is standing by, expecting that at any minute, through the courtesy of the Discovery II, he will be able to communicate directly with Ellsworth.

The Wyatt Earp is now almost through the pack ice guarding the Ross Sea and should reach Little America, if all goes well, some time Saturday night.

were forced to land. Our position was then latitude 79 degrees 12 minutes south, longitude 104 degrees 10 minutes west.

After some time the weather seemed to clear and on the 24th, at 5 P. M., we warmed up the engine and took off, but the flight was short. After flying for half an hour we were again forced down by bad visibility.

We stayed there until Nov. 27, on which date we started at midnight, but the weather had fooled us again and after fifty minutes in the air we had to land, this time in the worst weather we had experienced up to then. The clouds

thickened and snow was falling. It soon developed into a regular blizzard, which continued for three days without ceasing.

We were delayed at that camp until Dec. 4, when at 11:10 P. M. we were again in the air, but the visibility was poor and the wind uncertain, so we landed to fix our position definitely. We found this to be latitude 79 degrees 17 minutes south, longitude 153 degrees 16 minutes west.

Took Off Again on Dec. 5.

We took off again at 9 A. M. on Dec. 5 and flew on toward Little America. We were almost in sight of the Bay of Whales when our fuel, which had served us so well, finally gave out.

We fixed our position at Lat. 78.45 South, Long. 163.36 West, and knew that within a few hours we could on foot reach our destination. There was no need to hurry, so we remained with the plane for four days. Then, failing to get response to our signals, we packed our hand sled and tramped the few miles to Little America.

There we have been busy correlating the data we have gathered on the way. We have been most hospitably treated by Lieutenant L. C. Hill, the master of the Discovery II, and the officers of the Royal Research Society ship and are enjoying the comforts of civilization once again.

ELLSWORTH LAUDS FLIGHT EQUIPMENT

Plane Quickly Climbed 13,000 Feet at Take-Off With an 8,000-Pound Load.

By LINCOLN ELLSWORTH.

ABOARD THE ROYAL RESEARCH SOCIETY SHIP DISCOVERY II, in the Bay of Whales, Antarctica, Jan. 18.—The greatest contribution to our successful trans-antarctic flight was the wonderful performance of my Northrop airplane, the Polar Star, and the Texaco fuel and oil which has served us so splendidly throughout a great variety of conditions.

In a check-up on our plane's load when we left Dundee Island we found it to total just about 8,000 pounds. Actually we refrained from summing the total before we left for fear that, finding the load overweight, we might be inclined to reduce it. But the Polar Star's Wasp engine took in the power from the efficient fuel and lifted us clear of the snow in less than a half-mile run.

Quickly Climbed 13,000 Feet.

Naturally the machine, with her overload, was a little laggard after the start, but she climbed to 13,000 feet without difficulty. Without such fine performance it would

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have been impossible for us to cross the Hearst Land Mountains and continue our flight.

Again at our first forced landing because of low visibility, we came down on a plateau at 6,400 feet altitude and still with a heavy load got off again from that altitude without difficulty.

The first leg of our flight was of 13 hours and 15 minutes duration. In this time we had reached a point 1,450 miles in a direct line from Dundee Island, but, owing to the wind and clouds at the edge of Hearst Land, we had actually covered a great many more miles.

We stayed on the ground for seventeen hours, then started off. Half an hour's flying put us about sixty miles further ahead, but the visibility was so bad that it was useless to proceed.

This time we stayed in camp for fifty-four hours and a half. Even then conditions were none too good, but we determined to see if they did not look better from the air, so we took off. Fifty minutes of flying was enough to convince us that it would be foolish to proceed, as we could see that a storm was in the making. So down we came to the plateau surface, which at that point—Latitude 79.58 South, Longitude 114.15 West—was at an altitude of 6,500 feet.

Eight-Day Blizzard.

There we were forced to endure a blizzard. It started soon after we landed and continued for three days. We had landed on Nov. 27 at 5 A. M., Greenwich mean time, and the weather continued bad until Dec. 4, the eighth day after.

On that date we got started at 7:15 P. M., G. M. T., and flew on over the plateau until we reached Latitude 79.17 South, Longitude 153.18 West, having covered a distance of 660 miles in straight line in three hours and fifty-five minutes.

Until then we had been in the air a total of 19 hours and 5 minutes, and we knew we must be getting near the end of our gas. It was advisable to come down and make sure that our calculated position was correct.

We were right on the direct course for the Bay of Whales and within about 150 miles from Little America, so we headed out and hoped for the best. Our fuel lasted until we were practically within sight of Byrd's abandoned huts. Then we glided smoothly and silently to a landing.

We had found our camping equipment as well selected as our plane and fuel. I knew that the Wyatt Earp could not possibly reach us until some time after the middle of January, so there was no reason why we should not stay around with the plane for a while.

We firmly secured the Polar Star, which had sustained not the slightest damage during the flight, and after four days in camp started hauling our hand-made sled. It was not quite so easy as riding in the Polar Star, but that is a story I shall tell at another time.

However, we took it leisurely and on the sixth day arrived at Little America. It was then Dec. 15, nineteen days after we had left the Wyatt Earp.

**Perils of Antarctic Flight
Recounted by Ellsworth**

Blizzards, Intense Cold, Exhaustion of Airplane Fuel Beset Explorers—American Flag Raised Over World's Last Unclaimed Land.

By LINCOLN ELLSWORTH.

ABOARD THE MOTOR SHIP WYATT EARP, Jan. 21.—I am once more on board the Wyatt Earp. How good it was to see her again!

This staunch little ship had been my happy home for three long years. Better still, she brought the comrades I had come to like so well and among whom were six who had stuck with the expedition through three years of doubt and trial: Sir Hubert Wilkins, efficient adviser, without whose assistance the flight could never have been made; Walter Lanz, the wireless operator who always got through; Captain Olsen of the Wyatt Earp; Chief Engineer Harald Holmboe; First Mate Liavaag and Sailor Larsen. More capable men would be hard to find, and money could not purchase such loyalty as theirs.

Since the British, Australian and New Zealand Governments so kindly directed the Royal Research Society ship Discovery II to the Bay of Whales in case I should have needed assistance, I am accepting the invitation of the Discovery committee and Lieutenant J. C. Hill, master of the ship, to accompany him to Melbourne, Australia. There I can personally thank the authorities concerned for their friendly action.

Leaving Australia for the United States on March 4, I can call at New Zealand and perform a similar duty there.

Meanwhile my own ship, the Wyatt Earp, will remain at the Bay of Whales until the airplane Polar Star has been brought on board and then proceed northward to the edge of the ice, at which point her destination will be determined.

Sunday evening was foggy and cold, as the Discovery II, on which boat I have been so hospitably entertained, was slowly steaming back to the Bay of Whales from Discovery Inlet, sixty miles west, where she had been doing some scientific investigations. The captain sent word to my cabin that the Wyatt Earp could be seen through the fog. Yes, there she was after her long journey half-way round Antarctica to pick me up.

The two ships stood by throughout the night, and yesterday morning I came on board. Now we are busy preparing to bring the Polar Star to the ship, and my happiness is only marred by the sad news which has just reached us of the death of King George V.

With me came Herbert Hollick-Kenyon, who skillfully piloted the Polar Star across Antarctica. Our flight took us over a great area not previously seen by man, and it was with feelings of keen curiosity, not unmixed with awe, that we gazed at the great mountain ranges across which we flew and whose bold and rugged peaks rose sheer to an elevation of 12,000 feet above sea level. Then I suddenly felt supremely happy for my share in the opportunity of unveiling a continent for the last time in human history.

At 9:55 P. M. Greenwich mean time, on Nov. 23, after 13 hours 50 minutes flying, we landed on account of low visibility at Longitude 104:10 W. Latitude 79:12 S. Our altimeter showed a ground elevation of 6,400 feet above sea level.

World's Last Unclaimed Land.

We stood upon the only unclaimed land in Antarctica—in the whole world, in fact. With permission of the Department of State, I raised the American flag and named this area between Hearst Land on the one side and Marie Byrd Land on the other, or between the meridians of 80 and 120 degrees west longitude, James W. Ellsworth Land, after my father, who made the flight possible and who himself had been a pioneer.

The plateau above 6,000 feet upon which we were I named Hollick-Kenyon plateau, after my pilot.

We remained in this camp until Nov. 24, when we took the air again, only to land thirty minutes later on account of low visibility.

Nov. 27 saw us flying again at midnight. We landed 50 minutes later, just as such thick weather enveloped us that we could barely see to land.

No sooner had we pitched our tent than a blizzard broke upon us. For three days we lay in our sleeping bags, trying to keep warm and save fuel. The temperature was minus 5 degrees Fahrenheit. It was so cold that I had to take my fur parka from beneath my bed and draw it over my feet and legs inside the sleeping bag.

The wind was so strong that I thought surely the tent would go with us inside it, for the floor cloth upon which we lay was sewed to the tent. But it held, for the wooden pegs that held the guy ropes when driven into the snow freeze there, and even the 40-mile gale which was blowing was not enough to tear them loose.

When the blizzard abated, we were able to cut snow blocks and thus build a wall as a shelter to windward of our tent. The easterly wind—we had nothing but easterly winds all during our stay in this

THE START OF A GREAT ADVENTURE

camp—kept the tent bellowed in on the side Hollick-Kenyon was sleeping on, so that he kept crowding over toward me. Many times I found him almost on top of me. But we never slept much, for the wind came in blasts and the sudden jerks of the tent as the slackened guy ropes tautened was anything but reassuring.

The tent was of a light gray tint when we started, but it soon became darkened by the drift that clung to it and banked up against it and still more by the exhaust from the portable generator for the wireless. It was so cold outside—minus 5 Fahrenheit—that we had to bring the engine in the tent in order to get it started. The exhaust soon blackened the tent, and us too. Dirt and grease was the order of the day for us.

The only times we went outside the tent during the blizzard was to use the wireless twice daily and to fill our four-liter bucket with snow for water in which to cook our morning meal of porridge and boiled bacon and the evening meal of pemmican. Life in our tent was reduced to its simplest elements.

We carried on the plane two months' emergency food rations, which allowed 34 ounces per man per day; but we were not obliged to adhere strictly to the allowance, for we ate only twice a day. In the morning we each had a mug of oatmeal with dried milk and sugar and cubes of bacon boiled in it and with oat biscuit on the side. In the evening we had a mug of pemmican with oat biscuits.

Thrived on Simple Diet.

I thrived on this simple diet, just as in 1925 with Roald Amundsen I never grew tired of our menu of hot chocolate morning and night with oat biscuits and pemmican at noon. One evening over a mug of pemmican Hollick-Kenyon voiced what was in my mind when he said, "Maybe this is all meant to try us out," and I remembered the beautiful lines of the hymn, "So long Thy power hath blest me, sure it still will lead me on."

It might have been a slender thread indeed to which we clung, had we but given thought to it. There we were alone, the only two human beings on a continent larger than the whole of Europe.

Perhaps the thought of it brought us closer together. Catastrophe might easily stalk just ahead, should the frail man-made contrivance of metal and wood lying so inert and lifeless and buried deep in snow drifts beside our little tent grow tired of its silly mission and set us adrift 650 miles from our destination.

True, the coast lay some 300 miles to the northward, but even then there might be a hundred miles of pack ice between there and open water. There, there would be seals, of course, and perhaps penguins; but after that, what?

While one learns to accept disappointment and even defeat in these regions, the thought of a month's haul on foot was anything but inviting. All this I thought of when one morning we tried to start the airplane motor after warming it for an hour.

We were being buried deeper and deeper in snowdrifts until at last the condition seemed unbearable. If only we could get out of that hole and further on the way! So we attempted a start.

Of all the abominable jobs in the polar regions, next to men hauling sleds, the worst is shoveling snow. It is as dry and as fine as flour, sifts into everything and packs like a rock. After the blizzard we discovered that the whole inside of the tail of our plane was one solid block of snow.



Times Wide World.

Lincoln Ellsworth storing provisions in his plane before he and Herbert Hollick-Kenyon took off on their long flight.

Well, it took me one whole day to crawl in among the control cables and struts and with a bucket and a cup bail it all out, for I was more slender than Hollick-Kenyon.

Many small troubles harassed us in camp. The valve of our primus stove leaked, and we were required to pump continuously to keep the flame going; but at last we finally fixed it.

We were tired of staying in camp while there was still so far to go, but it looked as if we were not going to get started. Five times we cranked the engine, but the propeller, after a couple of turns, would stop with a choke. Hollick-Kenyon, however, knew better than I what was wrong, so he quickly connected our antenna wire from the radio battery to the starter. He had the propeller going in no time.

We emptied the plane of everything, and out we pulled from the deep hole in the snowdrifts. Then we loaded up again and took off into a sky that did not look any too promising. But on the horizon it was clear, and after a 3-hour-and-55-minute flight we again came down for an observation.

Night Is Windless.

It was a beautiful evening to camp. The snow sparkled like jewels. There was no wind, it felt good to be alive, especially as we were only 160 miles from our destination.

We slept little that night and took off again early in the morning to reach the northern end of Roosevelt Island, sixteen miles from the head of the Bay of Whales and Little America, although at the time we landed we did not know within a few miles of just how close we were. The confusion as to just where we were was due to the fact that we were using two maps which did not agree as to the location of the island. Our gasoline gave out before we could definitely locate it.

From the appearance of the sky, we knew that not far ahead stretched the ice-free waters of the Ross Sea, the goal of four years' dreaming. It was 10:03 A. M. when the Polar Star slackened in her speed and, like a weary bird, gently came to earth, completely out of gasoline.

We dug trenches for the plane's skis, weighted them down with some of our equipment and then pitched our tent. We knew that we were not far from Little America; and one morning, standing on the wing of the plane and looking ahead, Hollick-Kenyon saw what

Editor's Note

The officers of the American Polar Society felt confident that Dr. Ellsworth would succeed and authorized the editor to advance the press date from Dec. 31 to Jan. 31 to include his story.

he thought to be Little America.

Yes, there it was—the wind generator coated in ice and a long line of snow-covered objects which must be the houses—and only four miles away!

The next day, Dec. 9, we packed our hand-sled with three weeks' rations, leaving a considerable amount behind, and started out. Each of us had on a suit of camel-hair underwear, then a flannel shirt with light breeches over which we wore "windbreakers"—that is, parkas and pants of balloon silk. On our feet each of us wore two pairs of heavy socks, then Indian moosehide moccasins and over these a pair of high canvas boots reaching to the knees and soled with rubber.

Before starting the flight we had debated whether we should take skis or snowshoes. We discarded the skis, then took them out and substituted three-foot snowshoes. And well that we did, for drawing a sledge over the ice-coated sistrugi surface, we never should have gotten any place with skis. The four miles proved to be fifteen and, instead of Little America, we came to only a pinnacle of ice in the midst of a huge pressure ridge.

Well, we had left the plane without tent or sextant, hoping to find shelter in Little America. So, leaving our sled, we started back for these two necessary items.

We rested an hour at the plane and then started back for the sledge. It was a weary march. The snow was soft and wet and the sun beat down out of a cloudless sky and made us sweat for the only time during the twenty-two day journey.

Because of heavy hauling, we decided to sledge by night and sleep by day. But the good weather lasted only two days, then it turned foggy with biting wind. For the first two days we traveled west, then north. Hollick-Kenyon took bearings with his pocket compass and we estimated our speed to be

two miles per hour. We would pull for fifteen minutes, then rest for four. And so on we went, calling six hours a day's work.

Dec. 12 was overcast and misty. We had made twelve miles, and I pointed ahead to where a dark streak broke the dull vista of endless white. It could only be one thing, open water, we both agreed.

Pitched Tent Facing the Sea.

That night we pitched our tent to face it. By the following noon we expected to reach it. We had long strips of fried bacon and plenty of hot grease, into which we crumpled our oat biscuits, and a mug of oatmeal.

I was feeling pretty happy until I took off my socks to dry them and found the whole of one big toe a single water blister. It had been without circulation and as feelingless as so much wood ever since camping on the high plateau, where I must have frostbitten it.

It bothered me all the rest of the journey, and any friction against it, such as the rubbing of the snowshoe gear, would cause it to burn badly. I was fearful lest it freeze again before we reached our destination.

That night we filled our primus lamp with the last of our gasoline, which amount, at the rate we were using it, would last us for four days.

On Dec. 13 we looked out of the tent to see everything enshrouded in mist. Although we traveled all day in the direction in which we thought the open water lay, it seemed that never again were we to get a glimpse of it.

As the day before, we traveled entirely by compass bearings. Three ivory gulls circled above us at noon as we rested on our sledge, eating nuts and chocolate. In the late afternoon, through the mist ahead, we could distinguish the crest of a ridge and thought it odd on the flat barrier surface.

Surprised to Find the Sea.

We hastened our march, thinking to get an extended view and perhaps see the sea. We heard what we imagined to be the lapping of waves, but surely it must be the drifting snow over the crest was our conclusion. We mounted the ridge and looked straight down into the Ross Sea. We were standing at the very edge of the Great Barrier.

We retraced our steps and camped that night about a mile back. The barrier face is always breaking away and we did not want to be dumped into the sea just as our goal had been reached.

Our observations next morning put us about fifteen miles north of Little America. We had evidently passed it in the thick fog, so back we must trudge. We later found that we had been three miles east of the eastern end of the mouth of the Bay of Whales.

The bay itself had not begun to open as yet, and a wintry scene indeed it looked. The Bay of Whales, 16 miles deep by 5 miles wide, is a pretty small dot on the map of Antarctica, and Little America, which lies at the head of the bay, is even smaller. It was really remarkable to find either at the end of a 2,000-mile flight, followed by a trek on foot for six days.

We remained in camp on Dec. 14 and on the 15th followed the edge of the Bay of Whales to Little America, reaching it just twenty-two days after leaving Dundee Island.

One does not see Little America until he tops the crest of a ridge, which is itself unobservable from any distance, for topographical features all become merged into a white expanse that stretches endlessly ahead. Once on the crest,

there lies Little America, right at one's feet in a sort of "draw."

It is rather breath-taking to suddenly come upon something black in the limitless expanse of white. I looked down upon a jumble of telegraph poles and radio masts and the oil wells of California came to my mind. The poles and towers were to be seen, but where were the houses? There were not any in sight, but closer inspection showed the tops of a dozen or more stovepipes sticking out of an undisturbed snow surface. It looked just as though some gigantic plant had taken root there and was forcing stubby shoots upward.

But we were glad after a 15-mile haul that day, Dec. 15, to find anything that indicated a house. Digging around, we found a skylight, pried it open and by means of loops knotted in our sledge rope—a trick I learned in Switzerland last Summer and which is used to get out of a cravasse—we climbed down to find ourselves in the radio shack.

Quickly we decided to make this our home. It consisted of two rooms with a double tier of bunks lining the wall of one side and a stove in the middle. Both rooms were partly filled with snow that had sifted in. How good it seemed after twenty-two days to find ourselves enclosed by four walls and where we could sleep to our hearts' content, undisturbed by the perpetual daylight and the glare from the snow that had so disturbed our rest since we left the Wyatt Earp.

Found Fuel and Food.

Next day we went on a foraging expedition and found two sacks of coal and half a drum of fuel for

our primus stove, which we used for cooking. We also found a sack of "hard tack" biscuits and a can of bully beef, partly buried in the snow outside.

We dug a shaft and cut steps in the side of it so as to be able to get in and out of the door of the shack without having to enter through the skylight. We found other skylights and were able to obtain quite an assortment of odds and ends, such as flour, jams, sauces, &c., which we enjoyed, for we had left some of our food with the plane.

Nevertheless, we still had with us at Little America of our own grub supply enough oatmeal and pemmican to last three weeks longer. We then settled down to await the arrival of the Wyatt Earp, whenever that might be.

The following is a page from my diary:

"Dec. 25, Christmas Day; but we have already celebrated Christmas. We celebrated it a day too early and would not have known it except that when walking down to 'Versur-Mer' the clouds cleared, and there was the sun with a great dark light in it; and we remembered that on Dec. 25 there was a total eclipse of the sun.

"In a few moments shadows darkened our world of glittering white. Night turned into day again. Such is an eclipse in the Antarctic.

"I guess the seals and penguins wondered what it was all about. Yesterday (our Christmas) we found a small home-made plum pudding tucked away on a top shelf in the cabin, and it made a real Christmas for us, what with the remains of a small bottle of cognac given me by my wife and carried

for these three years on the Wyatt Earp.

"Our normal daily routine is as follows: Supper around 9 P. M.; in our sleeping bags until 3 or perhaps 4 P. M. the following day. A light meal of perhaps oatmeal with raisins and tea, then clean up our cabin—perhaps clean up the dishes, but that depends upon how clean they have been left from the last meal—and melt snow for the evening meal. Then I take a walk of six miles to the tractors at the Bay of Whales, look out to sea for the Wyatt Earp (although I know she can't be here as yet), then return home, generally to find that Hollick-Kenyon has broken the skylight of another cabin and found another sack of coal or more bottles of Worcestershire sauce, cans of tobacco, magazines or marmalade.

"Hollick-Kenyon makes bannocks of the self-raising flour we found, and we have coffee, also rummaged, that can't be beat for flavor. And after a stew of bully beef, rich with chili sauce, we settle down in our bunks for a quiet smoke until bedtime.

"Perhaps tomorrow I can tell something of our discoveries and conclusions."

Only Polar Views of '36 Eclipses.

Eskimos, Antarctic explorers and others whom duty keeps in the polar regions will be privileged during 1936, for they will be about the only ones to witness the four eclipses, two of them of the sun, which occur in a lean year for astronomical phenomena, says The Canadian Press.

ELLSWORTH FOUND ANTARCTICA 'SPINE' OF MOUNTAIN PEAKS

Ranges and the High Plateau Discovered May Be Units in One Great System.

By LINCOLN ELLSWORTH.

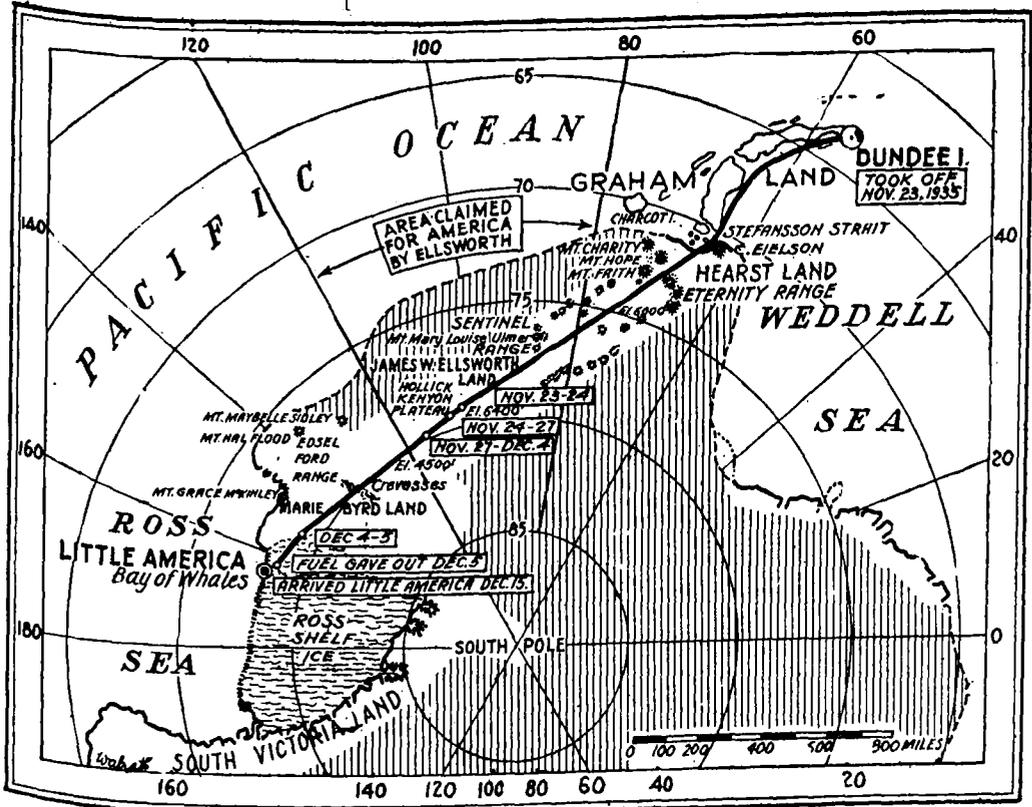
ABOARD THE MOTOR SHIP WYATT EARP, Jan. 22.—We had planned to make the 2,200-mile transantarctic flight in fourteen hours if the weather held good throughout the journey, but, as you will see, it took us twenty-two days to go from Dundee Island at the head of the Weddell Sea across the continent to the Bay of Whales in Ross Sea. This fact, however, upholds the theory upon which my original plans were based.

It seemed to me that the only really safe and sensible plan in regard to such a long flight over unknown topographical conditions and from where it was impossible to get any meteorological data for weather forecasting was to set out in fine weather, fly as far as the weather was good and, if the point reached was more than 500 miles from our base, land at the edge of the bad weather and wait for it to clear.

By landing while still in good weather a suitable surface for a landing could be selected, and furthermore by so doing we could augment our observations. From the very start my whole organization was built upon that plan. I selected a low-winged Northrop monoplane not only because of its supreme efficiency but partly because its low wing and pedestaled landing gear were the best available for fastening the machine to the snow in case we should have to land and lay over throughout a blizzard.

The Texaco fuel and oil were selected because of their known efficiency in all temperatures. My pilots were selected for their proved ability to care for their machine under all conditions and for their known quality of being equal to all emergencies.

At 3 A. M., Greenwich mean time, Nov. 23, Herbert Hollick-Kenyon and I left the Wyatt Earp, which was at the ice edge on the border of Dundee Island, and climbed the 500-foot slope to where the low-winged Northrop monoplane Polar Star stood groomed and ready for the flight. Her gross load was between 7,800 and 8,000 pounds, the weight of the plane itself on skis was 3,614 pounds, so the disposable load was in the neighborhood of about 4,200 pounds. We did not know exactly. Not knowing the quality of the plane, we refrained



ELLSWORTH ENDS MORE OF UNCERTAINTY IN ANTARCTICA.

The map shows explorer's route from Dundee Island to Little America. The shaded area is still part of the unknown. The section between 80 and 120 degrees west longitude was claimed for the United States and named James W. Ellsworth Land for the explorer's father. The three newly discovered peaks he named Faith, Hope and Charity. The new mountainous group he called Sentinel Range and the highest peak in it he named Mount Mary Louise Ulmer, for his wife. The plateau, above 6,000 feet, on which the fliers landed after thirteen hours in the air, was named Hollick-Kenyon Plateau.

from worrying about a few pounds overweight.

At 8:04, Greenwich meridian time we took off into an almost cloudless sky, climbed fairly steeply and headed south. We followed the already explored east coast of Graham Land for 500 miles until we came to Stefansson Strait and confirmed Sir Hubert Wilkins's discovery of a separation between Graham Land and the continent of Antarctica proper.

We observed this strait to be not more than a mile or so wide, which is much less than that shown on maps. For the first 300 miles of the flight and to about Latitude 62 South we found the Weddell Sea quite open, which seemed surprising so early in the season. At 12:22 P. M. we crossed Stefansson Strait. The compass bearing of the coast was S. E. 138 degrees and W. 242 degrees. The low black, conical peaks of Cape Eielson rose conspicuously out of the mantle of white on our left. We had climbed to an elevation of 13,400 feet, where the temperature was 7.6 degrees below zero Fahrenheit.

We were now over the unknown, and it was with a feeling of awe and curiosity we gazed at the bold and rugged mountain peaks across which our route lay ahead. Some of them seemed to rise almost sheer to 12,000 feet, and they extended as far as we could see. This range I called Eternity Range, and the three prominent peaks we passed at 2:25 P. M. on our right I named Mount Faith, Mount Hope and Mount Charity.

Strikingly contrasted to these rugged Hearst Land mountains were the low-topped Graham Land ranges we had been following south which dwindled down into isolated peaks as they neared Stefansson Strait. Both ranges are undoubtedly of sedimentary formation.

The Hearst Land mountains, or at least the section over which we flew, were a loosely formed range with none of the crowded topography of peaks with glacier-filled valleys and high crevassed bottoms such as pictures of the Queen Maud range show.

Merge Into Snow Plateau.

We saw neither glaciers nor crevassed surfaces in crossing. At 3:30 P. M. the mountains beneath us dwindled out into isolated nunataks and merged into a great snow plateau surface with an elevation of between 6,000 and 7,000 feet. Isolated patches of sastrugi appeared at intervals on our right during the following half-hour, but no crevasses. At 4:45 P. M., on the distant right horizon, a mountain range became visible with isolated black peaks which faded out twenty minutes later. At 5 o'clock a few more peaks showed on the same horizon.

From 5:20 to 5:45 mountains 120 to 140 miles distant appeared on our left horizon; also a few peaks on the right horizon. At 6:20 o'clock it became very hazy ahead; below it was dead flat, with a patch of sastrugi on our left. One hundred ten miles further on we came aboard of a solitary little range about seventy-five miles long on left to which I took bearing. It was symmetrically formed, with peaks rising to 13,000 feet and all clustered into a central mass which dwindled down at either extremity to merge into the plain around.

I named it Sentinel Range and its central peak Mount Mary Louise Ulmer, for my wife. Fifteen minutes later on the south horizon and 100 miles distant appeared a long black-topped range which visibly extended through at least one de-

gree latitude.

This appeared to be the last of the mountains we were to see, for ahead and around swept only a vast plateau meeting the horizon in a vista of white. Our visibility throughout the journey so far had been from 120 to 150 miles, for we were flying at an average of 10,000 feet in clear weather. At 9:55 P. M., after 13 hours and 50 minutes flying, the visibility was getting low so we landed and fixed our position as Latitude 79:12 South, Longitude 104:10 West. Our altimeter here showed the surface elevation as 6,400 feet and the plateau extended with slight undulations in every direction.

Our next landing at Longitude 107:55 West, Latitude 79:30 South was at about the same elevation. Again at Latitude 79:58 South, Longitude 114:15 West, it was within 200 feet of the same level; our altimeter showed a height of 6,300 feet. This point seemed to be about the end of the level plateau which had extended from the last seen mountains, for on Dec. 4, after leaving at 7:15 P. M., we found ourselves an hour and a quarter later about 140 miles ahead, at an elevation of 4,500 feet.

Plateau Drops Toward Barrier.

From here the plateau with undulations seemed to drop toward the Ross Sea barrier. At 10:04 P. M. we were over crevasses and at 10:40 we estimated the surface to be at an elevation of about 1,000 feet. We landed at 11:10 at an elevation of 980 feet at Latitude 79:15 South, Longitude 153:16 West.

The snow condition on the high plateau was granular and hard packed, so hard that the skis of the plane made little impression, and each time we landed it was easily possible to pick out smooth surface free from sastrugi. During the blizzard which we experienced at Latitude 79:58 South, Longitude 114:15 West, the wind was from the east to southeast and the snow was of a hard fine-grained texture.

Throughout the whole period of flight over the continent the drift in relation to our course was never more than five degrees, and constant toward the same direction. In fact, during the whole middle section of the flight from the time of reaching the high plateau until we started on the down grade to the Ross Barrier we did not have anything but easterly and southeasterly winds.

Only twice did it blow from the north and then only for short intervals. It never did blow from the west. Once on the down-grade and after reaching the barrier itself the winds were from the south. All told we were in the air 19 hours 5 minutes. The actual mileage covered has not yet been determined. From the start to where we finally landed the Polar Star, the time on the way was thirteen days and two hours.

From where we left the plane to Little America was only about twenty miles in a direct line, but because of confusion caused by maps issued at different times we had some difficulty in locating Little America. At last, after twenty-two days from the start of our flight we reached Byrd's abandoned camp. When over the mountain area I was able to take many photographs but once over the plateau there was little to be shown on a photograph.

Science Demands Proof.

It will be some time before I will be able to correlate all the information gathered. Even then science demands proof; but does not the evidence of these lofty mountain ranges and high plateau discovered on the flight carry the thought that

they are but units in a great mountain system that traverses Antarctica?

Does it not indicate that the Highlands of Graham Land must be regarded as a continuation of the South American Andes, linking the mountains of Victoria Land on the Ross Sea, of which the Queen Maud range itself is but a connecting link, in a great mountain chain that forms the backbone of Antarctica? Does it not also indicate that a sea-level channel between Weddell and the Ross Sea does not exist?

Well, my flight of discovery is over, yet there are still vast untrod areas at this end of the earth—regions of heights and depths and cold still touched with the mystery and the romance of the unknown. Great is their lure, but, what is more, they are all parts of our heritage; and it is man's duty to explore them; for the data of natural

sciences are like a gigantic jigsaw puzzle and we cannot show the whole of the picture while some of the parts are missing.

Antarctica, with its 5,000,000 square miles of area, 75 per cent of which remains unexplored, is still a problem to be solved. After six polar expeditions my enthusiasm has not dimmed. The love of great adventure is not an acquired taste; it is in the blood. Will I be tempted again? Who can tell, for

"Who has known heights and depths shall not again know peace, not as the calm heart knows.

Low ivied walls, a garden close, The old enchantment of a rose, And tho' he tread the humble ways of men,

He shall not speak the common tongue again. . . .

Who has trodden stars seeks peace no more."

ELLSWORTH FILLS IN A GAP IN ANTARCTICA

His Flight and Landings Suggest That The Airplane May Yet Unveil All the Mysteries of a Vast Continent

By RUSSELL OWEN.

Lincoln Ellsworth's flight of 2,100 miles across Antarctica has revealed some suspected but nevertheless highly interesting facts as to the mountain-pierced land over which he traveled, and, taken in connection with the flights of the last Byrd expedition, pretty well cleans up the mystery of this hitherto unknown section of the continent. It was no less prolific in information than in its daring method, for there are few polar explorers, particularly those who have been to the Antarctic, who will not feel that Ellsworth was as lucky as he was courageous.

The thing which marked Ellsworth's flight, aside from the distance covered, was that when the weather became too thick for flying the plane was landed and Ellsworth and his pilot went to bed in their sleeping bags to wait for it to clear. That they were able to do this again and again makes their flight different from any other made in the Antarctic. On Byrd's last expedition twelve or fourteen landings were made away from the base, but they were not at a great distance.

Ellsworth cut loose from his base and took the desperate chance of flying 2,100 miles, hoping that his engine, his fuel supply and fairly good weather would hold out until he reached his destination. It was a magnificent gamble, and that he made it is due to his navigation, and to the ability of his pilot, Hollick-Kenyon, who was trained in the Arctic.

There is no doubt now that Ellsworth's flight is the most important

yet made in the Antarctic; for although Byrd's finding of the Edsel Ford range and the eastern boundary of the Ross Sea was a remarkable discovery, Ellsworth's flight is unique because of the distance covered and the concentrated discovery that was packed into the three-week trip. Some of Byrd's discoveries overlap those of Ellsworth, for the western edge of the plateau behind the Edsel Ford range, which Ellsworth has named after his pilot, Hollick-Kenyon, was seen by members of the former expedition, and the long rise to the plateau was surveyed by them up to 4,000 feet.

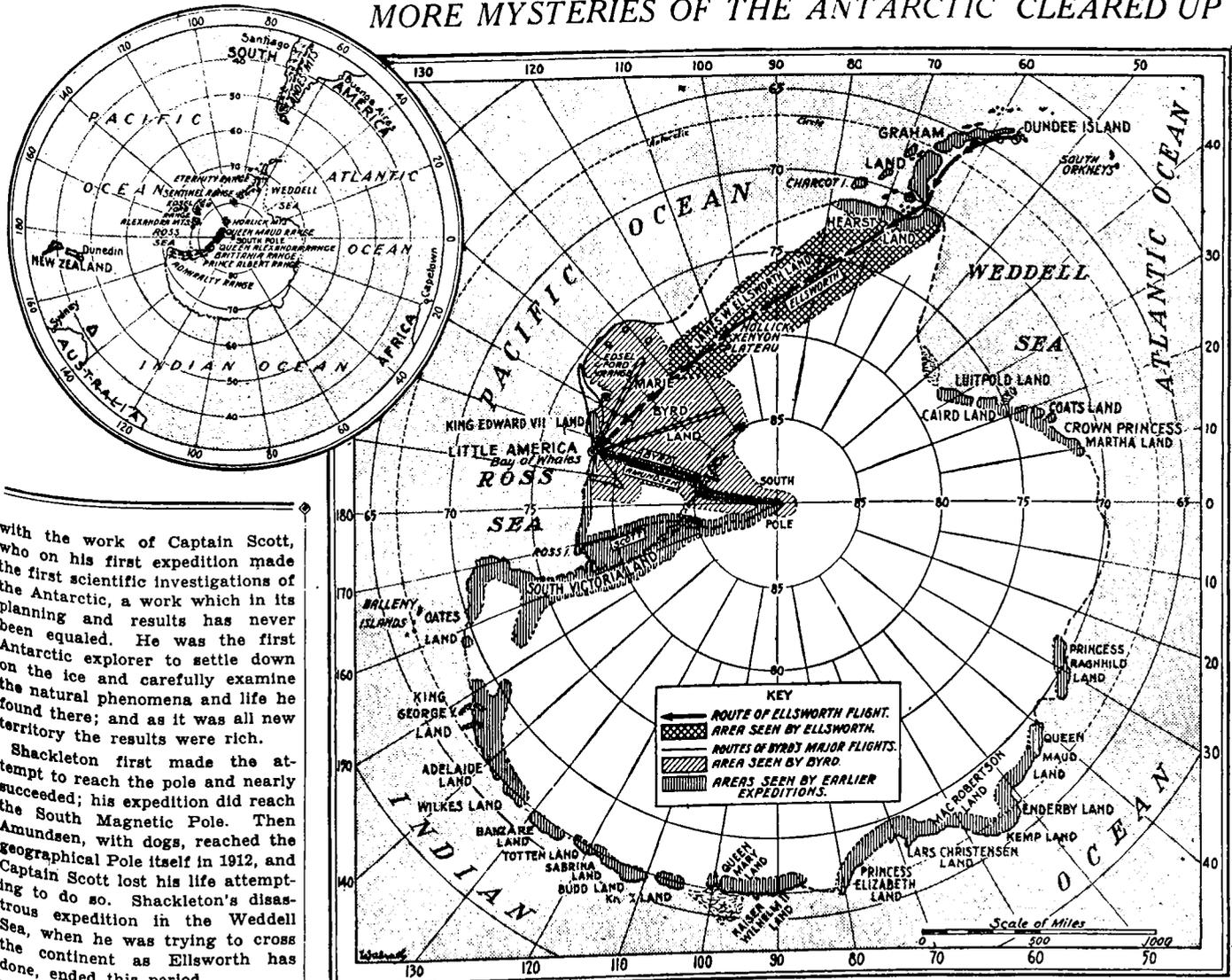
Ellsworth's flight also clinches the discovery of Byrd's pilot, Harold June, that there is no frozen strait between the Ross Sea and any part of the Weddell Sea; thus, the Antarctic can be classified definitely as an enormous single continent. In geographical importance the Ellsworth flight therefore can be placed beside the early discoveries of the American explorer Wilkes, the English explorers who first outlined the Ross Sea area and the region directly to the east, and the later work of Byrd.

The Earlier Explorers.

The exploration of the Antarctic falls roughly into three parts. The first great work was done by Captain Cook, who circumnavigated the continent in the Seventeen Seventies but never saw it; Wilkes, who first saw the land in 1840, and James Clark Ross, the brilliant English explorer, who at the same time sailed his ships boldly through the ice into the Ross Sea.

The second period began in 1901

MORE MYSTERIES OF THE ANTARCTIC CLEARED UP



with the work of Captain Scott, who on his first expedition made the first scientific investigations of the Antarctic, a work which in its planning and results has never been equaled. He was the first Antarctic explorer to settle down on the ice and carefully examine the natural phenomena and life he found there; and as it was all new territory the results were rich.

Shackleton first made the attempt to reach the pole and nearly succeeded; his expedition did reach the South Magnetic Pole. Then Amundsen, with dogs, reached the geographical Pole itself in 1912, and Captain Scott lost his life attempting to do so. Shackleton's disastrous expedition in the Weddell Sea, when he was trying to cross the continent as Ellsworth has done, ended this period.

Wilkins and Byrd.

The third period, that of air journeys, was begun by Sir Hubert Wilkins and Byrd in 1928. While Wilkins, under great difficulties, made some flights which showed Graham Land to be part of an archipelago, Byrd went into the Ross Sea to Winter near Amundsen's old quarters on the Bay of Whales. He flew to the pole, and then found the eastern boundary of the Ross Sea, and on his second expedition extended his discoveries to the east and southeast. He used both planes and tractors, being the first to use the latter successfully in the Antarctic. By seismic sounding he traced the edge of the land under the shelf ice.

The gradual descent from the Hollick-Kenyon plateau to the Bay of Whales, described by Ellsworth, was first noticed by Byrd's pilot, June, when he took tractors out toward the Edsel Ford Range, and later when he flew to the east and southeast. By touching his skis to earth, reading his altimeter, and later checking these findings against a barograph in the plane, June found that there was ground rising to at least 4,000 feet between the Edsel Ford Range and the polar

The record of exploration to date in Antarctica is revealed on the map directly above. The white space indicates area still unknown. The map in the circle illustrates the theory that the mountain range discovered by Lincoln Ellsworth is a continuation of the Andes.

plateau. He also saw mountains extending far to the east along the southern edge of this 4,000-foot plateau.

Ellsworth has now found that this plateau rises to more than 6,000 feet as it goes toward the east, and that in its middle section emerge mountains some of which tower 12,000 feet. This range compares in height with the mighty barrier of the Queen Maud range, behind which the polar plateau is anchored. And there seems little doubt, as Ellsworth says, that the mountains are parts of a single chain which runs clear across the Antarctic and is linked with the Andes.

If, while he was on the ground waiting for clear weather, one of those terrific winds which occur in the Antarctic had come along, he might have found himself stranded inland without a plane. Very little is known about the meteorology of the Antarctic, except so far as general laws are concerned, and the topographical and other conditions which create such storms might not have been present at any of the

places where he landed and camped.

High Winds Common.

But not far from two of Ellsworth's last landing places one of Byrd's planes was blown away in a wind of more than 100 miles an hour, and gusts of nearly double that velocity have been known in some parts of the continent. Fortunately, such a wind did not rise, and the prevailing easterly wind which always seems to blow in this part of the continent followed him favorably all the way across. The highest wind velocity he had was forty miles an hour, and his coldest temperature was only five degrees below zero Fahrenheit.

One might wonder what the early explorers, dragging their sleds behind them over snow that resisted like sand, would have thought if they could have seen Ellsworth whiz overhead at nearly 200 miles an hour. From man-hauling to dog sleds is a big enough contrast in motive power, as was proved by the trips of Scott and Amundsen; the use of the airplane,

with sufficient skill and daring, makes it possible that the entire continent will be surveyed in a comparatively few years.

Although the outlines of Antarctica are fairly well known, and Ellsworth's flight has thrown light on a most interesting section, there still remains much to be done. The Antarctic is a huge continent of 5,000,000 square miles, with a coast line which is partly mountainous, partly shelves of ice and partly rocky shores rising to domed plateaus. In the center is a huge plateau at an elevation of more than 9,000 feet, rimmed on the Ross Sea side by mountains. The area beyond the pole, opposite the Ross Sea, is completely unknown.

But as it has been proved—on the last Byrd expedition, and spectacularly by Ellsworth—that reasonably safe landing away from base is possible when backed up by other airplanes or dogs, there is no reason why a thorough examination of the geological structure of the country may not eventually be made.

WYATT EARP PARTY BALKED BY CREVASSE

Tractor Group Seeking Ellsworth Plane Escapes Disaster—New Effort to Be Made.

ON BOARD THE MOTORSHIP WYATT EARP, Jan. 26.—A tractor party that had set out to save the airplane Polar Star, which was abandoned by Lincoln Ellsworth and Herbert Hollick-Kenyon at a point about twenty miles south of Little America, has returned to this ship after having narrowly escaped disaster.

When passing between the main base camp of Little America and the airplane field used by Rear Admiral Richard E. Byrd, which is less than a mile from the camp, the tractor lurched backward into a wide crevasse that opened directly beneath it. Fortunately, the crevasse was just narrow enough so that the tractor jammed between the hard ice sides and hung perilously there.

The driver's cab was completely crumpled, and it jammed the feet of one member of the party. It was necessary to slit his boots from top to bottom in order to free his feet. His boots are still wedged in the suspended machine, but beyond a slight bruise the man was not injured. None of the other members of the party of four, led by J. L. Lymburner, was harmed.

It has now been decided to use another method of transport to get the necessary gasoline to the Polar Star, and today all hands have been busy preparing the emergency airplane. With that, as soon as the weather is suitable, the men will fly to the Polar Star, which is to be flown back to the ship.

ELLSWORTH PLANE IS PUT ABOARD SHIP

Polar Star Flown to the Wyatt Earp From Point Where It Was Abandoned.

ON BOARD MOTOR SHIP WYATT EARP, Jan. 29.—The airplane Polar Star, in which Lincoln Ellsworth and Herbert Hollick-Kenyon, pilot, flew across the Antarctic, is now safe aboard this ship, which will leave the Bay of Whales tomorrow.

The emergency Northrop airplane that was used to fly to the Polar Star, which had been abandoned by Ellsworth and Hollick-Kenyon about twenty miles south of Little America, also is aboard the Wyatt Earp. Hollick-Kenyon, J. L. Lymburner, pilot, and Pat Howard, airplane engineer, saved the Polar Star by flying in the emergency plane to the abandoned craft.

Completes Long Journey.

Early this morning the gleaming wings of the Polar Star appeared in a brilliant, cloudless polar sky as the plane completed its flight from the edge of the Weddell Sea to the waters of the Ross Sea. In the emergency plane, Lym-

burner had flown Hollick-Kenyon and Howard to the Polar Star. They carried with them some gasoline and shovels, for the Polar Star had been landed when out of gasoline almost within sight of Little America and was then dug into the snow for safekeeping while awaiting the coming of the Wyatt Earp.

It was soon evident to the salvaging party that to get the craft out would mean a deal of digging—too much for three men in a hurry—so Lymburner flew back to the Wyatt Earp for assistance. Lauritz Liavaag and Bjarne Larsen, veterans of the crew of the Wyatt Earp, went with Lymburner back to the Polar Star, and in a few hours the five men had it free. The two airplanes flew in company to the Wyatt Earp.

Men Eager to Be Off.

All the men now on the Wyatt Earp have performed splendid service and, now tired out from several days of strenuous labor, they will be glad to put to sea, where regular watches will give them time for orderly rest.

Until the Wyatt Earp gets through the pack ice on her northward voyage her destination will not be decided, but the end of the pack should be seen in less than a week from now.

Mrs. Herbert Hollick-Kenyon in Canadian North Says She Never Lost Hope.

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WINNIPEG, B. C., Jan. 17.—Marylea and Timothy Hollick-Kenyon, the daughter and son of Lincoln Ellsworth's pilot, had a holiday from school today.

In their bright young faces was reflected the joy of the news that came to this backwoods settlement after their mother had trudged a mile through the snow to answer a telephone call. When she returned to the fruit farm of her father-in-law, overlooking Okanogan Lake, the two children learned that their father was safe.

The neighbors immediately gathered in the little country store to learn later details by telephone from Vancouver, New York and London. But the most welcome message of all to Mrs. Hollick-Kenyon was an invitation to send a message to her husband, via the Wyatt Earp's wireless.

Proud of Her Husband.

"Tell him," she said, "delighted and relieved to hear of your safety and feel very proud of you. When will you be home? Love from all at Ewings and sign it, 'Meme.'"

"I can't tell you what we said and did when we heard the news," she continued. "It's been a long, long wait and I think we were more quietly happy than anything else."

"The days of waiting have been long, but we never gave up hope. The children are old enough to realize everything. They have been brave. They went to school, and we lived our normal lives. I never lost confidence, but naturally there were moments of doubt. Both the children and I know what it is to wait for news. We've done it before when Daddy was in the Canadian Arctic with far less chance of communication."

She was told that Hollick-Kenyon's uncle, Mayor of Paddington,



New York Times Studio Photo.
Herbert Hollick-Kenyon.

England, had mailed her a letter of condolence.

"Silly of him," she said. "I knew they would come out all right."

Bade Him Good-bye in August.

Mrs. Hollick-Kenyon and the two children said good-bye to the Canadian pilot last August in Winnipeg. He went to New York; they came to Ewings Landing to stay in the farm house. The next great event will be a message from him. She hopes to go East to meet him, but no plans have been made. She does not know whether he will resume his flying in the Canadian North when he returns.

Mrs. Hollick-Kenyon took notes of the telephoned description of the finding of the missing explorers. When she learned that a plane from the Discovery II had dropped food and letters to her husband, she said, "I hope my letters were among them." She was eager for every detail of the rescue.

WINNIPEG, Jan. 17. — Herbert Hollick-Kenyon, a quiet, solid Englishman, came to Canada in 1909 from London, where he was born in 1897. His family settled as fruit farmers in the pretty Okanogan Valley in British Columbia. He served overseas with the infantry and took up flying after the war in England. When he returned to Canada in 1929 he entered commercial aviation in its infancy in the Canadian West.

He is regarded as one of the best and most experienced of Canadian Arctic fliers and was superintendent of the Northern Manitoba district for Canadian Airways when Lincoln Ellsworth chose him as No. 1 pilot for the Antarctic venture.

FIRST REPORT TO LONDON

Master of Royal Research Craft Told How Plane Sighted Man and Machine.

LONDON, Friday, Jan. 17.—Across 13,000 miles of ocean word reached London by radio last night that Lincoln Ellsworth and his pilot, Herbert Hollick-Kenyon, might still be alive in the Antarctic wastes of Little America.

It was just an interrupted and scarcely decipherable fragment of Morse code from Lieutenant L. C. Hill, master of the royal research ship Discovery II, in the Bay of Whales, but it seemed to tell that a man and an airplane had been sighted at or about the spot in Little America that Ellsworth and his companion were to make for if they met with any mishap on the flight across the Antarctic Continent that they began Nov. 23.

The members of the committee in London controlling the work of the Discovery II, to which the radiogram was addressed, are making every possible effort to get in touch with the master of the Discovery II for elucidation of his message.

The committee, which is sitting late in the Colonial Office on Whitehall, declined to disclose the actual text of the message. A spokesman admitted that what is technically known as a "corrupt group" in the message as it was received had made it impossible to decode it in its entirety.

Telegraph code experts who have been called in to assist in deciphering the message consider that it reads as follows:

"Boat arrived safely at Bay of Whales 20 hours [8 P. M.], Jan. 15. One man was sighted from plane. Machine at Little America [here there comes a mutilated group of letters.] Wyatt Earp [Ellsworth's supply ship] 420 miles away."

Up to a late hour the committee found it impossible to communicate direct with the Discovery II and the suggestion was made that it might be possible to communicate with the Wyatt Earp, which is also heading for the Bay of Whales, from the United States side and thus relay a message to the Discovery II.

The committee took the view that no individual newspaper would be supplied with the news it received and arranged for simultaneous release through the tickers of news agencies, which were anxiously watched throughout the night. It is understood that the Admiralty is also assisting in the efforts to radio the Discovery II, but thus far her call signal has not been heard.

The Discovery II's message to the committee was received through the British Postoffice. It had been relayed between a number of ships and had finally been picked up by the government station at Portishead.

The Discovery II arrived safely at the Bay of Whales in search of the American explorer and his pilot at 8 P. M., Wednesday, Greenwich mean time [3 P. M., Wednesday, Eastern standard time]. The vessel is equipped with two airplanes and it is believed that it was from one of these that a man and an airplane were sighted.

In the meantime the Wyatt Earp in the event of favorable ice conditions is expected to reach the Bay of Whales between Jan. 22 and 25.

When the Discovery II was about 320 miles from the Bay of Whales she encountered heavy pack ice and one of her two airplanes, the one a Wapiti and the other a Moth, was sent aloft under command of Flying Officer Douglas to search for a passage. It was found and last Sunday the Discovery II reported that she had cleared the ice and had reached open water.

ELLSWORTH'S DATA AWAITED FOR MAP

Dr. Bowman Hopes Explorer Will Bring Physiographical Material on Antarctica.

BALTIMORE, Jan. 18.—Dr. Isaiah Bowman, director of the American Geographical Society and president of Johns Hopkins University, declared tonight that Lincoln Ellsworth's story of his flight indicated that the data he gathered would make possible the construction of the first physiographical map of the hitherto unknown interior of the Antarctic Continent.

Dr. Bowman pointed out that Mr. Ellsworth came down because of unfavorable weather conditions four times, that he was prepared for photographic work, and that he knew his position on all occasions. "There is every reason to believe, because of these facts, that some sort of a map can be constructed from his data that will show in a general way that portion of the continent about which science has been curious," said the educator.

Sees Byrd Theory Confirmed

Mr. Ellsworth's discoveries should shed light on several aspects of the continent's physiography about which there are only tentative theories, Dr. Bowman added.

"While we have only general statements, it is very interesting to learn that he found high ground all the way," he said. "Byrd, in his recent book, 'Discovery,' mentioned the fact that the barrier—the big mass of ice, part of which is floating and part resting on very low land—seemed to be encircled by high land toward the interior.

"What Ellsworth reports now makes it quite clear that Byrd's interpretation was correct. He also confirms Byrd's belief that there are no straits connecting one side to the other.

"When Ellsworth's results are reported in greater detail we shall know more about whether his photographs will give evidence of new relations between different parts of the terrain, whether mountains connect with mountains or with high plateaus and descend on the Ross Sea side of Antarctica."

Dr. Bowman pointed out that the dispatch indicated that there was no broad strait between Weddell Sea and Ross Sea.

Value of Aviation Cited.

He believed Mr. Ellsworth's experiences illustrated the great risk involved in aerial exploration in Antarctica, but also demonstrated the capabilities of aeronautical navigation for overcoming such tremendous difficulties. He added:

"The distances are so great and the meteorological conditions so varied that it was natural that he should have serious difficulty in negotiating such a crossing. This was responsible for the landings he and Herbert Hollick-Kenyon had to make. Flight conditions were such that they could not proceed in safety.

"This proves that it is a far riskier thing than is ordinarily taken into account. But, with our comprehension of greater risk, there is elicited from us greater admiration for the way in which they carried the project through.

Byrd Hails Flight of Ellsworth and Aide; Explorers Here and Abroad Add Praise

By Rear Admiral R. E. BYRD.
Special to THE NEW YORK TIMES.

PORTLAND, Ore., Jan. 17.—Your wire received and thank you for the opportunity to express my opinion of Lincoln Ellsworth's flight.

In the first place he showed supreme courage; in the second it was a wonderful job of navigating, unsurpassed I believe; thirdly it must have been very productive and important from a geographical standpoint.

It will in my opinion take rank in history with the greatest flights. Ellsworth and Hollick-Kenyon have given us, who have been in the Antarctic, reason to take our hats off.

LONDON, Jan. 17.—Admiral Sir William Goodenough, past president of the Royal Geographical Society, expressed delight today with the news that Ellsworth and Hollick-Kenyon were safe.

"It is great," he said. "It shows what enterprise can do when carried out with forethought. The whole world will rejoice on knowing these two brave men have come through safely."

"It is the best news I could have heard," said Dr. Hugh Robert Mill, geographer and meteorologist. "It is an extraordinary coincidence that the Discovery II should have been instrumental in finding them, especially at this time. It was exactly two years ago when the Discovery went to rescue Rear Admiral Byrd by getting a doctor to him from New Zealand. Now she has been able to save the lives of another American explorer and his English companion.

"It is good to know the Discovery's time has not been wasted. It will now be quite impossible for her to carry out the scientific investigations for which she was sent out, as the channel is only navigable for a month or two at most each year. I hope she will be able to go out again next year."

Dr. Mill, who has been consulted by every Antarctic expedition in the last fifty years, stressed the great difficulties in wireless communication from Antarctica.

"We always hoped for good news

"We have no details yet, but on the basis of their general report they must have had a very difficult and anxious time of it. They must have had difficulties in navigating amid adverse weather conditions, and the difficulties of landing and maintaining themselves while on the ground are obvious.

"But while they ran into storms and were grounded at times for days, the fact is that they were able to return to their course and to make the flight without losing their course. This was a feat of navigation."

British Thanked for Ellsworth Aid
WASHINGTON, Jan. 20.—Secretary of State Cordell Hull an-

ounced today, before King George's death, that on Saturday the American Embassy in London was instructed to make inquiries concerning the health of the Sovereign and to convey to him "an expression of the sincere gratitude of the American Government for the efforts of His Majesty's Government in Great Britain and Australia on behalf of Messrs. Ellsworth and Hollick-Kenyon," aviators rescued in the Antarctic by a British expedition.

from the two men," he went on. "I congratulate Ellsworth and Hollick-Kenyon on their delivery and their very fine flight." Jan. 18

Mrs. Ellsworth Felt Confident.
Mrs. Lincoln Ellsworth said yesterday to THE NEW YORK TIMES and the North American Newspaper Alliance that, while she always had felt that her husband would reach his goal in the Antarctic, she was of course tremendously happy and gratified to have definite news of his safety.

At 12:15 this morning Mrs. Ellsworth received a radio message from her husband sent by the Discovery II to the Wyatt Earp, his supply ship, and relayed to THE TIMES wireless stating:

"Everything turned out fine. Will wireless full details on arrival of the Wyatt Earp at the Bay of Whales."

Vilhjalmur Stefansson, the explorer, was enthusiastic over the Ellsworth flight.

"It is both the most spectacular and the most important flight ever made in the Antarctic," he said. "The most spectacular because the straightaway distance from the point of departure was much greater than in any previous flight in the area; most important because the amount of unknown territory covered is much greater than on any previous single flight.

"Of course I am terribly pleased personally to get the news. Although the result was not unexpected, the word of their safety is a tremendous relief. I was one of the committee who helped plan the search for Ellsworth and always felt that he had at least a three-to-two chance of having got through. His triumph is a grand exploit."

Dr. Roy Chapman Andrews, director of the American Museum of Natural History, said:

"The flight which Mr. Lincoln Ellsworth has just accomplished across the Antarctic Continent stands as one of the greatest feats of aerial exploration. The American Museum of Natural History rejoices that Mr. Ellsworth is safe in Little America. We look forward with enormous interest to the report which he will have as to the actual conditions in the interior of the great unknown area which he has crossed."

Bernt Balchen, chief pilot on Ellsworth's two previous attempts to cross the Antarctic Continent, sent the following telegram:

"Delighted to hear about Ellsworth and Hollick-Kenyon. Please convey my heartiest congratulations for the successful completion of the great flight."

GEOGRAPHICAL MEDAL GOES TO ELLSWORTH

Livingstone Award Given to Him for Antarctic Flight

To Lincoln Ellsworth has been awarded the David Livingstone Centenary Medal for his flight across the Antarctic continent, it was announced Jan. 21 by Roland L. Redmond, president of the American Geographical Society, who sent the following message to Mr. Ellsworth:

"The Council of the American Geographical Society at its annual meeting today unanimously approved the award to you of the David Livingstone Centenary Medal in recognition of your contribution to geographical knowledge by your transantarctic flight."

The medal was founded by the Hispanic Society of America in 1913, on the 100th anniversary of the birth of Livingstone, to be awarded by the American Geographical Society for "scientific achievement in the field of geography of the Southern Hemisphere."

Sir Douglas Mawson, for his discoveries in the Antarctic from 1911 to 1914, was the first recipient. The second award was made to former President Theodore Roosevelt for his explorations in Africa and South America. Admiral Byrd received the medal in 1929 after his flight to the South Pole.

Since its foundation in 1852 the American Geographical Society has been closely associated with polar exploration. Admiral Peary was its president from 1903 to 1906. The society sponsored Sir Hubert Wilkins in his plans for work in the Arctic which culminated in his flight from Point Barrow to Spitzbergen in 1928, and was also the scientific sponsor for Admiral Byrd's first Antarctic expedition and the Wilkins-Hearst Antarctic expedition of 1928-29.

EXPLORER ACCEPTS AWARD.

Ellsworth 'Appreciates' Honor of Geographical Society.

Lincoln Ellsworth, in a wireless message to Roland L. Redmond on Jan. 22 accepted the David Livingstone Centenary Medal of the American Geographical Society. Ellsworth's message was as follows:

"Please accept and convey to the members of your council my sincere appreciation of the distinguished honor conferred upon me in the award of the David Livingstone Centenary Medal. Throughout all my efforts I have highly valued the cooperation and assistance of the American Geographical Society."

tion, are deeply appreciated in this country."

LONDON, Jan. 18.—The Discovery II committee today received the following message from Lincoln Ellsworth:

"Hollick-Kenyon and I are deeply grateful for the extraordinary effort which you, through the officers and crew of the Discovery II put forward on our behalf, and we assure you most sincerely how much we feel the honor that has been accorded to us by the Discovery II committee and the Australian Government. We cannot thank you enough for all that has been done."

Ellsworth Is Forced Back Again But Finds High Mountain Range

Flying for 10½ Hours, He Discovers That Chain of Which Graham Land Is Part Rises Anew Beyond Stefansson Strait

By DR. LINCOLN ELLSWORTH.

DUNDEE ISLAND, Weddell Sea, Antarctica, Nov. 21.—Another secret has been wrested from Antarctica. Although Herbert Hollock-Kenyon and I had to turn back our plane after covering almost a third of the distance across Antarctica to the Ross Sea, we discovered that the great mountain chain of which Graham Land is a part rises again beyond Stefansson Strait on what is probably one great Antarctic continent.

At the edge of Hearst Land and southward of Cape Eielson, we saw mountains along a northwest-southeast direction ranging from 7,000 to 11,000 feet. Unfortunately many of the lower ranges were covered with clouds, but, from an altitude of 12,000 feet, we could see the peaks of some of them almost at our level and only a few miles away. The conspicuous jagged peaks were not far from the coast of Hearst Land.

At our furthest south, although we could not see because of the clouds beneath us, the feel of the machine in the air suggested that we were above a plateau.

Definite details will not be known until I have had time to check my observations, but we were probably at our furthest south between Lat. 71 and 72 degrees, and Long. 65 and 66 degrees W.

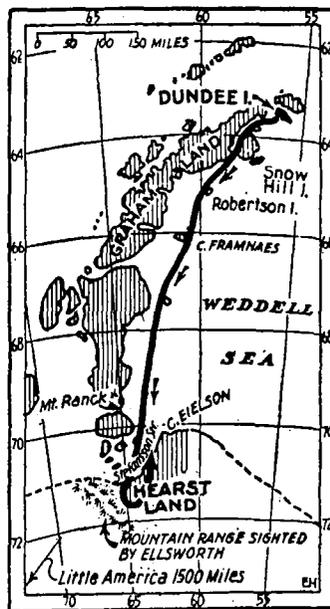
On our course, which trended southwestward, the clouds ranged

for probably seventy miles ahead, and even there we could see a rolling cloud mass apparently at a higher level and indicating another range, possibly higher than the one over which we flew.

It would have been foolhardy and useless to continue on over the clouds, and it became obvious soon after we turned that we were in a terrific wind. It is, of course, impossible to check the drift of a plane over the clouds, but as soon as we could see the coast of the Weddell Sea and Cape Eielson it was apparent that a strong south-southwest wind had, while we were climbing, carried us much to the eastward.

We came back more or less parallel to our outward course and landed at 6:30 P. M. Greenwich mean time (1:30 P. M. Eastern standard time) after ten and a half hours' flying.

Our take-off this morning was perfect. There was just a breath of wind and the temperature at zero Centigrade (32 degrees above zero Fahrenheit). The Polar Star had no difficulty with her load, and at 8:03 Greenwich time we climbed and headed for the coast of Graham Land.



FLIGHT OF ELLSWORTH.

The mountains he discovered indicate the antarctic continent extends to this district.

From there we followed along the Larsen Barrier, passing Robertson Island at 9:15. We passed Cape Framnaes at 9:55. Thus far there was little pack ice to be seen in the Weddell Sea, but southward the pack close to the barrier was thick. It seemed open further to the eastward.

Stefansson Strait Sighted.

At 11:25 we were opposite Mount Ranck and shortly afterward we could see Stefansson Strait and the various channels between the Fin-

ley Islands. That Stefansson Strait exists is very obvious, for we could see along it for about thirty miles, but our altitude there was 6,500 feet. It seemed that the islands were closer together and the strait narrower than they are plotted on our chart.

As we crossed the strait we could see clouds ahead, but above them could be seen high, jagged, bare-rocked peaks. The temperature had dropped to 5 degrees below zero centigrade [23 degrees above zero Fahrenheit] and the air was terribly bumpy. To our left Cape Eielson was easily recognizable as a low point studded with nunataks. We had been climbing steadily until we were at 8,000 feet, and there we sensed a very strong wind from ahead. We must have crossed over the edge of Hearst Land at about 11:50 still climbing, for the range ahead seemed about 2,000 feet above us.

At 12:30 we were at 10,000 feet and the ground was only about 800 feet beneath, so we climbed and climbed. But there was a strong down-trending current that made it difficult to gain altitude. We did gain in height at the sacrifice of forward speed until 12,000 feet was reached, and then ahead was the layer of cloud. It spread beneath us and as far as we could see.

I was greatly tempted and almost ventured to fly above the clouds until the eightieth degree of longitude was reached, but to have done so would have been a grave flying risk and would not have given us the information we seek.

So we turned toward the Weddell Sea, and, borne by what evidently was a howling gale, soon reached the coast. Then, free of the clouds, we could observe that we were out of the storm area, although the drift indicated a wind of about thirty miles an hour.

Disappointed at our setback, we returned to the Wyatt Earp, our base ship, to try our luck again as soon as the weather permits.

CHRISTENSEN GETS LIVINGSTONE MEDAL

Antarctic Explorer Is Honored

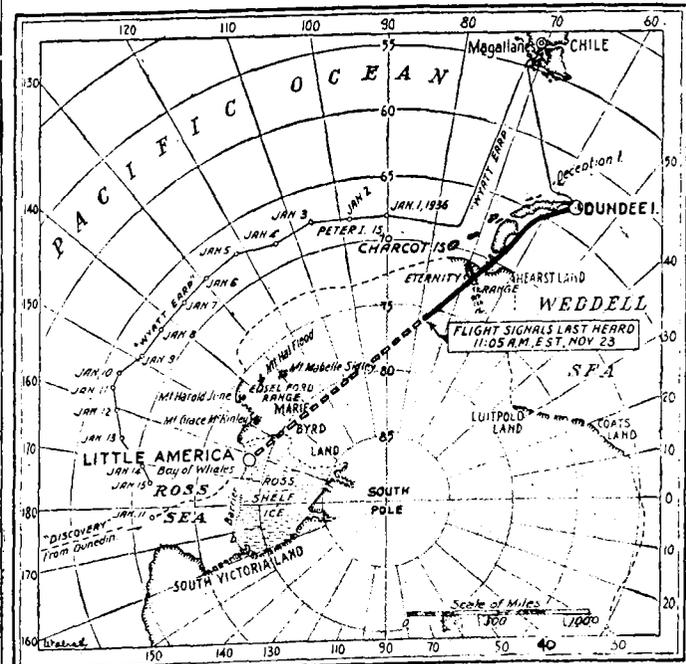
Nov. 27

Three medals were presented last night by the American Geographical Society at a monthly meeting held at the Engineering Societies Building, 29 West Thirty-ninth Street.

The David Livingstone Centenary Medal was presented to Lars Christensen for his Antarctic explorations. The Cullum Geographical Medal was given to Professor Douglas Johnson, of Columbia University, for his contributions to geology and physiography. Dr. Roy Chapman Andrews, director of the American Museum of Natural History, received the Charles P. Daly Medal for his explorations of Central Asia.

Following the presentations Mr. Christensen, who is head of the largest Norwegian firm in the whaling industry, delivered an address on recent Norwegian explorations of the Antarctic. The numerous expeditions sent out by him in the last ten years have revealed a large part of the previously unknown outline of the Antarctic Continent and led to annexation by Norway of several strategic islands.

Mr. Christensen has himself made three voyages to the Antarctic in one of his large "floating factories," and was the first to circumnavigate the Antarctic Continent in one continuous journey in one season.



The black line shows his known course and the dotted line how he probably flew on to Little America. The courses of the two rescue ships are also shown, the Discovery II having been sent by the British Royal Research Society at the request of the British and Australian Governments, and the Wyatt Earp having made her way from the point where Mr. Ellsworth took off, with a detour to get another plane.

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

Burrelle's Press Clipping Bureau of New York furnishes polar clippings to the American Polar Society.

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.

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BYRD DIARY TELLS OF LONG ISOLATION

7 Months Alone in Tiny Shack Involved Many Dangers, Magazine Piece Reveals.

Aug. 13

Alone for seven months at the bottom of the world in a shack not much bigger than an apartment kitchenette, Rear Admiral Richard E. Byrd fretted over a missing cookbook and sleeplessness produced by detective stories.

"The small things are important" and "my greatest trouble is getting to bed at a reasonable hour," Byrd wrote in his diary of a vigil probably unmatched for loneliness and hardships.

First installments of the diary, covering Admiral Byrd's experience from the day last March when he was left alone in a hut 123 miles from his base at Little America to a nearly fatal occasion when he was knocked out by stove fumes, will be published tomorrow in the American Magazine. They are accompanied by comment from Charles J. V. Murphy, a member of the Byrd Antarctic Expedition. Mr. Murphy fills in the blanks in the narrative.

Two Reasons Given.

There were two reasons, according to Charles Murphy, for Byrd's separating himself from his expedition to live alone in the stormswept outpost. One was the necessity for an inland base to get important meteorological data. The breakdown of one of the expedition's tractors, aggravated by other difficulties, made it impossible to equip a distant base with supplies for three men.

"It's got to be two men or one," Byrd told Murphy. "So it's 'got to be one."

The admiral explained that to put two men "out there" would be to invite a tragedy.

"Anybody who knows Arctic history knows that," he said. "A third man in a crowded shack is always an equalizing force, a neutral point of man, a court of appeal, the man outside the quarrel. After a couple of months two men might be at each other's throats."

The other reason, Murphy writes, was that Byrd "welcomed the chance to come face to face with himself in a time of pure and dangerous loneliness."

After Byrd had been established in a specially constructed hut, built to withstand temperatures of 90 degrees below zero, the men and tractors that helped him "dig in" vanished across the snow wastes toward Little America, 123 miles away on the seacoast. Byrd was left to a loneliness so superlative that even his own description falters.

"It is unnatural," he jotted in his diary, "to be so utterly alone. Not a blade of grass, not a handful of earth, nor even a rock to remind you of living things. A shipwrecked sailor has the movement of the sea, the birds flying, to comfort him. A man lost in the woods possesses the reassuring presence of trees and the life that moves among them."

Lifeless for Centuries.

"Here no life has moved for centuries. It is the heart of inertness, the dark memory of the Ice Age.

"And the utter silence, too, is unnatural. It fills the air with its mood of soundlessness. It lulls and hypnotizes you, as a steady familiar sound.

like the roar of a waterfall; and even the tiny, irregular noises of my stack—the ticking of the clocks and the hiss of the stove—merge with and become part of the silence. But the silence is always there, real, permanent, solid as sound; and no thought will wander so far as not to be brought up hard by its suddenly recurring reality."

Byrd was handicapped from the start by an injured shoulder, wrenched in unloading the tractors. He was forced to do much of the work of straightening out his hut and building fuel and escape tunnels with one hand, he wrote. Constantly there was the threat of fire from the crude oil stove and most of glass chemical bombs brought along as fire extinguishers had been smashed by the fierce cold.

On March 28, 1934, Byrd made his first diary entry shortly after "digging in."

"I've searched conscientiously for the alarm clock and the cook book, and the suspicion is growing that I left them at Little America," he wrote. "It would be an ironic joke if, in the pretentious planning for every contingency, we forgot these most commonplace and vital necessities."

Cook Book Brings Joy.

When Byrd finally discovered the cook book—he never found the alarm clock—he gave "a whoop of joy," he told Murphy later.

"Then I remembered, with a queer self-consciousness," he said, "that it was the first word I had uttered in more than a week."

Byrd's only thread to the world of living men was his wireless, and sometimes this was a very thin thread, the article reveals. Messages crackled from the snow-buried hut to the colony at Little America several times a week, but often there were long stretches of silence which caused fear for their leader to clutch at the hearts of the others. They had been ordered by Byrd not to attempt a relief expedition during the Antarctic Winter night.

"Suppose we lose radio contact?" Murphy said he asked Byrd.

"You probably will," Byrd was said to have replied. "I'm the world's worst radio operator. Any attempt to relieve me in Mid-winter is almost certain to cause a loss of life, perhaps many lives. I cannot permit the risk of several lives in an effort to save one."

On May 3, 1934, Byrd wrote in his diary:

"My greatest trouble is getting to bed at a reasonable hour. It was 2:30 before I blew out the light last night. Reading, of course, and a very poor detective story, at that. That's the insidious thing about a detective story; no matter how bad it is, curiosity won't let you put it down until

Byrd Now Considering 3d Trip to Antarctic

Can't Say When, in View of Work on Data of 2d Expedition

SACRAMENTO, Calif., Jan. 21 (AP).—Rear Admiral Richard E. Byrd said here today he was considering a third expedition to the Antarctic regions. "I've never said that publicly before," he grinned.

Just when he would start on the third trip he was unable to say. He expects the vast amount of data gathered on his second expedition, affecting twenty-two branches of science, will be assembled and published before another two years have passed.



Charles J. V. Murphy and Guy Hutcheson at the radio set with which Byrd's expedition kept in touch with the world during their stay in the Antarctic.

BYRD RECEIVES AWARD FOR SERVICE TO RADIO

Plaque Presented for Work in Antarctic—He Accepts It on Behalf of Expedition.

Rear Admiral Richard E. Byrd received on Sept. 25 the bronze plaque of the Columbia Broadcasting System for the outstanding contribution to radio in 1934. The presentation was made in the CBS studios, 485 Madison Avenue, during a broadcast of the first radio reunion of members of the second Byrd expedition.

In making the presentation, Representative Anning S. Prall said it was in recognition of Admiral Byrd's gathering of data in his

seven months' lone vigil close to the magnetic pole, during which, with portable equipment, he made contact with the outer world.

This was of significance to the radio world, Mr. Prall said, because it enabled engineers to gauge the effects of the magnetic poles on radio transmission.

In accepting the plaque Admiral Byrd paid tribute to the members of the expedition as a whole, but particularly to the radio men and engineers. As for himself he said he was the world's worst radio operator and deserved the honor least of all.

"I accept this medal," he said, "in the spirit in which it is given, not as an honor to me, but to the cause to which I was privileged to work and to the group of loyal companions who—every one—gave unstintingly of themselves and made our expedition to Little America possible. In short, I accept it for the expedition."

you've finished it."

An observation so commonplace that it might have been written by a Washington "cliff dweller" in the comfort of a six-room suite, but for what follows:

"The temperature in the shack was only 12 degrees above when I worked Little America on the radio today. A glass of water from which I was drinking froze hard on the table before I got through. However, cold is a blessing. The foods I wish to stay frozen 'very hard' I leave on the deck, 'just ordinary hard' on the lowest shelf and 'partly frozen' on the top shelves. * * * I have to break vegetables out of the can with a hammer and chisel and a cold chisel makes a fine butter knife."

Trail Marked With Sticks.

Byrd used to take daily walks for exercise and scientific observations. He marked out his trail with bamboo sticks, since his hut was invisible under the snow drifts and the terrain was so desolate that there was no gauge of distance or direction. Once he strayed beyond his markers and was lost for some time. He built a snow beacon and walked away from it on radial lines, each time returning to the center when he failed to find the hut. Finally, he found his bam-

boo markers and returned safely.

"Feeling too rotten lately to do much writing," Byrd wrote on May 28. "Something is sapping my strength. I'm convinced the fumes from the stoves and possibly from the pressure lamps are getting into my system. I'm doing everything within my power to lick this problem and I'm not discouraged."

On May 29, Murphy recounts. Byrd's diary told of hearing many snow quakes, sounding like great cannon in the distance. There was no entry for May 30.

"Even now," Murphy writes, "he is not wholly sure of what happened on that day. It was like being slugged from behind."

Byrd told later of how he had gone to repair the engine which powered his radio set. The engine had been skipping.

"My last conscious act," he said "was to try to close the switch. Then things went black before my eyes. I'm not sure that I was knocked out. I remember there was a long mental struggle, and a lovely drowsiness. I was on my knees, and I suppose I was freezing.

"It was hell for a long time afterwards."

CAMERA CHECKS UP ON BYRD'S FINDINGS

Aerial Photos Enabled Men to Study Details of Terrain at Leisure in Their Huts.

Copyright, 1935, by NANA, Inc.

Much of the most important exploration carried out by the second Byrd expedition to the Antarctic was done right in the huts at Little America, far from the discovered area. This was made possible, according to members of the expedition, by study of the aerial photographs made on every exploration flight of the expedition's airplanes. The returned explorers have reported that whenever the man-made "eye" of the aerial camera blinked, its "retina," which is specially prepared aero film, captured details the human eye was unable to detect, or the brain to record or remember. Subsequent study of the pictures enabled scientists in various fields to discover data which otherwise would have been missed entirely. This even included mountain peaks.

Aerial photographic objectives of the second Byrd expedition included mapping the terrain over which each flight was made, getting views of important features of the Antarctic—such as mountains, pressure ridges, coast line, &c.—and filling in gaps in the aerial photography obtained during the first expedition.

Photos Taken at 65 Below.

About 2,000 photographs were taken, according to Chief Photographer Joseph A. Pelter some in temperatures as low as 65 degrees below zero. Photographs of the Antarctic terrain were made as easily as mapping pictures are taken in this country, he said.

The aero films were developed and printed in a three-room laboratory buried under the snow of Little America. Despite the cramped quarters, Photographer Pelter and Quinn Blackburn, his assistant, arranged suitable developing and printing rooms, and a finishing room, which also served as their Antarctic home. The latter space was devoted to their double-tier bunks, a rotary drying reel for the aero film, work table, shelves and a stove.

After the prints were made, they were examined carefully under stereoscopes, which give the pictures three-dimensional characteristics. From these studies in the comfort and safety of the Little America huts, intimate details of the terrain were obtained, altitudes of mountains and low objects, alike, were accurately measured and their geological characteristics inspected. What had escaped the eyes of the observers, as they flew over the continent, had been captured for all time by the aerial camera. What the mind had failed to remember or react to, was now at hand for careful, unhurried investigation.

Several mountain peaks were discovered in this way. For instance, the aerial explorers had thought they had counted the peaks in the Rockefeller Range. Photographs revealed, however, that there were several more. Likewise, tiny de-

Byrd's Southern Accent From Pole? Girl Asks

By The Associated Press.
FRESNO, Calif., Jan. 25.—Rear Admiral Richard E. Byrd, accustomed to answering every variety of query in interviews with school children, was stumped today. "Admiral Byrd, did you acquire your Southern accent at the South Pole?" asked a young woman seriously.

Byrd's eyebrows lifted. Then he smilingly explained he is from Virginia.

tails in pictures of the snow-covered terrain gave invaluable clues to the nature of the Antarctic phenomena. The haze, which obscured much of the area from the flying explorers was penetrated with ease by the filtered all-seeing eye of the aerial camera.

Camera Mounted In Plane.

On the second Byrd expedition a Fairchild aerial camera was carried in the cabin of the Curtiss-Wright Condor, suspended from the walls by bungee cord. It was aimed through a 14-inch hole cut in the fuselage. Windproof cloth attached to the edge of this hole and drawn tightly around the cone kept the wind and cold out of the cabin. A piece of sponge rubber packed around the cone of the camera absorbed vibrations, and the shocks of landings and take-offs.

Vertical photographs, the kind used in compiling mosaics useful in mapping, and also obliques, in which the camera is aimed from the side of the airplane at an angle, were obtained. The mapping camera got important views of the expedition's trails and areas of special importance. The obliques were used to get special photographs of the Rockefeller Range, pressure ridges, the Bay of Whales, Little America and other pertinent views.

Thus, the aerial camera was one of the busiest and most valuable instruments carried by the expedition. Because of it, those who shared the thrill of participation in the flights of discovery are able to see again the areas they discovered as they looked to them at the instant of discovery. Those who never will go to the Antarctic likewise can see exactly how the vast, little-known continent looks and continue to

study its secrets carefully and leisurely.

More important, from the scientific angle, is the fact that the pictures of the Antarctic are true ones, and not merely visualizations reconstructed from a table of figures, voluminous graphs, drawings and terrestrial photographs.

MEDALS BESTOWED ON FOUR BYRD AIDES

English Receives the D. S. M. for 'Meritorious Service' on Antarctic Expedition.

WASHINGTON, Nov. 13.—Decorations were awarded by Secretary Swanson today, "in the name of the President of the United States," to four members of the Second Byrd Antarctic Expedition.

The Distinguished Service Medal was given to Lieutenant Robert A. J. English of San Francisco, now serving on the battleship Nevada, and the Navy Cross to Lieutenant Commander Stephen D. Rose, U. S. N. R., of Clifton, Mass.; Ensign Kennett K. Rawson, U. S. N. R., of Chicago, and Clay Bailey, radio-man first class, of Revere, Mass., now serving with aircraft of the Battle Force.

The citations read: "Lieutenant English—For exceptionally meritorious service to the government in a duty of great responsibility as commanding officer of the Byrd Antarctic Expedition II, Ship S. S. Bear of Oakland, which, during the time it was in Antarctic waters, did some very important and hazardous work in exploration to the northeastward of Little America. Through his courage, resourcefulness and engineering ability, Lieutenant English on several occasions saved the Bear of Oakland from disaster. All of his service with the expedition was performed with exceptional efficiency, contributing greatly to its success.

"Lieutenant Commander Rose—For distinguished service in the line of his profession with the Byrd Antarctic Expedition II. As chief officer of the S. S. Jacob Ruppert during the journey to New Zealand and the Ice Barrier and return to New Zealand, his duties were performed in an exceptionally com-

mendable manner in the extremely hazardous undertaking which involved taking a metal ship into the Antarctic. Through the efficient, conscientious performance of his duties, his poise, resourcefulness and loyalty, he contributed greatly to the success of the expedition.

"Ensign Rawson—For distinguished service in the line of his profession as navigator with the Byrd Antarctic Expedition II. His courage, coolness and excellent judgment did much to save the S. S. Bear of Oakland from getting frozen into the ice pack when exploring unknown waters northeast of Little America in January, 1934. Again in October, 1934, he displayed remarkable navigation ability on the dangerous pioneering trip by tractor to Grace McKinley Mountain, a difficult and hazardous undertaking because of crevasses. As navigator on all flights made in November and December, 1934, the most important flights made during the entire expedition, his work was performed in a very remarkable and efficient manner. His outstanding courage, loyalty and devotion to duty contributed greatly to the success of the expedition.

"Radioman Bailey—For distinguished service in the line of his profession as senior radio operator of the Byrd Antarctic Expedition II. Through his extraordinary efficiency, exceptional ability and conscientiousness, extraordinary results in radio communication were obtained. He also handled the radio communication throughout a number of the flights of exploration in the Antarctic. His courage and devotion to duty contributed greatly to the success of the expedition."

'Meteors' at South Pole Linked to Cosmic Rays

Byrd's Data Being Studied in New Light Now

CHICAGO, Nov. 26 (AP).—Shooting star showers observed at the South Pole were discussed today by Rear Admiral Richard E. Byrd as possible clues to the mysterious behavior of cosmic rays.

Admiral Byrd said he did not suspect at the time that the "fireworks" he watched were anything other than meteors. His first intimation of the phenomena's significance, he said, came recently after a talk with Professor Arthur H. Compton, University of Chicago physicist. The matter is now the subject of intensive study at the university.

The "meteors" shot across the sky at the rate of one a second at times, Admiral Byrd related. They did not seem to fall, but rather to speed across the sky. His own theory of why the brilliant showers were seen only in the polar regions was that the Antarctic air was far clearer than elsewhere.

Admiral Byrd Tells Sinus Cure.

Admiral Richard E. Byrd offered recently in Chicago what he declared a sure cure for sinus trouble. Unfortunately, the treatment entails a trip to Little America, reports The Associated Press. "Cold germs can't do you any harm there," the explorer said. "One of the men on our last expedition had suffered from sinus trouble all his life until we lived a little while in 80-degree-below-zero temperatures. When we returned last May, he found that his sniffles and headaches had left him, and they haven't returned since."

Alaskan Cosmic Ray Studies May Unlock Limitless Energy

FAIRBANKS, Alaska, January 11.—Discovery of new sources of energy may result from studies of cosmic rays here at the University of Alaska. Dr. Ervin H. Bramhill, physicist, said today.

He said the problem of understanding and controlling the ray phenomena stands between investigators and their dream of harnessing the mysterious force of mankind.

Although the intensity of energy received by the earth from these rays at any given location is small, the physicist declared:

"We probably could make available new sources of tremendous energy if we could understand the control of

the processes found in cosmic ray phenomena.

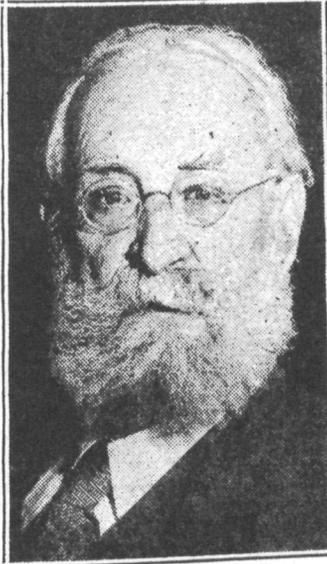
"The chief interest to the scientist is that the phenomena present an unsolved mystery of the universe, challenging the ingenuity of man."

Dr. Bramhill has followed the studies from one end of the world to the other.

He came here in 1932 in connection with the world-wide cosmic ray survey sponsored by the Carnegie Institution of Washington. He continued his studies in the Antarctic as a member of Admiral Richard E. Byrd's second expedition. Later he came back here in connection with the Rockefeller Foundation project, upon which he is engaged now

GEN. A. W. GREELY, 91, ARCTIC HERO, DEAD

Won World-Wide Fame a Half Century Ago as Leader of Ill-Fated Expedition.



GENERAL A. W. GREELY.

WASHINGTON, Oct. 20.—Major Gen. Adolphus W. Greely, U. S. A., retired, who attained world-wide fame as leader of the ill-fated Arctic exploration party of 1881 and received only last March the Congressional Medal of Honor for his heroic conduct and brilliant service in the Far North, died here at 3 o'clock this afternoon in Walter Reed Hospital, from the effects of a blood clot that developed on Oct. 7 in his left leg. He was 91.

The general had been in ill health for several months previously, and was taken to the army hospital where the leg malady developed. Hope for his recovery was practically abandoned at that time.

Although his vitality weakened, General Greely retained consciousness almost until the end, was cheerful, and astonished relatives and hospital attendants by his remarkable mental faculties.

Surviving are four daughters and two sons, all of whom remained close to the hospital ever since General Greely became a patient there. They are the Misses Antoinette and Rose Greely, who made their home with him in his O Street residence, where Secretary Dern pinned upon his breast the medal of honor in March; Mrs. Charles Adams of Snowville, N. H.; Mrs. Harold Shedd of North Conway, N. H.; Colonel John Nesmith Greely, now assigned to the War College, and Adolphus W. Greely, employed by the Reconstruction Finance Corporation. Four grandchildren also survive.

Brainard Only Survivor.

Brig. Gen. David L. Brainard, U. S. A., retired, of this city, who was General Greely's second in command of the expedition to the Arctic, is now the sole survivor. He called daily at the hospital to see his former chief until finally the power of recognition failed the patient.

General Greely was one of the founders of the National Geographic Society, and a member of its board of trustees for the entire forty-seven years of its history.

He was the last survivor of the six scientific men who signed an invitation to a meeting of the Cosmos Club here which resulted in the organization of the society. His death leaves only two members of the board of trustees of the society who have served continuously since 1888, the year after the founding. They are Dr. C. Hart Merriam and Dr. O. H. Tittmann.

When General Greely took part in the organization of the National Geographic Society, he had been back in civilization only a few years after the conclusion of the famous Lady Franklin Bay Arctic Expedition of 1881, which he had commanded as a lieutenant of the United States Army.

In the library of the National Geographic Society is a valued collection of Arctic material generously

graphic Magazine from its earliest days and lectured on many occasions before the society's members in Washington. His articles covered such diverse fields as advance in geographic knowledge during the nineteenth century, American discoverers of the Antarctic continent, economic evolution of Alaska and origin of the "blond Eskimos." His nineteen lectures before the society included accounts of his own expedition to the Arctic, geography of the air, problems for geographical research, development of the Philippines and Alaska and a broad variety of other topics.

General Greely also was the author of many publications both technical and popular, including "Chronological List of Auroras," "Three Years of Arctic Service," "Proceedings of the Lady Franklin Bay Expedition," "Handbook of Arctic Discoveries" and "Polar Regions in the Twentieth Century."

Tardy Recognition at Home.

Half a century elapsed between the heroic adventure for which General Greely is best remembered—the ill-fated polar expedition of 1881-1884—and formal recognition of it by the nation which he had served. On his ninety-first birthday, March 27, 1935, he received a Medal of Honor from Congress "for his life of splendid public service."

When Greely and six other men were brought back to civilization, leaving behind eighteen of their companions who had met death among frozen hardships, he found that he had been dropped several files in the promotion list. He was then a first lieutenant, although he had emerged from the Civil War as a brevet major of volunteers after a distinguished record in many battles. Long afterward he blamed his

demotion on "political pull."

Tardy though his country was in recognizing his exploit of reaching further north—83 degrees and 24 minutes—than any previous explorer, his scientific accomplishments had won him international tribute long before. He had received the medals of the Royal Geographical Society of London and the French Geographical Society. His scientific work was summed up as follows:

"It made the nearest gravity observations to the Pole, ascertained the climatic conditions of Grinnell Land, made glaciological studies, determined the hitherto unknown secular magnetic variation of that region, and through its tidal observations first disclosed the conformity of the sidereal day with the diurnal inequality of the tidal waves of the earth."

One of the party, an Eskimo, was drowned. Another was shot on Greely's orders because he had repeatedly pilfered rations when there were hardly any rations left. The rest were found in an almost moribund condition on Cape Sabine on June 23, 1884, by the third relief expedition under Commander, later Admiral, Winfield Scott Schley. From April 3, when the rations had dwindled to five pounds of meat, three pounds of bread and a little stearine for each man, they were left to fight cold, starvation and other privations until rescue came. Greely and his six remaining companions had then been without food of any kind for forty-two hours.

Diary Told of Hardships.

During the months that Greely and his companions were isolated in the Far North he wrote a diary which eloquently told of the terrible sufferings they had to undergo. There was no Arctic horror that passed them by. They literally ate

REMINISCENT OF AN EARLIER 'FARTHEST NORTH'



Painting of the Greely expedition of 1883 showing the reaching of the point nearest the north pole. Albert Operti was commissioned to make it by W. E. Chandler, Secretary of War. Lieut. Lockwood is making an observation and standing by him is Sergt. Brainard.

their boots, then munched dry lichens and gnawed the remnants of their sealskin clothing. With frozen hands they struggled over the ice in vain search for animal life, sometimes killing a seal or a bear only to see its body sink between ice floes at their feet.

The Greely Expedition was formed after the International Geographical Congress, in session at Hamburg, had recommended, in 1879, the establishment of a chain of thirteen circumpolar stations.

Under acts of Congress in 1880 and 1881 Lieutenant Greely was placed in command of what was known officially as the Lady Franklin Bay Expedition. Greely had volunteered for the service, and after an appropriation of \$25,000 had been passed he was authorized to take two other officers and twenty-one soldiers from the ranks, to charter a steam vessel and to hire Eskimo hunters.

The vessel selected was the Proteus, an iron-sheathed whaler of 467 tons register. It was arranged that a relief expedition should seek them in 1882, and, if that failed, another in 1883. As it turned out, these both failed, and the third, under Schley, did not reach the survivors until the nick of time.

Lieutenant Greely had seen hard service and danger before. He had fought through the Civil War as a private, rising to the rank of Brevet Major, and he had taken part in the sieges of Yorktown and Port Hudson and the battles of Fair Oaks, Peach Orchard, Savage Station, White Oak Swamp, Malvern Hill, Antietam and Fredericksburg.

After the polar expedition he made a name for himself as a builder of telegraphic communication in many parts of the world. From 1898 until 1902, during military operations abroad, there were built and operated under his direction 1,000 miles of telegraph in Puerto Rico, 3,800 miles in Cuba, 250 miles in China and 13,500 miles of lines and cables in the Philippine Islands.

Supervised Wireless Work.

The system of 3,900 miles of telegraph wires, submarine cables and wireless built up in Alaska from 1900 until 1904 was supervised by Greely, the wireless section of 107 miles from Nome to St. Michael being the first successful long-distance wireless operated regularly as part of a commercial system.

When still a young Lieutenant of cavalry, Greely had supervised the construction of 2,000 miles of telegraph in Texas, Dakota and Montana.

General Greely was in charge of all official relief operations at San Francisco after the great earthquake in 1906. He was placed on the army retired list, having reached the age limit, in 1908.

Adolphus Washington Greely was born at Newburyport, Mass., on March 27, 1844. He was the son of John Balch Greely and Mrs. Frances Greely, née Cobb. After graduating from Newburyport High School in 1863, he volunteered for service when the Civil War broke out. On account of his age—he was only 17—he had considerable difficulty in joining the Union forces, but he finally bluffed his way into the ranks of one of the Massachusetts infantry regiments. During the war he was wounded three times.

In 1867 he was appointed Second Lieutenant in the Twenty-sixth United States Infantry, and six years later he was a First Lieutenant in the Fifth Cavalry. Promotion was slow, and it was not until 1886 that he gained the two bars of a Captain. But the next year he was promoted to Brigadier General and Chief Signal Officer of the United States Army. On Feb. 10, 1906, he became a Major General. Greely was the first volunteer private soldier to reach the grade of Brigadier General in the regular army.

In 1904 General Greely was ap-



Gen. Greely just before the Arctic journey which won him fame.

Photo taken in Spring of 1880, at age of 36.

pointed a member of the board to regulate wireless telegraphy in the United States. The following year he was a member of the board to report on the coast defenses of the United States. He was the official delegate to the International Telegraph Conference in London in 1903. General Greely officially represented the United States and President Taft at the coronation of King George of England in 1911.

General Greely always doubted that either Dr. Cook or Admiral Peary had discovered the North Pole. Without questioning their sincerity, he said, in 1926:

"I am not calling either Dr. Cook or Admiral Peary, a liar, but I am convinced that neither one actually reached the Pole. Neither was able to give unquestionable proof that he had reached his goal; neither had testimony of scientific witnesses to substantiate his claims, as had Amundsen when he announced he had reached the South Pole."

Among the many books which General Greely wrote were the following: "Isothermal Lines of the United States," "Diurnal Fluctuations of Barometric Pressure," "American Weather," "American Explorers," "Rainfall of Western States and Territories," "Climate of Oregon and Washington," "Climate of Nebraska," "Climate of Texas," "Public Documents United States," "Congress of Polar Discoveries," "Handbook of Polar Discoveries," "Handbook of Alaska," "True Tales of Arctic Heroism," "Reminiscences of Travel and Adventure" and "Reminiscences of Adventure and Service."

He was married on June 20, 1879, to Miss Henrietta H. C. Nesmith.

PRESIDENT PAYS TRIBUTE.

WASHINGTON, Oct. 21 (AP).—Colonel John N. Greely received from President Roosevelt today a message of regret at the death of his father, Major General Adolphus W. Greely. The message, radioed from the cruiser Houston, said:

"I offer to you and through you to the members of your family assurance of sincere sympathy in the death of your father. As an explorer, General Greely bore privation and physical suffering with true heroism. And later, through long and devoted service to science, he enlarged the field of human knowledge."

CAPT. COLWELL DEAD; ON SCHLEY EXPEDITION

Retired Naval Officer Was One of Men Who Found A. W. Greely in the Arctic.

MORRISTOWN, N. J., Jan. 7.—Captain John Charles Colwell, U. S. Navy (retired), died today of heart disease at the Morristown home of his son, Kent G. Colwell. He was seventy-nine year old, a native of Carlisle, Pa.

Captain Colwell's naval service covered thirty-six years, from his graduation from the Naval Academy in 1874 until his final retirement in 1910. He was a member of the second expedition sent to find Major General Adolphus W. Greely in the Arctic in 1883 and during the Spanish War was naval attache of the American Embassy in London, performing duties which were unspectacular, but important to the nation.

Captain Colwell had been a lieutenant, serving on several vessels of the Navy and the Coast Guard, when he was assigned to the Yantic, which accompanied the Proteus, the ship which carried the second Greely relief expedition, commanded by Lieutenant E. A. Garlington, of the 7th Cavalry.

General Greely, then a lieutenant, had led twenty-four men into the Polar Sea in 1881 to establish a sub-polar base, one of thirteen planned by the International Geographical Congress in 1879. The arrangement was that a relief ship should be sent for him in 1882 and, if it failed, in 1883. The first ship was stuck in the ice and the Proteus took over the job.

Passed 39 Days in Open Boat

Lieutenant Colwell was transferred to the Proteus when the Yantic reached the Polar Seas, and when the Proteus was caught in the floes he was the last to leave her. Lieutenant Garlington sent him down the Greenland coast and later a whaleboat from the Yantic was sent after him at Godhavn. He reached his command after passing thirty-nine days in the open whaleboat.

Lieutenant Greely was not rescued until June 23, 1884, by a party headed by Commander Winfield S. Schley. With six of his men he was found, by a stroke of luck, under a collapsed tent at Cape Sabine: The rest of the party had perished.

LEONARD BRIGHT DIES; ON 1866 ARCTIC TRIP

Last Survivor of Collins Attempt to Lay Telegraph Line in North

Leonard Bright, former sailor, adventurer, chef and explorer and the last survivor of the Collins Overland Telegraph Expedition, died on Jan. 3 at his home, 156 Henry Street, Brooklyn, in his eighty-ninth year.

Mr. Bright was the youngest member of the expedition which, in 1866, sailed northward from San Francisco to attempt to build an overland telegraph line from the United States to Europe by way of the Bering Strait and Asiatic Russia. Twenty-five auxiliary steamships and other vessels made up the expedition and Mr. Bright sailed as cabin boy for Captain C. M. Scammon of the flagship Nightingale. One of the ships, the Golden Gate, was lost in the ice with all aboard. The expedition subsequently was abandoned when word reached those in charge that the first Atlantic cable had been laid

JAPANESE APPEAR IN WHALING SEAS

New Zealand, Which Exercises Authority in Southern Waters, Watches Venture Closely.

WELLINGTON, N. Z.—Japan's challenge to the industrial nations took a wider sweep November with the arrival in Southern waters of the first whaling fleet to sail from Nippon to the South.

The whalers include the mother ship, Tonan Maru, and five chasers. They are sent by the Nippon Sangyo Kaisha to investigate the opportunities of building up a Japanese whaling trade in the Antarctic and neighboring waters.

The cruise will last five months, during which the owners in Osaka will be in communication by radio.

New Zealand watches the Japanese expedition keenly, for this country administers the Ross Sea for Britain and has wide territorial authority over the whaling waters. Following the signature of the International Convention on Whaling of 1931, New Zealand has just passed a Whaling Act which aims at the conservation of the species known as the right whale. Repeated reports by the New Zealand Secretary of Marine, protesting the consistent killing of great numbers of whales by unlicensed ships, are also behind the recent action of the government here, which has imposed drastic restrictions upon whaling in waters over which it has sovereignty.

DISCOUNTS ESKIMO IGLOO.

Veteran Alaska Flier Asserts That Natives Prefer Tents.

SEATTLE, Wash., Jan. 20 (AP).—The traditional igloo of the Eskimo, that dome-shaped little house of snow sketched in old picture books and geographies, was discredited today by Noel Wien, pioneer Alaskan airman.

"Some Eskimos build snow houses when they are caught out on the trails, hunting or trapping or traveling," Wien said. "But most of them live in tents if they haven't wooden huts."

They live in their tents in Winter time but build a snow wall around the tent about three or four feet away from its walls as a wind-break.

"They don't build the snow wall against the sides of the tent because snow would drift on top of the tent and soon bury it. Building the wall three or four feet away leaves a safety margin for drifting snow."

Greely Rests in Arlington

WASHINGTON, Oct. 22 (AP).—Major General Adolphus W. Greely was buried today in Arlington Cemetery. A solemn booming of thirteen guns marked entrance of the procession into Arlington, where military services were completed.

Among the honorary pallbearers was Brigadier General David L. Brainard, retired, last survivor of Greely's Arctic experience.

EXPLORERS VISIT PEARY MONUMENT

Bartlett Expedition Makes Pilgrimage to Summit of Cape York.

By Captain R. A. BARTLETT.

ON BOARD SCHOONER MORRISSEY, Aug. 9.—From New York to Brigus, Nfld., we had a splendid run. The Morrissey made a record of just one week to the hour. Our stay was short, just long enough to pick up extra boats and camping outfits.

Out from Brigus the winds were scant, so that we were close hauled to Belle Isle Straits. A fine day and a smooth sea carried us to Round Hill Island. Here we met the drift ice with many bergs and growlers, the first we had seen, and passed near the Funk Islands, Newfoundland. From here I had hoped to follow the Labrador coast north, but bad ice conditions prevented my doing so. Consequently I shaped our course for Disco Island, Greenland. Scant winds again made us close hauled, which, at times, with the head pitch, prevented our making a good speed or keeping the best course. During the early hours of the eighth day out from Brigus we ran out of thick fog into brilliant sunshine, with Godhavn, Greenland, a little on our starboard bow and eleven miles away.

Trip to Disco Island.

Just west of Godhavn, along the southern coast of Disco Island at Ovivak, Professor Nordenskjold in 1870 discovered some huge blocks of native iron which he thought were meteoric. In the following year he led an expedition to Disco Island and succeeded in bringing the largest piece, weighing nineteen tons, back to Sweden. Since then all the large pieces have been recovered by various expeditions, and it is now known that the iron belongs to that locality and is not meteoric. As such it is very rare. We were interested in obtaining some of this ore for the Smithsonian Institution in Washington. It was with this in mind that we touched in at Godhavn. Dr. Portside and Governor Rosendahl of Godhavn were very generous with their knowledge of the iron formation and its whereabouts. Accordingly, we set forth for Ovivak, where the great basalt cliffs or blue mountains rise 2,000 feet above the beach.

The beach is formed by the talus from the great mountains behind and is open to all southerly weather. It is a very difficult place to land, even with the calmest of weather, and we were very fortunate in having it so. We located the ridge from which the ore was supposed to have come, and sure enough succeeded in extracting from it a number of small pieces of the rare mineralization. All the large pieces had been removed. This rusty-looking iron ore has many peculiar characteristics, one of which is to crumble away when subjected to ordinary room temper-



Times Wide World Photo.

STILL STANDS IN NORTH. The Peary Monument at Cape York.

atures or when enclosed in some case. It must be left out in the open. The larger pieces we have secured on deck, while the small pieces, weighing about 100 pounds, we have preserved in alcohol. Denmark guards this rare ore, as well she should. The State Department at Washington was therefore very fortunate in obtaining permission from the Danish Government for us to collect a few samples.

Next Stop at Duck Islands.

From Disco Island we proceeded north to the Duck Islands, at the southern entrance to Melville Bay. We were blessed with beautiful weather, and the high, snow-capped mountains of Greenland, always on our starboard side, had an undying fascination.

We were busy at all times taking water surface temperatures and reporting on the ice conditions to the Hydrographic Office in Washington.

In Melville Bay Dr. Soutter made great use of the plankton net, making hauls every few hours or so for several days.

At Salve Island we went ashore to see Otah, the last of Peary's North Pole Eskimos and the mainstay of the band of Eskimos who helped to build the Peary monument three Summers ago. He was in fine fettle and the first to greet us, coming off in his kayak. The five houses of the settlement had been reconstructed since our last visit, three years ago.

Naturally, as we neared Cape York, among my own crew, all of whom had helped in the building of the monument three Summers ago, was the thought, "Has the monument survived the Winter storms?" Len Gushue in the early morning saw the glint of the new day sun reflecting from the monel metal cap. Joy was in our hearts. Visiting Thule a day later, the doctor at the station said in his annual Spring inspection of the Eskimos by dog team that from the conical rock, thirty miles distant,

Books Lost 41 Years Ago On Peary Trip Returned

PRINCE ALBERT, Sask., Sept. 4.—Two books which Alderman G. H. Carr of this city believed he had lost in Greenland forty-one years ago when a member of Admiral Peary's 1893-94 North Pole expedition turned up today—in the mail.

Mr. Carr was notified that a parcel of books awaited him at the customs office. On opening the parcel he discovered volumes of Stanley's "In Darkest Africa," which he had read through the long Arctic night while the polar party waited the futile dash for the North Pole.

They had been discovered among Admiral Peary's effects and forwarded by his daughter, Mrs. Edwin Stafford of Washington, D. C.

he saw the same reflection on the cap. It cheered them greatly, as he said, "a star to guide the traveler." Somewhat later, the mate, Will Bartlett, who was in the barrel, thought Len was mistaken; the monument looked short and stubby. It was wrapped in mist blowing from the ice caps. About one hour before reaching the village where Otah lives we saw it, dark and limned against the clear, Summer morning Arctic sky. What a real joy it was to see it so, the monument in native stone and on ground hallowed to the great Peary.

Party Climbs to Top of Cape.

As soon as the anchor was down, in the cove on the north side of the cape, all the members of the expedition and members of my own crew that could be spared climbed to the summit of the cape. It was a long, arduous climb; the warm western sun beating upon the mountain slopes made us shed our clothes almost to the naked buff, for many of us were not accustomed to climbing mountains. But what did it matter when love and pride were in our hearts? It was a pilgrimage.

We all assembled around the tablet on the south side of the monument near the base, where, beneath the inscription, we suspended the American flag. The two Stoddard boys and Marquand represented Princeton; Wallace, Dartmouth; Davies, Washington and Lee; Messerole and Nutt, Hotchkiss; Dr. Soutter, Harvard; Jack Angel, McGill, and I flew the Explorers Club flag. Leighton, Wyckoff and Ross made up the balance of the expedition's members. We chanted and the boys asked questions about Peary and the building of the monument. George Richards, George Bartlett and Harold Batten told of the many adventures during its erection. As we came away, George Richards said, "We'll all be dead, rotten and forgotten, but the monument will still be there."

Arctic 'Ghost Ship' Vanishes

SEATTLE, Nov. 22 (AP).—The Arctic's ghost ship has disappeared again. Coast Guardsmen, home from the far north patrol, reported today that for the second successive year they had seen no trace of the ghost ship Baychimo, "Flying Dutchman" of the Arctic. The fur ship, abandoned off Seashore Islands in 1931, has periodically vanished and reappeared since then, always wedged on top of the ice pack.

Mountain Range Found Underneath Bering Sea

Coast Guard Commander Reports Discovery

WASHINGTON, Aug. 30.—The discovery of a vast range of mountains submerged under the cold waters of the Bering Sea was reported today to the Coast Guard by Commander L. V. Keilhorn of the Bering Sea patrol.

Some of the peaks were said to rise almost perpendicularly for 11,000 feet from the ocean floor.

Discovered by the cutter Chelan, which is engaged in protecting the seal herd of the Bering Sea, these suboceanic mountains were described as lying between the Aleutian and Pribilof Islands. They roughly follow a course paralleling the Alaskan Rockies.

"The depths of water over this ridge vary," radioed Commander Keilhorn, who besides being a Coast Guard officer is a combined scientist and Federal marshal.

"We found one depth of only seventy-five fathoms, numerous 200-fathom spots. Extreme irregularity suggests other peaks and pinnacles closer to the surface."

This discovery, Coast Guard officials said, apparently confirms a theory understood here to be held by Professor Lyman Phifer of the University of Washington, that such a range of mountains must exist somewhere in the Bering Sea.

The cutter Chelan, of which Commander Keilhorn is master, is equipped with all manner of scientific devices and, while not engaged in other duties, its crew, charts the bottom of the Northern seas.

Besides protecting the seal herd and plumbing the depths, the Chelan carries medical aid to the Bering fishing fleet, visits Eskimo settlements, transports a floating Federal court and enforces Federal law over a large territory.

Commander Keilhorn and his subordinate officers all are Federal marshals and commissioners empowered to make arrests and perform marriages.

FLAGSHIP OF BYRD

GOES TO "GRAVEYARD"

NEW YORK, August 1. Admiral Byrd's Antarctic flagship Jacob Ruppert was returned to the Federal Government yesterday, boasting a record second to none in Polar exploration.

The Shipping Board vessel, formerly the Pacific Fir but renamed in honor of Col. Ruppert, penetrated farther south in the ice than any other ship afloat. Stained and scarred from her battles with the ice, she was tied up at the end of a string of rusting hulks off Staten Island.

Old Byrd Ship Rescued

Disabled Vamar, Once Eleanor Bolling, Towed In by Cutter

NORFOLK, Va., Jan. 3 (AP).—In the teeth of a storm today, a coast guard cutter picked up the Norfolk-bound ship Vamar ten miles southwest of Winter Quarter Shoal, got a line aboard and took the Vamar in tow. The ship was said to have rudder trouble and was running short of coal. The vessel was formerly the Eleanor Bolling, Admiral Byrd's first expedition ship to the South Pole.

Oil Leak Halts Soviet Flight to U.S. Via Pole, 900 Miles on the Way

MOSCOW, Aug. 3.—The Soviet transpolar airplane was forced to turn back this afternoon on its hoped-for nonstop flight from Moscow to San Francisco. It landed at 10:30 P. M. south of Leningrad at an airdrome where it had been instructed to land.

A defect in the oil-feed system, which eventually would have brought the plane down caused the interruption of the flight after the plane was already well along on its 6,000-mile trip and with all apparently going well.

The huge red plane was over Barents Sea, zooming along at 103 miles an hour—considerably faster than the estimates made before the take-off—when Sigmund Levanevsky, the chief pilot, and his two companions reluctantly were compelled to give up the flight.

The mishap was officially explained tonight in the following statement by Professor Otto Schmidt, chief of the Northern Sea Routes Administration and ground chief of the flight:

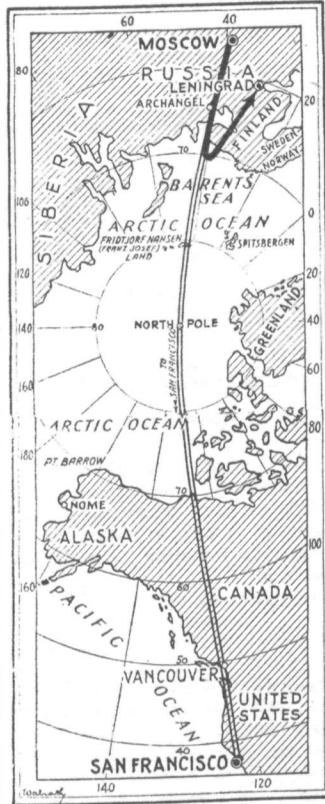
"The chief of the management of the Northern Sea Routes Administration has received a report from the crew of the airplane U.S.S.R. O-25 to the effect that oil from the distributing tank is being thrown off which has led to greater oil consumption than is permissible. The crew is unable to establish the cause and remove it. In consequence, the crew has asked permission to interrupt the flight along the set route and return to one of the airports in the Leningrad district.

"On receiving permission the plane turned back from the southern section of Barents Sea and headed for Leningrad via Kola Peninsula, the White Sea and Petrozavodsk. A special commission has been instructed to establish the cause of the defect in the normal functioning of the oil-feed system while in flight after the plane lands. The plane now is approaching Leningrad."

Concern over the plane's fate had arisen late today after several hours had passed without publication of any further bulletins from the plane, although earlier in the day they had been frequent. That uncertainty was ended by Professor Schmidt's statement.

The last previous report was at 2:25 P. M., when the plane radioed it was approaching Barents Sea over the northern coast of Kola Peninsula. At that time the aviators had covered nearly 900 miles and everything apparently was going well aboard the giant red-winged craft. Then the trouble developed—the same trouble that has brought down so many airplanes.

Take-Off Was Hazardous.
The beginning of the flight, following Mr. Levanevsky's skillful lifting of the eleven-ton craft at 6:03



FLIGHT OF THE RUSSIANS.

An oil leak compelled them to turn back in the Southern Barents Sea and they flew to Leningrad.

A. M. today almost at the end of the runway, was rough, for choppy winds buffeted it as it bore through clouds and rain. In the first stages of the flight, when the gasoline was heaviest, the plane did not go above 1,000 feet altitude. It crossed the Volga north of Kalyazin at 7:25 A. M. even lower than 1,000 feet.

The rain and fog had been left behind by then. From that point Victor Levchenko, the navigator, radioed, "Everything in order."

Passing the Mologa River and on entering the almost uninhabited region of swamps and lakes Mr. Levanevsky nursed the plane up to 2,500 feet. At 1:21 P. M. the plane radioed it had completed the crossing of the White Sea.

Then the flight was over the deserted Kola Peninsula—which the plane had just completed when the last bulletin was given out.

Beginning at noon many Soviet Arctic radio stations were in contact with the plane, and in the clear weather north of Moscow region thousands of villagers saw the great red bulk soaring overhead. Peasants near the White Sea coast dropped their work in the fields to run after the plane until it disappeared.

Loud-Speakers Not Necessary.

Dry, cold air in the Arctic conducts sound so well that ordinary speech can be heard for ten or fifteen miles, Dr. Vern O. Knudsen of the University of Southern California, at Los Angeles, declared recently.



Sigmund Levanevsky.

Polar Night Halts Flight Of Russian Pilot to U. S. Non-Stop Attempt Postponed Until Next Summer

MOSCOW, Aug. 22 (P).—The attempt of a Soviet airplane to fly non-stop to San Francisco, by way of the North Pole, has been postponed until the Summer of 1936, it was officially announced tonight. The setting in of the polar night was given as the reason for the postponement.

Professor Otto Schmidt, head of the Northern Sea Route Department, which organized the flight, said defects in the oil system which forced Pilot Sigmund Levanevsky and two companions to turn back Aug. 3 while over the Barents Sea en route to the pole had been corrected. But the weather has never been favorable for a resumption of the attempt.

After mid-August, Professor Schmidt said, it would be foolhardy to try such a flight. He explained the major purpose of the attempt is "to study important scientific problems" and not to perform a spectacular stunt.

ANDREYEFF LAND HELD TO BE REALITY

Russian Pilot Brings Fresh Evidence of Area Reported Sighted in 1763.

MOSCOW, Nov. 23 (P).—A report tending to strengthen the belief held by some explorers that land exists northwest of Wrangel Island in the Arctic Ocean was delivered to the government today by a Soviet pilot, V. S. Molokoff.

He informed the government's Northern Sea Route Department that he had flown as far north as 73 degrees latitude with a party of airmen and scientists. They were in search of the mysterious Andreyeff Land, whose existence has

been debated for two centuries. Although they found no land, Mr. Molokoff reported, "there was a vast expanse of unbreakable and immovable ice."

"We did not succeed in finding out what it held," he stated, "but perhaps there is shallow water there like the shallow zone discovered by the Sadko expedition north of the Kara Sea."

"There is also the possibility of the ice being retained by islands situated north of the seventy-third parallel."

The expedition on the ice-breaker Sadko last Summer discovered that the waters between Franz Josef Land and North Land were extremely shallow. George Ushakoff, its leader, expressed the opinion that the elevated sea bottom was part of land that sank into the sea some time in the remote past.

The zone explored by the Molokoff party is about 1,700 miles east of North Land and 700 miles west of Alaska.

A Soviet pilot named Maslenikoff, flying in the same region early last August, reported he had sighted a mountainous island with a valley in the centre. His statement was received with skepticism by some explorers, who expressed the belief he had mistaken an ice formation for land.

Chukchi Indians who inhabit the Chukotsk Peninsula, which juts out from the Siberian mainland toward Bering Strait, have a legend that Andreyeff Land exists. The legend says the area is inhabited by people who speak the Chukchi language and are skilled in the manufacture of brass weapons and utensils.

It has been called Andreyeff Land since 1763, when the Russian Sergeant Andreyeff, who had gone on an expedition to confirm its existence, reported he had seen it from a distance.

SEEKS 'SANNIKOFF LAND.'

Soviet in Spring Will Renew Quest of 125 Years.

MOSCOW, Dec. 17 (AP by Mail).—Soviet explorers will attempt next Spring to find elusive "Sannikoff Land," an island which Arctic expeditions have tried fruitlessly to reach over a period of 125 years.

Although unmarked on maps, it has been reported seen on several occasions. Now Soviet Russia hopes to make it a stopping point on the northern sea route, a short cut from Europe to the Far East.

An expedition similar to that on board the Sadko, which discovered three new islands between Franz Josef Land and North Land last Summer, will set out in quest of "Sannikoff Land" as soon as the Winter pack ice breaks up.

The position of the island has been given as about forty-five miles northwest of Koteln Island, the largest of the New Siberian group.

Byrd Plane for Ford Museum

EDGEWATER, N. J., Aug. 23.—The airplane Floyd Bennett, in which Rear Admiral Richard Evelyn Byrd flew over the South Pole, was put into the hands of workmen today at the Ford plant here to be dismantled for shipment over the Barge Canal to the Ford Museum at Dearborn, Mich. Buried in ice and snow for five years in Little America, the plane is incapable of flight in its present condition.

The ship was a contribution by Edsel Ford to the Byrd expedition and is being returned to him for exhibit at the museum. Workmen at the Detroit Ford plant are to get it into airworthy condition before it is put on view.

Soviet Seeks Arctic Route Linking Asia and Europe

ARCHANGEL, U. S. S. R., July 6.—A Soviet scientific expedition headed by George Uschikoff, assistant manager of the Russian Northern Sea Route, left today to seek an Arctic passage from Asia to Europe.

The expedition, in its search for warm currents making passage through the ice possible, will use the icebreaker Sadko, which was raised last year. It struck submerged rocks and sank in 1916.

Russian Ice-Breaker is Sailing in Quest of Gillis Land.

LENINGRAD (Soviet Service).—The Soviet icebreaker Sadko is sailing from Archangel on a 6,000-mile journey into the melancholy wastes of the Arctic to determine the existence of Gillis or Gilles Land, a phantom "lost" island of the North which has been reported seen by only a half-dozen persons since its alleged discovery by Captain Cornelis Gillis in 1707.

The expedition will also make a hydrological study of the lower depths of the polar basin, down to 3.1 miles, and explore the course of the Gulfstream as it finally "dies" in the frigid waters of the Arctic.

Leaving Archangel, the expedition will touch at North Cape, the southern part of Spitzbergen, go into Greenland Sea and then round Spitzbergen and Franz Joseph Land from the north, finally reaching the barren Siberian coast at Novaya Zembla, where the coal supply will be renewed. Turning north, the Sadko will again pass Franz Joseph Land, cruising about in little known waters, and finally go into the Lepatev Sea, the Vil-

klitsky Strait and the Kara Sea. Mindful of previous disasters, provisions and clothing enough to last for two and a half years will be taken, although the expedition plans to stay but four months. Headed by the explorer G. A. U. Ushakov, the seventy-two members of the party count among their number many leading Soviet geologists, hydro-chemists and physicists.

Equipment aboard the Sadko includes two airplanes, five research laboratories and four dog teams besides the over-supply of food and clothing.

The only accurate description of the island on record is said to be that of Dr. A. G. Nathorst, Swedish explorer who is alleged to have visited Gillis Land in 1898. He described it as a "glittering white mass from its peaks down to the sea." The peaks are supposedly 600 to 700 feet in height and the entire land a sheet of snow and ice.

Soviet Party Sees Signs Of Land in Unmapped Area

MOSCOW, Aug. 13.—The Soviet ice-breaker Sadko wireless today it had found signs indicating the presence of land in an unexplored area northeast of Greenland, about 275 miles from the North Pole. This area at present is a blank spot on maps.

The Sadko, carrying a party of scientists, penetrated a few miles into this area and the crew found the depth of the sea decreased from 450 meters [about 1,476 feet] to 150 meters and the bottom was covered with pebbles which, the explorers said, indicated the possibility of land near by.

The aviator Vlasoff took off to investigate but was prevented by mist from observing further than a radius of five miles. Further flights are planned.

Soviet Ship Nears Mysterious Arctic Force That Turns Vessels From Legendary Land

MOSCOW, Aug. 17.—News of what was declared to be the first exploration of a mysterious region near the top of the world where some unknown force is said to turn vessels off their courses was received in radio messages today from the Russian exploration ship Sadko. It is in this zone that the legendary Gillis, or Gilles Land is said to exist and the messages asserted the Sadko expedition had sighted on the horizon what was thought might be this land.

The region of unknown forces lies north of the 81st parallel, northeast of Northeastland, second largest island of the Spitzbergen group. Soviet scientists have reported that all vessels that previously tried to penetrate the region were turned mysteriously from their courses before they could enter it.

Sir Hubert Wilkins's submarine Nautilus, records here indicate, swerved unaccountably westward

as she approached the zone in 1931 and although she had been steering northeast she returned to Spitzbergen from the west.

The Soviet icebreaker Krassin, which reached a point near 81 degrees 30 minutes north latitude, likewise experienced an unaccountable change in direction, being turned to the southward. Soviet records show the steamer Knipovich reported a similar experience.

George Ushakoff, head of the Sadko expedition, said in a radio message:

"We crossed the southern border of the blank spot and approached the edge of the ice. We were surrounded by a heavy mist, and the visibility was so poor that we could not send out our planes for observation.

"However, for a few minutes the mist lifted, and we saw on the horizon what looked like land. We are remaining here in an effort to ascertain whether land really exists."

Explorers of Soviet Find No Gilles Land; Age-Long Controversy Believed to Be Ended

MOSCOW, Aug. 18.—The age-long controversy among scientists and explorers regarding the existence of so called "Gilles Land" was believed to have been settled today when the Soviet icebreaker Sadko reported to the Administration for the Northern Sea Route at Moscow that thorough search in the vicinity of the supposed terrain had revealed only "pack ice".

It was two centuries ago when a British sea captain named Gilles, looking over the prow of his ship, sighted what appeared to be a mass of land in the Arctic ice fields northeast of Spitzbergen. On returning to London he reported that he had found a new territory in the Arctic near the eighty-second parallel of latitude.

In 1899 Captain Makarov of Russia, commanding the ship Yermak, believed he saw land in the same locality. The latest "view" of the phantom island was reported by an Englishman named Curdeley in 1925.

However, the reports from the Sadko today definitely denied the existence of mysterious "Gilles Land." It was said that the ship had cruised for three days in the area of the "white spot" on the map where "Gilles Land" was supposed to exist. Observers saw only pack ice.

Thereafter Pilot Babushkin took off from the ship and flew over the entire western area of the "white spot," up to 82.5 degrees latitude, but he perceived no land.

It is generally believed among scientists that certain atmospheric conditions caused ice to resemble land, whence it was believed to be an island.

MOSCOW, Aug. 18 (AP).—Baffled by ice and fog, the Ushakov expedition was forced to suspend exploration of the mysterious blank area in the polar seas. It headed for Franz Josef Land, a radio message from the Soviet ship Sadko said today. Before giving up the search for the legendary Gillis Land, in the zone where some unknown force is said to turn vessels off their course, George Ushakov, head of the Sadko expedition, flew with pilot Babushkin for two and one-half hours over the region, penetrating to 82 degrees north latitude.

A thick ice pack compelled the Sadko to change her course from a direct easterly direction to southeasterly.

Ushakov's radiogram said: "We remained stationary for three days attempting to solve the mystery of the blank area. In our earlier observations we could find no land. Everything was covered with ice.

"On the night of August 13 we put one of our planes overboard and Babushkin and I took off for an exploration flight northward. We were in the air for two and one-half hours and reached 82 degrees latitude.

"A heavy fog made visibility very poor. Several times we were compelled to fly so low we literally skimmed the ice. The wings of the plane became covered with ice, obliging us to return to the boat.

"We then decided to steer along our main course eastward to Franz Josef Land. The fog made navigation most difficult. At latitude 81.26 longitude 31 we encountered a field of such thick ice that we had to change to a southeasterly course.

"Heavy snow is falling today."

The icebreaker Sadko, exploring near the seventy-ninth parallel between the Barents and Kara Seas,

reports a new theory significant to Arctic navigation from a specialist on plankton, or small animal and plant organisms that are incapable of going against the current. The theory is that the near-by presence of ice can be determined by the seasonal character of the plankton.

Warm Water Passage Is Found in Arctic

Soviet Ship Reports Current in Depths North of Spitzbergen.

MOSCOW, Aug. 30 (AP).—The Soviet ice-breaker Sadko, seeking a warm-current passage to the Far East through the Arctic, reported today that it was tracing a gulf stream north of Spitzbergen and Franz Joseph Land, from where it runs south to the Kara Sea.

Tests proved the presence of the stream in lower depths of water, the Sadko's scientific party reported by wireless, but the surface is covered with ice more than six feet thick. The vessel penetrated an unexplored area northeast of Franz Joseph Land.

STUDIES ARCTIC ISLANDS.

Soviet Expedition Reports Finding Graham Bell Land Bare.

MOSCOW, Sept. 1 (AP).—The Soviet icebreaker Sadko again penetrated the unexplored area between Franz Josef Land and Nicholas II Land, where it has been seeking new islands, George Ushakov, head of the expedition, reported by radio today.

The vessel was in the centre of the unexplored area at 81½ degrees of latitude. It was proceeding northward investigating an open channel through the ice.

The expedition recently stopped at Graham Bell Island, northeastern outpost of the Franz Josef group. The shores of the island, recorded as being eternally covered with snow, were "black and bare," Mr. Ushakov reported.

By The Associated Press.

MOSCOW, Sept. 2.—The Soviet ice breaker Sadko reported by radio today it had discovered a warm water passage through Arctic ice that might be a section of an open channel through which steamers could navigate to the Far East from Europe by way of the polar regions.

George Ushakov, head of the expedition exploring Arctic areas, said the passage was 650 feet wide, cutting through previously unexplored territory between Franz Josef Land and Nicholas II Land. He reported that the water lane was flanked by fields of impassable ice. He said he believed the water, with a temperature of only 30 degrees Fahrenheit, was a part of the Gulf Stream.

The passage was reported extending due north from the position of the Sadko, given as latitude 81 degrees 50 minutes, north.

RUSSIANS EXPLORE NEW ARCTIC ISLAND

Report It Is Covered With Ice
and Snow and Has 1,000-
Foot Elevations on It.

MOSCOW, Sept. 2.—The Russian ice breaker Sadko reported by wireless today the discovery of an island at latitude 80 degrees 51 minutes, north; longitude 75 degrees 25 minutes, east. The island may be mysterious "Gilles Land" about whose existence geographers have been debating for two centuries.

The Sadko has approached within one nautical mile of the shore and the expedition is preparing to explore and chart the island.

Soviet polar experts say the Sadko's discovery of the island north of Novaya Zemlya and east of Franz Josef Land had been predicted by the oceanographer Bezzkin, who is at present aboard the Sadko.

The German dirigible Graf Zepelin flew over the same region in 1931 without sighting any island. The explanation is advanced that the new island was then snow covered and could not be distinguished from the surrounding ice.

MOSCOW, Sept. 3 (AP).—A group of explorers on the icebreaker Sadko reported tonight that they had landed on the newly discovered island in the polar regions, had planted a red banner and had claimed the land in the name of the Soviet Union.

The landing was effected Sunday night, a radio message from the ship said. The explorers, equipped with dog teams, intended to try to penetrate inland and take photographs.

"The Sadko cast anchor at a depth of twenty-five meters close by an island at 8 P. M. Sunday," the message said. "Before the landing party went ashore we celebrated the discovery with a dinner aboard ship and agreed to recommend to the government that the island be named Ushakoff Land (after George Ushakoff, leader of the expedition).

"If the weather clears we shall make astronomical observations to fix the position more exactly. Fog Sunday night hung heavy over the island, but we saw great glaciers ten meters high and mountains in the background.

"We propose later to explore the whole region adjacent to the island in hope of discovering other land."

Mr. Ushakoff reported that an examination of micro-organisms in the warm-water passage cutting through the region in a northerly direction, whose discovery he reported yesterday, showed that they were foreign to Arctic seas. The expedition leader reported yesterday that he believed the water passage was a branch of the Gulf Stream and might provide a route to the Far East.

The newly discovered island is in a previously unexplored region east of Franz Josef Land.

ANIMAL LIFE IS REVEALED

Expedition Believes Land May
Be Part of Big Area That Sank
Below the Sea Long Ago.

MOSCOW, Sept. 4 (AP).—A group of Russian explorers climbed upon, flew over and photographed today the Arctic island that they reported discovering yesterday. They radioed back to civilization that they found it covered with snow and ice, with thousand-foot elevations, fresh water springs and animal life.

Nine of the explorers, headed by the expedition's chief, Professor George Ushakoff, went ashore in a small boat and spent three hours collecting impressions. Afterward they sent an airplane over it to determine its size and position.

One of the party, named Zuboff, reporting for his fellows by radio from the icebreaker Sadko, said he believed they had found part of an immense land that had sunk below sea level long ago. He said he believed exploration of the surrounding region would lead to the discovery of still other hitherto uncharted islands.

Landing Places Scarce.

The radio report of the exploration was enthusiastic.

"Food, guns, moving-picture cameras and a first-aid kit were packed into a small boat," Mr. Zuboff said. "Ushakoff set out with eight companions to explore. It was difficult to find a landing place, as the ice-covered shore rose ten feet from the sea abruptly. The sides were filled with caverns, which we did not attempt to explore.

"After a long search, we found a small inlet. Ushakoff was the first to step ashore. Looking around, he saw only ice and snow. He burst into laughter, asking, 'Where is this land?'

"Then the rest of us landed and a movie man began taking pictures. We marched over the ice crust toward an elevation that had the form of a great ice shield. It appeared to be a thousand feet high.

"For three hours we wandered about the island but were able to penetrate only about three kilometers [1.86 miles] inland, being unable to reach the elevation.

"We discovered a number of springs, which at first appeared to be frozen over solidly. However, Ushakoff found to his sorrow that this was not the case. He fell into one and had a cold bath. The temperature of the water was about 2 degrees above zero centigrade [35.6 degrees Fahrenheit].

"Besides springs, there were several small lakes of melted snow.

Leader Shoots a Bear.

"Later, we separated and explored the coast. The depth of the sea in most places was about sixty-five feet at the coast. We saw footprints of bears and trailed them, coming upon a live animal, which Ushakoff shot.

"Near the shore we found four logs, which had evidently drifted to the island. Carved on one of them was a sign, 'S 1 1633.' We wrote 'Sadko' on it and planted it in a vertical position."

The party reported the airplane, piloted by an aviator named Vlasoff, carrying Captain Nicholayeff, the Sadko's skipper, flew over the

island. The observers found the island to be oval-shaped, nine to eleven miles wide, twenty-three to twenty-eight miles long and stretching from southwest to northeast.

Professor Ushakoff said the Sadko would circle the island, exploring the coast in detail.

NEW ARCTIC ISLAND MAY AID AIR ROUTE

Land Named for Ushakoff,
Head of Expedition, Believed
to Be Part of Archipelago.

HUGE ICEBERGS GIVE CLUE

MOSCOW, Sept. 5.—The discovery by Russian explorers on the icebreaker Sadko of Ushakoff Island is expected to have important bearing on the projected Arctic air route. The new island has been named for Professor George Ushakoff, the leader of the Sadko Expedition. Today's reports quote Professor Ushakoff as saying the huge table-like icebergs found floating in the vicinity indicated either a very large island or an archipelago previously uncharted. He declared the icebergs were too large to have originated on Ushakoff Island, which he found to be twenty-three to twenty-eight miles long and nine to eleven miles wide.

By The Associated Press.

MOSCOW, Sept. 5.—The Soviet ice-breaker Sadko reported today it would explore a region surrounding the newly discovered Arctic island in an effort to substantiate a theory the island is part of a land screen protecting the European continent from polar ice.

The island is in an area previously unexplored, east of Franz Josef Land. Indications are that it is part of a mostly submerged mountain chain reaching from the Russian coast across the Polar Sea between the Franz Josef Islands and Nicholas II Land.

Professor George Ushakoff, head of the exploring party, reported to Moscow by radio that soundings indicated the whole ocean floor was elevated in that region. There was reason to believe other islands existed, he added.

The screen theory is that islands, separated by shallow waters, dot the route from Franz Josef Land to Nicholas II Land. A screen, in conjunction with the Franz Josef group, would prevent heavy ice from drifting south to the Kara and Barents Seas.

"We believe only a very narrow pass unites the Kara Sea and the Polar basin," said Professor Ushakoff. "The waters around the pass appear very shallow, with indications there are more islands awaiting discovery.

"We observed many huge icebergs too large and too numerous to be due to the presence of only one island. Somewhere near by there must be a much larger island or group of islands. Fog is so dense our visibility is limited to less than 100 meters (328 feet), but we intend to continue the search."

SOVIET EXPLORERS FIND MORE ISLANDS

MOSCOW Sept. 8 (AP).—The Soviet icebreaker Sadko announced by radio today it had discovered three new islands in the unexplored Arctic zone between Franz Josef Land and Northern Land, formerly Nicholas II Land.

The islands were described as smaller than the recently discovered Ushakoff Island and were reported situated a short distance from Northern Land near the island of Komsolomitz on the southern edge of an unexplored area due north of Cape Frunze and Cape Litvinoff.

The expedition reported earlier today that an underwater protective barrier against Arctic ice extended eastward from Franz Josef Land as far as the expedition has been able to proceed in the unexplored area around the eightieth and eighty-first parallels.

The depth of the water averages only 30 meters (about 98 feet), Professor George Ushakoff, leader of the expedition, reported in a radio message. He expressed the conviction that the elevation of the sea bottom is part of a submerged mountain chain rising northeast of Barents Sea and north of Kara Sea.

Heavier ice does not pass this ridge, which Mr. Ushakoff said he believed protruded in various parts of the unexplored region to form other islands as yet undiscovered.

A heavy fog made exploration eastward of the barrier difficult, and the Sadko turned to examine the southwestern section of the underwater barrier.

Arctic Explorers Raise Marker

MOSCOW, Sept. 9 (AP).—A party of Soviet Arctic explorers, after landing from the icebreaker Sadko, claimed three small islands discovered near Northern Land in the name of the Soviet Union today. Professor George Ushakoff, leader of the expedition, flew over the islands later and fixed their positions for map markings.

"Crossing the Ninety-first Meridian from the west, a lookout sighted a low, narrow strip of land shortly before midnight Sept. 7," a radio message from the Sadko said. "Our view was very hazy, due to fog. We approached prudently in thirty meters of water, and when the fog lifted sufficiently we perceived there two islands separated by a narrow strait.

"Since these islands were not marked on the map, we decided to land. We left the Sadko in a small boat at 3 A. M., Sept. 8. The fog closed in again and we had to steer by compass.

"The main island proved to be a small oblong, very low. We walked along the shore, covered with pebbles, sand and clay, and saw footprints of bears and pieces of driftwood, some of which bore letters and numbers. We planted a log upright on the highest part of the island, having carved on it 'Sadko, 1935. Ushakoff and companions.'

"Returning to the Sadko, Ushakoff flew with Pilot Vlasoff over the islands and discovered there a third, very small island in the middle straits."

Arctic Storm Imperils 78 on Soviet Ice Breaker

Huge Waves Toy With Ship Carrying Explorers

By The Associated Press.

MOSCOW, Sept. 12.—Fears arose today for the safety of seventy-eight persons, including many leading Russian scientists, aboard the Soviet ice-breaker Sadko, which is being pounded by a terrific Arctic storm.

The exploratory ship is in the northern part of an unexplored area east of Franz Josef Land. Near this spot the Sadko recently reported the discovery of three new islands and the presence of a warm stream originating in the Atlantic.

Latest word from the explorers, a wireless message yesterday, said the storm "is toying with our ship" and "the barometer continues to fall."

When the storm came up the Sadko was investigating a deep open-water channel believed to connect the Kara Sea with the polar basin and had reached 81½ degrees north latitude. The storm was described as "paradoxical" in such a northern region.

Met Field of Solid Ice.

"Eighty miles west of the new islands we came to a field of solid ice and headed northward along the edge," the radio report said. "To the east and ahead of us there was open sea."

"Soundings showed we were in a wide and relatively deep pass, which we believe unites the Kara Sea with the polar basin. There also is a western pass between the shallow waters of a protective barrier and Franz Josef Land."

"On Sept. 10 we made an interesting discovery. We found that at a depth of 100 meters [328 feet] there is a warm stream originating in the Atlantic. Nobody had been able to confirm its existence here."

"Exploring the northern part of an area left blank on maps, we reached 81½ degrees northern latitude. On midnight of the 10th we turned eastward, and in the morning the storm came up."

By The Associated Press.

MOSCOW, Sept. 13.—The Soviet icebreaker Sadko, after riding out a fierce storm, penetrated the Arctic to 82½ degrees north latitude, she reported tonight. Russians said it was the farthest north any vessel had ever navigated in open water.

ICE-FREE SEA FOUND FAR NORTH BY SOVIET

Ice-Breaker Sadko Sets New Record in Reaching Lat. 82 Degrees 32 Minutes.

MOSCOW, Sept. 14.—A record for North Latitude, free-water navigation was set up by the Soviet icebreaker Sadko yesterday at 82 degrees 32 minutes North Latitude. This is of major importance in the Soviet assertion of the establishment of a regular great northern trade route through the northeast passage.

The Sadko's most northerly sounding, in passing through ice-free water north of Severnaya Zemlya,

revealed a depth of 7,757 feet. In that vicinity the icebreaker found a warm current, and scientists aboard advanced the theory that it was a branch of the Gulf Stream. If true, it offers a way around the most serious bar to navigation of the northeast trade route.

Year-round ice packs in Vilkitsky Straits, south of the Severnaya Zemlya archipelago, hitherto have proved a hindrance to this Soviet plan. The Sadko expedition asserts it has carried the Red flag nearer to the Pole than any other polar ship, except those drifting with ice-packs, which invariably came to grief.

In 1929 the Soviet ice-breaker Sedo, led by Professor Otto Schmidt, reached 82 degrees 14 minutes North Latitude, near Franz Josef Land. That was the previous record.

ARCTIC SHIP RETURNING.

Icebreaker Sadko Bound for Russia as Polar Night Closes In.

MOSCOW, Sept. 16 (P).—The icebreaker Sadko turned homeward today as the long polar night closed around it, making further exploration impracticable.

SOVIET SHIP SAILS ACROSS BLANK AREA

Moscow, Sept. 18 (P).—A blank spot indicating an unexplored area between Franz Josefland and Northland, formerly Nicholas II Land, was changed on Soviet maps today. The Soviet ice breaker Sadko radioed that it had crossed the center of the map's blank area and was near Graham Bell Island, one of the Franz Josef group.

ASSERTS ATLANTIC DOMINATES ARCTIC

Soviet Expedition Finds Ice Movements Controlled by Ocean Currents.

MOSCOW, Sept. 21.—The most important result of the icebreaker Sadko's expedition was the establishment today that Atlantic waters are the dominating factor in Arctic ice movements—a finding that was necessary to the inauguration of regular freight and passenger traffic through the Northeast Passage, according to Professor George Ushakoff, leader of the expedition.

Having covered 7,017 miles, more than 3,700 of which were north of the eightieth parallel, in a two-month period, the icebreaker is now steaming to its home port of Archangel.

Professor Ushakoff hails the expedition as a great victory for Soviet Arctic exploration, pointing out the elimination of a vacant spot on the map between Franz Josef Land and North Land—an area of more than 13,510 square miles, where one large and three small islands were discovered.

The expedition also established a world record for the furthest north-

erly free navigation to Lat. 82 degrees 40 minutes, in that section carrying out unprecedented work in sounding the ocean depths, establishing temperatures in water tests down to 7,870 feet.

The expedition, numbering more than seventy scientists, most of whom worked twenty hours daily, according to Professor Ushakoff, carried out extensive observations of all Arctic phenomena. As a result, the expedition established a method of making weather forecasts in the Far North and brought about many changes in Arctic concepts in regard to hydrology.

Radio balloons were used by an expedition for the first time in the Arctic for the study of the strato-

sphere. The expedition covered the Arctic beyond the Norwegian coast over the Barents, Greenland and Kara seas to Cape Molotoff.

ARCHANGEL, U.S.S.R., Sept. 20 (P).—The Soviet ice-breaker Sadko returned today from an eighty-five-day Arctic exploration journey with data which scientists aboard said would for the first time permit accurate prediction of ice formation in extreme northern region.

George Ushakov, head of the expedition, said he was convinced of possibilities of regular navigation along the northern sea route, running along the northern coast of Europe and Asia.

ARCTIC MYSTERIES PIERCED

New Land Discovered by Russians Serves to Hold Back Vast Seas of Moving Ice

By RUSSELL OWEN.

The discovery of new islands in the Arctic Sea between Franz Josef Land (Nansen Land) and North Land (formerly Nicholas II Land) is the result of the intensive Soviet efforts to learn more of the ocean currents and possible land barriers in this region as an aid to their development of the Northern Sea Route. They have been working in this hitherto unexplored section of the frozen sea since early in the Summer.

Never before has such an intensive investigation of the Arctic been conducted as has been going on this season from the White Sea to Bering Strait, and the Sadko expedition which made the island discoveries was the most important of the scientific voyages. The ship went up west of Spitzbergen into the ice and has slowly been working its way through fog and heavy pack toward North Land. The Sadko is an ice breaker especially reconstructed for this task, a type of ship which the Russians have perfected for use in heavy ice.

Their work in this direction was to trace the warm waters of the

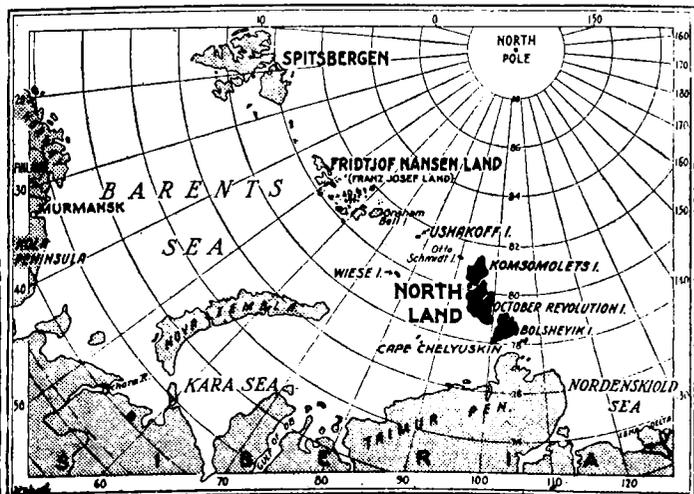
Gulf Stream, which far south drop below the colder surface water, but rise after passing Spitzbergen. Here the waters turn east and have a marked effect on ice conditions along the northern European and Siberian coasts. One of the most interesting discoveries made by Professor George Ushakoff, in command of the expedition, is of a wide stretch of open water running due south from as high a latitude as 81 degrees 50 minutes. In this water he found forms of life not native to the Arctic Sea. Understanding of this current, and the islands which Ushakoff thinks may act as a barrier to the polar ice, will help the Russians to predict ice conditions on the western half of their northern route to Vladivostok.

Area of the Islands.

The general area of the islands lies on the edge of the continental shelf, the area where the great land masses of the continents extend beyond their actual coast line slightly below the level of the sea, it was learned at the American Geographical Society of New York.

Nansen in his observations on

NEW LANDS EXPLORED IN FAR NORTH



Arctic oceanography in "Problems of Polar Research," published by the society, foresaw that other islands probably would be discovered on this shelf. A Russian scientist, Wiese, from the drift of a vessel that had been caught in the pack, forecast in 1925 the existence of an island in the neighborhood. It was found in 1930 and named Wiese Island.

The three islands reported on Sept. 8 as discovered by the Sadko expedition near Komsomolets Island—the northernmost of the North Land Archipelago—are apparently in this general vicinity. The relatively large oval-shaped, ice-capped island, about ten miles wide and twenty-five miles long, discovered a few days previously and named Ushakoff Island, lies about half way between Otto Schmidt Island and Graham Bell Island, the easternmost of the Franz Josef Land archipelago.

"Ushakoff's deductions with regard to the relation of these islands to the pack ice of the Arctic Sea seem plausible," said W. L. G. Joerg, in charge of polar research at the American Geographical Society. "Ushakoff reported large masses of ice apparently grounded on the submarine ridge from which the newly discovered and previously discovered series of islands project. He interprets this as ice from the Arctic Sea which has been stopped in its southern advance by this barrier.

Arctic Currents.

"This is in keeping with the known facts of the circulation of the currents in the Arctic Sea, as set forth mainly on the basis of the investigations of Admiral Koichak by Commander N. A. Transehe. The currents in the Arctic Sea in general rotate clockwise and tend to press the ice toward the outer margin of the Arctic basin, where it seeks escape southward in the few places where there is a breach for it to do so.

"In the Eurasian sector the current pushes toward the west. Practically its only escape outlet is between Greenland and Spitsbergen. The discovery of the present series of islands indicates that there is a barrier preventing the pack ice from penetrating southward in bulk into the Kara Sea.

"In the opposite direction the 650-foot wide lane of open sea that Ushakoff reports as extending north of latitude 81 degrees 50 minutes, between Franz Josef Land and North Land, may possibly constitute, as he interprets it, an offshoot of the warmer waters of the Gulf Stream, which keep this area free from ice."

The Russians are determined to find a northern sea route they can keep open with a minimum of effort, and so enable freighters to travel along the rim of the Arctic, not only to tap the rich interior, but also to relieve the Transsiberian Railroad. To do this they have linked science with commercial adventure in a way which has never been attempted before.

RELICS OF ANCIENTS REVEALED IN ARCTIC

Soviet Archaeologists Dig Up Evidences of Culture on Yamal Peninsula.

MOSCOW, Sept. 23.—Evidences of the existence of populous settlements with highly developed ancient culture on the barren frozen tundra of Yamal Peninsula, beyond the Arctic Circle, have been uncovered by an expedition of Soviet archaeologists working for the Institute of Anthropology and Ethnography of the U.S.S.R. Academy of Sciences.

Although today this territory is populated only by nomadic reindeer herders, two men for every five miles of territory, the nature of domestic utensils and agricultural implements found indicates that here once flourished a sedentary culture. The scientists, after digging for seven months in the vicinity of Obdorsk, on the lower section of the Polui River, came upon ruins of many ancient settlements.

More than 12,000 objects of scientific interest have been found, including ceramics, file bone carvings, fine-toothed combs, hairpins for tall headdresses, spoons made from mammoth bones, fragments and broken pots used to melt metal, as well as objects resembling small hoes, knitting needles, bronze objects and bones of animals and birds no longer existent.

The disclosure of the secrets of the lands that lie within the Arctic Circle has been the objective for some time of one of the most intensive efforts ever undertaken by Russian scientists. This work is being carried out both by land and by sea.

The discovery of new islands and the uncovering of information about Arctic currents has been the objective of the sea investigation, which extends from the White Sea



SITE OF SOVIET FINDS.

Map shows location of Yamal Peninsula, northwest of Siberia, now believed a seat of ancient culture.

to Bering Strait. Reports of the sea workers, telling of the discovery of new islands, have been numerous in recent months. The land parties have not hitherto been heard from.

The Yamal Peninsula extends from the South into the Yara Sea. The whole of Yamal is a single great plain, made up of sand, clay, gravel and pebbles. Along the shore on the sea, it falls in a steep slope, but inland it is one low, undulating plain, covered with grass and moss, with asier thickets and studded by a series of lakes. It is considered excellent land for reindeer grazing.

There are ten different tribes in Yamal, each with its own section of the peninsula as a rule, and usually each tribe has fixed boundaries for its reindeer pastures. Chief among these tribes is the migratory Samoyede. The Samoyedes live well in Yamal in the warm season. But from November to March Yamal is almost devoid of people.

The entire population of the peninsula has been estimated at less than 2,000.

Warm Atlantic Current Crosses Arctic Sea, Reaching Wrangel Island, Russians Find

MOSCOW, Nov. 2.—The discovery that a warm current from the Atlantic Ocean penetrates Arctic regions as far east as Wrangel Island, only 500 miles from Bering Strait, was announced today after investigations by Soviet scientists aboard the icebreaker Krassin.

A current had already been discovered 1,700 miles to the west, between Northland and Franz Josef Land, by the icebreaker Sadko last Summer. Professor George Ushakoff, head of the Sadko expedition, then expressed the belief that the current might traverse the whole Northern Sea route from Europe to the Far East.

The findings of the Krassin scientists were regarded as of great importance and as bearing out Professor Ushakoff's belief.

The Soviet Union, intent on opening the Arctic route to regular navigation,

has sent out numerous expeditions in the last few years to chart channels and collect data to permit accurate prediction of ice formations. The warm Atlantic current may make navigation possible considerably to the north of the routes now found practicable, the scientists believe.

The Krassin scientists, headed by Mr. Rotmanoff, chief of the Eastern Arctic section of the Northern Sea Route Department, found steamers could navigate freely north of Wrangel Island. They also discovered the warm current passed the island on the north at a depth of about 165 feet.

Navigation to the south of Wrangel Island has already been put on a practicable basis. It was announced recently that about 100 steamers used the route last Summer.

Soviet Explorers Find 6 Islands in the Arctic

Land in Kara Sea Is Reported Rich in Natural Resources

LENINGRAD, U. S. S. R., Nov. 5.—The Arctic regions yielded up another of their secrets today in the form of six islands, presence of which in the centre of the Kara Sea heretofore had been unsuspected.

Soviet explorers returning from a prolonged investigation of a new northern sea route said that they landed ten men on the islands from the icebreaker Malygin and found them rich in natural resources.

The islands lie in a compact group within reach of the northern Russian coast. In addition to coal mining possibilities, they offer excellent hunting grounds for bear, wild geese and seals.

No trace of human habitation was found. It is planned to send another party to explore the islands more fully next Spring.

Russia Plans to Freeze Exploring Ship in Arctic

Then Let It Drift to Pole With Ice, Laboratory Aboard

MOSCOW, Sept. 13 (AP).—The All-Union Arctic Institute announced today it was building a wooden steamer at Leningrad which would be sent into Arctic ice and allowed to freeze fast in the floes and drift with them toward the North Pole.

The institute said it expected to finish construction of the vessel in 1937. The exploration scheme is similar to that of the Norwegian Dr. Fridtjof Nansen, whose vessel, Fram, was frozen in the Arctic ice in 1893.

Like the Fram, the new vessel will be designed to resist crushing by ice. It will contain a scientific laboratory and carry five scientists with a crew of ten. The voyage, scheduled to start between Novosibirsk and Wrangel Island, may last four years.

Nansen, accompanied by twelve men, reached a point in the Fram reckoned at 86.14 degrees northern latitude. His trip lasted two years.

RECORDS ESKIMO JOKES.

Dr. Charcot Also Has Disks of Greenland Songs and Talk.

PARIS (AP).—Songs, jokes and conversation of the Greenland Eskimos—recorded on 250 phonograph disks have been brought to Paris by Dr. Jean Charcot French explorer.

The linguistic records are the chief trophy brought back by the renowned 68-year-old scientist from a year's voyage in Arctic seas in his ship the Pourquoi Pas

Dr. Charcot, who has spent a large part of the last thirty years in Polar regions, north and south, also brought 8,000 photographs of Eskimo life and more than 8,500 articles, ranging from small utensils to tents and huts, and a vast amount of hydrographic, oceanographic and meteorological data.

Dr. Charcot was accompanied by nine scientists from various French institutions, some of whom, he said, were "young men of 50, full of fire."

His first expedition was to the Antarctic in 1906, which explored the region now known as Charcot Land. Since then Dr. Charcot has taken out an expedition almost every year.