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Release: Immediately

05/28/86

CONTACT: Charles R. Bentley (608) 262-1922/262-1921

## ANTARCTIC ICE SHEET CONTINUING TO GROW, UW-MADISON SCIENTIST SAYS

By TERRY DEVITT  
University News Service

PHILADELPHIA--Despite fears to the contrary, the Antarctic ice sheet seems to be growing ever larger, says a University of Wisconsin-Madison geophysicist.

Charles R. Bentley, director of UW-Madison's Polar Research Center, said field observations over the past 10 years indicate the Antarctic ice sheet is not adding to the global rise in sea level. It is, in fact, more likely to be removing water from the sea.

Scientists have theorized that global heating attributed to the growing store of carbon dioxide in the atmosphere -- the so-called greenhouse effect -- combined with warming trends in the ocean could lead to a melting of the ice sheet and in turn cause a rise in sea levels in the world's oceans.

Addressing scientists at the annual meeting of the American Association for the Advancement of Science here, Bentley, a 30-year veteran of polar research, said the growing ice sheet "appears, if anything, to be fighting sea level rise instead of contributing to the problem."

"Runoff from melting ice is not a major consideration in the Antarctic," Bentley said. "Right now, the ice never really gets warm enough to melt."

Although Bentley says carbon-dioxide induced warming of the atmosphere may at some point trigger runoff from Antarctic ice sheets, he believes



climate-induced changes in the dynamics of Antarctic marine ice sheets will perhaps play a more significant role in sea level rise.

Bentley, past president of the Polar Research Board, has conducted much of his recent research on the West Antarctic marine ice sheet. He has paid particular attention to ice streams -- glaciers that move toward the margins of Antarctica about 100 times faster than the ice surrounding them.

According to Bentley, scientists are concerned that a warming trend in the world's oceans might cause the base of the Antarctic's floating ice shelves to melt more rapidly and accelerate the pace of the ice streams that discharge meltwater and icebergs onto the ice shelves and subsequently into the surrounding ocean.

"That effect could be far more important than the expected minor increases in surface melting and runoff caused by carbon dioxide-induced warming of the atmosphere," Bentley said. "Right now we're interested in finding out how fast the ice is moving and, in particular, how much is going out."

Bentley also said some models indicate Antarctica's marine ice sheets, thick plates of ice that rest on the earth well below sea level and are bordered by floating ice shelves, are inherently unstable and vulnerable to climate-induced changes.

The scenario, Bentley said, is that if the grounding line -- the margin where inland ice flows into a floating ice shelf -- were to retreat inland, ice now supported by land would be supported by the sea. The result would be a rapid sea level rise.

"On the other hand," Bentley said, "we haven't noticed any significant changes in the grounding line that might have occurred over the past several thousand years. We understand what the forces are that could move it, but we don't know quantitatively how those forces are balanced. The ice sheet appears to be more stable than theory would have it."

There are other questions about the Antarctic that complicate the picture, Bentley said. The present-day net balance of the Antarctic ice sheet isn't known precisely and there are uncertainties about the margin of the continent and such things as iceberg discharge and ice and snow accumulation.

But Bentley emphasized that despite the fact Antarctic ice sheets are not now contributing to the mass of the world's oceans, sea level is still rising at a rate of about four-tenths of an inch per decade. He attributes the rise to "glacier wastage" from mountain ranges bordering the Gulf of Alaska, Central Asia and South America as well as thermal expansion due to a warming trend in the world's oceans.

"Small glaciers are probably the primary contributors to sea-level rise at this time. But there is also evidence that average temperatures of the world's oceans have increased over the past century," Bentley said. "As the oceans get warmer, they expand and produce a rise in sea level."

Even small increases in sea level, Bentley said, will pose enormous problems because millions of people live in the the world's fertile river deltas, the areas most vulnerable to rising waters.

"Sea level is not fixed," Bentley said. "It's going to go up slowly, but as the effects of human impacts such as the greenhouse effect are felt, the rate of sea level rise is also going to increase."

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Release: HOLD FOR PM's RELEASE, MAY 28, 1986

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-- Terry Devitt (608) 262-8282



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*Polar Research Center*

CONTACT: Charles Bentley (608) 262-1922

## SCIENTISTS SAY PREDICTIONS OF ICE CAP MELTING ARE PREMATURE

By MARK BELLO  
University News Service

MADISON--Predictions of a sudden and catastrophic rise in world sea levels due to carbon dioxide-induced warming of the West Antarctic ice sheet are unfounded, according to an international panel of polar experts that met here late last week.

The ice sheet could even be growing, they said.

Meeting in a three-day workshop (July 5-7) at the University of Wisconsin-Madison's Polar Research Center, 25 scientists unanimously agreed that their knowledge of the atmospheric, oceanic and ice conditions in the southern polar region is too limited to assess the impact of global warming due to the buildup of carbon dioxide.

Levels of carbon dioxide, a byproduct of fossil-fuel burning, are increasing in the earth's atmosphere. Since the 1850s, the concentration of the heat-retaining gas has increased 30 percent; it could double by the middle of the next century, some scientists say.

Increasing the amount of carbon dioxide in the atmosphere will cause the global temperature to rise, said Mark Meier, head of the U.S. Geological Survey's glaciology project. Meier, a participant in the UW-Madison workshop, is chairman of the National Academy of Sciences Glaciology Committee. But, he said, it's not clear whether a small temperature increase "will make that huge mass of antarctic ice grow or shrink."

- more -

Add one--Antarctic

The West Antarctic ice sheet, a mile-thick mass of ice about half the size of Australia, is viewed as a barometer of carbon dioxide-induced changes in the world climate. If the entire sheet melted, experts say, the world sea level would rise about 16 feet and inundate low-lying coastal areas.

"We are looking at a component of the earth that might show the early warning signs (of global warming and its effects)," said Uwe Radok, a meteorologist at the Cooperative Institute for Research in Environmental Sciences at the University of Colorado. "There is no need to rush predictions. It's better to wait until we have more information."

Predictions based on models simulating Antarctic conditions fall into two categories, according to Charles Bentley, chairman of the National Academy of Sciences Polar Research Board and a UW-Madison geophysics professor.

According to "disaster models," Bentley said, "warming of the atmosphere will cause the whole West Antarctic ice sheet to slide rapidly into the ocean and increase the sea level a matter of five meters (16 feet) in the course of a few decades."

He said in his opinion, "this is completely out of the question." Bentley did say the entire ice sheet could conceivably melt but "on a time scale on the order of centuries at the very least."

Other models predict a gradual melting proportional to rises in global temperature, he said. However, he added, there is "no physical reason" to support such a direct relationship.

Such models are derived from recent sea-level trends. During the past 100 years, the level of the earth's oceans has been rising at<sup>a</sup> rate of about four-tenths of an inch per decade.

Add two--Antarctic

Some oceanographers view the trend as evidence that polar ice is melting but that conclusion has not been substantiated, Mark Meier said. Most scientists now attribute part of the rise to warming of the ocean and the thermal expansion of water, but they disagree on the source of the other part of the increase, he said.

Higher temperatures also will increase the moisture-holding capacity of the atmosphere, increasing global precipitation, workshop participants agreed. The added precipitation could counteract the melting brought on by warmer temperatures.

However, the complex interaction of changes in precipitation, wind circulation, temperature and sea ice cover make the net result -- shrinking or thickening of the ice sheet -- uncertain, they said.

Because of the complexity of forces operating in the Antarctic, workshop participants called for more comprehensive models, more thorough evaluation of existing data and more extensive monitoring of current conditions.

"It's too early to determine the effect of carbon dioxide," said Werner Schwerdtfeger, an emeritus meteorology professor at UW-Madison. "We need more information on the basics."

Acknowledging the difficulty of simulating the Antarctic environment in a numerical model, Michael Schlesinger, an Oregon State University atmospheric sciences professor who is working on a wind circulation model, suggested that he and his counterparts "be more reticent in using our models" because they risk creating a "Chicken Little syndrome."

The Madison workshop was sponsored by the National Academy of Sciences, the Department of Energy and the World Meteorological Organization. The workshop proceedings will be published.



# research news

From the University of Wisconsin-Madison / University News and Publications Service, Bascom Hall, Madison 53706 / Telephone (608) 262-3571

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UIR SCIENCE WRITING DIVISION  
University-Industry Research Program  
(608--263-2811, 263-2876)

By HELY JANIS  
UW Science Writer

MADISON, Wis.--Sonar maps of the underside of a polar-ice flow have been made by three scientists from the University of Wisconsin Geophysical and Polar Research Center in Madison.

Geophysicists Clarence S. Clay, Jonathan M. Berkson, and graduate student Tze Kong Kan used a sonar device to record the under-ice topography last spring. They currently are comparing their findings with aerial photographs to determine how features below the ice are related to those above.

"This information has a number of possible applications," Clay said. "Researchers will be able to better predict the drift of polar ice, and ice breaker crews will be able to locate thick areas of ice. Also, submarine personnel can use sonar information to determine weak ice spots where they can surface.

"So far, a feature which protrudes above the ice seems to have a related protrusion below."

He expects that after further analysis, the UW group will be able to predict fairly accurately the topography of undersea ice by knowing what is on top.

Berkson explained that, to make the maps, a sonar device was lowered through a hole cut in the ice. Sonar-emitted sounds, reflected by topographical features, were recorded and the data assembled into maps.

Add one--sonar maps

About two hours were required to obtain data for a circular map with an 1,800 ft. radius. As topographic protrusions often blocked the signals of features beyond, additional deeper readings often had to be taken to record these features.

The group worked on Fletcher's Ice Island, a permanent ice flow now drifting in the Arctic Ocean above Alaska and 370 miles from the North Pole. They were also flown to ice floes up to 250 miles north of Point Barrow. The project was sponsored by the U.S. Navy in conjunction with the Arctic Ice Dynamics Joint Experiment, a U.S.-Canadian project to study the movement of polar ice.

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# UW news

From The University of Wisconsin News and Publications Service, Bascom Hall, Madison 53706 • Telephone: (608) 262-3571

Release: Immediately

7/18/69 vh

MADISON, Wis.--University of Wisconsin research sites in Antarctica which may resemble the moon environment and the operational methods in these areas had special interest for high ranking NASA officials when the party visited the Frozen Continent in 1967, a young Wisconsin geologist revealed today.

John Clough of Wisconsin's Geophysical and Polar Research Center, a member of a Wisconsin oversnow traverse team at the time of the visit, said the four administrators, including Wernher von Braun and Dr. Robert Gilruth, toured a number of Antarctic sites observing locale, operations and support for possible pointers in the Apollo program. Von Braun is the director of the George C. Marshall Space Flight Center, Huntsville, Ala., and Gilruth is director of the Manned Space Flight Center, Houston, Texas. Assistant directors accompanied them.

Researchers in the Antarctic program carry out their studies in a highly hostile environment under conditions of stress, lonely isolation, and intense cold. The activities and survival of the astronauts on the moon, no less than those of the men in the Antarctic, will depend on the perfect functioning of equipment, on a complex logistic system, and on correct decisions in critical situations.

It was certain dry valleys in Antarctica's Victoria Land, long familiar ground to Wisconsin scientists, which especially interested the NASA visitors, Clough indicated. A New York Times release of Jan. 10, 1967, bolsters this

- more -



statement: "The visitors paid special attention to...aspects of Antarctic activity. They showed special interest in the strange desolate dry valleys and their similarity to terrain that might be encountered when Americans land on the moon."

Since 1959, Geology Prof. Robert F. Black and his team have been investigating patterned ground in these dry valleys. The hexagonal ground patterns are the result of a process occurring during the coldest Antarctic periods in ground which is permanently frozen but no longer covered by the glaciers. It is in the dry valleys that Black and Wisconsin Prof. Carl Bowser have investigated a striking, reddish-yellow ice cone formed from frozen saline waters.

The dry valleys have been described as scenes of immense desolation. Narrow, U-shaped, stretching for 25 miles or more between bordering mountains, they are no longer occupied by glaciers but hold the debris left by them. The dark valley floors are strewn with great brown and black rocks, heaps of glacial rubble, and fine gravel.

The men so widely identified with the Apollo program were also especially interested in a sub-station near Byrd Station with which Wisconsin personnel are identified. Here technicians in Wisconsin's program for keeping the National Science Foundation's vehicles repaired and rolling made winter camp, living and working beneath the snow with only one or two other men. The small modular facilities at the sub-station were sometimes buried beneath a snow accumulation of 30 to 40 feet. A sheltering arch structure supported this load and the occupants of the station entered their undersnow home through a vertical chute.

Von Braun commented after touring the station: "Conditions encountered in living below the surface of the moon could be very similar to those in living beneath the snow in Antarctica. Beneath the snow, structures at Byrd station permit USARP and Navy personnel to live and work in a relatively stable environment

## Add two--Antarctica and Moon Research

without concern for the effects of storms. If structures were to be placed a few feet beneath the lunar surface, temperature could be kept at 13 degrees Centigrade and protection could be provided from the damaging effect of solar flare."

University of Wisconsin scientists and technicians have been identified with the Antarctic research program since it began with the International Geophysical Year, 1957, and even before that in IGY preliminaries. Wisconsin scientists will also have important research roles in Apollo developments. Prof. Eugene Cameron, economic geologist, and Prof. Larry Haskin, chemist, are among the scientists chosen to study the rock samples which the astronauts will collect on the moon and bring to earth.

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# uw news

From The University of Wisconsin News and Publications Service, Bascom Hall, Madison 53706 • Telephone: (608) 262-3571

Release: Immediately

11/21/67 vh

MADISON--Sixteen men from the University of Wisconsin's Madison campus will work in Antarctica during the 1967-68 season under the banner of the University's Geophysical and Polar Research Center.

According to Prof. Charles R. Bentley, listed as principal investigator for an oversnow traverse, six of the 16 will take part in the 1,100 mile journey into Queen Maud Land for further studies of the great Antarctic icecap and of the nature of the underlying rocks. Four will explore the movement of ice on Roosevelt Island. The remaining six are identified with a continuing Wisconsin program for supply and maintenance of all motorized equipment used by American research parties in Antarctica.

University of Wisconsin scientists have taken part in the explorations of Antarctic ever since the world-wide science effort called the International Geophysical Year was declared for 1956.

This season's traverse into what has been called "the vast, last unexplored portion of the continent" will cover one more leg on a four-part, 5,000-mile journey of exploration which began at the South Pole and will have reached to the Pole of Inaccessibility, Plateau Station, and beyond that to mountains edging the continent's Atlantic coast.

After a period of acclimatization to altitude, the 11 members of the 1967-68 U.S. Antarctic research party will be flown to Plateau Station where the traverse will begin on Dec. 1. Pick up by Navy plane is scheduled for Feb. 1, two months later, at 80 degrees south and 10 degrees west. The big Sno-cats and their passengers will have reached the mountains edging Queen Maud Land's coast at this point.

- more -



## Add one--Geophysics in Antarctica

The following Wisconsin men are listed for the traverse party: Prof. Bentley, Carl Poster, project assistant (1201 Drake St.) and John Freitag, electronics technician (200 Bordner Dr.), both of Madison; John Clough, project specialist, Vinyard Haven, Mass.; Michael Galan, traverse engineer, San Pablo, Calif.; and Terry Mathis, traverse engineer, Los Angeles, Calif.

Bentley will turn over his duties as traverse leader to a scientist from the U.S. Coast and Geodetics Survey once the traverse is readied and will return to the Madison campus in December. Scientists from Ohio State University and from research institutions in Belgium and Norway are also on the traverse list.

The study of ice movement on Roosevelt Island, an icecap protruding above the Ross Iceshelf some 50 miles south of the Little America stations, is a continuation of work begun in 1961-62. At that time a Wisconsin party placed a network of stakes on Roosevelt. Comparison of the original distances between the stakes with later measurements will reveal the amount and rate of ice movement from the island's peak to its edges.

The four men on the Roosevelt party, all from the Madison campus, will travel by motor toboggan during their three-month assignment. Prof. James Clapp, civil engineering department, is leader for the group which includes John Albright, project assistant (1005 Grant St.) and James Gruendler, project assistant (2138 Center Ave.), both of Madison; and Kenneth Line, traverse engineer, Fennimore, Wis.

The Wisconsin crew chosen to keep the motors humming for American researchers in Antarctica during 67-68 includes Jack Long, project supervisor (317 Nautilus Dr.), Madison; and specialists William Boman, Chippewa Falls, Wis.; Bernard Brush, Boulder, Colo.; Derrell Roe, Portland, Oregon; Richard Spatz, Moraga, Calif.; and Phillip Tenney, San Pablo, Calif. Long as well as Boman, who wintered over in Antarctica during 1967, are due to return to Madison before the Antarctic summer is ended. Spatz, Roe and Tenney are scheduled to winter over in 1968.

# UW news

From The University of Wisconsin News and Publications Service, Bascom Hall, Madison 53706 • Telephone: (608) 262-3571

Release: Immediately

1/3/67 vh

MADISON, Wis.--"We have sent 68 men to the Antarctic and lost not one," Prof. Charles R. Bentley of the University of Wisconsin Geophysical and Polar Research Center said Tuesday in reviewing 10 years of exploration in the coldest and perhaps most hostile environment on earth.

Wisconsin scientists were among the first to reach the frozen wastes of Antarctica in the vast undertaking called the International Geophysical Year. Bentley was with an advance American party, has spent six seasons in the frigid south, and is listed as chief investigator for a Wisconsin team working in Antarctica during the 1966-67 season.

More than 50 nations and hundreds of hardy explorers joined in the 1956 effort to give our planet its most exhaustive physical examination. Much of the probing done during the official IGY Year--actually an 18-month period--was done in Antarctica. Since then much more has been accomplished on the southern-most continent and Wisconsin scientists have continued to play important roles in that distant undertaking.

"We're nearing completion of the reconnaissance examination of Antarctica," Bentley explained, "and have already started the next research phase--that is, to return and examine in more detail those areas of particular interest which we found during the reconnaissance survey."



## Add one--Antarctic Exploration

Asked to point out some of the major discoveries of the first phase with which Wisconsin geophysicists are identified, Bentley listed the following:

1. CONTINENTAL DEPRESSION. There is evidence that the whole Antarctic continent has been depressed an average of 600 meters (2,000 feet) by the weight of the overlying icecap.
2. LOW WEST ANTARCTICA. Even if the ice were removed and with the consequent uplift of the land, much of West Antarctica would still be below sea level.
3. ABRUPT CHANGE IN CRUSTAL THICKNESS. The earth's crust thickens, increasing from 30 kilometers or approximately 19 miles under West Antarctica to 40 kilometers or approximately 25 miles under East Antarctica.
4. ICECAP THICKNESS. Much thicker than was expected, the ice which covers Antarctica has a maximal thickness of 4.5 kilometers or three miles.
5. BURIED MOUNTAINS. Mountains as much as a mile high are buried in some parts of the icecap.
6. ICECAP STAGE. The Antarctic icecap is probably not decreasing at the present time and may even be growing.

Bentley called electro-magnetic sounding a highly important development in Antarctic research. Produced first by U. S. Army research, the electro-magnetic sounding equipment can make continuous readings of sub-surface phenomena while a traverse is in progress. In most instances it supplants the slower seismic method of sounding. Wisconsin men have not only worked to improve the sounding equipment but have been prominent in adapting this new sounding method to ice thickness studies and other Antarctic glaciological investigations.

"Aside from this sounder and a new magnetometer, the scientific equipment is the same as it was when the push in Antarctica began 10 years ago," Bentley said, "but techniques have been improved."

Cold weather clothing and food for the Antarctic explorations haven't changed much in the decade past, according to the Wisconsin geophysicist. And over-snow vehicles remain essentially the same except for the addition of motorized toboggans.



## Add two--Antarctic exploration

However, the introduction of turbo-powered aircraft--both helicopters and C-130Hercules--provides Antarctic missions with faster, more powerful and more efficient transportation.

"The C-130s can land and take off with a load anywhere on the Antarctic icecap at elevations up to 14,000 feet," the veteran of the Antarctic pointed out.

And transportation to and from the frozen continent has been greatly improved, according to the scientist. "Ten years ago we had to go down by ship out of New Zealand," Bentley said. "This last leg of the outbound journey took a week's time at least. Now all personnel are flown in and it takes only eight or ten hours." Also, 10 years ago there were no landing fields. Now there is one at McMurdo Station which can be used even in the winter season under emergency circumstances.

Bentley spoke finally of a change which is fundamental in the continuous seeking after new knowledge. "The whole atmosphere is different now," he said, "because of our accumulation of Antarctic scientific experience.

"The logistic and environmental problems have been solved--or we've learned to live with them--so now we can concentrate on the scientific problems."

Prof. Bentley sees no signs of letup on studies in the Antarctic or of men from the University's Madison campus taking part in them. Contrary to popular opinion and in spite of the crevass, the white-out and sub-zero temperatures, he concluded:

"We're in a pretty safe business. Doing field work in the Antarctic is now not much different from doing work in any other remote part of the world."

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# UW news

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Release: Immediately

2/15/67 vh

By VIVIEN HONE

MADISON, Wis.--Having trouble keeping your car running in WINTER, U.S.A.?

No wonder, says Jack Long, a University of Wisconsin traverse engineer who keeps the big Sno-Cats rolling over the icefields of Antarctica at 60-below zero.

"Here in the northern states, with the lubricants used, we're just barely able to operate our automobiles during severe cold spells," said Long. "The margin between success and failure is a very narrow one... The problems in Antarctica may be greater, but we're equipped for them."

Under a contract between Wisconsin's Geophysical and Polar Research Center and the National Science Foundation, Long and his team of seven or eight Wisconsin technicians service 114 pieces of motorized equipment on the frozen continent. Long joined GPRC in 1959 when Wisconsin had responsibility for procuring and servicing only its own motorized pieces. Today's team performs this dual function for all American research parties using National Science Foundation machines.

Two or three engineers accompany the scientists on the long oversnow motorized expeditions across the continent called traverses. "We operate down to 65 degrees below," Long said, "but avoid operating equipment below that. And the scientists can't work at these extreme temperatures either."

- more -



Add one--Antarctica

According to the man who heads the GPRC team, specially designed lubricants--those which do not readily turn stiff and solid--are vital companions to the happy roar which means a motor has successfully turned over and ignited in some lonely stretch of snow and ice between the South Pole and the Pole of Inaccessibility.

Anti-freeze and a 10-30 weight oil are "musts", Long said, but this is only the beginning. The lubricant in the gear boxes is one specially made for use in severe cold, and the hydraulic fluid for mechanisms such as power steering and transmission is one used in aircraft operating at very high altitudes, therefore in very low temperatures.

Parts such as wheel bearings, drive shafts, and steering knuckles are greased with an Arctic-type preparation designed to keep from reaching a solid state. And the fuel for the Diesel engines is also special, Long pointed out.

"If we used a regular type of Diesel oil, it would start to solidify at 45-50 below," the traverse engineer said.

Batteries, three or four times as powerful as those in stateside use are also prime contributors to the Antarctica success story. Characterizing them as "regular batteries gimmicked up a bit," Long said:

"They have a 200 ampere hour rating as compared to the 60-80 hour rating for batteries in an ordinary American car. They are constructed with more and thinner plates, we use a high specific gravity acid in them, and the battery cases are made especially not to shatter on contact when transported to low temperatures. Before these cases were developed, we had 11 out of a shipment of 20 batteries arrive at McMurdo Station with broken cases."

Additives are used to encourage fuel ignition, the traverse engineer continued, and pre-heating of the coolant and oil is another pre-requisite for getting a motor started. But such pre-heating with the familiar electrical power cable isn't easy to come by on the Antarctic frontiers.



Add two--Antarctica

The five widely separated year-around American stations in Antarctica as well as our "summer" stations there now have electricity, Long pointed out. But on a traverse, when the motor caravan of men and research instruments makes camp, perhaps a thousand miles or more distant from any station, the pre-heating is accomplished with an engine heater burning Diesel oil and warming the engine coolant in an external jacket.

"We light it with a match when we stop, and let it burn all night."

Two well-aged motor vehicles--a 1957 Volkswagon and a 1954 Cadillac--are registered in Long's name and claim his attention in Madison between sessions on the world's coldest continent. As befits a traverse engineer, the cold-weather specialist employs American know-how plus sundry available aids to keep them running. For the air-cooled VW, he uses an oil- warming plate bolted to the bottom of the crankcase and heated by means of an electric cord; for the Cadillac he has mounted under the hood both a battery charger and an electrically powered tank heater.

But the special lubricants and batteries he works with in Antarctica are missing here. "It's very complicated," Long concluded. "They are very expensive and very hard to get."

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*John J. Geophysical  
Re. Ch.*

From The University of Wisconsin News and Publications Service, Bascom Hall, Madison 53706 • Telephone: (608) 262-3571

Release: Immediately

11/9/66 mes

UIR Science Writing Division (262-5984)

By MARLETTE SWENSON

MADISON, Wis.--A vast, blank area on geologic maps of the United States is slowly being "drawn in" by University of Wisconsin researchers.

These scientists, authorities on geophysics, are gathering preliminary information on the basement rocks underlying the Great Lakes. This information is needed to draw together existing knowledge of the geology of the entire upper Midwest region.

Their task is no simple one, for the unknown bottoms of the Great Lakes span 95,200 square miles of the earth's surface--nearly two times the total area of the state of Wisconsin.

"The area around the lakes has been studied extensively since the 1800's, because of economic interest in minerals, but nothing has been done to study the geology of the lakes themselves," explains Richard J. Wold of Wisconsin's Geophysical and Polar Research Center.

"From our present knowledge of the geology surrounding the lakes we can make some assumptions," he points out, "but we have not been able to draw definite conclusions because we know nothing of the geology underlying the Great Lakes."

Within the past 10 years considerable geophysical work has been done in the Lake Superior and Michigan region but, except for exploratory programs undertaken by commercial concerns, the bulk of the Great Lakes geophysical studies have been conducted by Wisconsin researchers.



## Add one--Great Lakes geophysics

The Great Lakes are of particular interest to geophysicists because they obscure the juncture of major geologic structures, Wold explains. Copper and iron deposits, occurring around Lake Superior, may be found beneath the lakes as well.

Wold and Ned A. Ostenso are thus directing a major program of magnetic, gravity and sub-bottom profiling surveys of the lakes to study their relatively unknown tectonic framework. Preliminary research has been conducted on Superior, and the researchers plan to eventually cover all the Great Lakes.

Results of the aeromagnetic survey of western Superior indicate that the major portion of this area has a very flat magnetic character "probably reflecting the asymmetrical synclinal structure of the lake," Wold explains. The scientists traced several known geologic features (the Keweenaw, Douglas and Lake Owen faults and the Gogebic and Marquette iron ranges) by magnetic anomalies and confirmed the existence of the Isle Royal fault.

Another clue to the structure of the lake basins comes from gravity data. A preliminary survey of Superior two summers ago was continued on an enlarged basis during 1965, when 200 bottom gravity stations were established at five-mile spacings. The Wisconsin researchers continued the gravity survey of Lake Superior this summer, occupying an additional 600 underwater gravity stations.

Simultaneously with the gravity studies, Ostenso and Wold obtained 900 miles of sub-bottom profiles in 1965, and 1,400 miles this summer. These show a wealth of sedimentary and basement structure detail and are of value in interpreting history and structure of the lake basins and for understanding dynamic processes.

The Wisconsin geophysicists are now expanding their research with an extensive four-year program covering all the Great Lakes.

# UW news

From The University of Wisconsin News and Publications Service, Bascom Hall, Madison 53706 • Telephone: (608) 262-3571

Release: Immediately

7/29/66 vh

*Polar etc.*

MADISON, Wis.--University of Wisconsin geophysicists are again taking part in Lake Superior explosion studies aimed at new knowledge of the earth's crust and upper mantle.

Led by Prof. Robert P. Meyer, the 11 member crew is joined with men from 12 other U.S. and Canadian research institutions for 20 days of earth studies by the seismic method. Wisconsin people are stationed on shore and at various points west and southwest of the lake while two 10,650-pound detonations at a 650-foot depth in the lake are set off in the early morning hours of each day.

The shock waves created by the explosions, picked up by geophones and recorded in the form of graphs, are the indicators of what lies hidden beneath the surface.

Approximately 50 mobile seismographs or listening stations are being used by the scientists to monitor the shots along 11 lines radiating in various directions from Lake Superior into the United States and Canada.

The data gathered this season will find two immediate applications in further explaining the nature of the man-made seismic or earthquake waves and in improving ability to detect and locate underground nuclear tests.

University of Wisconsin men from the Geophysical and Polar Research Center at Madison have been involved in an international program of earth crust and mantle studies for some years. The summer studies in Lake Superior have been made not only by seismic methods but by measurements of the earth's gravity and its magnetic field.

-more-



Add one--geophysics study

Another Wisconsin team from the Geophysical and Polar Research Center, led by Prof. Ned Ostenso, will resume gravity studies in Lake Superior in August.

Members of the seismic crew which will shortly complete its work this season include: Prof. Meyer; William Unger, project supervisor; James Kosalos, Terry Shackelford, Tom and Judy Meyer, Brian Lewis, and Lee Powell, all project assistants; Don Bednarek, electrical engineer; and crewmen Burt Tanner and Greg Mueller.

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# U.W. NEWS

*Polar & Geophysical  
Research etc.*

From The University of Wisconsin News and Publications Service, Bascom Hall, Madison 53706

Telephone (Area Code 608) 262-3571

Release: SUNDAY, Sept. 12

9/10/65 vh

BY VIVIEN HONE

MADISON, Wis.--The University of Wisconsin's two men who rode Arlis II, "escaped" Arctic Ocean ice island, into the North Atlantic, are back on the Madison campus, rich in Arctic experience but richer in geophysical science data.

Arlis II, the floating site for Wisconsin geophysical observations since June 1961, broke out of its customary pattern of circulation in the world's northernmost ocean late last winter and began a terminal trip southward via the swift Greenland Current. Only one other such floating science station--a piece of thin pack ice with a Russian science team aboard--had followed the same route of exceptional exploratory advantage and certain ultimate "death" by melting in the waters of the Atlantic.

When the Soviet scientists abandoned their ice at break up in the spring of 1937, they had floated through the frozen wastes of the Arctic Circle to a point 1,500 miles south of the Pole. When Wisconsin's Karl Redell and Jim Pew and some 20 other men from American science institutions were evacuated from Arlis, their island had floated more than 300 miles beyond the Russian point of leave-taking. It had also traveled a total of 6,000 zigzag miles during its four years as a mobile American research center. Moreover, the expected disintegration of Arlis II was far from imminent.

Frozen into and traveling with the pack ice during the entire Greenland Current journey, the island had slipped into the North Atlantic before the annual thaw, late arriving this year, had occurred. It was apparent to the island occupants and to US Navy men aboard the icebreaker Edisto, sent to carry out the



evacuation, that it would be weeks before the last thin shard of what had once been a three-mile-long ice slab dissolved into North Atlantic Ocean, weeks of additional advantage from the scientists' viewpoint.

Pew and Redell were each veterans of Arlis when each was landed separately on the ice to take more of the seismic, gravity and magnetic readings that reveal the structure and composition of the earth's crust. Redell had done a stint on Arlis in 1963-64 and was flown again to the island last March after "escape" into the Greenland Current had occurred. Pew had spent eight months on Arlis in 1962 and returned there last December, before the "escape."

So little is known about currents and ice movements at the top of the world that riders of the island had no sudden or definite knowledge of the "escape," according to Pew.

"There was a lot of speculation but no certainty. Observational flights had revealed that the pack ice was moving southward, taking everything with it. We also had a map and plotted our progress from navigational 'fixes.' We could tell by that we were perhaps 20 miles closer to going out."

But the hour and day of "escape" remains a mystery and the fact of travel in the north-south current wasn't accepted for a long time. "Finally we were pretty sure we were in it and moving along the northern coast of Greenland." There was confirmation further south when "Greenland's icy mountains" were sighted.

Pew's reactions to confirmation were mixed: on one side, immense pleasure for the rare opportunity to carry out Wisconsin observations in uncharted waters; on the other, sadness at what was in store for his island home. Returning from his first trip to Arlis, he had declared the long chunk of ice including mudflats, hills, moss, lichen and an airstrip, "a friendly habitable place" and his assignment on it "the fulfillment of a lifelong far north dream."

Redell also regarded Arlis with affection and enjoyed life there. "There was time to watch the sunset," he commented recently, "and I certainly didn't miss all the carbon monoxide, noise and parking tickets you associate with civilization."

The darkness was total, 24 hours daily, when Pew arrived on the ice in December, but the sun had reappeared when Redell arrived in March. By the time of evacuation there was daylight from 3 a.m. to approximately 10 p.m.

Temperatures during the occupation of Arlis ranged from 40 above to 60 below, Pew said, but in the plywood hut buried beneath the snow, which he and Wisconsin's research instruments occupied, a stove wasn't even necessary. The instruments, all electrically powered and all running constantly, supplied sufficient heat.

Pew was able to estimate the speed of the traveling science station by taking a navigational "fix," sometimes called "shooting the stars." "The movement was something like 10 miles a day," he said, "and during a storm, I clocked it at one knot (one nautical mile per hour), but this was really flying for an ice island. Three nautical miles per day in the Arctic Ocean is considered pretty good."

Between the hours devoted to research the ice islanders found high spots of experience which, according to Pew, "were not what you'd ordinarily think of as exciting. It was the sun coming up for the first time, an airplane passing over or making a paradrop with supplies from Iceland, or the sight of an Arctic tern.... It was certainly exciting when we made our first radio contact with Iceland in March."

Animal life on the island included the terns and Arctic foxes, seals, and polar bears. There were also three huskies, left on Arlis when a recent attempt to reach the North Pole by dogteam was abandoned. The dogs had become pets and even the polar bears, approached to within 30 feet, didn't seem particularly aggressive.



Conflicts between the men, a threat always under conditions of isolation, did crop up on Arlis, the Wisconsin pair reported, but as Pew pointed out: "If you have to blow off, the middle of the Arctic Ocean is a good place to do it. I would say we all made more friends than enemies, and the group stayed together even after we were evacuated to Iceland. "

Clashes of men in isolation were scarcely the problem as Arlis edged into the North Atlantic and contact with the outside world was further established. Groups of North European newsmen were flown out to the island by plane while the island runway still remained firm, by helicopter after it became too soft for use. And a number of distinguished visitors came aboard including the U.S. ambassador to Iceland and American Admiral Weymouth, from a NATO base in the North Atlantic.

"The admiral sent out a box of lobsters for us after he left," Pew reported.

Meanwhile the Navy icebreaker Edisto was chewing its way through the pack ice toward the imprisoned island. After a month of effort it was still five miles away.....Arlis might possibly have remained firm another month, but there was always the chance of sudden breakup. It was decided to delay evacuation no longer. Transport of equipment from island to ship was begun then, both by helicopter airlift and by "weasels" and sleds, these making the rough journey over the pack ice.

All of the Arlis party gathered for an impressive American ceremonial immediately preceding takeoff operations. The American flag that had flown always at the island's main camp was lowered by two Eskimo workers and given to the captain of the Edisto. It was understood Old Glory would ultimately be placed in the hands of the chief of the Office of Naval Research. His federal agency had supplied the funds for the Arlis venture.

Redell and Pew were evacuated from Arlis by helicopter, landed on the Edisto, and later flown to the U.S. naval base at Keflavik, Iceland. Icelanders and officials at the base gave the Arlis party a royal welcome and a week of special entertainment and sightseeing before members were flown back to their American homes.

add four--Arlis II

Behind them, now certainly in the twilight of its floating vessel contribution to science, lay Arlis II, still locked within the pack ice and still riding within the Arctic Circle. But it would make that contribution to the end. One of his last duties before evacuation, Redell had set up a system of radio beacons on the island. Aircraft checking the course of Arlis by radio would add another chapter--one on North Atlantic currents--to knowledge of Arctic phenomena before the big ice cube met oblivion.

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# U.W. NEWS

*Bar. Geophysical  
Research Center*

From The University of Wisconsin News and Publications Service, Bascom Hall, Madison 53706

Telephone (Area Code 608) 262-3571

Release:

Immediately

11/19/65 vh

MADISON, Wis.--A memorial fund that would benefit students and honor Dickey Chapelle, Milwaukee native and intrepid woman war correspondent, killed this month in Viet Nam, has been inaugurated at the University of Wisconsin.

The tiny photographer-reporter with a boundless energy and ability to find the world's danger spots, was the sister of Prof. Robert P. Meyer, University of Wisconsin geologist, and was well known on the Madison campus where she visited and spoke more than once in support of the war in Viet Nam.

The memorial fund, initiated by students and colleagues of Prof. Meyer and other persons identified with the University's Geophysical and Polar Research Center, will support a loan fund for Wisconsin students in journalism or, if contributions are sufficient, will establish a journalism fellowship for field work in troubled areas. The fellowship would stress humanitarian reporting.

When on Nov. 4 Mrs. Chapelle was killed by a booby trap while covering a Marine operation near Chu Lai, she was on assignment for the National Observer and radio station WOR. Other assignments for Life, Reader's Digest, and National Geographic placed her in the thick of action--in the South Pacific, in Korea, Hungary, Cuba, Kashmir, Algeria, and the Dominican Republic. During the Hungarian Revolution, she was captured by the Communists and held in prison for seven weeks.

In all her news efforts, Mrs. Chapelle emphasized the eternal misery and gallantry of men at war.

Persons interested in making contributions to the Dickey Chapelle fund should address their donations to Robert R. Bolin, associate director, Student Financial Aids, University of Wisconsin, Administration Building, 310 N. Murray St., Madison, Wis.

# U.W. NEWS

*Polar &  
Geophysical  
Research Ctr.*

From The University of Wisconsin News and Publications Service, Observatory Hill Office, Madison 53706

Telephone (Area Code 608) 262-3571

Release:

5/11/65 vh

Immediately

MADISON, Wis.--Two University of Wisconsin geophysicists who have been floating southward toward the North Atlantic are preparing to abandon their melting research base.

Arlis II, an Arctic ice island, "escaped" into the Greenland Current this winter. It has already passed the point at which a 1957 Russian science team had to leave a research station which was melting away from under them.

Prof. Ned Ostenso, director of the Arctic program for the University's Geophysical and Polar Research Center, said an April 30 relayed radio message from Karl Redell and Jim Pew reported all was well. The island then was at a position in the North Atlantic Ocean 67 degrees, 35 minutes North and 23 degrees, 56 minutes West--roughly 200 miles farther south than the Russians had traveled.

Arlis II was still frozen into ocean pack ice and floating with this great mass, according to the report, but a U.S. Navy icebreaker was within 52 miles of the island and getting ready to evacuate the Wisconsin pair and eight other scientists from the island. The iceriders probably will be taken to Koslavik, Iceland, and from there either shipped or flown home.

The University of Wisconsin has kept one or two men and their geophysics science equipment on the three-mile-long chunk of floating ice since June, 1961, one year after the UW's continuing program of studies in the Arctic Ocean began. Until late last fall, the island had circulated within one of two great water systems at the top of the world. Then, somehow, it escaped into the Greenland Current and began the trip southward.



Add one--Arlis II: Geophysics

For the men on board this floating scientific base, it was a rare opportunity to learn more of the earth's secrets in a frigid ocean wasteland almost untouched by man. Only the Russians on their thin piece of pack ice had also passed into the Greenland Current and made observations from this vantage point.

But during any such journey, if continued southward, the spring thaw will ultimately be encountered, the warmer waters of the North Atlantic will be reached, and the floating ice will begin to break up. This happened to the Russians. It was anticipated for the Wisconsin men and careful plans were made, calling for evacuation by plane while the ice still remained solid enough for landing and takeoff.

The reason for planned evacuation by icebreaker instead of by plane remains to be told, once Jim Pew and Karl Redell are off the ice and safely returned to the University's Madison campus.

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# U.W. NEWS

*Polar*

From The University of Wisconsin News and Publications Service, Observatory Hill Office, Madison 53706  
Telephone (Area Code 608) 262-3571

Release:

Sunday, April 4

3/29/65 vh

By VIVIEN HONE

MADISON, Wis.--Even in what is likely the most isolated area on the globe, the latchstring of hospitality among the world's scientists can be found.

University of Wisconsin geophysicists recently returned from a rugged two-month oversnow traverse in Queen Maud Land, last vast unexplored Antarctic region. They found at their goal--the Pole of Inaccessibility--the small hut erected by a Russian team. They also found at this point, farthest in all directions from the Antarctic coasts, cigarettes, matches, food supplies, a reminder to lock the door before leaving, and a bust of Lenin.

Once again the Wisconsin team had pioneered across the ice fields a zigzag path of measurements to fill gaps in knowledge of the Antarctic icecap and the rock underlying it. When the International Geophysical Year began in 1957, the ice-wrapped southernmost continent had been shrouded in its secrets, almost untouched. In the eight years since then, scientists from many nations, Wisconsin men among them, have fought their way by many routes over the hostile terrain and the "picture" of Antarctica has become more and more detailed.

The hut at the end of the Wisconsin trek was built by the Russian team in early activities of the IGY, according to Prof. Charles R. Bentley of Wisconsin's Geophysical and Polar Research Center. The Russians had pushed their way to the Pole of Inaccessibility by a route opposite to the Wisconsin 1964-65 trail. Russians had touched this point again only last year and provided the housewifely courtesies for those to come later.

-more-



Add one--Oversnow traverse

Bentley led the motorized traverse of Sno-Cats, rolitrailers, and 10 men when it left the South Pole station on December 4. He is now back on the Madison campus with six seasons of Antarctic exploration to his credit.

"We had more mechanical breakdowns than we hoped for, but all in all it was a successful trip," he said. "Hopefully, we got the best information yet obtained on the mean velocity of seismic waves traveling vertically through the icecap."

One surprising feature the scientists found was a rough subglacial topography. Mountains lying beneath the ice began much closer to the South Pole than was expected, starting within 50 miles of it.

In temperatures that averaged 15 degrees below, the Wisconsin party zigzagged across the desolate high polar plateau. They worked always at heights greater than 9,000 feet and on ice that was often two miles thick. They worked frequently for 20-hour stretches, for the summer season in Antarctica is short. Ultimately, in order to reach the Pole of Inaccessibility before the winter closed in, they curtailed one zig of the traverse, reducing the total journey by 200 miles.

When their goal was reached January 27, only one leg of a planned 5,000-mile traverse reaching from the South Pole to Roi Baudoin on the coast nearest to Africa had been carried out. Completing that route will be left to three other parties in three subsequent seasons.

The traverse party was evacuated from the point February 2 by Navy planes and returned to McMurdo Station by way of the South Pole. Listed among Madison campus personnel who took part in the traverse were Prof. Bentley, John Beitzel and Bruce Redpath, project assistants in geophysics, and Raymond Koski and Edward Parrish, traverse engineers. Also working and traveling with the five from Wisconsin were five scientists from Ohio State, the U.S. Coast and Geodetic Survey, and institutions in Belgium and Norway.

-more-

Add two--Oversnow traverse

Bentley reported that some of the most interesting results of the 1964-65 Antarctic season, as related to Wisconsin activities, were in the area of testing equipment, especially a radio-sounding device. This new tool, which reveals the nature of subsurface features through reflected radio waves, will reduce the need for the more time-consuming and laborious seismic reflection measurements. George Jiracek and James Nicholls, Wisconsin project assistants, undertook the testing in the McMurdo Station area and south of there at Skelton Inlet.

"One of the discoveries we made with the radio-sounding equipment was the existence of radio-reflecting layers of ice within the upper few hundred meters of the icecap," Bentley said. "One possible explanation for this phenomenon--also observed in the Greenland icecap--is that ice once lying at the surface was subjected to unusually warm temperatures, resulting in abnormally dense layers of ice. These may now be the radio-reflecting horizons in the upper meters of the cap."

In another Antarctic project undertaken by Wisconsin's Geophysical and Polar Research Center, William Boman, traverse engineer, and John Albright, a civil engineering student, crossed the dome of Roosevelt Island by motor tobaggan. The pair replaced stakes set out during past Wisconsin surveys and close to buried by subsequent snowfalls. They also did some surveying and measured snow depth.

The United States Antarctic Research program is financed by the National Science Foundation and is given logistical support by Operation Deep Freeze of U.S. Navy Task Force 43.



# U.W. NEWS

*Polar*

From The University of Wisconsin News and Publications Service, Observatory Hill Office, Madison 53706

Telephone (Area Code 608) 262-3571

Release: Immediately

3/19/65 vh

MADISON, Wis.--The University of Wisconsin Geophysical and Polar Research Center will be host next week to a gathering of distinguished glaciologists and scientists in related fields.

The meeting at the Wisconsin Center on the Madison campus, called for Thursday, March 25 through Saturday, March 27, is officially the annual conference of the glaciology panel of the National Academy of Sciences' committee on polar research. However, the assembly of 35 or more persons will include as many distinguished guests as panelists and also a sizeable group of Wisconsin scientists.

Prof. Charles R. Bentley of Wisconsin's Geophysical and Polar Research Center is a member of the panel. He recently returned from three months in Antarctica.

Called each year at one of the nation's research institutions where an active glaciological program is carried on, the meeting focuses on plans for future research programs. The atmosphere is purposely informal to encourage a free exchange of ideas.

"Having this session at an institution really helps stimulate creative thinking," Prof. Bentley said. "It is a great advantage to Wisconsin.

"We consider it an honor to the University and its glaciology program that the committee accepted our invitation to meet here."

-more-

## Add one--Geophysical and Polar Research Center

Members of the panel meeting at Wisconsin will include: W. O. Field, panel chairman, American Geographical Society; James Bender, U.S. Army Corps of Engineers Cold Regions Research and Engineering Laboratory; Phil E. Church and Norbert Untersteiner, University of Washington; Richard P. Goldthwait, Ohio State; Mark F. Meier, U.S. Geological Survey; Fritz Muller, McGill University; Barclay Kamb, California Institute of Technology; Pembroke Hart, National Academy of Sciences; John C. Reed, Arctic Institute of North America; A. L. Washburn, Yale; Johannes Weertman, Northwestern, and Wisconsin's Prof. Bentley.

Guests will include: Melvin G. Marcus, University of Michigan; Louis O. Quam, U.S. Office of Naval Research; Anthony Gow, U.S. Army Corps of Engineers Cold Regions Research and Engineering Laboratory; Lawrence H. Nobles, Northwestern; A. P. Crary, National Science Foundation; Richard L. Cameron and Colin Bull, Ohio State; Morton Rubin, U.S. Weather Bureau; Austin Post, University of Washington; Kenneth Hunkins, Columbia University; Paul C. Dalrymple, Polar Mountain Laboratory, U. S. Army Natick Laboratories; and Gunnar Ostrum, National Research Council, Canada.

Wisconsin men taking part in the meeting will include: from geology, Profs. Robert Black and Ned Ostenso, teaching assistant Tom Berg, and project assistants George Jiracek and Mario Giovinetto; from geography, Prof. Kirk Stone; and from meteorology, Profs. Reid Bryson, Werner Schwerdtfeger, Heinz Lettau, Robert Ragotzkie, and Martin Jenssen.

##



Polar

One of the most challenging chapters in University of Wisconsin exploration of the earth was begun in 1960 when men from the Geophysical and Polar Research Center on the Madison campus extended their studies to the frigid top of the world.

Though Russian scientists had established a North Pole station as early as 1937, little was known about the Arctic Ocean basin. Since 1960, in Wisconsin's continuing program, the modern Badger explorers have been learning more and more about the complex structure of that part of the earth's crust which lies beneath the world's northermost ocean. They have been doing this through measurements of gravity, magnetic field, and man-made earthquakes. They have traveled in this land of the Midnight Sun and over the great ice packs by special snow-tractor, snowshoes and skis. They have flown the ocean in big and tiny planes, and they have also studied what lies beneath from the deck of an icebreaker.

The Wisconsin scientists have even used a floating ice island as a base for their investigations. Once in a rare while one of these ice islands or a piece of pack ice escapes from two great spiral systems of water circulation in the Arctic and travels southward toward the Atlantic Ocean by way of the Greenland Current. The thin piece of pack ice holding the Russian's North Pole station was one of these and the Soviet scientists traveled for 1,500 miles toward the Atlantic Ocean before they had to abandon their melting ice island in the spring of 1937. A second very rare opportunity for observations came last fall when Arlis-two, an ice island occupied by Badger geophysicists, passed into the Greenland Current. Wisconsin men are on that island now as it heads south and will stay aboard until the last possible moment for evacuation.

We have with us to tell us more about them Wisconsin Professor Ned Ostenso, who has directed the Wisconsin's Arctic program since it began, and John Freitag who was stationed on Arlis-two for eleven months. Professor Ostenso comes from Chippewa Falls and holds three degrees including the Ph. D. from Wisconsin. John Freitag, a native of Janesville, received his bachelor's degree from Wisconsin in January, 1964.



SUGGESTED QUESTIONS WHICH MAY BE COVERED IN INTERVIEW OF  
PROFESSOR NED OSTENSO AND  
JOHN FREITAG OF THE UNIVERSITY OF WISCONSIN

What sort of knowledge of the Arctic Ocean basin have Wisconsin scientists learned since they have been working on the program?

How many scientific stations have been established in this northernmost part of the world since the Russians first established one in 1937? How many have been American stations?

Is there an observation station other than Arlis II in the Arctic now--an ice island station, that is?

How many Wisconsin men are on Arlis II now?

Are there men from other science centers there? What are they investigating? What institutions do they represent?

What sort of scientific apparatus do the Wisconsin men have with them?

What sort of shelters, living and working arrangements, what kind of food do the UW men have on the ice island?

Are supplies flown to them by plane?

How far from the North Pole is Arlis II now? How fast is it traveling and is this rate a steady one? How far is Arlis II from the point where the Russians had to leave their floating ice base?

How will the Wisconsin men indicate their navigational position for the plane which will be sent out to evacuate them and the others from the melting island?

Is it possible for a plane to land at any time on the island?

What are the factors controlling the time for abandoning the island?

What will finally happen to the island?

Is there much likelihood that Wisconsin will have another chance to ride one of these islands along the Greenland Current?

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# U.W. NEWS

FROM THE UNIVERSITY OF WISCONSIN NEWS SERVICE, MADISON, WISCONSIN 53706

*Polar & Geophysical  
Res. Center*

3/3/65 vh

RELEASE:

Monday, March 8

By VIVIEN HONE

MADISON, Wis.--(Advance for Monday, March 8)--Even in the frozen stretches of ice and dwindling darkness which are the Arctic at this season, income tax time is a potent factor in human behavior.

The usual University of Wisconsin equipment went with Stephen den Hartog, sturdy veteran of more than four years of polar research, when he left Madison this week for a gravity survey of the Arctic Ocean Basin. But he also carried the vital U.S. income tax form 1040 which he must fill out and file, even as thee and me, by April 15.

"I'll probably mail it from one of the base points along the Alaskan coast, or from an ice island station," the research assistant for the University's Geophysical and Polar Research Center speculated before departing. "There won't be a postoffice on the island, certainly, but planes may touch there."

"You can wait until June 1, if you're outside the country," added den Hartog, whose zigzag course over our northernmost ocean shows Alaska the nearest land at some points, Siberia at others. "I'll be home again by then, but I'm not sure I could qualify."

How many other Wisconsin researchers will file their tax reports from remote global corners? The question is difficult to answer but surely there will be many.

Den Hartog's 1965 flights back and forth over the northern seas will add up to his fourth season of gravity survey in the continuing program of Arctic studies which Wisconsin began in 1960. The big sandy-haired geologist made his first flights in 1962 and has put in a three-month stint each year since then.

-more-

Add one--den Hartog

Two single-engine Cessna 180s, always traveling in pairs, are used in the gravity survey. Den Hartog and his pilot are in one, a pilot and extra fuel in the other. The planes supplied by the University of Alaska's Arctic Research Laboratory are set down on the ice at 20-30 mile intervals, just long enough for the Wisconsin scientist to take gravity and water depth measurements. On each daily flight, an average of eight landings on the ocean ice are made.

"We'll be working out of Point Barrow, Alaska, and Arlis II--and beyond that play it by ear," den Hartog said. Arlis II is the three-mile long floating ice island now traveling southward in the Greenland Current with two Wisconsin men and eight other investigators aboard. It is destined to break up as the spring and warmer waters in the North Atlantic Ocean are reached.

"The gravity survey is done only during March, April and May because then we have enough sunlight to land and the pack hasn't yet begun to thaw," the geologist pointed out.

The 32-year-old den Hartog who holds degrees from Harvard and the Montana School of Mines, was born in Massachusetts of naturalized Dutch parents. He was the first of the Geophysical and Polar Research Center men to do a stint on Arlis II. That was in the summer of 1961. In 1963, in addition to his annual flights for gravity measurements, den Hartog worked on the Arctic seismic program.

Wisconsin studies at the other end of the earth have taken den Hartog to Antarctica twice--in 1957 for 14 months in the frozen south, and in 1962 for a single three-month season.

The 1962 tax statement for Stephen den Hartog reported a wife but didn't mention that the bridegroom faced departure for Antarctica only two days after marrying Miss Susan Smith of Bronxville, N.Y.

This year he leaves behind not only his wife but a daughter, four-week-old Dorcas. The 1965 tax exemption will be nearly four months old when her father returns to Madison.



# MADISON NEWS

2/19/65 ns

FROM THE UNIVERSITY OF WISCONSIN NEWS SERVICE, MADISON 6, WISCONSIN

RELEASE:

**Immediately**

*Polar & Geophysical  
Res. Center*

## TELEVISION EDITORS

Two University of Wisconsin staff members will tell about their experiences aboard a floating ice island in the Arctic Ocean on Channel 27 (WKOW-TV) Monday at 12:30 p.m. Prof. Ned Ostenso, director of the Arctic program for the University's Geophysical and Polar Research Center, and John Freitag, UW technician, will be guests of Blake Kellogg on the "In Town Today" show.

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# U.W. NEWS

*Solar-Geophysical  
Research Center*

FROM THE UNIVERSITY OF WISCONSIN NEWS SERVICE, MADISON, WISCONSIN 53706

2/18/65 vh

RELEASE:

PMS of Monday, Feb. 22

By VIVIEN HONE

MADISON, Wis.--The recent departure of Karl Redell, University of Wisconsin geophysics technician, for an ice island in the Arctic Ocean has added new dimensions to the mounting drama of Wisconsin science against the northern forces of nature.

Redell is being flown to Arlis II by an Arctic Research Laboratory plane. The island, a floating base for U.S. scientific observations, is now moving southward within the Greenland Current and is expected to disintegrate once the spring thaw occurs and the warmer waters of the North Atlantic Ocean are reached.

But the chance to make geophysical observations in this frigid, top-of-the world waste is so rare that Redell and James Pew, another Wisconsin technician, who has been on Arlis II since late last fall, will stay aboard the ice until the last possible moment for take-off. Eight men from other American science centers, also making observations on Arlis, will share their experience.

There comes a time, once the thaw has set in, when landing a plane on the melting ice is not possible, Prof. Ned Ostenso of the Wisconsin's Geophysical and Polar Research Center, pointed out. Ostenso directs the center's Arctic program.

"The date for evacuation will probably be somewhere in mid-April," he said, "but will be more exactly determined by the advance of the thaw and how far southward the island has moved."

The island, as it now exists in subzero temperatures and before the thaw, measures more than three miles long and one mile wide and reaches below the surface of the ocean for perhaps as much as 100 feet. Redell was flown to Arlis,

not only to help Pew with seismic, gravity and magnetic measurements but to

-more-



Add one--Arlis II, Geophysics

serve as navigator. He carried with him special radio equipment to pinpoint the island's position when time for evacuation nears.

"Before this, the only means of doing this was by 'shooting the sun' or the stars," Ostenso explained. "But you have to be able to see these objects to do that, and the area they're passing through is marked by frequent storms."

Since 1937, some 18 science stations have been established on the icy reaches of the Arctic Ocean, 13 Russian and five American, Ostenso said. Most of these have been on ocean ice, perhaps no more than 10 feet thick, but three have been set up on more durable ice islands. Such islands originate as broken away parts of the Ellesmere Island ice shelf.

Each of these ice or island bases has circulated within one of two great water systems at the top of the world. Only two have escaped to enter a third, the Greenland current, passing southward between the clockwise and counter-clockwise movements.

The first of the 18 Arctic science stations, a Russian geographical pole station established in 1937, was one of these, according to Ostenso. The Soviet scientists rode the thin Arctic ice southward to a point 1,500 miles from the pole before abandoning it.. Arlis II, the second to escape, is now within 800 miles or six weeks travel time of that point in the Greenland Sea and may proceed south beyond that area before the men are taken off, Ostenso indicated.

Wisconsin first put a man on Arlis II in June, 1961, one year after its continuing program of geophysical studies in the Arctic Ocean got under way. The island did not pass into the Greenland current until late fall, 1964. All told, six hardy explorers from Wisconsin's Geophysical and Polar Research Center have done stints on Arlis II. Pew and Redell are there each for the second time.

Their companions in the journey south are glaciologists, marine biologists, meteorologists, and oceanographers from the U.S. Navy Oceanographic Office, Washington, D.C., the Universities of Washington and Southern California, and Hokkaido University in Japan.

# U.W. NEWS

*Polar - Geophysical  
Research Center*

10/26/64 vh

FROM THE UNIVERSITY OF WISCONSIN NEWS SERVICE, MADISON, WISCONSIN 53706

RELEASE:

Immediately

MADISON, Wis.--The Pole of Inaccessibility will be the tough geographical goal of the University of Wisconsin's 1964-65 Antarctic oversnow traverse as the 10-man team leaves the South Pole in late November and heads across the snow-fields for Queen Maud Land.

The Pole of Inaccessibility is that point in Antarctica which is farthest in all directions from the coast--some 900 miles from the nearest approach by ship.

The research goal of the traverse will be the same as in past Antarctic "summers"--investigation of the thickness and properties of the great Antarctic icecap and of the nature of the underlying rocks. But this time the zigzag trek will lead into the vast last unexplored portion of the Frozen Continent.

Prof. Charles R. Bentley of the University's Geophysical and Polar Research Center, a veteran of six seasons in Antarctica, will be the traverse leader. The team will travel in big, motorized SnoCats. The 1,200-mile, two-month trip into Queen Maud Land will be one of the toughest undertaken since 1957 when the University of Wisconsin joined institutions from all over the world in the grand push to study Antarctica and other remote areas, known officially as the International Geophysical Year.

Even in the "summer" season Queen Maud Land is certain to be a windy desert of snow and ice with temperatures of 60 below zero likely. The ice cap in some places is more than two miles deep.

On this high polar plateau, equal in size to all the U.S. west of the Rockies, the terrain will be extremely rough. Supplies for the party will either be flown ahead and cached where a plane landing is possible or dropped directly to the team while it is en route.

-more-



## Add one--Antarctica

Two members of the party left for the South Pole early in October. They are Raymond Koski and Edward N. Parrish, traverse engineers from the University of Wisconsin who are readying the motorized equipment for the long Antarctic trip.

Prof. Bentley and the rest of the team will join them in early November. Others in the team are John E. Beitzel and Bruce B. Redpath, UW project assistants in geophysics; Richard L. Cameron and James Gliozzi, glaciologists from Ohio State University; Ronald Peddi of the U.S. Coast and Geodetic Survey; and two visiting scientists, Edgar E. Picciotto, nuclear geochemist from the University of Brussels, Belgium, and Olav Dybvadskog, meteorologist from the Norsk Polarinstitut, Norway.

Koski, Picciotto, and Cameron are also veterans in Antarctic studies.

The usual seismic, gravity, magnetic, and altimetric methods will be employed and a geochemical investigation, undertaken on the Wisconsin traverse this season, will widen the means for delving the nature of Antarctica.

When the 10man traverse team wins its rugged way through to the Point of Inaccessibility early in 1965 and is evacuated by plane, Wisconsin will have completed only the first leg on a 5,000-mile journey. In three subsequent seasons scientists will complete the trail through unexplored Queen Maud Land, a trail stretching from the South Pole to Roi Baudoin, Belgian station on the Antarctic coast nearest to Africa.

In a second Wisconsin geophysical project of the 1964-65 season in Antarctica two men from the Geophysical and Polar Research Center, project assistants George R. Jiracek and James E. Nicholls, will be trying out a new radar-like method for "seeing" the contours of the land below the ice. If successful, Prof. Bentley pointed out, "it will eventually enable us, traveling either in a moving land vehicle or in aircraft, to obtain a continuous record of ice thickness without having to stop and make seismic shots."

Nicholls and Jiracek will work in the McMurdo Station area. They also hope to work at other points. They will travel partly by surface vehicles and partly by Navy small planes and helicopters.

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Add two--Antarctic

Another Wisconsin geophysical effort is also planned for the 1964-65 Antarctic summer. William M. Boman, University traverse engineer, and John C. Albright, UW civil engineering student, will cross the dome of Roosevelt Island by motor toboggan.

Boman and Albright want to replace stakes set down during past Wisconsin surveys of the island before the continual snows completely bury the markers. Along the route they also will measure snow depth and do surveying.

Boman's assignments in Antarctica this season also call for work at the Pole, readying the motorized equipment for the oversnow traverse, and at McMurdo station, preparing Snocats for future traverses.

Some fourteen men are due to work in Antarctica this season under the University of Wisconsin banner. Nine are identified with the Madison campus. Some 150 U.S. Scientists will take part in 50 field projects on the frozen continent supported by the National Science Foundation.

Logistic support for the U.S. Antarctic Research Program is provided by Operation Deep Freeze of the U.S. Navy Task Force 43.

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# U.W. NEWS

*Solar & Geophysical  
Research Center*

FROM THE UNIVERSITY OF WISCONSIN NEWS SERVICE, MADISON, WISCONSIN 53706

10/20/64 vh

RELEASE:

Immediately

MADISON, Wis.--Research to prove the existence of a long suspected "bridge" between Asia and North America, has taken three hardy explorers from the University of Wisconsin and one from the University of Hawaii to the Arctic this fall.

Before the Siberia to Alaska "bridge" disappeared under the sea, early man may have used it to migrate eastward from Asia to North America.

Members of the arctic team are UW research assistants Perry Parks Jr., Mark F. Miller, and James Pew. The other member is Noel Thompson, research assistant from the University of Hawaii and former member of a UW geophysical research team.

Director of the Wisconsin-Hawaii arctic program is Prof. Ned Ostenso of the UW Geophysical and Polar Research Center.

"North America and Asia are separated by only about 40 miles of water in the Bering Strait," Prof. Ostenso pointed out. "On either side of the strait there are shallow seas nowhere more than 200 feet deep--the Chukchi Sea, reaching northward more than 1,000 miles, and the Bering Sea stretching a similar distance to the south."

The floor of these seas represents to some scientists the "bridge" the arctic team is seeking.

"If the sea level were lowered by less than 200 feet, this floor would become dry land--the bridge between the continents," Prof. Ostenso said. "In our geological past such a lowering could easily have taken place with the trans-  
ferring of the water into an icy part of the great continental glaciers."

-more-

## Add one-- UW Arctic Studies

Prof. Ostenso has little doubt that the bridge, though submerged, exists, and has emerged from time to time during the thousands of years of the past ice age. Conclusive proof of it would help geologists to link crustal studies of the two continents.

For other sciences it would help explain such things as ecological relationships in the northern world and similarities between Asian and North American plants and animals. It also would trace one step further the origins of primitive North American man.

Hostile weather conditions and ice packs have long delayed investigation in the Arctic, Prof. Ostenso said, "but now with the cooperation of the U.S. Coast Guard we are able to do research in these northern seas."

This season the research team will work from the Coast Guard icebreaker Northwind and will concentrate on the floor of the Chukchi Sea. The team will study the structure, composition and permanency of the "bridge" through underwater seismic measurements and sea bottom gravity observations.

Three tons or more of research equipment was shipped ahead of the team to Barrow, Alaska, where the men boarded the Northwind on Oct. 1. Two of the Wisconsin team and much of the equipment will return to the Madison campus in November.

Jim Pew and a special underwater seismograph will instead be flown to Arlis II, an ice island floating in Arctic waters, for another season of Wisconsin observations. Pew spent eight months on Arlis II in 1962.

Wisconsin's Arctic program this fall is supported by the Arctic Institute of North America and the U.S. Coast Guard. The 1964 project is part of a continuing investigation of the Arctic Ocean area, begun in 1960.



# U.W. NEWS

FROM THE UNIVERSITY OF WISCONSIN NEWS SERVICE, MADISON, WISCONSIN 53706

5/14/64 vh

RELEASE:

Immediately

*Polar*

MADISON, Wis.--Praise for the University of Wisconsin's Geophysical and Polar Research Center in Madison is included in a recent bulletin of the Academy of Sciences of the USSR.

The bulletin was written by Prof. E. S. Borisevich, one of two Russian seismologists who visited Wisconsin and other American institutions in January, 1963, on an exchange-of-scientists program arranged between the U.S. National Academy of Sciences and the Russian academy.

The purpose of the Russians' trip was "to make a study of the theoretical and experimental achievements of American seismologists, as well as to familiarize ourselves with new seismic instruments."

Prof. Borisevich says, in part:

"The Geophysical and Polar Research Center at the University of Wisconsin is conducting important studies in gravimetry and seismology. In addition, studies on deep seismic soundings in Alaska, in the transition zone between the continent and ocean, are being planned." He continues:

"Interesting devices for measuring gravity on land and sea are being developed. The center's staff carried out extensive gravimetric operations in the North-Polar basin. We attended a showing of three interesting educational films--on seismology, gravimetry, and oceanography."

On the worth of the Russian-American science exchange, Borisevich concludes:

"Our interesting journey has confirmed the indisputable desirability of broadening the scientific contacts between Soviet and American seismologists."

# U.W. NEWS

FROM THE UNIVERSITY OF WISCONSIN NEWS SERVICE, MADISON, WISCONSIN 53706

5/12/64 vh

RELEASE:

Immediately

(Glossy prints of the map available on request)

By VIVIEN HONE

MADISON, Wis.--A first aeromagnetic "look" at Wisconsin, promising enough to suggest a second examination with the potential of revealing important new mineral resources within the state, was reported the past weekend by a University of Wisconsin geophysicist.

Robert W. Patenaude, a research assistant at the UW geology department's Geophysical and Polar Research Center on the Madison campus, told of the state-wide airborne magnetic survey which he has recently completed--10,000 miles of flight and 50,000 measurements or readings--at the Institute on Lake Superior Geology, held at Ishpeming, Mich.

A similar but more detailed survey over a smaller area, conducted recently by the Minnesota and U. S. Geological Surveys and reaching to within 10 miles of Wisconsin's border, has pointed a magnetic "finger" at a large concentration of magnetic materials in Minnesota's Fillmore County. There are indications that a tabular body, 5,000 feet wide and lying 1,000 feet below the surface, may be an iron deposit of a quality similar to that of the Mesabi Range, one of the principal iron areas of the world. Minnesota geologists are proceeding with even more detailed investigations before drilling.

The inventory of Wisconsin's magnetic field, flown largely at six-mile intervals along north-south township or range lines and at a 3,000 foot altitude, grew out of initial 1960 summer flights to test the possibilities of airborne use of a new absolute-type magnetometer unit, Patenaude said. Now a part of reconnaissance studies reaching into central, eastern, and Upper Michigan as well as southeastern

-more-



Add one--magnetic survey

Illinois, the survey had the principal goal of extending knowledge of the earth's broad scale structural and geologic features rather than of mineral exploration.

"Although anomalies--deviations from the normal magnetic field--do not necessarily point to minable mineral deposits, they are 'a symptom of mineralization,'" Patenaude said. "Any time the readings are high this indicates there is a relative concentration of magnetite below. The concentration may be minable iron materials. The anomaly may also point to non-magnetic minable minerals commonly found in association with magnetite."

As might be expected, Patenaude reported large anomalies on readings taken above known areas of iron concentration such as the Penokee-Gogebic range in Bayfield, Ashland, and Iron counties; in the Black River Falls area; the Butternut area in Ashland County; and Magnet Center in Iron County.

But he also encountered areas of significantly higher-than-normal magnetic field in western, northern, and north-central parts of the state where mineral concentrations have not been suggested. Among these were regions south and west of Rhinelander; north of Wittenberg in Shawano and Langlade counties; east of Wausau in Marathon County; and in the vicinity of Eau Claire.

Patenaude also reported finding 80 small, local magnetic anomalies of such limited horizontal extent that they can not now be correlated with measurements on adjacent flight lines.

"In part, the relatively smooth contours of the map reflect the lack of detail inherent in widely spaced flight lines," Patenaude pointed out. "We haven't begun to cover the ground for detail as yet, for the Wisconsin measurements were made to reveal the gross structural and geologic framework of the state. The Minnesota survey over Filmore County was flown at one-mile spacings and even then the important anomaly showed clearly only on two adjacent flight lines. Thus it is apparent that this preliminary regional survey of Wisconsin at six-mile spacing likely has missed features of possible economic significance."

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Add two--magnetic survey

In the light of the findings in this first aeromagnetic "look" at Wisconsin, Profs. Ned Ostenso and Robert Meyer of the UW Geophysical and Polar Research Center said today that they recommend continuation of the survey to further explore the revealed anomalies and possibly, to pinpoint others.

"Today very little of the earth's mineral resources exposed at the surface remains undetected," Ostenso pointed out. "Most of the world supply lies beneath the surface and discovery of these raw materials has become a team effort between geologists and geophysicists. In this endeavor initial investigations by means of airborne magnetometers have frequently proved to be the best and most economical method of delineating areas worthy of later, more detailed study with all of the tools available to the earth scientists."

The recent development of magnetometers capable of being used in airplanes has immensely expanded the scope of operations and has already located ore deposits worth billions of dollars, Ostenso said.

Meyer said that the huge Marmora deposits of magnetite in southern Ontario, estimated to contain as much as 1,000 million tons of the mineral, were discovered in 1949 solely on evidence from aeromagnetic mapping. Canada is currently conducting a program to explore all of the potential mineral-bearing regions of that country, he emphasized, and added that nations such as Ghana, Turkey, Venezuela, Bolivia, Angola, Chile, and the United Arab Republic are now planning or conducting similar surveys.

The University of Wisconsin, beginning in the 1940s under the leadership of Prof. George P. Woollard, pioneered many earth-science investigations by means of gravity, magnetic, and seismic measurements. Long famous for its work in geology, Wisconsin is now also one of the world's centers for geophysical studies.

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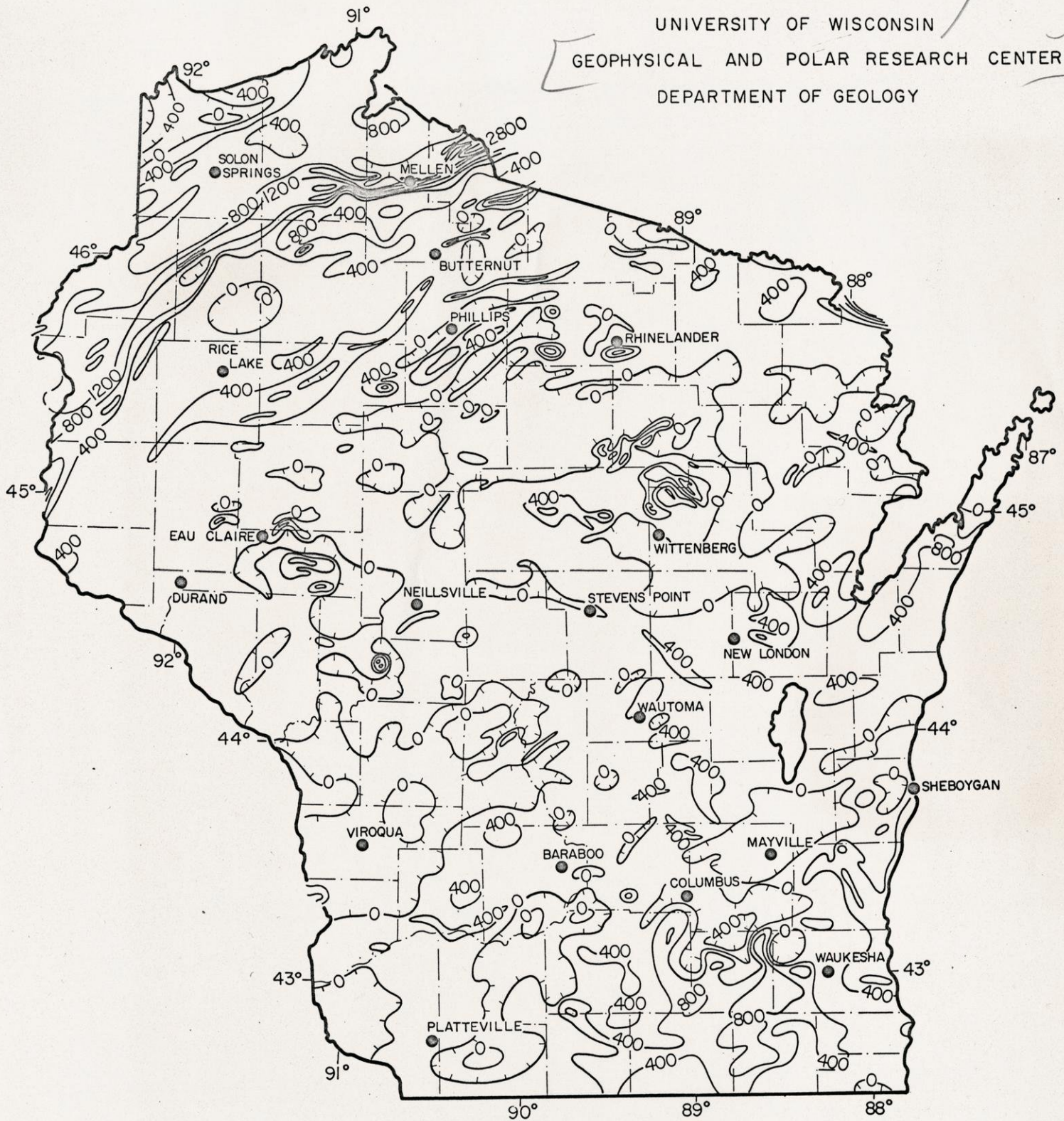
Add three--magnetic survey

In the development of magnetic studies alone, the University has made significant contributions to instrumentation and interpretation techniques. Beyond this, the Geophysical and Polar Research Center has conducted regional magnetic surveys of the entire Arctic Ocean basin, the Greenland and Chukchi Seas, and of large portions of the Antarctic continent.

The recently completed aeromagnetic mapping of Wisconsin was supported through funds from the Wisconsin Alumni Research Foundation and the National Science Foundation. The map is available for inspection at the Geophysical and Polar Research Center and the Office of the State Geologist, University of Wisconsin, Madison.

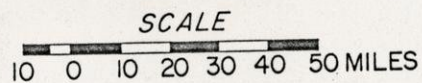
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UNIVERSITY OF WISCONSIN  
GEOPHYSICAL AND POLAR RESEARCH CENTER  
DEPARTMENT OF GEOLOGY



MAGNETIC ANOMALY MAP

CONTOUR INTERVAL = 400 GAMMAS



Glossy print may be obtained from  
News and Publication Service  
University of Wisconsin  
Madison, Wisconsin 53706



# U. W. NEWS

FROM THE UNIVERSITY OF WISCONSIN NEWS SERVICE, MADISON 6, WISCONSIN

RELEASE:

10/8/63 vh

Immediately

MADISON, Wis.--Ten University of Wisconsin men will be among American earth-scientists working in Antarctica during the 1963-64 season.

Prof. Charles R. Bentley, speaking for the University's Geophysical and Polar Research Center, said Tuesday that projects in Antarctica under the center's banner will include an oversnow traverse, an aero-magnetic survey, and a vehicle repair mission. In addition, UW geologists will continue an investigation of ground patterns, underway since 1960-61.

Manfred Hochstein, veteran of previous Antarctic explorations, has come from Germany to lead the Wisconsin team on a reconnaissance traverse to the edge of the Filchner Ice Shelf and the area bounded by the Ellsworth, Pensacola and Thiel mountains. During the approximately 100-day journey, beginning and ending at Byrd Station, seismic, gravity, magnetic, and elevation measurements will be made, snow cores will be collected, and temperature readings will be taken at regular intervals at 10-meter depths in the ice.

The traverse crew will include in addition to Hochstein, Jerry Clark, Tom Horrall, and Silas Ong, assistant geophysicists; and William Boman, traverse engineer. Boman is already in Antarctica, having wintered over at Byrd Station. These five will be joined on the traverse by a technician from the U.S. Coast and Geodetic Survey, who will be handling the geo-magnetic portion of the field studies.

-more-

Add one--Antarctic

Project assistants Per Gjelsvik and Richard Wanous will carry out the project of aero-magnetic studies made from plane flights over Antarctica. Gjelsvik, using McMurdo Station as his base, will be particularly concerned with gaining measurements in the mountainous area called the Transantarctic Range. Wanous, with Byrd Station as his base, will seek especially measurements over unexplored regions around the Filchner Ice Shelf.

Raymond Koski will constitute the UW's one-man vehicle repair mission. Preceding Wisconsin's traverse team to Byrd Station, the traverse engineer will join Boman in readying the big Sno-Cats to be used on the expedition. He then will fly to the South Pole for a season of repairs on the large over-snow vehicles there. These are the machines for transportation in future traverses starting at the Pole.

"We hope there will be a traverse into Queen Maud Land, perhaps next year," Bentley said. He also added that this season's traverse out of Byrd may very well be the last reconnaissance traverse in West Antarctica "because the reconnaissance job is about done."

Prof. Robert Black, again aided by project assistant Tom Berg, will be continuing his studies of ground patterns in the dry valleys of Victoria Land and points near McMurdo Station. Here where the ground is not covered by ice are great complexes of criss-crossing cracks, caused by expansion and contraction of the ground.

Ultimately filled with sand and ice, the cracks now appear as mosaics of wedges or hexagons. Knowledge is sought on how long the areas have been ice free and whether surrounding glaciers are advancing or retreating. This season Black and Berg will concentrate on temperature measurements and rate of growth of the wedges.

All the UW men will have arrived or be on their way to Antarctica by mid-November.

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# MADISON NEWS

*Polar*

FROM THE UNIVERSITY OF WISCONSIN NEWS SERVICE, MADISON, WISCONSIN 53706

RELEASE:

4/21/64 vh

Immediately

MADISON--Five staff members of the University of Wisconsin Geophysical and Polar Research Center are participating in the annual meeting of the American Geophysical Union being held at Washington, D.C. this week (April 21-25).

The five men from the Madison campus are Profs. Charles Bentley, Robert Meyer, and Ned Ostenso, research assistant Theodore Cohen, and project supervisor Hugh Bennett.

Bentley, Ostenso, Meyer and Cohen are presenting papers before the group.

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# U.W. NEWS

Polar

FROM THE UNIVERSITY OF WISCONSIN NEWS SERVICE, MADISON, WISCONSIN 53706

1/31/64 vh

RELEASE:

Immediately

By VIVIEN HONE

MADISON, Wis.--The first provocative "look" at the lower depths of the earth's crust was revealed this week as a University of Wisconsin scientist told results of a seismic explosion study made in the Mississippi River in the summer of 1962.

Until the Wisconsin study was made by a team from the University's Geophysical and Polar Research Center, all that was known was "a bit about what lies in the first one-to-four miles down." Now science has stretched inquiry as far as 25 to 30 miles into the earth's hidden interior.

The work, led by UW Prof. Robert P. Meyer, was carried out by setting off a series of 70 spaced shots on the river bottom near Cape Girardeau, Mo., and recording the resultant seismic waves along a line between the cape and Little Rock, Ark. The area is known to geologists as the Mississippi Embayment. The vibrations in these man-made earthquakes were both reflected and refracted back to the surface by the hidden rocks below, picked up by delicate instruments converting ground movement into electrical current, and finally recorded as graphs on sensitized paper.

One feature pointed out by Wisconsin investigations is an area of very dense substances near the base of the crust. The increased velocity or speed in which the shock waves were returned to the surface indicated this feature, Prof. Meyer said.

This unsuspected high velocity zone at the lower levels of the crust may be the long-looked for reason why signals or shock waves from natural earthquakes, coming from certain directions, arrive "early" at St. Louis University's Seismological Observatory. It may also account for slightly increased gravity for the Embayment area.

-more-



## Add one--Mississippi Embayment

The crust thickens as it stretches southward in the embayment, with the thickness significantly greater at Little Rock than at Cape Girardeau, Prof. Meyer said the studies show. And this thickening is particularly true for intermediate and near surface materials. It also appears that the entire crystalline rock section (older, metamorphic or fire-born rocks) has moved downward toward the south and that sediments have been deposited over it in increasing thickness toward the south.

The Mississippi Embayment area was chosen for the research, Prof. Meyer said, because it is a relatively stable zone (hasn't been moving up or down for almost all recorded geological history); because preliminary measurements pointed to an abnormal continental region; and because shots set off on the river bottom rather than on land offer important advantages including better coupling of the shock waves and transmission for greater distances.

Thus the embayment "picture" will be used as a standard for comparison with areas showing excesses or deficiencies of gravity, Prof. Meyer said.

The Wisconsin team also experimented with a new seismic method. This resulted in a higher degree of accuracy and an improved design for computer analysis and other methods of interpretation. One paper on the improved method and another on interpretation of the data gathered will soon be published.

"One piece of a mosaic is not too impressive," cautioned Prof. Meyer on the embayment investigations. As research is extended around the world and more data for comparison become available, this first "peek" will become more important in building a total picture of the earth's crust and upper mantle--one that will show origin, composition and structure.

"This is the beginning of the solution," he stressed, "and now that St. Louis and the survey have completed their project, we'll compare our findings with theirs.

Add two--Mississippi Embayment

St. Louis University and the U.S. Geological Survey recently concluded field studies in the vicinity of the St. Francis Mountains, west of St. Louis and due east of Springfield, Mo. The goal was to gain a velocity depth picture of the crust.

Since carrying out the work in the Mississippi River, the Wisconsin team has made similar crustal investigations in the Arctic, Iowa, Lake Superior, and an area extending from the North Carolina Coast into waters beyond the continental shelf.

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# WIRE NEWS

FROM THE UNIVERSITY OF WISCONSIN NEWS SERVICE, MADISON, WISCONSIN 53706

1/15/64 vh

RELEASE:

Immediately

MADISON, Wis.--Representatives from some 15 American and Canadian agencies taking part in an important new cooperative Great Lakes study will meet on the University of Wisconsin's Madison campus Thursday and Friday (Jan. 16 and 17) with UW geologists serving as hosts.

Investigations of the earth's crust lying beneath Lake Superior were begun last summer through seismic explosion methods. Some 85 shots were fired in 20 days from the U.S. Coast Guard cutter Woodrush.

All participating agencies seek partial answers to large global questions such as: What is the structure and make-up of the earth's crust and upper mantle? Why are there oceans and why are there continents?

The sessions will be held largely at the Wisconsin Center.

Prof. Robert P. Meyer, leader of the Wisconsin team, will welcome participants at 9 a.m. Thursday to begin discussions on procedures and further plans for the studies.

On Friday afternoon the group will hear reports on earth crust studies which the UW has now extended to the Arctic Ocean basin and on a cooperative program on shear wave studies in the Gulf of Maine.

A buffet dinner will be served to guests at the Brittingham site of the UW Geophysical and Polar Research Center, followed at 8:30 by a talk by Dr. Ziro Suzuki on explosion seismology in Japan. Dr. Suzuki, visiting professor at the Carnegie Institution, Washington, D.C., is from the University of Tokyo's Earthquake Research Institute.

-more-

Add one--crustal studies

Representatives from cooperating agencies and sponsors will include:

University of Wisconsin--Profs. Meyer, Ned Ostenso, and Charles R. Bentley;  
Visiting Prof. Etsuzo Shima, University of Tokyo; and Keith McCamy, Theodore  
Cohen, William Unger, and A. L. Ocola.

Carnegie Institution--Drs. L. T. Aldrich, T. J. Smith, J. S. Steinhart,  
and Suzuki; Penn State--Prof. B. F. Howell; University of Michigan--Drs. D. E.  
Willis and J. DeNoyer; University of Minnesota--P. Farnham and J. Fitch; Southwest  
Graduate Research Center--Prof. A. L. Hales and Dr. K. Graham; U.S. Geological  
Survey--L. C. Pakiser and Dr. J. Healy; U.S. Coast Guard--Lt. Sheedy;

U.S. Air Force Technical Applications Center--R. Mansfield; Air Force  
Office of Scientific Research--Maj. Howard Leaf; and National Science Foundation--  
Dr. Roy Hansen;

From Canada: Dominion Observatory--Dr. A. M. Bancroft; University of  
Toronto--Prof. G. F. West and M. Berry; University of Western Ontario--Prof. R.  
Merau; and University of Alberta--Prof. G. L. Cumming.

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# U. W. NEWS

FROM THE UNIVERSITY OF WISCONSIN NEWS SERVICE, MADISON 6, WISCONSIN

12/23/63 vh

RELEASE:

in PMs of Friday, Dec. 27

CLEVELAND, Ohio--The Arctic Ocean is now known to be transected by three great submerged mountain systems, and four deeps within its basin may make it four oceans instead of one, a University of Wisconsin geologist told a special symposium on polar geology Friday (Dec. 27) at meetings of the American Association for the Advancement of Science in Cleveland.

Though the general character of the earth's ocean structure has been established, Ned Ostenso said, the Arctic Ocean remains a complex puzzle, one that is only slowly being solved.

Ostenso is one of a team of scientists from Wisconsin's Geophysical and Polar Research Center which began a long-range investigation of the Arctic Ocean basin in 1960. Most of these studies, made by magnetic, gravity, and seismic survey methods, are still in progress, he pointed out.

Recent research has revealed a fundamental difference between the structure of the earth's crust beneath the oceans and the structure of the continents which accounts for the existence of each basic division, the scientist explained. The continents are composed of relatively light granitic-type rocks, whereas the ocean basins are composed of denser material. Thus the continents, being lighter, "float" above the general level of the ocean floors.

This "floating" of the continents may be the key to the as yet undetermined regenerative force which balances off the processes of erosion, Ostenso said. If such a force were not operating toward land uplift, a continent such as North America could have been eroded down to sea level more than 800 times during the earth's history. But earth-scientists have found little evidence that continental land masses have ever been submerged to true oceanic depths, he said.

-more-

Add one--Ostenso

The UW investigations in combination with all available U. S., Canadian, and Soviet data show an exceedingly complex Arctic Ocean basin with elements characteristic of both continents and true ocean basins present, Ostenso said. Some scientists believe this northernmost ocean to be a true ocean in the geologic sense, but others think it is a foundered continental block. Both views are supported by reasonable but by no means conclusive evidence, according to Wisconsin studies.

Among certainties established to date are the four depressions or oceanic depths lying within the Arctic Ocean boundaries. These are underlain by crustal sections approximately two and one half miles thick. Large volumes of sediments have collected within these four basins.

Separating the four deeps are three submerged trans-Arctic Ocean mountain systems, Ostenso said: the Lomonosov Ridge, very nearly bisecting the basin, rising 10,000 feet above the ocean floor, and extending some 1,000 miles between the continental shelf near Ellesmere Island and the shelf north of the New Siberian Islands; the 8,000-foot-high Alpha Ridge, closely-parallelizing the Lomonosov; and a third system considered to be a continuation of the Mid-Atlantic Ridge, reaching northward from Iceland, running between Greenland and Spitsbergen, and on across the Arctic Ocean.

The Russians discovered the Lomonosov Ridge in 1948-49 and have interpreted the ridge to be one of sedimentary rocks folded by mountain-building forces in the Mesozoic era. Geophysical evidence collected thus far in the Wisconsin studies do not deny this interpretation, according to Ostenso.

For the Alpha Ridge, Wisconsin investigations suggest that this is an uplifted block of crystalline rock covered by sedimentary layers of variable thickness.

Recent aeromagnetic flights over the Arctic Ocean made by Ostenso and others from the Wisconsin team have established the existence of the third system and its place as part of a globe-encircling ridge system. This continuation of the mid-Atlantic Ridge had been postulated earlier from partial evidence gathered in Wisconsin and other studies. The 1963 aeromagnetic flights have further substantiated existence of this hidden tectonic feature, according to Ostenso; account.



# WIRE NEWS

*Polar*

FROM THE UNIVERSITY OF WISCONSIN NEWS SERVICE, MADISON 6, WISCONSIN

9/6/63 vh

RELEASE:

Immediately

MADISON, Wis.--A distinguished Japanese scientist with a special interest in earthquakes is visiting the University of Wisconsin campus at Madison.

The visitor is Prof. Hiroshi Kawasumi, director of the Earthquake Research Institute at the University of Tokyo. Japan is the world's number one area of earthquake activity, and the institute is one of the largest centers for seismological research.

Prof. Kawasumi lectured to UW geologists Thursday at the Geophysical and Polar Research Center on relationships of earthquakes and near-the-surface geological materials to building damage.

Greater knowledge of how the effect of seismic waves is modified according to the nature of the near-surface materials which transmit the waves will help the Japanese people to plan and erect buildings to survive earthquakes with minimal damage, he explained.

Such knowledge is one particular area of interest in the science of seismology for Prof. Kawasumi. He is also especially concerned with ways for predicting the times of major earthquake occurrence.

The visitor will remain until Sunday (Sept. 8) to inspect the work of the UW Geophysical and Polar Research Center and confer with Wisconsin geologists.

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# U. W. NEWS

FROM THE UNIVERSITY OF WISCONSIN NEWS SERVICE, MADISON 6, WISCONSIN

9/12/63 jb

RELEASE:

Immediately

By JACK BURKE

MADISON, Wis.--The University of Wisconsin's "biggest ever" research push in the Arctic will be on its way in another 10 days.

The UW department of geology's Geophysical and Polar Research Center demolition and recording group at Madison will join science crews of the University of Alaska, University of Minnesota, and the Lamont Geological Observatory of Columbia University in a cooperative program of seismic crustal studies of the far north Arctic Ocean basin.

The Wisconsin party will be led by Profs. Robert P. Meyer and Ned A. Ostenso, principal investigators. Other center staff members taking part include Den Hartog, Don Bednarek, James Kosalos, Noel J. Thompson, Jerry E. McAdow, William L. Unger, David Schlabach, Thomas Meyer, and Perry E. Parks Jr. The party will return about Nov. 20.

"Our major assignment will be to determine the structure underlying the shallow Chukchi Sea west of Pt. Barrow (Alaska) and the deep Beaufort Sea north of Pt. Barrow," Prof. Meyer explained. Pt. Barrow is the northernmost point of land and station in the 50 states.

By the seismic method of investigation, explosive charges are set off in series, and shock waves thus generated are refracted and reflected by the underlying rocks. These signals, picked up by various detectors and transmitted as electrical current, are recorded on magnetic tapes. From thousands of such tapes, scientists can gain quantitative clues to what lies beneath the earth's surface.

-more-



Add one--Arctic research

The research project was made possible by a \$169,000 grant from the U.S. Air Force Office of Scientific Research. Preliminary studies were started in 1960 with work carried out both by measurement of magnetic fields and seismic explosions. The Office of Naval Research and the U.S. Coast Guard will provide logistic support for the expanded program.

Two 200-mile-long lines along which the shots will be fired will be established, the first leading west toward Siberia from Pt. Barrow, across the Chukchi Sea and wholly on the Continental shelf. This has some 15-20 miles of thickness. The second, leading north from Pt. Barrow across the Beaufort Sea, will traverse an area of one to two mile depth most likely to be of true oceanic character.

The Staten Island, U.S. Navy icebreaker, will be employed to put off bottom and other underwater shots at intervals of every three or four miles. Recording of seismic waves produced in work along the Chukchi Sea line will be handled both on the North Wind, U.S. Coast Guard icebreaker, and by land-based equipment. This will include 40 or more seismometers, set in two arrays along a 20-mile line in the Pt. Barrow sector.

In comparison with Russian efforts, U.S. research in the Arctic has been deficient, Prof. Meyer pointed out. Belated American interest in the world's northernmost sea is expected to serve defense ends as well as the scientific need to learn more about this planet and its structure.

The Arctic Ocean basin is the earth's least understood first-order physiographic feature, Prof. Ostenso said. Because of its position between the continents of Eurasia and North America, it might be considered the keystone to the structure of northern hemisphere geology. He added that it appears, paradoxically, to contain elements that are characteristic of ocean areas as well as of continents, defying classification within earth structure.

-more-

Add one--Arctic research

The new research project requires considerable equipment. Some 10 tons of materials were shipped early, and another five tons will accompany the UW party when it leaves by plane next week. In addition, some 106 tons of explosives will be utilized to set off the detonations.

"We'll be using a number of floating unmanned telemetering hydrophones over deep water and just off the land-based arrays," Prof. Meyer explained. The UW party will be engaged in three land parties and two ocean-going groups.

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# FEATURE STORY

*Polar & Geoph.  
Research Ctr.*

FROM THE UNIVERSITY OF WISCONSIN NEWS SERVICE, MADISON 6, WISCONSIN

RELEASE:

Immediately

10/29/63 vh

By VIVIEN HONE

MADISON, Wis.--Were the continents of South America and Antarctica once linked by a great chain of mountains?

University of Wisconsin geologists think such a union was likely. One of them, Marty Halpern, will soon fly to the bleak land of Tierra del Fuego at the southern tip of South America to find more evidence for the hypothesis. This is part of the strange and savage world which Charles Darwin observed while formulating his revolutionary theory of the origin of species.

Halpern's exploration of the rocks, using Navarino Island as his base, will mark the fourth year of UW effort to prove a one-time connection between the Chilean Andes and the Palmer or Antarctic Peninsula. Previous investigations have been concentrated on the Antarctic end of the puzzle and on a region in South America which is northwest of the site for Halpern.

Matching rocks and rock sequences on the two continents will be important evidence toward proving union, the project associate with the UW Geophysical and Polar Research Center at Madison pointed out.

"While trying to construct a geological history, I will be working a sequence of low-grade metamorphic rocks, sedimentary rocks, and their related intrusives and extrusives," he explained. "These are of uncertain age. Up to now no fossils have been found in the area to help us fix the time, but we hope ultimately to use radiogenic dating to establish absolute age of the formations."

-more-

Add one--geology

Tierra del Fuego--Land of Fire--is so called for the Indian campfires which Darwin saw while approaching shore during the voyage of The Beagle. It no longer has Indians and has virtually no other inhabitants. The Indians have been decimated by white man's diseases, but their desolate maze of islands, mountains, and fiord-filled waters remain. Here the vegetation is mainly mosses and stunted shrubs, and temperatures, even during the summer season, average a chilly 45 degrees Fahrenheit.

"We'll be working in their summer, but it's foul weather anyway, with constant winds of 40 miles per hour and gusts up to 60," the geologist said. "For years sailors have called this area the Roaring Fifties because of the winds."

On the flight southward, beginning Nov. 4, Halpern will pick up in Miami a biologist from Honolulu's Bishop Museum who will collect insects while Halpern examines rocks. The two will be joined in Santiago by a University of Chile field assistant assigned to help Halpern.

The government of Chile and America's National Science Foundation Office of Antarctic Programs are supporting the project.

The Beagle Channel--named for Darwin's 19th-century ship--winds from east to west across the tip of South America, separating Navarino and other islands from the grand island of Tierra del Fuego.

Included in the studies which won Halpern a Wisconsin Ph.D. in geology in June, 1963, are two seasons of work in Antarctica, investigations of that other end of the puzzle. Wisconsin's Prof. Robert Dott is director for the project seeking to find a one-time union of the two continents. Halpern also has worked in the Arctic.

"I'm leaving behind my wife, the former Mary Louise Robey of Madison, and a four-month-old daughter," the geologist added a little wistfully.

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# MADISON NEWS

FROM THE UNIVERSITY OF WISCONSIN NEWS SERVICE, MADISON 6, WISCONSIN

8/19/63 vh

Immediately

MADISON--Several University of Wisconsin scientists from the Madison campus are taking part in August meetings of geophysicists.

Prof. Charles Bentley and John Behrendt, project assistant, delivered papers last week at the Symposium on Results of the International Geophysical Year and International Geophysical Cooperation. Both are staff members of the UW Geophysical and Polar Research Center.

The meeting at Los Angeles celebrated the 100th anniversary of the National Academy of Sciences.

Behrendt and five other center staff members will present papers before the Union of Geodesy and Geophysics meeting Aug. 18-31 on the University of California's Berkeley campus.

The others include: Prof. Robert P. Meyer, Project Associates John C. Rose and Ned Ostenso, Project Assistant Keith McCamy, and Etsuzo Shima, a WARF postdoctoral fellow.

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# WIRE NEWS

FROM THE UNIVERSITY OF WISCONSIN NEWS SERVICE, MADISON 6, WISCONSIN

7/30/63 vh

RELEASE:

Immediately

MADISON, Wis.--Jerome A. Hirschman, 39, a research assistant for the University of Wisconsin [Geophysical and Polar Research Center,] taken ill while carrying out work for the University on an ice island in the Arctic Ocean, died here Saturday (July 27), University officials have been advised.

Hirschman was a Madison resident (121 N. Hancock St.), native of New York City, and a former employee of the University's Photographic Laboratory.

Ned Ostenso, a senior scientist in charge of Wisconsin's research in the Arctic, said notification of Hirschman's death on Arlis II, floating ice station 200 miles south of the North Pole, came as a great shock.

The most recent report was that the technician had recovered enough so that plans to remove him from the travel-bound island by the hazardous "airtriever" method to a hospital in Point Barrow, Alaska, had been abandoned. Until his sudden relapse July 26, when Hirschman quickly went into coma, the Madison man had been sufficiently recovered to be out of bed.

The University has kept a man on the island ever since UW geophysical studies on the Arctic Ocean basin began in June, 1961, Ostenso pointed out. Hirschman was flown to Arlis II this past June, replacing Jan Black in the work of seismic, gravity, and magnetic observations. Before he left, a doctor had given him a physical examination and pronounced him in good health.

-more-



Add one--Hirschman death

Hirschman was first reported ill July 9, Ostenso continued, during the summer thaw, when it is impossible to land a plane on the flooded ice. Radio calls for help to the nearest land site, Point Barrow, 1,100 miles distant, brought a plane over the island.

The plane dropped medical supplies, and a doctor on board, talking by radio to the patient and other investigators on Arlis II, diagnosed the case as pneumonia. The doctor recommended removal to a hospital if at all possible.

A plane especially equipped with a nylon rope and grapple hook for making the emergency pick-up was dispatched. But word radioed from Arlis that Hirschman was much improved brought the decision to abandon the hazardous emergency lift, Ostenso said.

Before beginning work for the University Photo Lab in 1960, Hirschman was employed as an electronics technician at various U.S. radio stations. He is survived by his wife Wilma of Streator, Ill., three children, his mother, and a brother Richard Hirschman, Brooklyn, N.Y.

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# U. W. NEWS

FROM THE UNIVERSITY OF WISCONSIN NEWS SERVICE, MADISON 6, WISCONSIN

*Polar & Geophysical  
Research Center*

7/10/63 vh

RELEASE:

Immediately

By VIVIEN HONE

MADISON, Wis.--Sixty tons of explosives, 40 shock-detecting arrays, 400 watery miles, teams from 13 cooperating American and Canadian institutions, and a sturdy U.S. Coast Guard cutter named Woodrush are among ingredients of a summer research project in which University of Wisconsin scientists are prominently occupied.

Starting this week, a 16-man crew from Wisconsin's Geophysical and Polar Research Center is carrying out its part in a 20-day seismic crustal study in Lake Superior. The project should add its important bit toward answering these global questions: What is the structure and make-up of the earth's crust and upper mantle? Why are there oceans and why are there continents--the two major physiographic features of the world?

"The waters of the Great Lakes, where we can set off an uninterrupted line of detonations, give us a unique opportunity to examine a part of the great Canadian Shield, one of the oldest and most stable portions of the North American continent," Prof. Robert P. Meyer, who leads the UW team, pointed out.

To study this submerged portion of the earth's crust, a crew aboard the Woodrush will set off a series of 50 to 60 one-ton charges of explosives, working along a designated 400-mile line extending between Knife River near Duluth and Michipicoten Island off Canada's Ontario shore. The west-to-east line will pass through jurisdictional waters of Wisconsin, Minnesota, Michigan, and Canada.

Shock waves generated by the explosions, picked up by geophones set at various distances from the explosion sites, and recorded in the form of graphs, are the indicators of what the hidden portion of the shield is like.

-more-



## Add one--Seismic Crustal Studies

All of the one-ton charges of nitrocarbonitrate carried on the cutter will be set on the lake bottom and exploded at depths greater than 300 feet in order to protect wildlife. The shots are being made under supervision of conservation officials from the jurisdictional areas involved.

None of the Great Lakes has any precise electronic navigational aids such as are used in ocean shipping, Prof. Meyer indicated, but eight hydrophone stations set up at various points will turn the trick, not only record the shock waves traveling through the water but also keep the explosion crew informed on their bearings so that they may hew to the line.

Some 40 land-based detecting arrays will be installed at points inland up to 100 miles from the shoreline. One very elaborate set of shock-wave detectors, erected on Michigan's Keweenaw Peninsula, will be tested for further duty this fall when a Wisconsin geophysics crew begins broad scale studies of the Arctic Ocean basin. Special shooting equipment on the Woodrush and a giant detecting buoy are also to have tryouts in Lake Superior.

"We're taking this opportunity not only to look at the crust, but also at our methods," Meyer added. "The hope of making measurements far more precise than any done before is one reason for this summer's elaborate plan and installations."

The July studies will fill a gap in a line of crustal examinations pioneered by Wisconsin geophysicists and now extending more or less continuously from Montana to Maine. The National Science Foundation is providing principal support for American participation in this summer's research.

The Wisconsin crew includes: Meyer; Prof. Etsuzo Shima, UW postdoctoral fellow, University of Tokyo; Asst. Prof. Gus Furumoto, University of Hawaii; students James Kosalos, (3424 N. 45th St.) Milwaukee; Joseph Laurence, The Highlands, Madison; Lee Ocola, Lima, Peru; Jerry McAdow, Chetek; Peter Hoffmann, Two Rivers; Michael Dunne, Wilmette, Ill.; and Tyler Olcott, Prairie du Sac; William Unger, project supervisor; N. J. Thompson, electrical engineer; and Thomas Meyer, David Schlabach, and Donald Bednarek, all electronics technicians.

# WIRE NEWS

Polar

FROM THE UNIVERSITY OF WISCONSIN NEWS SERVICE, MADISON 6, WISCONSIN

6/13/63 vh

RELEASE:

Immediately

MADISON, Wis.--The University of Wisconsin soon will have two men from the [Geophysical and Polar Research Center] at Madison on board the U.S. Navy ship Eltanin, a floating "research laboratory" operating in Antarctic waters.

James Pugh of Madison (3650 Lake Mendota Dr.), a technician with the center, left the campus this week to join Loren Kroncke, project assistant, when the ship puts in at Valparaiso, Chile. Kroncke has already spent 18 months on board the Eltanin, doing magnetic research.

Only six months ago, Pugh was at the opposite end of the earth. On a floating island in the Arctic Ocean, not far from the North Pole, he spent eight months making gravity, magnetic, and seismic measurements.

Before flying to Chile, the technician is spending a week in New York, gaining special training in construction and operation of the magnetometer he will be using. It is specially adapted to ship surveys, measuring the magnetic field of the earth as it is towed through the water.

The Eltanin is suited for operation in Antarctic seas, but it travels for the most part in waters warm enough to permit year-round work. There are special accommodations for meteorologists, geophysicists, submarine geologists, upper atmosphere physicists, and marine biologists and their equipment.

The Eltanin with Pugh and Kroncke among its passengers will leave Valparaiso on the west coast of Chile on June 17 and cruise in the Drake Passage between the southern tip of South America and the continent of Antarctica.

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# WIRE NEWS

*Polar & Geophysical  
Research Center*

FROM THE UNIVERSITY OF WISCONSIN NEWS SERVICE, MADISON 6, WISCONSIN

5/28/63 vh

RELEASE:

Immediately

HAMILTON, Mont.--The University of Wisconsin's seismic explosion studies in Montana's Bitter Root River, halted recently after protests from western sportsmen and ranchers, will begin again this week with approval of the previous objectors and Montana conservation officials, according to UW geologist Prof. Robert P. Meyer.

Further, Prof. Meyer said, "We will proceed now, as a result of the publicity, with a great deal more local assistance and help than we would have had without it."

Prof. Meyer and Dr. Murli Manghnani head an eight-man team from the UW [Geophysical and Polar Research Center] which began studies in the Bitter Root Valley, May 20, to extend knowledge of the nature and genesis of the rock structure underlying this southwestern Montana area.

Their research by the seismic method involves setting off a series of nitro-carbonitrate blasts, half of such blasts in the river, and of registering the shock waves that result. Earlier investigations of the valley and flanking mountains have been carried out over the past two years by Dr. Manghnani through gravity measurements.

"Our problem arose in the first place through a misunderstanding in completing arrangements with Montana conservation officials," Prof. Meyer explained. He pointed out that explanatory meetings this past weekend with civic leaders, sportsmen, and ranchers have resulted in resolutions of approval being forwarded to the Montana fish and game department.

-more-

Add one--Montana research

UW geology teams have carried out crustal studies of the earth in many parts of the United States including investigations in Montana in the summers of '59, '60, and '61. Last summer their work in the Mississippi River, another seismic explosion investigation, was widely and favorably reported. Later this summer, a Wisconsin group will begin seismic research in Lake Superior in cooperation with Canadian scientists.

The work in Montana will require some 50-100 shots and is expected to be completed in the next 10 days, Prof. Meyer indicated. Dr. Manghnani will remain for three or four weeks "to enlarge the gravity coverage and work on the magnetics of the valley."

Dr. Manghnani believes his gravity studies indicate that the whole valley is the result of an underlying horst and graben structure--a great block down-faulted in relation to the flanking mountains.

Prof. Meyer also said that work done thus far in the seismic portion of the study "is scientifically favorable."

The Wisconsin team now working in Montana includes: Meyer, Manghnani, Joe Laurence, UW graduate student in geology; Richard Heidemann, Peter Kienitz, David Schlabach, and Allen Kronsoble, all Madison area project assistants for the Geophysical and Polar Research Center; and Jack Sampson, Wyoming rancher, hired for the duration of the western studies.

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# U. W. NEWS

FROM THE UNIVERSITY OF WISCONSIN NEWS SERVICE, MADISON 6, WISCONSIN

RELEASE:

3/5/63 vh

Immediately

MADISON, Wis.--"The biggest University of Wisconsin research push in the Arctic to date" was assured recently with a grant to the UW Geophysical and Polar Research Center for \$169,000 from the U.S. Air Force Office of Scientific Research.

The grant will support a Wisconsin team of geologists in a cooperative program of seismic crustal studies of the Arctic Ocean basin. Principal investigators will be Prof. Robert Meyer and Ned Ostenso, project associate. They will direct a Wisconsin demolition and recording group of six or more. Science crews from Lamont ~~Biological~~ <sup>Geological</sup> Observatory, Columbia University, and from the department of geology, University of Minnesota, also will take part in the two-year program.

By the seismic method of investigation, charges of explosives are set off in series, and shock waves thus generated are refracted and reflected by the underlying rocks. Picked up by various detectors and transmitted as electrical current, these signals are recorded on magnetic tape. From thousands of feet of such tapes, scientists can gain quantitative clues to what lies beneath the earth's surface.

"Our primary job will be to determine the structure underlying the shallow Chukchi Sea and the deep Beaufort Sea in the basin," Prof. Meyer said this week.

U. S. research in the Arctic has been very deficient by comparison with Russian effort, Meyer pointed out, and belated American interest in the world's northernmost sea will serve defense ends as well as the scientific need to know more about our planet and its structure.

The Arctic Ocean basin is the earth's least understood first order physiographic feature, the UW geologist said, and because of its position between the continents of North America and Eurasia, it might be considered the keystone to the structure of northern hemisphere geology. Defying classification within earth structure, it appears, paradoxically, to contain elements that are characteristics of ocean areas as well as of continents.

-more-

## Add one--Arctic Grant

The grant from the Air Force Office of Scientific Research will greatly widen Wisconsin's investigations in the little known ocean basin. Preliminary studies were begun in 1960 and additional work has been carried out both by measurement of magnetic field and seismic explosion. The Office of Naval Research and the U.S. Coast Guard will provide logistic support for the expanded program.

Two 200-mile-long lines along which the shots will be fired will be established, the first leading west toward Siberia from Point Barrow, Alaska, across the Chukchi Sea and wholly on the continental shelf. The second, leading north from Point Barrow across the Beaufort Sea, will traverse an area most likely to be of true oceanic character. The Northwind, U.S. Coast Guard icebreaker, will be used to put off the bottom and other underwater shots at intervals of every three or four miles. Recording of the seismic waves produced in work along the Chukchi Sea line will be made both on the Burton Iceland, U. S. Navy icebreaker, and by land based equipment--including 40 or more seismometers--set in two arrays along a 20-mile line in the Point Barrow area.

In the second phase of the program, the men from Columbia's Lamont Observatory will transfer from the recording icebreaker to an iceflow island at the northern end of the Beaufort Sea line. The Northwind will again make the detonations, but now along the north-reaching line, and the iceflow station crew and the crew at Point Barrow will record.

"We'll also be using a small number of floating unmanned telemetering hydrophones over deep water and just off the land-based arrays," Meyer pointed out.

Men from both the University of Minnesota and UW will be at the Point Barrow sites and Wisconsin geophysicists will be setting off the shots along both sea lines. There will be continuous radio communications between ships, shore, and iceflow station.

The field work will begin early in the fall of 1963 and will not continue beyond November for the 1963 season, Meyer said.



# FEATURE STORY

FROM THE UNIVERSITY OF WISCONSIN NEWS SERVICE, MADISON 6, WISCONSIN

RELEASE:

Immediately

2/6/63 vh

By VIVIEN HONE

MADISON, Wis.--The recent "passenger" in the elevator of Madison's Park Towers apartments was a strange one--a delicate looking, 30-pound object of bright metal and electrical fittings. The ups and downs of the unique test promise a new and much needed instrument for University of Wisconsin research.

Gravimeters--and this is one of them--are mechanical devices for measuring the gravitational pull of the earth on things at its surface. With them, and with the fundamental knowledge that this pull varies according to the materials beneath the surface, scientists are making educated guesses about the "insides" of our planet.

There are many kinds of gravimeters, Prof. Jose Mateo of La Plata University, Argentina, pointed out. But the instrument which the internationally known scientist in gravity has developed at the UW Geophysics and Polar Research Center is suited especially for making gravity measurements underwater--and by remote control. Wisconsin Alumni Research Foundation grants have supported the inventor's work over the past two or three years.

Water covers eight elevenths of the earth, the South American professor declared, and because of the great submerged expanses to be investigated, researchers are eager for equipment that will simplify measurements at sea.

Ordinarily a voluble Latin, Prof. Mateo explained the tests in the Park Towers elevator with a rare bit of northern simplification: "When you are going up, you are farther from the center of the earth. When you are going down, you are nearer and the pull is greater."

-more-

*Polson & Knapton  
Rev. Ch.*

Add one--new gravimeter

More explicit are the results of the tests. "We made two (tests) and we can say the accuracy is better than one milligal. The best we had hoped for was two milligals--and with better techniques, we can improve on that accuracy," he reported.

When the gravimeter is at work underwater, it must be encased in a large ball of stainless steel, adding 300-400 pounds of weight to the light gear. The large protective shell must be heavy enough to withstand water pressure at maximal working depths.

All parts, both mechanical and electronic, were made in the shops of the geophysics section of the UW geology department, Prof. Mateo indicated. This is not surprising for Wisconsin geophysicists have carried their studies and instruments around the world and to do so has required great mechanical know-how.

The new gravimeter also can be used for measurements on land and for airborne work, Prof. Mateo pointed out. But the principle on which it is based is entirely different from that for the familiar spring-equipped "thermos" instrument or for the heavy pendulum equipment.

"I cannot say what is this principle--or the design," he stressed. "The patent would be no good then--but the University knows."

The patent is pending and ~~been~~ completed will be turned over to the Wisconsin Alumni Research Foundation. WARF will administer it.

"I like that way. I love the University here," the grateful scientist said. It was helping me and if I can help it in any way, I shall do that."

Prof. Mateo came originally to the Madison campus in 1959 with personal expenses paid by his government and with funds from WARF promised for research. It was the first time Argentina had financed a professor in geophysics for a research trip out of the country.

Chairman for Argentine gravity studies under the International Geophysical Year and chairman for all gravity studies at La Plata University, the visitor represents a South American institution of learning which has been carrying out research in geophysics for the past 29 years.

-more-



Add two--new gravimeter

"In 1935 at my observatory was the beginning of formal gravimeter investigations," Prof. Mateo said proudly.

Teaching duties took the scholar back to his home campus in 1960, but within two years he had rejoined Wisconsin geologists to work further on his instrument.

Only a month away from a final UW assignment, he is making plans now for a tour of base points in the world gravity network. Wisconsin geophysicists have established these stations for gravity readings around the globe. Prof. Mateo, with other men from the Geophysical and Polar Research Center, will recheck the stations for the most accurate measurements possible.

The project is an international one with Italian and British institutions also taking part.

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# FEATURE STORY

FROM THE UNIVERSITY OF WISCONSIN NEWS SERVICE, MADISON 6, WISCONSIN

1/25/63 vh

RELEASE:

Immediately

MADISON, Wis.--With the opinions of famous explorers Nansen and Stefansson to support him, James Pew, University of Wisconsin technician in geology, has returned from the far north, convinced that the Arctic is a friendly place.

Pew, who has just completed an eight-months stay on Arlis II, floating ice island in the Arctic ocean, says: "People like to think of the North as full of risks and crises. But this isn't true. From the standpoint of deriving a living out of natural resources, as the Eskimos do, it is a habitable place--and not a tough, hard life."

Furthermore, Pew points out, "the Arctic is a place of great beauty with tremendously long and colorful sunsets and dawns between the periods of 24-hour darkness and 24-hour daylight. And when it is clear, there are always the Northern Lights, often the great classical curtain of reds, greens, purples and blues, often reaching to the zenith and down again."

Arlis II, Pew explains, is a large chunk broken away from some main Arctic glacier. In the summer it drifts freely for a distance of approximately three miles a day. In the winter, frozen into the great icepack, it drifts with the pack.

The UW's (Geophysical and Polar Research Center) has been making seismic, magnetic, and gravity measurements from this moving base for more than a year and a half. The studies of the Arctic ocean basin are supported by the National Science Foundation, the Arctic Institute of North America, and the Office of Naval Research.

-more-



Add one--Pew on Arlis II

The Russians, long recognizing the scientific and military importance of the Arctic, support a long-range science program there. American scientists are only recently underway on investigations in the Arctic area.

Pew, who was landed by a Navy R4D on Arlis, early last April, joined a dozen or more scientists from other American institutions. The colony lived in plywood huts, used Diesel fuel for heat and generating electricity.

"We had a brief 'visit' from a group of Russian scientists," the technician recalls. "They flew over the runway, not more than 50 feet above us, and waved."

And Arlis had less apparent visitors. Pew is certain that one of the two Navy submarines making an historic rendezvous at the Pole passed through the waters under the island while he was there. "A talkative cook on another island radioed that the Sea Dragon had arrived in the neighborhood," he relates.

Foxes and seals appeared on Arlis and occasionally an Arctic tern, Pew says. A biologist from Southern California, working with nets and winch, brought up many marine forms of life from the two-mile deep waters including a new species of squid.

"Polar bears came from time to time and would approach as close as 15 feet. They didn't seem to want to eat us up, but then we didn't antagonize them. Perhaps as explorer Stefansson suggested, in this environment they're no more dangerous than taxicabs to a man in New York," he says.

"We had our share of things happening," Pew admits but disclaims any major crises when a lake suddenly "went out" or when a greater use of fuel than had been anticipated brought a shortage.

"The lake, lying a quarter of a mile from camp, developed a crack in its bottom and drained completely into the waters below within a matter of five or six hours," Pew explains. But an earlier man on Arlis remembers the summer previous when a crack split the island in two, the half with the camp remaining, the other half breaking up.

-more-

Add two--Pew... on Arlis II

Temperatures ranged from 45 below to 44 above during Pew's Arctic stay. When the fuel shortage developed, the only means of resupply was by plane. "It was too late in the season for an icebreaker." But the runway, melting in summer, made plane landing uncertain. "The first plane scheduled to help lost its engine and never did arrive. The second landed short, hit a barrel, and refused to come back," Pew recalls. "Finally, Air Force C124s dropped fuel to us by parachutes."

The shortage reduced research and comfort but not safety, according to the Wisconsin technician. "Even without the fuel, the men, dressed for the Arctic, could have survived by burying one of the huts in the snow and remaining in it. Body heat would have kept us from freezing.

"Wherever you are, you learn to live with these things," he concluded.

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# WIRE NEWS

FROM THE UNIVERSITY OF WISCONSIN NEWS SERVICE, MADISON 6, WISCONSIN

1/17/63 vh

RELEASE:

Immediately

*Pat: This is under Polar &  
Geophys. Research Center*

MADISON, Wis.--A two-day tour of the University of Wisconsin's Geophysical and Polar Research Center which two Russian scientists are scheduled to make Friday and Saturday will include informal conferences between the Soviet men and UW geologists, as well as inspection of laboratories and equipment.

Prof. Lewis Cline, chairman of the UW department of geology, said that Profs. Yu. V. Risnichenko and Ye. S. Borisevich, both from the USSR Institute of the Physics of the Earth, come to Wisconsin with a special interest in the University's earth crust studies. Borisevich is deputy director of the Russian institute.

Members of the Academy of Sciences of the USSR, the two men are in this country on an exchange program between the Russian Academy and the U.S. National Academy of Sciences.

Arriving Thursday evening by plane, the visitors' first stop Friday will be at the large Brittingham unit of the Geophysical and Polar Research Center at 6021 S. Highlands Rd. Prof. Risnichenko will tell his hosts about his own work in theoretical and applied seismology.

On Friday afternoon the visitors will be taken to the center's group house at 2544 University Ave. for additional conferences and inspection. Saturday is left open for informal exchanges between the Wisconsin and Russian scientists.

Prof. Robert P. Meyer, who heads the crustal studies group at the UW, and Ned Ostenso, project associate, also identified with crustal studies, will be host to the visitors at dinner events during their Madison stay, and a noon luncheon has been arranged for the visitors and geology faculty at the Wisconsin Union Friday.

-more-

Add one--Russian geologists

The one-month tour of the Soviet pair also includes visits to the California Institute of Technology, Columbia University, the University of California, Berkeley, Carnegie Institute and the U.S. Coast and Geodetic Survey at Washington, D.C., and St. Louis University.

The scientists come to Madison from St. Louis.

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Note to editors: A news conference with the Russians has been scheduled at 11 a.m. Friday, Jan. 18 in the Rosewood Room of the Wisconsin Union. Reporters and photographers are invited to attend.

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Milwaukee Journal  
DEC 9 1962

## UW Researchers Ride Floating Arctic Island

Barrow, Alaska — UPI — On a floating island near the north pole, researchers from the University of Wisconsin are learning about the Arctic and the planet earth.

The drifting island is called Arliss II. On it, the University of Alaska has set up the station under a contract with the United States office of naval research.

[The UW's geophysical and polar research center at Madison, Wis., has one or two men on the floating island at all times, Ned Ostenso, of the center explained. The UW researchers are also at work in the antarctic, making the center's work bipolar, Ostenso noted.]

### 300 Miles From Pole

Arliss II is now approaching 85 degrees north latitude, about 300 miles from the north pole

and about 1,000 miles northwest of Barrow.

The island is the second manned United States glacial ice station and the fifth manned floating ice station in the Arctic ocean. The first ice island, T-3, was discovered and manned in 1952. Since then it has been abandoned and manned three different times and now floats about 300 miles southwest of Arliss II.

About 100 feet thick and two miles square, Arliss II was found by the arctic research laboratory director, Max Brewer, and his chief pilot, Robert Fischer, in May, 1961.

Glacier islands, rare in the arctic, are thought to originate from the great ice fields of Ellesmere island, near the west coast of Greenland. The ice islands, covered with rock and

debris from glacial scouring, match debris taken from Ellesmere.

### Some Were Mapped

Old time explorers occasionally sighted the islands, thought they were true earth islands and charted them on maps. Later explorers were surprised to find only open sea where islands were expected.

The purpose of the ice station is to gain scientific and military data concerning the Arctic ocean basin. Work is often in conjunction with nuclear submarines. Weather work, ocean current research, ice research and studies of life in the arctic are now being carried on at the stations.

In addition to the UW, researchers from the University of Washington, University of Southern California, Lamont Geological Observatory, United States navy underwater sound laboratory and the United States navy hydrographic office are conducting experiments on the island.

*Polar & Geophysical  
Research Center*

# U. W. NEWS

*Polar & Geophysical  
Research Lab*

FROM THE UNIVERSITY OF WISCONSIN NEWS SERVICE, MADISON 6, WISCONSIN

10/8/62 vh

RELEASE:

in PM's of Tuesday, Oct. 9

HERSHEY, Pa.--(Advance for PM's of Tuesday, Oct. 9)--The Arctic Ocean is probably not one ocean but four, a University of Wisconsin geologist declared Tuesday before an international group of scientists gathered at Hershey, Pa., for a symposium on "The Dynamics of the Arctic Ocean Environment."

Ned Ostenso, staff member of Wisconsin's Geophysical and Polar Research Center, said he had reached this conclusion as one result of a long-range program of magnetic and gravity studies which the UW has been conducting in the Arctic Ocean basin.

The basin of the world's northmost ocean is the earth's least understood, first-order geomorphic feature. Knowledge generally of the Arctic is very limited. Recently, however, there has come increasing awareness of the scientific and military significance of the Arctic.

Scientists recognize that the Arctic Ocean's position between the continents of North America and Eurasia may very well be the keystone to the structure of northern hemisphere geology and its relationship to the rest of the world. Further, it has been established that the Arctic Ocean basin is of fundamental importance to understanding of the earth's magnetic field, climate, and the heat balance of the oceans.

Oceans, Ostenso explained, are generally thought of as vast expanses of water, but to the earth scientists they are distinguished as one of two parts into which such scientists divided the world: the continents with their own characteristic crustal structure, and the oceans whose basins show a separate crustal composition.

-more-





Add one--Ostenso

It is this basic crustal difference between continents and ocean basins which prevents the forces of erosion from leveling the irregular surfaces of the earth into a smooth, completely water-covered sphere, Ostenso said.

Ostenso found within the Arctic basin four areas of truly oceanic crustal structure--thus four oceans. The surrounding crustal structure in the basin was more nearly characteristic of the continents.

The earth can also be divided into two parts or hemispheres, Ostenso explained further, in such a way that the northernmost is comprised mainly of land and the southern mainly of ocean.

The Arctic Ocean occurs in the center of the "land hemisphere," the Wisconsin geologist said, and "this unique location has caused strong speculation that the bulk of the Arctic basin is not a true ocean but rather a temporarily foundered or submerged section of continents somewhat similar to the Wisconsin of early Paleozoic times which was covered with shallow seas. Within the basin lie four deeps of truly oceanic character."

The Wisconsin program of Arctic studies from which the above picture is unfolding has been supported by the National Science Foundation, the Office of Naval Research, and the Arctic Institute of North America.

The symposium at Hershey is sponsored by the institute and brings together on its invitation leading scientists from the United States, Canada, Denmark, Austria, Norway, Great Britain and the Soviet Union.

Ostenso will be leaving for further studies in the Arctic late in October.

# U. W. NEWS

*Polar & Geophysical  
Research Center*

FROM THE UNIVERSITY OF WISCONSIN NEWS SERVICE, MADISON 6, WISCONSIN

6/22/62 vh

RELEASE:

Immediately

MADISON, Wis.--Some 70 detonations of explosives in the bed of the Mississippi River are expected to give scientists of the University of Wisconsin and Princeton new information about the earth's crust.

A caravan of 10 trucks carrying 16 UW geophysicists, two Princeton scientists, and a large load of seismological equipment left the UW campus late Thursday on the summer assignment of basic research to learn more about the structure and make-up of the crust under a continuing program supported by the National Science Foundation.

Preliminary seismological measurements in the Mississippi embayment from Little Rock, Ark., to Cape Girardeau, Mo., indicate a structure which is unsuspected from surface measurements.

Prof. Robert P. Meyer of the UW Geophysical and Polar Research Center who directs the program said the work would begin within the next few days and continue to July 2 in the general vicinity of Devil's Island, approximately six miles north of Cape Girardeau. Detonations from shot points in the area will be resumed in August in order to complete the experiment this summer.

Recent meetings to safeguard river users and various state interests were held between the UW men and representatives of the U.S. Army Corps of Engineers; the Division of Waterways, State of Illinois; the Illinois Department of Conservation; Missouri Conservation Commission; and various barge lines operating on the Mississippi.

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## Add one--Seismic Studies on the Mississippi River

"The method of operation employed is to detonate explosives on the river bottom and record the seismic waves generated at varying distances," Prof. Meyer explained. "In the current experiments, these waves will be recorded as far south as Little Rock. Using this method, the structure and composition of the rocks of the earth's crust and upper mantle to depths of 25 miles below the surface can be determined."

Up to 1,500 pounds of nitro-carbo-nitrate will be used for the detonations planned for the very early morning hours, "when the noise levels at the recording sites will be at a minimum."

The seismic waves from these relatively small charges are detectable at distances of over 200 miles, Meyer pointed out. The Mississippi River represents an ideal location for the scientists since it affords opportunity to fire charges at closely spaced intervals. Close firing is necessary for application of the most precise techniques used in analyzing the data.

In addition to Meyer, the UW men on the crew include: Theodore J. Cohen (3251 N. Maryland Ave.), James Kosalos (3424 N. 45th St.), William Unger (8630 Kildeer Ct.), all from Milwaukee; Richard P. Heidemann (449 Woodside Tr.), Joseph P. Laurence (6022 Old Sauk Rd.), Allen Kronsoble (419 N. Butler St.), Keith McCamy (Route 2), Carl A. Newton (1004 Garfield St.), David R. Schlabach (615 W. Johnson St.), Francis Novacheck (1326 Vilas Ave.), all from Madison; Peter Hoffman, Two Rivers; Jerry McAdow, Chetek; Noel Thompson, McFarland; Robert Ponto, Neenah; and Kenneth Oestreich, Fox Lake.

The two crewmen from Princeton's department of geological engineering are Michael Dunn, Wilmette, Ill., and Thomas Holzer, Indialantic, Fla.

# WIRE NEWS

*Polar & Geophysical  
Research Center*

FROM THE UNIVERSITY OF WISCONSIN NEWS SERVICE, MADISON 6, WISCONSIN

12/8/61 gr

RELEASE:

Immediately

MILWAUKEE--A total of \$444,196.88 in gifts and grants, including \$226,051 from federal agencies, was accepted by University of Wisconsin regents Friday.

The largest grant was an additional \$122,435 from the National Science Foundation for the Antarctic Traverse Program of the Geophysical and Polar Research Center. It will be used to support the research of eight men on Roosevelt Island in the Ross Ice Shelf.

The NSF also granted \$62,000 to the Engineering Experiment Station to study the transport properties of gases at high temperatures, and \$200 to the Theoretical Chemistry Laboratory to support a fellowship. The total of \$184,635 was the largest sum from a single organization.

The largest non-governmental grant was \$75,094 from the United States Steel Corp. to several departments in the School of Agriculture to continue research in processing and distribution of milk products.

Other large grants included a total of \$36,891 from the National Institutes of Health to support five projects in the health and medical sciences; \$30,300 from the Jane Coffin Childs Memorial Fund for Medical Research to the McArdle Memorial Laboratory to study certain cancer causing chemical reactions; and \$25,000 from the Wisconsin Alumni Research Foundation to support research in the department of biochemistry.



# U. W. NEWS

6/19/61 vh

FROM THE UNIVERSITY OF WISCONSIN NEWS SERVICE, MADISON 6, WISCONSIN  
RELEASE: Immediately

*Polar Research Center*

MADISON, Wis.--Two scientists identified with the University of Wisconsin have been appointed to important posts in the newly established Office of Antarctic Programs of the National Science Foundation.

NSF announced this week that the Office of Antarctic Programs has replaced the Antarctic Research Program; that Dr. Thomas O. Jones has been appointed head and Dr. Albert P. Crary has been appointed chief scientist of the new office. Crary will also serve as science adviser on Antarctica to Director Jones.

A native of Oshkosh, Dr. Jones took his Ph.D. in chemistry from the University of Wisconsin in 1937. He served as program director of NSF's Antarctic Research Program from 1958 to 1961.

Dr. Crary was leader of one of the University of Wisconsin-directed overland traverses made in Antarctica during the 1960-61 year, leading the party traveling from McMurdo Station to the South Pole. He was then chief scientist for ARP.

As with its predecessor, the new NSF office has responsibility for the U.S. research carried on in Antarctica.

The University of Wisconsin is among nine agencies--federal, educational, and research--carrying out research in Antarctica under National Science Foundation administration and funds.

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# WIRE NEWS

FROM THE UNIVERSITY OF WISCONSIN NEWS SERVICE, MADISON 6, WISCONSIN

5/12/61 db

RELEASE:

Immediately

MADISON, Wis.--Gifts and grants totaling \$1,391,642.89 accepted Friday by the University of Wisconsin Board of Regents included more than \$900,000 for research.

Grants from federal agencies accounted for \$950,982 of the approved total.

Among the federal grants were \$55,400 to the zoology department to support an academic year institute for high school teachers of science and mathematics, and \$42,367 for study of gravity and magnetism in the Antarctic by the Geophysical and Polar Research Laboratory, both from the National Science Foundation.

The National Institutes of Health provided 52 separate grants including \$66,200 for a program of graduate study in cardiovascular disease in the department of medicine and \$53,233 for development of a research center in the medical genetic department.

The American Cancer society presented the surgery department with two grants, \$28,312 for studies of bladder cancer and \$11,715 for study of factors influencing tryptophan metabolism.

The Joseph P. Kennedy Jr. Foundation gift of \$225,000, reported earlier, will support a research program in mental retardation at the Medical School.



# FEATURE STORY

4/5/61 vh

*Polar Research*  
FROM THE UNIVERSITY OF WISCONSIN NEWS SERVICE, MADISON 6, WISCONSIN  
RELEASE: <sup>Immediately</sup>

By VIVIEN HONE

MADISON, Wis.--There's a population explosion even in the frozen wastelands of Antarctica.

This news was among highlights which two University of Wisconsin geophysicists revealed this week after returning from another "summer" season at the bottom of the world.

John Behrendt was back from five months of airborne magnetic studies and other geophysical observations carried out largely in West Antarctica. Forrest Dowling had returned from a long overland traverse to the South Pole, the first such accomplished by an American party.

They had stories of near misses in planes and death yawning from a suddenly revealed crevass field, but these hazards are the order of the day in the most hostile environment which man has sought to conquer. What now fires the imagination is that conquest of Antarctica is slowly but surely taking place.

"There were 106 persons at Byrd Station during the austral summer this year," Behrendt pointed out, "and at McMurdo Sound more than 700." This is perhaps double or triple the number of scientists and other personnel based at these stations when IGY, the international program of earth studies, touched off an intensive exploration of Antarctica back in 1956-57. The number of men who "winter over" at the bases is also increased, Behrendt said.

The UW geophysicist remembers all too vividly his first venture on the southernmost continent, beginning in December of 1956. Nine scientists and a group of Seabees were landed on the desolate Weddell seacoast to begin a long vigil. While they waited months for winter weather and darkness to modify, and later, while they

-more-

Add one--Behrendt and Dowling

made a grueling 1,200-mile trip into the freezing unknown, they lived in complete isolation. For only one week in the year, when a relief ship came in, did they enjoy the comforts of new supplies, mail from home, and the sight of new faces.

That was at Ellsworth Station on the Filchner Iceshelf, abandoned since by the U. S. for it is logistically too difficult to support even today. But at the stations which Behrendt reached this year there were connections with other bases by air, fresh food and supplies were regularly flown in, and mail arrived regularly during the summer months.

More scientists are working in the Antarctic now and can take advantage of what the first men learned in pioneering the continent, Behrendt pointed out. "We know now something about what is there geographically and geophysically. We're not groping completely in the dark." Further, the ratio of top scientists to less experienced men is greater, the geophysicist said, "because it is possible to go in for just a summer's work."

Behrendt credits the C130, giant new Navy turbo-prop plane with a great advance in re-supply of inland stations. "This is the first year the Navy has had them down there. There are three, and they can carry a heavier load, fly faster and higher, and land with wheels or skis, depending upon the landing surface offered."

On round trips between McMurdo and the pole, for instance, each can make two 700-mile flights daily, can deliver 10 tons of supplies with each flight. Byrd Station and the pole are supplied only by cargo from a landed plane or by parachute drop, according to Behrendt.

It was a C130 which gave him his most anguished 15 minutes of the field season, Behrendt said. Hitching a ride with one of these Navy "birds," he set off one notable day for a mission of gravity observation at the pole. The pole station is some 10,000 feet high, Behrendt explained, and in this thin atmosphere, turbo-prop planes like the C130 have difficulties starting.



Add two--Behrendt and Dowling

They land at the pole but keep their engines turning. They pause just long enough to unload cargo--then they are off again. They wait for no one. Those turning engines are burning hourly 400 gallons of precious fuel--valued in Antarctica at \$10 per gallon.

Behrendt's gravity reading had to be made at a site inside one of the many tunnels which connect the snow-covered camp buildings. "I hopped off and ran in to ask directions," the UW geophysicist recalled, "but everyone was outside watching the plane. I floundered around for awhile in the 40 below temperature, carrying a 30-pound gravimeter that felt twice as heavy. Breathing was difficult and my parka blew back from my face, but there was no time to fix it. After what seemed like an age, I finally found the spot and took my reading."

A precious 10 or 15 minutes had gone by and Behrendt hurried back through the tunnels, fearful of what he might find. But the C130 was still there. He made it just as the doors began to close. His nose, frozen during the gravity operation, was only of passing concern.

This season the cold-weather garments which protect scientists from such casualties, from temperatures ranging to as far as 100 below, from winds reaching 100 miles per hour, have been the responsibility of the Arctic Institute of North America. With them has come a stylish note of color, according to Behrendt.

Orange parkas, red shirts, and blue trousers liven the snowy landscape, but Behrendt--and many other Wisconsin men on the continent--continue to wear the olive drab outfits issued in earlier years. Behrendt believes they are more effective.

Hot water and fresh acquaintances still rank highest among men who have spent long weeks or months on the overland traverses, who have toiled for a thousand miles or more across the icefields to some bleak appointed place.

"Those 11 bearded, scroungy faces you've lived with for 35 days are not exactly pretty," Dowling declared. "Seeing other people, a bath, and clean clothes are still the most welcome thing."

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Add three--Behrendt and Dowling

Dowling rolled into the South Pole station in January with a Navy party which had successfully transported tractor equipment over an 800 mile route. Starting at Byrd Station and surviving entrapment in a crevass field, the men had reached their goal and the distinction of being the first American party to achieve the southernmost point by land travel.

Roald Amundsen, Norwegian explorer, was the first man to fight his way overland to the pole. Until the American success, only three other groups had done likewise. Dowling had taken gravity, magnetic, and altitude readings at regular intervals along the route.

"The men at the station came running out to greet us on skis and on tractors," Dowling recalled, "and the commanding officer, a doctor, issued two-ounce bottles of medicinal brandy by way of celebration."

But this wasn't the gala sort of occasion with feast and frolic which the Russian party had made of the event when they reached the pole. After a bath and a bit of rest, Dowling set about taking his readings--gravity, magnetic, and altitude--to tie into the great networks of measurements which more and more are revealing what Antarctica--inside and out--is like.

Dowling had only a passing glance for that famous spot toward which an international array of scientists have fought their arduous way. A three-inch tube of steel sunk in the ice and ringed round with oil drums marks the earth's southernmost tip.

"They've moved it around," Dowling explained, "but the one that is accepted now is about 1,000 yards from the camp."

Behrendt and Dowling are now preparing their Antarctic research materials for data reduction and interpretation.

"The Antarctic program is very expensive, but the U.S. is getting more for her dollars in the research done there now than when the program began in 1956," Behrendt concluded.



# FEATURE STORY

*Polar Research*  
FROM THE UNIVERSITY OF WISCONSIN NEWS SERVICE, MADISON 6, WISCONSIN

RELEASE:

Immediately

3/22/61 vh

By VIVIEN HONE

MADISON, Wis.--Toward one world's end or another, University of Wisconsin geophysics studies reach out. This week two UW scientists set off for a month in the Arctic.

Traveling by ski-equipped plane, Ned Ostenso and Robert Iverson are beginning a program for investigation of the Arctic ocean basin. The project, which follows initial pilot studies made last year, may be of several years duration.

For the next two years the project will be supported by the U.S. Office of Naval Research and carried out jointly by UW and the University of Minnesota. Wisconsin under a grant of \$28,800 will have major responsibility for making gravity and magnetic observations; Minnesota, under \$23,600, for the seismic. Prof. Edward Thiel, Wisconsin-trained geophysicist, will be principal investigator for Minnesota.

UW polar studies have been concentrated in Antarctica, land of the South Pole, during and since the International Geophysical Year. Now they are expanding to the world's northernmost ocean basin, information on which is "still scarce, provocative, and cannot be interpreted with confidence."

Major objectives of the program are: to learn the crustal character of the Arctic basin; study transition in crustal structure at the continental margins; learn about the sub-ocean geology, particularly about thickness of sediments and the existence of possible continental rocks; add to knowledge of sub-ocean topography (surface features of the ocean floor); learn more about Arctic ocean currents and sea ice movement; and investigate the Great Arctic magnetic anomaly.

-more-

## Add one--Arctic research

In matters geophysical, an anomaly is a subsurface feature of the earth with qualities unlike adjoining masses. Unseen, it is known to be there through the non-conforming readings taken at the surface with instruments for measuring gravity, magnetism, and shock waves.

Until as recently as 1948 the Arctic basin was thought to be a single oceanic depression. But recent investigations, conducted largely by Russia, have revealed that it consists of two distinct geological units divided by a major underwater mountain system. Structure of the basin is now recognized to be exceedingly complex and studies of it may hold important clues to establishing a full picture of the world's structural framework.

Ostenso and Iverson will fly out of Point Barrow and Barter Island off the northeast coast of Alaska to make landings on the sea ice for gravity observations and ocean depth soundings during the March-April field work. The ice will still be thick enough for these landings, Ostenso pointed out, and there will be plenty of daylight.

In May, Ostenso, accompanied by Richard Wold will leave the Madison campus again--this time to fly some 30,000 miles over the Arctic ocean for aerial magnetic studies stretching from Point Barrow to Thule, Greenland, and back.

Wold has recently returned from a season in Antarctica. His companion is a veteran of several seasons in Antarctica, Alaska, Canada, and Greenland. The U.S. Navy will supply a P2V Neptune, reconnaissance bomber, for their flights expected to continue into June.

Finished with this operation, Ostenso will stay on in the north, joining Minnesota's Thiel for June-to-September seismic studies. Here the focus will be on what the thickness of the earth's crust is at the northern edge of our continent. Seismic charges will be put off on land and sea. A Greenland cruiser or an icebreaker supplied by the Navy will be employed for the sea work.



Add two--research

Field programs under the three observational methods--gravity, magnetic, and seismic--are being undertaken separately, Dr. George P. Woollard said, but the chief of UW geophysics studies pointed out that their findings are strongly interdependent for interpretation and the project is a unified whole.

The fullest use of the UW's geophysical equipment and science talent is provided for in the inauguration of the Arctic basin studies, according to Dr. Woollard. Field work in the icy, polar sections of the world, north or south, can be carried out only during summer seasons. Since the Antarctic and the Arctic summers are quite separate on the calendar, UW geophysics investigations will be possible for much of the year round.

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# FEATURE STORY

3/17/61 vh

FROM THE UNIVERSITY OF WISCONSIN NEWS SERVICE, MADISON 6, WISCONSIN

RELEASE:

Immediately

MADISON, Wis.--Two rare findings relating to penguins, strange flightless birds that inhabit Antarctica, are reported and interpreted in a recent article appearing in The Auk magazine and written jointly by UW geophysicist Ned Ostenso and W. J. L. Sladen, Johns Hopkins University.

Ostenso, a project associate in geology, is a veteran of three field seasons in Antarctica.

Two instances of penguin tracks found far inland are discussed in the article in Auk, journal of the American Ornithological Society.

"The breeding places of Antarctic penguins are along the coast," the article explains. "These truly aquatic birds are known to travel great distances at sea, but there are very few records of wanderings inland."

The first tracks were seen on Dec. 31, 1957, by the Ellsworth Station traverse party. The tracks lay some 250 miles inland from the known edge of the Filchner Ice Shelf and an even greater distance from the nearest penguin rookery--in Gould Bay. Evidence indicated that the tracks had most likely been made by a large Emperor penguin--one which had been walking.

The second observation was made one day later, New Years, 1958, by the Byrd Station traverse while on the Ellsworth Highland at a point between the Kohler Range and the Sentinel Mountains.

Ostenso was one of three UW men in the party which saw these tracks indicating a bird, most likely an Adelie penguin, "had walked for only two meters; for the rest of the way tobogganed on its belly."

-more-



Add one--penguin tracks

The fresh marks, followed for more than a mile, lay 186 miles from the nearest known coastline of Pine Island Bay. The tracks were "on an extraordinarily straight course," proceeding farther inland, "roughly toward the South Pole," the article relates.

"No species of penguins have yet been reported breeding along some 100 degrees of longitude east between Ross Island in the Ross Sea and Alexander I Island in west Palmer Peninsula, except on Peter I Island," the authors point out. But Peter I has a population of less than 50 pairs of Adelies--and lies 620 miles away from the discovered tracks.

The authors think it more likely that there are rookeries of Adelies along the Walgreen and/or Eights Coast. Since it would be impossible for a small, flightless bird to climb to an elevation of 4,720 feet and reach the polar plateau without an easy approach, they say:

"This encourages us to believe that there is a suitable place where an exploration party could reach the plateau from this unknown coast. Also it seems reasonable to expect that the coastline is farther south than mapped and that the penguin had indeed walked less than 186 miles."

Such a conclusion is substantiated in part by geophysical studies conducted in Marie Byrd Land in 1960 by Ostenso, Charles Bentley, and other UW geophysicists working in the Antarctic, and by reconnaissance flights made over the Walgreen Coast, 1958, and the Eights Coast, 1960, the authors point out.

They may learn more about the accuracy of their conclusions when Bentley returns to the UW campus. Bentley led the party which recently completed a 1,200 mile, three-month overland traverse that began at Byrd Station and ended on the Eights Coast of the Bellingshausen Sea.

Why the bird making the second tracks traveled so far away from the coast remains a mystery, Ostenso and Sladen say. They point out that Adelie penguins travel as many as 100 kilometers (roughly 62 miles) over fast sea ice to reach their breeding ground in the spring.

-more-

Add two--penguin tracks

But in January, all successful breeders are feeding their young and spend most of their time at sea collecting food. However, "there is a shifting population of unsuccessful breeders and non-breeders that return from sea at the end of the season to occupy vacant nest sites or wander away from the rookeries."

It is thought likely that under favorable conditions such birds will establish themselves in new areas and thus extend the range of the species. "This bird might have been one such nonbreeding wanderer that had lost its way," the authors conclude.

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# U. W. NEWS

2/17/61 vh

FROM THE UNIVERSITY OF WISCONSIN NEWS SERVICE, MADISON 6, WISCONSIN

RELEASE:

Immediately

MADISON, Wis.--"Testimonial to the planning and determination of American scientist" is the tribute the U. S. Defense Department paid to University of Wisconsin achievements this week as the second of two UW overland traverse teams in Antarctica reached its goal.

The six-man geophysics team, led by Dr. Charles Bentley of the UW Geophysics and [Polar Research Center], was reported by the Navy to have reached its journey's end on the Eights Coast of the Bellingshausen Sea on Feb. 10 after a three-month, 1,200-mile overland trek which began in November.

Bentley thereby became a veteran of four Antarctic traverses. The crew included two other UW men--Perry E. Parks Jr., exploration geophysicist, and George Widich, traverse engineer.

And on February 12, the eight-man overland traverse group led by Dr. Albert P. Crary, chief scientist for the National Science Foundation Antarctic research program, had reached the South Pole after another 1,200-mile trip which began Dec. 10 at McMurdo Sound.

This team included UW men Edwin S. Robinson, geophysicist, Hugh Bennett, seismologist, and Ralph E. Ash and Jack Long, traverse engineers. For Dr. Crary, the event placed him in that rare company of two or three men who have set foot on both North and South Poles.

-more-

add one--Antarctica

The University of Wisconsin has full responsibility for administering all overland traverse efforts in the Antarctic under a one-half million dollar NFS grant. Both the Bentley and Crary parties, taking gravity, magnetic field and seismic readings, were gathering information on how the frozen continent would look if the ice were removed.

The Navy report that Bentley and his men had reached their goal by tractor Snocats, traveling a zigzag course over the snowy plains of Marie Byrd Land to the Sentinel Mountains, the Hudson Mountains, and finally to the Eights Coast, included the news that Bentley was well pleased with the work accomplished. Among other things, it revealed that the surface features of the land mass beneath the ice in the area between the Bellingshausen and Ross Seas is far more complicated than was formerly thought.

The Navy release, originating from a communication sent by the Navy icebreaker, USS Glacier, also held a heartwarming story of American zest for observing and recognizing a job well done, come Hell or icy wasteland.

"The tractors were stopped at 73 degrees, 29 minutes south, 94 degrees, 24 minutes west. The tanned and bearded men had come to the foot of the peaks and the now deserted camp earlier occupied by a University of Minnesota geological field party. A message of welcome had been left in the Camp Minnesota hut by the geologists..."

A more personal welcome was extended to the triumphant Wisconsin party, the report continues, by the deputy commander of a Navy Operation Deep Freeze ice-breaking expedition in the Bellingshausen Sea. Capt. Edwin McDonald dispatched a helicopter to pick up the traverse leader. The captain and the Wisconsin scientist enjoyed dinner together on board the Glacier, then Bentley was flown back to camp.

The Wisconsin team was scheduled to return by pickup in Navy planes to the McMurdo base via Byrd Station. Their three Snocats and sled-mounted huts will be employed in 1962 by a traverse which will begin at the Eights Coast.



# FEATURE STORY

12/30/60 nsf

*Polar Research Center*  
FROM THE UNIVERSITY OF WISCONSIN NEWS SERVICE, MADISON 6, WISCONSIN  
RELEASE: Immediately

McMURDO SOUND, ANTARCTICA--New Year's Day, 1961, will find an eight-man scientific traverse party nearing the midpoint of a 1200-mile trek to the South Pole through many regions never before explored, the National Science Foundation reports.

The traverse is being conducted by the University of Wisconsin under a grant from the National Science Foundation. It is led by Dr. Albert P. Crary, chief scientist of NSF's U.S. Antarctic Research Program.

The traverse party will carry out seismic, gravity, altimetric, and geological measurements designed to determine the elevation and thickness of the icecap and the nature of the sub-glacial rock surface. Surface meteorological observations will also be made.

Dr. Crary believes that with good vehicle performance and favorable ice surface conditions he can make the pole by the Feb. 15 target date. The party left McMurdo Sound Dec. 10.

In addition to Wisconsin personnel, scientists from other institutions are included so that the maximum amount of research data in several fields can be gathered. Members of the party besides Dr. Crary, who is also serving as head geophysicist, are Edwin S. Robinson, geophysicist from Wisconsin; Jack B. Long and Ralph E. Ash, traverse engineers from Wisconsin; Mario B. Giovinetto and Jack C. Zahn, glaciologists from Ohio State University; Sveneld A. Evtaev, glaciologist and Russian exchange scientist; and Ardo X. Meyer, geomagnetician from the U. S. Coast and Geodetic Survey.

-more-



Add one--Antarctica

The entire Wisconsin project, including another traverse now going from Byrd Station to the Bellingshausen Sea coast and an airlifted traverse, is under the direction of Drs. G. P. Woollard, E. C. Thiel and C. R. Bentley, and is supported by an NSF grant of \$488,342. Dr. Bentley, a veteran of three previous Antarctic traverses, is now leading the overland traverse in Ellsworth Highland.

On leaving here, the Crary party proceeded around Minna Bluff to the Skelton Glacier. Access to the polar plateau will be gained by way of this glacier, which was the route of Sir Vivian Fuchs' Commonwealth Trans-Antarctic Expedition in 1957-58 and of the U. S. traverse parties of 1958-59 and 1959-60. A safe route along the heavily crevassed ascent up the Skelton was marked several weeks ago by a three-man reconnaissance party.

At Plateau Depot--near the head of the Skelton--aircraft of the Navy's Air Development Squadron Six have stored 4,000 gallons of Diesel fuel, two tons of food, and a ton and a half of seismic shot explosives for the party. "Operation Deep Freeze" aircraft will also provide Crary's party with any emergency supplies that may be needed.

From Plateau Depot the traverse route will run west for 60 miles and then turn southwest to 83° 20' south latitude, 125° east longitude. From there it will proceed southeast, and finally south along Amundsen's route to the pole.

The group plans to make 12 major "stations" and 150 to 200 minor ones during its journey. A station is a halt to accomplish scientific work--major stations usually require a full day, minor stations about an hour.

The small lead vehicle carries navigation and communications instruments. Two 12-ton Sno-Cats house scientific instruments, and one also contains kitchen equipment. All three vehicles are towing sleds containing fuel and supplies.

The party estimated that it would need only one re-supply of fuel en route to the pole. Accordingly, a U. S. Air Force C-124 aircraft has dropped 72 barrels of Diesel fuel 137 miles west of the head of the Beardmore Glacier. Weighted bamboo poles were dropped on a line across the drop area at right angles to the traverse route for easy location of this cache.

-more-



Add two--Antarctica

The traverse party keeps daily radio schedule with the Naval Air Facility, McMurdo Sound, for transmission of coded meteorological data and a daily situation report.

Scientific investigations to be carried out once the traverse has reached the top of the Skelton Glacier will include the following:

--Ice depth--expected to reach nearly two miles in some places--will be measured at all major stations by standard seismic reflection methods. At three or more major stations, ice thickness determinations will also be made by seismic refraction methods. This type of seismic program will also give the velocity of the seismic wave in the rock material under the ice, which in turn gives an indication of the type of rock under the ice.

--Annual snow accumulation, expected to vary from six to twenty inches, will be studied in shallow pits and trenches at all major stations. Annual layers will be identified by studying density, temperature, grain size, and crystal size.

--Snow, firn, and ice will be investigated for density, crystal size, and crystal orientation from ice cores at depths down to about 100 feet.

--The surface character of the snow, including sastrugi heights, size, frequency, and orientation, will be logged. Sastrugi are wavelike ridges of hard snow formed on level surfaces by wind action.

--Gravitational values, and information on the angles and intensity of the earth's magnetic field, will be determined.

--At all major stations, ice temperatures will be observed by thermohms to depths of 100 feet or more in the drill holes. Changes in temperature below 50 feet give valuable information on the past history of the ice and past climatic variations.

--Surface meteorological measurements will be made three times daily.

--Mountain ranges and ice-free nunataks visible from the traverse route will be located to furnish additional ground control for aerial mapping projects.

-more-

Add three--Antarctica

While it is not expected that the party will reach any ice-free areas where reconnaissance biological studies would be valuable, the party will keep records of bird sightings and other biological information they might encounter.

On completion of the traverse, the vehicles will be left at the South Pole Station for the coming austral winter and be used again from there the following summer. The traverse party will be transported back from the pole by the Navy's Air Development Squadron Six.

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# U. W. NEWS

9/9/60 ml

FROM THE UNIVERSITY OF WISCONSIN NEWS SERVICE, MADISON 6, WISCONSIN

Friday, Sept. 9, 1960

RELEASE:

MADISON, Wis.--The University of Wisconsin Board of Regents Friday accepted two large grants for the department of geology.

The largest was \$125,490 from the National Science Foundation for establishment of a [Polar and Geophysical Research Center] at the University.

Prof. George P. Woollard, head of the geophysics section of the UW department of geology, said the large grant would enable consolidation of a number of research programs.

The other grant--\$45,000 from the National Academy of Sciences--will support one of these research programs. This particular program concerns studies of the earth's gravity which UW researchers began during the International Geophysical Year. The grant will mean these studies can be completed.

The NSF grant, Prof. Woollard said, would give the department a new "strength in depth" by making it possible to keep key researchers at the University by insuring salary continuity.

The UW Polar and Geophysical Research Center has offices both in the former Brittingham Estate in Madison's Highlands and at 2454 University Ave. The present grant, given for one year, will not be for expansion of facilities, Prof. Woollard said. But, he said, the coordination it will bring would "let us expand in a more natural fashion."

Some research activities that will come under this coordination are: the Center's Antarctic program of airborne and ground traverses for geophysical, geological and glaciological studies; the data reduction program for IGY studies in Antarctica; seismic studies of earth's crust; gravity studies of United States; and a detailed airborne magnetic study of Wisconsin. ###



# U. W. NEWS

FROM THE UNIVERSITY OF WISCONSIN NEWS SERVICE, MADISON 6, WISCONSIN

RELEASE:

1/25/60 vh

Immediately

MADISON, Wis.--John C. Behrendt, research associate of the Polar and Geophysical Research Center at the University of Wisconsin, left the Badger campus Friday for Antarctica to make gravity measurements there and on the trip out and return.

Purpose of the measurements is to strengthen the world gravimetric network through repeat measurements at existing gravity bases and through establishment of new bases.

Behrendt is flying by plane with stops for measurements at San Francisco; Hawaii; Canton Island; Fiji Islands; and Christchurch, New Zealand. From Christchurch he will travel by ship to the Bellinghausen Sea and Antarctica. The measurements in Antarctica finished, he will proceed by ship to Buenos Aires. Travel from here, again accomplished by plane, will include stops at Rio de Janeiro; Dakar, French West Africa; Leopoldville, Belgian Congo; Johannesburg, South Africa; Perth and Sydney, Australia; Christchurch, New Zealand; Hawaii; and San Francisco.

The geophysicist will return to Madison in late March. His research travels are a continuation of the gravity program of the International Geophysical Year, conducted by the University of Wisconsin.

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