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## **Reid A. Bryson: director, Institute for Environmental Studies, professor of meteorology. 1949/1981**

[Madison, Wisconsin]: [s.n.], 1949/1981

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MODELS HELP CLIMATOLOGISTS FORESEE LONG RANGE CHANGE

As any Wisconsin native knows, our weather can be highly unpredictable. Just when we brace for a cold and snowy winter, along comes a mild one. Other years, even the summers are wet and cold, with early September frosts.

Meteorologists know that the air space above Wisconsin is a zone of conflict between cold and dry air masses from the north, and warmer, moist air masses from the Gulf of Mexico. Our weather, they say, depends in part on which air mass dominates at a given time, and what happens on the warm or cold fronts as one air mass replaces another.

But this knowledge alone is not enough to predict either the weather in the short run or climatic change in the long run. According to the Food and Agriculture Organization, the National Weather Service's success rate for seasonal forecasting is about 60 percent, which is only slightly better than flipping a coin.

Even so, agricultural, transportation, tourism and national defense concerns consider any authoritative predictions of future precipitation and temperature variations to be priceless information. Climatic changes can play a considerable role in determining the world's food supply, for instance, and food surpluses or shortages can have widespread political and economic effects.

Reid Bryson, climatologist at the University of Wisconsin-Madison, says modern science now has the tools to estimate climatic conditions one or two years in advance. He has developed a global climatic model that predicts changes in temperature and precipitation correctly about two times out of three. This success rate is almost equal to a meteorologist's ability to offer a two-day forecast.

Unlike a master chef who is reluctant to give out his recipe, Bryson is quite willing to list the necessary ingredients for an accurate climatic forecast. He first gathers bountiful data on general atmospheric trends, including both natural phenomena--such as the effects of volcanic eruptions--and human effects like dust particles and carbon dioxide emissions.

Bryson also takes into account those mechanical forces upon the earth that are regular and periodic, such as lunar-influenced "atmospheric tides" and "pole tides," caused by a wobble in the earth's rotation.

climatologists -- add one

Bryson rejects the notion that sunspots are a dominant cause of climatic variation. His research has found no variation of measured solar intensity correlating with sunspot activity.

In addition to his general-trend calculations, the climatologist also takes into account year-to-year fluctuations. He says this cannot be done with conventional mathematic models. Instead, Bryson uses the past record of the atmosphere as his data base for how much fluctuation should be taken into account.

Based on the atmospheric data and his physical factors, Bryson constructs a climatic prediction model. To test the model, he constructs a forecast for a particular year in the past, then compares the forecast with actual climatological data from that same year. This process is applied to other years until the model's accuracy is well established.

Bryson's forecast for next year will not tell you what the weather will be like the first week of May. But it will predict departures from normal temperatures and precipitation on a month-to-month basis over the entire year.

The model's predictive skill has earned Bryson some impressive clients, including the Canadian Wheat Board, the Japanese Television Network and India's Ministry of Agriculture. These groups, along with several private entrepreneurs in the United States, help finance Bryson's research, which does not receive support from the federal government.

The value of such a model is obvious to an industry such as agriculture. If corn farmers, for example, knew that next summer would be cool and wet instead of hot and dry, they might choose to divide their acreage between corn and soybeans, or plant another crop entirely.

Bryson says a heavy storm track moved over the Great Lakes region for much of the summer of 1980, while the rest of the country stayed dry. Weather forecasters did not predict this, but the climatic model did.

\* \* \*

# 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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(Photo Available)

CONTACT: Albert M. Swain (608) 262-0775

## HE MEASURES MUD TO CHECK CENTURIES-OLD WEATHER

MADISON--An environmental researcher is pointing an icy finger at three Chippewa County lakes to find out if Wisconsin Octobers were this cold in centuries past. He has become a mud measurer to find out what the weather was like 1,000 years ago.

The clues to past climates lie buried in the mud of Wisconsin's deep lakes, according to Albert M. Swain, a UW-Madison project associate at the Center for Climatic Research in the Institute for Environmental Studies. To get at them, Swain uses a tool nicknamed "frigid finger" to make hollow "mudcicles."

Swain is a paleoecologist, a scientist who studies early environments. In the last six years he has probed lakes all over North America to reconstruct the ancient climates--an effort he says may help predict possible patterns of future droughts or mini Ice Ages. He is now concentrating on a comparison study of Dark Lake, Little Pine and Ruby Lake in Chippewa County.

The frigid finger is an adjustable, aluminum tube, its 4 to 10 foot length packed with dry ice and alcohol. A heavy brass tip and metal tailfins let it fall through the water and bury itself into the mud and debris which settles on lake bottoms in distinct annual layers called varves.

"Varves are like growth rings on a tree," said Swain, and the frigid finger can collect up to about 3,000 years of them. In each varve is a treasure of pollen and seeds blown into it from lake-side plants. The kinds of plant materials and their relative abundance in the mud help Swain piece together a picture of which trees grew when and of how long they were there. Different trees mean different climates.

-more-

Add one -- weather

"For example, a decrease in white pine pollen 80 to 100 years ago indicates the beginning of logging operations in the area," Swain said. Because spruce and yellow birch normally grow in the far North, a large number of their seeds suggest a cool or wet period. Aspen birch pollen appears after forest fires. An increase in ragweed pollen usually marks the beginning of agriculture because it grows best in disturbed areas recently cleared of trees. In addition, "thicker varves may indicate a period of heavy rainfall" because run-off silt adds to lake deposits, he said.

Not all lakes have varves that can accurately track down old weather patterns. Wind and rain churn up lower water levels in shallow lakes. The layers of sediment in the small, deep lakes that Swain selects do not get mixed up; their varves stay intact year after year. Swain compares his results with information available from historical accounts and records of tree rings, glacial activity and fossil soils. The Chippewa County project is thus another way to test mudcicle accuracy.

To connect pollen trends to climatic conditions, Swain uses mathematics devised by (Reid A. Bryson), the institute's director, to compare recent pollen samples with known rainfall and temperatures. The calculations have been carried back in time to estimate the kind of Wisconsin climate present 1,000 years ago.

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# UW news

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

Release: **Immediately**

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## WISCONSIN ALUMNI TO HEAR CLIMATOLOGIST, JOURNALISM RESEARCHER

WASHINGTON, D.C.--Two top scholars, University of Wisconsin-Madison (Prof. Reid A. Bryson) and Steven H. Chaffee, will speak at the annual Founders Day observance by the UW Alumni Club of the Washington, D.C., area Feb. 2.

A 6 to 7 p.m. reception-social hour will precede the dinner-program at the Key Bridge Marriott Motor Hotel. Reservations, at \$9 each, should be arranged at once with Ottar Rohrstaff, 1400 S. Joyce st., Apt. #C-1403, Arlington, Va. 22202.

Bryson, widely regarded as one of the world's foremost climatologists and director of the University's Institute for Environmental Studies, will discuss the history of weather and apply its lessons to current and future climatic changes.

A Vilas Research Professor, Chaffee will discuss recent developments on the UW-Madison campus. He serves as chairman of the prestigious University Committee and teaches journalism and mass communication.

The observance marks the University's 128th year.

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# UW news

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

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CONTACT: Reid Bryson (608) 262-5957

## FIVE MORE YEARS OF DRY WEATHER EXPECTED BY METEOROLOGIST BRYSON

MADISON--While the drought that hit most of the midwestern United States in 1976 may be over, its effects may still be felt next spring, and the long-term outlook for rainfall is not good, according to a University of Wisconsin-Madison meteorologist.

(Prof. Reid Bryson, ) director of the Institute for Environmental Studies, pointed out that due to the serious lack of soil moisture throughout much of the Midwest, the ground is already frozen to an unusual depth of seven feet in many places, including Wisconsin. That could cause problems next spring, according to Bryson.

"Once the ground is frozen, it's pretty hard to get the melted snow into the ground. If you get enough snow, then the heat from the earth will gradually take the frost out. So if we had very deep snow right now, then the soil would actually start thawing from the bottom up, and that would be good," Bryson explained. But he cautioned that a return to normal amounts of rain next spring and summer won't be enough to solve the dry soil problem.

"If we want to be lucky next spring, in terms of how this drought business goes, we're going to need a combination of events; an early spring in terms of melting the soil; and then some rain, and a lot of it, because it takes a lot of rain to get that soil moisture replenished." Bryson added that the rain can't come all at once because the earth is only able to absorb moisture at a certain rate, and if there's too much water at one time, much of it will evaporate.

Add one--Bryson

While scientists can't predict temperatures and rainfall several months in advance, Prof. Bryson does have a theory of what kind of weather there will be in the next few years. Climate is now going through a relatively rapid change, he said. Climate changes because of variations in both the amount of sunlight reaching the ground and the amount of heat escaping into space.

"The main cause that we've found for variations in the amount of sunlight reaching the ground is variations in how transparent the air is--in other words how much smoke and dust there is in the air, and how much heat gets back out to space depends on how much carbon dioxide man puts in the air."

Putting together his best estimates of how much dust, smoke, and carbon dioxide will be in the air during the next decade, Bryson concluded that the next five years will be much like the last five.

"The last five years were very pleasant, climatically--after all, what is a drought? It's too many nice days. We've had a major drought in the corn belt two years ago, and half of that in 1976; two Russian crop failures; failure of the Chinese monsoon and the Indian monsoon; 70 per cent of the Brazilian coffee being frozen in one night, and things like that going on around the world. So another five years like the last five years, to me, doesn't sound very good."

Bryson admitted that some scientists criticize his analysis of climatic changes, saying it's too simple, and therefore his predictions may not be accurate.

"I hope our analysis is wrong. Many scientists find it strange to hear a fellow scientist say he hopes he's wrong--I don't think I'm wrong, but I hope I am. Because if I'm right, I don't like the answer," Bryson said.

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3/2/08

University of Wisconsin-Madison meteorologist Reid A. Bryson said the CIA report on climate change released Monday does a good job of analysing a possible situation that might significantly affect the U.S. in the future.

The report predicts mass starvation in India, a famine every five years in China and the loss of a major wheat growing area in Russia due to changes in the world's climate.

Bryson took issue with the implication made in an Associated Press Wire Service story Saturday that he had said it would occur. This was an overstatement, he said, of one of his publications that indicated such events would happen if the past climate trend continued.

Bryson said his work was not a prediction but only a warning of what may happen.

"There has been a cooling trend in the world's climate, which began in 1945, and, if this trend continues, it will severely affect the world food situation," he said. "This is not to say it will definitely happen, however. A change in any number of conditions could stop the trend."

Scientists have developed two contradictory theories to account for change in world climate--the greenhouse ~~theory~~ <sup>effect</sup> and the dust effect.

The greenhouse ~~effect~~ <sup>theory</sup> states that the increased carbon dioxide dispersed into the atmosphere by burning fossil fuels

Stars  
Add 3

over an 11-year cycle and, during severe activity, cause radio transmission problems on earth. Scientists refer to these eruptions as sun spots because they appear as black dots on the surface of the sun.

Anderson is still examining stars for more information. He spends eight or nine nights a year at Kitt Peak and the remaining time analysing the data and teaching classes at the University.

Will Anderson or other scientists ever tire of their research?

The Bible tells us that before Adam and Eve were driven from the Garden of Eden, God said "Indeed! The man has become like one of us, knowing good and evil! And now perhaps he will put forth his hand and take also from the tree of life and eat, and live forever!"

will increase the earth's surface temperature. The greater volume of carbon dioxide will act as a layer of insulation, pushing heat back to the earth just as a blanket holds in a person's body heat.

Some meteorologists who agree with this theory have said the increased temperature will partially melt the polar ice caps causing major floods in coastal areas.

The other theory--the dust effect--states that dust particles, emitted by human activity and volcanic eruptions, will act as an atmospheric "shield", reflecting a portion of the sun's warming rays back to space.

Bryson said an overall temperature drop of only one degree celsius from the present level will sharply affect food production in some areas of the world.

Recently, in an attempt to see "which effect will win," Bryson and another scientists developed a computer model of the earth's climate. They used predictions of increased carbon dioxide and dust emissions resulting from expanded use of fossil fuels such as coal and petroleum. They then "plugged in" the variable of volcanic eruptions.

"According to this model, if these eruptions continue at the present rate or increase, the added dust will cause the world's climate to continue its cooling trend for some years," he said. "If, however, volcanic eruptions decrease, the trend will stop or reverse much sooner."

Bryson said a change in carbon dioxide or dust levels as the result of air pollution also will affect the world's weather for better or worse.

This study was published in a scientific journal and the

of the star photographed as a whole. The edge of the star rotating away from the spectroscope emits longer wavelengths.

Through a complicated method of comparing the spectroscope pictures of the star as a whole and the star's two edges, Anderson can approximate its speed of rotation. This data is then compared to information gathered by other researchers about the star's age.

"By studying the rotational speed of particular stars ranging from young to old and the conditions of the space surrounding them, we can gain a better idea of the processes stars use to rid themselves of excess momentum," he said.

No one told Anderson it would be easy and the two years of research he has put into the project prove it. So far, he has theorized that a binary system, which contains two stars revolving around a common point, is one way that forming stars get rid of momentum. This method is by far the most popular in the universe. Anderson said about 80 per cent of all stars are in binary systems.

Unlike our sun, which has at least nine planets orbiting it, binary systems do not include planets. Anderson said the formation of planets is another method some stars use to deal with the problem of rotation. He believes that during the formation of a single star, the condensing cloud segment rotates so fast that some material flies into space to form planets such as the ones in our solar system.

He said a weak remnant of this process is currently happening on the sun's surface. Eruptions, similar to those produced by earth's volcanoes, spew gaseous material millions of miles into space. These eruptions increase in frequency

the outspread arms of a spinning figure skater are pulled close to the body. He said that when a cloud segment condenses, it induces a rotational movement that increases in velocity as the material becomes more compact.

"Theoretically, a cloud segment large enough to form a star would cause such a fast speed of rotation that the young star would fly apart," he said. "Since stars do form there must be some way to sluff off this excess momentum."

In order to conduct his research, Anderson needed a tool to determine the rotational speeds of stars. He decided to use an instrument known as a spectroscope. This device records on film the various light wavelengths emitted by stars just as a radio receiver picks up various broadcast frequencies.

Anderson built a special type of spectroscope to study light wavelengths emitted from specific areas of stars and attached it to a telescope at Arizona's Kitt Peak Observatory.

The principle he used to examine stars' rotation is known as the Doppler Effect. It can be best understood, in this case, if one imagines a child's toy top with two water jets attached to opposite sides that point in the same direction. If the top is held at a standstill, the water will spray toward an observer at the same velocity. If the top begins to spin, the stream of water rotating toward the observer will gain velocity and the water stream spinning away from the observer will lose velocity.

Anderson said the edge of the star rotating toward the spectroscope compresses the light being emitted from that area. This makes the wavelengths shorter than the wavelengths

Bryson  
Add 2

results were included in the CIA report. Climate studies conducted Joseph Smagorinsky, a member of the national oceanographic and atmospheric administration, Hubert Lamb, an English climatologist, and Mikhail ~~Budyko~~/ Budyko, a Russian climatologist, were some of the other sources for the report.

Bryson said it did not bother him to find his research in the report. He said all published information is free to anyone who wants to use it--including the CIA.

"If the cooling trend continues, there's going to be all hell to pay for it," Bryson said. "Massive crop failures in South Asia will cause starvation. Desperate people with nothing to lose may fight for food."

# research news

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For further information, contact Jean Lang, Institute for Environmental Studies  
(608) 263-5599

MADISON, Wis.--Evidence from the ancient past suggests that future climate changes may have significant effects on society and economy.

This was the message of (Reid A. Bryson,) University of Wisconsin-Madison climatologist, who spoke this week at a gathering of meteorologists at Monash University in Melbourne, Australia.

"It is a fact that there have been dramatic climate changes in historic and prehistoric times, and that they have had major environmental and economic repercussions," said Bryson, director of University of Wisconsin-Madison Institute for Environmental Studies. "If such changes could occur in the past, there is no reason why they should not occur again."

As an example, Bryson cited a climatic change that occurred in the United States between about A.D. 1200 and 1400. It is believed that the dry westerly winds normally moving across southern Canada were pushed southward at that time into the northern United States. Bryson and others have speculated that this shift in winds reduced the mid-summer rainfall in the Midwest by as much as 50 per cent. In addition, the persistence of this climate caused major changes in the region's vegetation.

"For people living in the already marginal areas of this region, such a climate change would have been disastrous," said Bryson.

Archeological evidence shows that, in fact, it was. Ancient tribes of Indians who lived on the short-grass plains disappeared. And those tribes that lived at the eastern edge of the plains underwent a significant change in diet and population distribution.

"Excavations at the Mill Creek Indian site in northwestern Iowa showed that the vegetation of the region changed from a mosaic of forest and lush prairie to dry short-grass prairie," explained Bryson. "Bone fragments from the campsites showed that the people shifted from a diet of deer--animals that browse the forest edge--to a diet of bison, grazing animals of the open grassland.

"Today the Mill Creek site is the heart of the fertile wheat, corn and soybean region of the U.S.," noted Bryson. "But it is important to remember that 600 years ago, it was dry grassland--and it could become grassland again with a shift in weather patterns."

Going back further in time, Bryson described dramatic changes in the climate and populations of northwest India and Pakistan. Over 2000 years before Christ, reliable monsoon rains made farming possible in this previously arid region. While the monsoons continued, the Indus culture flourished for a thousand years.

"After that time, the archeological record is broken," said Bryson. "The monsoons shifted, the desert moved in and the Indus culture disappeared. Man was not able to re-inhabit the region until 600 years later when the monsoons returned and brought fertility back to the land."

Bryson added that a similar long-term failure of the monsoons today would bring great disaster to the now densely occupied desert.

Coming up to modern times, Bryson outlined the probable effects of a small but continuous climate change in the midwestern U.S. His analysis was based on a spring wheat production model developed by the Climate/Food Research Group at UW-Madison.

"We found that if rainfall were reduced 20 per cent each month and the average monthly temperature was above normal by 1°C, wheat yields would drop about 16 per cent," said Bryson. "This would amount to a loss of \$275 million, a serious situation for wheat farmers who work on a narrow profit margin."

Add two--climate

Bryson stressed that high-technology agriculture is not immune to climatic variations. But he also added that if the present North American climatic trend continues--cooler summers and earlier frosts--agricultural production, on the whole, would not suffer in the U.S.

However, for some other regions of the world, Bryson painted a rather bleak picture.

"The cultures that will be most affected are those situated in marginal areas, such as semiarid lands, or under other pressures, such as uncontrolled population," he said.

Bryson explained that when the climate changes, there must be an accompanying adjustment of food production to population and food demand. However, in some countries today, there is not the time to make this adjustment and a careful allocation of food resources will be necessary to avoid disaster.

But, added Bryson, for some cultures even this step is only a holding action, a means of buying time.

**news** Immediately  
**release**

7/30/74 j1

For further information: Jean Lang (608-262-0886)

#### CONFERENCE ON CLIMATE CHANGES SLATED AT UW-MADISON

MADISON, Wis.--Some people believe we are still in the Ice Age and our climate is merely a pleasant pause before the next onslaught of glaciers.

We cannot know for sure what climates the future has in store, but scientists are getting some insight into how the climate has changed in the past.

This new knowledge is due largely to the detective work of scientists whose special interest is the Quaternary, the period from the beginning of the Ice Age to the present.

A group of these scientists will gather in Madison July 30 for a three-day biennial meeting of the American Quaternary Association.

"The meeting will focus on the last 10,000 years, the post-glacial period," Reid A. Bryson, director of the Institute for Environmental Studies at the University of Wisconsin-Madison and a speaker at the conference, said.

"The landscape of North America has changed dramatically since the Ice Age. By piecing together many small bits of evidence we can see that the continent went through a number of climatic and vegetation changes before it reached its present state."

Among the "bits of evidence" that will be discussed at the meeting are the uses of pollen grains and mammal bones as indicators of past climate.

"Because pollen grains collect and are preserved in the peaty soil of bogs, they can tell us which plants once grew in the vicinity," Bryson explained.

Add one--Quaternary meeting

A pollen expert can reconstruct the sequence of plant communities that appeared in the area over long periods of time. With that data he can estimate the probable climates under which the plants grew.

Mammal bones gathered beneath hawk and owl roosts also tell a story of the past. Roosts which are on rocky outcrops may be used by generations of predatory birds over hundreds of years. The proportion of rabbit versus flying squirrel bones can tell a scientist whether the surrounding area was a grassland or forest in the past. This, in turn, says something about the climate of the time.

The sediment accumulations in river beds and the variation of <sup>the</sup> width of growth rings in trees are climatic records too.

Anthropologists believe the food habits of primitive people reveal what the climate was. For example, the abundance of land snail shells in some Mediterranean archeological sites suggests a more lush vegetation once existed than the land now supports.

The meeting will be held at the State Historical Society in Madison and visitors are welcome.

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## NEWS BRIEFS FROM THE MADISON CAMPUS

MADISON (Reid A. Bryson) professor of meteorology and director of the Institute for Environmental Studies at the University of Wisconsin-Madison, is the co-editor of a recently-published volume of the "World Survey of Climatology."

He and R. Kenneth Hare, director-general of research policy, Environment Canada in Ottawa, edited "Climates of North America." The series is published in Amsterdam, The Netherlands, and distributed in the United States by American Elsevier Publishing Co. Inc., New York City.

Another UW-Madison meteorology professor, Werner Schwerdtfeger, edited the volume on the climate of South America for the same series.

- o -

MADISON--James Ullmont will speak on "Contemporary Development in North Africa" at 3:30 p.m. Monday (Jan. 28) in Room 8417 Social Science Building on the University of Wisconsin-Madison campus.

Ullmont, director of North African and Africa Regional Affairs, is employed by the U.S. Agency for International Development.

- o -

MADISON--A multimedia program titled "Africa: An Introduction" will be presented at the University of Wisconsin-Madison Multimedia Laboratory, 142 Educational Science Building, Unit 1 (corner of N. Mills and W. Johnson sts.) at 9:55 a.m. and 4:15 p.m. Wednesday, Jan. 30.

Making the presentation will be Ohio University Profs. Bob J. Walter and Frank E. Bernard.

They will also speak at a noon luncheon at 1418 Van Hise Hall on the topic "A Thematic Approach to African Geography."

- more -

Add one--news brief

MADISON--Dr. Shien-Ming Wu of the University of Wisconsin-Madison mechanical engineering department has been selected to receive the 1974 National Education Award of the Society of Manufacturing Engineers.

He was cited for the development of new curricula, fostering sound training methods, and inspiring students to enter the profession of manufacturing engineering.

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# uw news

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EDITORS: Contact Heidi Holler, 608-262-3571, for further information.

NOTE: Background material on Prof. Reid Bryson follows story.

## ENERGY SHOULD BE NEW MONEY STANDARD SAYS LEADING ENVIRONMENTALIST

MADISON--Problems of U.S. economic growth cannot be separated from problems of energy and the environment, insists a leading environmentalist at the University of Wisconsin-Madison.

"Money stands for energy. It's a little absurd to talk about gold being the basis of our money, when we probably ought to have the calorie, the BTU, or the kilowatt-hour as the basis of our currency," maintains (Prof. Reid A. Bryson) director of environmental studies.

Gross national product and use of energy are "absolutely related," he says. "If you're talking about a growing economy, you're also talking about a growing energy use, and you're talking about growing pollution, unless you pay to clean up pollution production."

Bryson suspects if Americans conceived of energy as money, they'd think differently about leaving lights on or using fossil fuels like coal or petroleum.

"If you think of energy as representing money, then the fossil fuels in the ground are our bank account--and we're living way beyond our income when we dig them out and burn them up at the rate we're doing now."

Bryson suggests the only way to reconcile apparent trade-off between a growing economy's energy needs and concern for the environment may be to restrict growth to parts of the economy that don't use up so much energy--such as the arts, or providing of low-energy use recreation facilities.

Add one--environment and economy

He agrees with President Nixon that air pollution measures have brought cleaner air, but notes that much of the improvement is due to use of cleaner fuels like natural gas--now in short supply, and being abandoned by some large energy users whose "interruptible" contracts with fuel suppliers have forced them to begin using coal once again.

Bryson criticized the Administration's proposal to cut out federal aid for local construction of waste disposal facilities. To arguments that increasing the demand for sewage plants will only make them more expensive to build, he replies:

"Nobody ever suggested that cleaning up the rivers, cleaning up the waters by putting in sewage plants was going to be free or cheap. It's simply a matter of 'let's pay the real price,' which includes the environmental price."

He noted that localities which have already contracted for or begun construction of the costly facilities, counting on substantial federal support, would be "left in midstream" by the proposed aid cut-off.

Local government's chances of recapturing the funds via revenue sharing, Bryson says, seem slim in view of the general determination to use the flowback of federal money to cut property taxes. "How I interpret the President's comment of greater self-reliance is, 'You want it, you pay for it.'"

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#### BRYSON PROFILE

Dr. Reid Bryson is a professor of meteorology and geography and has directed the UW-Madison Institute for Environmental Studies since 1970. He is widely known for world climatology research, particularly climatic changes brought about by man's activities. He established the meteorology department here in 1948, the Center for Climatic Research in 1962. A third of the nation's Ph.D's and M.A.'s in meteorology are earned at Madison--it is the largest meteorology department in the U.S.

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# research news

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

By JAN LAAN  
UW Science Writer

WASHINGTON, D.C.--(Release 11 a.m. THURSDAY, DEC. 28)--How much does the climate have to change to produce substantial effects on man's activities, and what factors influence this change?

These were topics examined Thursday by Prof. Reid A. Bryson, director of the Institute for Environmental Studies, University of Wisconsin-Madison, at the annual meeting of the American Association for the Advancement of Science.

"A one degree drop in the annual temperature of Akureyri, Iceland, could result in a 27 per cent reduction in grass yields," Bryson stated.

Since sheep grazing is such an important occupation in this area, the consequences would be enormous, he commented.

Since 1940, in fact, temperatures in Iceland have declined more than one degree centigrade. The grass yields have reduced appreciably.

Rainfall in the high plains of North America also has declined in the last century. The consequent reduction in grass cover means a three-quarter reduction in the ability of the land to support grazers.

The decline in bison population in this area is often attributed to man's activities but there may have been a climatic factor.

"Suppose man had not been around at all. This reduction in the land's carrying capacity might have reduced the bison population by three-quarters anyway," Bryson said.

Add one--Bryson

His studies are concerned with the factors responsible for such climatic changes. Carbon dioxide and dust content of the atmosphere have received particular attention.

Man's activities may be responsible for significant changes in these factors.

Bryson pointed out studies showing correlation between atmospheric dust content and temperatures--the more the dust the colder the temperatures.

Volcanoes spew a tremendous amount of dust into the upper atmosphere while man probably is responsible for much of the dust carried in the lower atmosphere.

This low atmosphere dust may be attributed to particulate plumes from cities, blowing soil, or smoke from slash and burn agriculture.

"Although the figures are shaky, man's activities may be responsible for about one-half the temperature changes in recent decades caused by atmospheric dust, and volcanic dust for the other half," Bryson stated.

###

news  
release

MADISON--Paul G. Hayes, environmental reporter for the Milwaukee Journal, has been named the sixth Leonardo Scholar by Chancellor Edwin Young of the University of Wisconsin-Madison campus.

As the newest participant in the Leonardo Seminar, Hayes will be working with five faculty members to identify national resource policy needs and alternative resource goals. Industry and government representatives also will be appointed.

The objective of the seminar, which will begin in January, is to develop and publish criteria and procedural methods which can be used to establish long-term resource policies.

It will be the first of a continuing series allowing faculty members and non-University representatives to participate full-time in interdisciplinary approaches to major problem areas, according to (Prof. Reid A. Bryson,) director of the Institute for Environmental Studies which will support the project. The Milwaukee Journal is contributing support for Hayes' participation.

Hayes has been a reporter with The Journal for 10 years and has specialized in public planning, transportation, natural resources, and environmental issues. Before he began at The Journal, he worked for three years on the Des Moines Register.

Hayes was graduated from the University of Illinois College of Journalism in 1957 and did graduate work at Drake University in 1959-61. He participated in the American Political Science Association Congressional Fellowship Program, Washington, D.C., 1968-69.

Add one--Leonardo Seminar

Last year he received the Medical Scribe award of the Milwaukee County Medical Society for environmental reporting and this year the Gordon MacQuarrie Medal of the Wisconsin Natural Resources Foundation for conservation coverage.

Other Leonardo Scholars will be: Profs. Wesley K. Foell, nuclear engineering; Matthew Holden jr., political science; James B. MacDonald, law; Van R. Potter, oncology; and Jan M. Vansina, history and anthropology.

The seminar is named after Leonardo da Vinci, 15th century Italian artist, architect, engineer, and scientist.

"This seminar can be the beginning of a 'university for professors' within the University, providing a mix of backgrounds to give each participant a chance to learn something of the concepts and attitudes of other disciplines--an overview now needed in attempting to understand and solve the complex problems of today's world," Chancellor Young stated.

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**news  
release** Immediately

12/18/72 ba

MADISON--Trouble spots in Wisconsin's present land use planning and management structure are identified, and suggestions are made for improving these efforts by participants of a University of Wisconsin-Madison seminar. They have released eight detailed reports on Wisconsin's non-urban land use problems.

A major conclusion reached by the seminar participants was that land use planning, data-gathering, and regulation of areas of statewide concern are needed, reports Prof. Carlisle P. Runge, seminar coordinator, and chairman of urban and regional planning department.

In order to accomplish effective land use planning, management, and regulation, Wisconsin's present administrative agencies should be modified to give authority to a new, centralized state planning and land use agency. The present splintering of planning regulatory duties into many state agencies is a common occurrence across the country.

Other recommendations relate to environmental impact analysis procedures for major public and private projects. Also, the participants advocate the modification of tax structure and the more extensive use of public purchase of limited land interests as resource management tools. The seminar participants also dealt with policies and institutions for improved management of public lands and recommended policies and controls for managing public and quasi-public facilities.

Add one--land use

The participants indicate that the state also could benefit from initiating development of a comprehensive geo-information system which would include an inventory of critical resources. This system should be computerized for the storage, manipulation, and retrieval of data and would provide an integrated system modeling function. The eight reports are the end-product of an intensive year-long seminar sponsored by the Institute for Environmental Studies in which faculty, graduate students, and representatives from state agencies participated.

A close working relationship developed between seminar participants and members of Gov. Patrick J. Lucey's Land Resources Committee. This committee, which is chaired by former Gov. Warren J. Knowles, was charged with identifying land use problems of statewide significance and suggesting possible solutions. This committee published a progress report last spring and will present a final report to the governor in the near future. Several individuals are associated with both groups.

"It is our hope that the seminar's applied research activity--which is directly related to a major public policy issue in Wisconsin--will be helpful to government agencies and decision makers in their development of the state's position," (Prof. Reid A. Bryson, ) director of the institute, says.

The eight seminar reports, written by various members, are titled: Working Paper 8, Conclusions and Recommendations for Strengthened State Planning and Management of Wisconsin Lands; Working Paper 8A, Rural Land Use in Wisconsin: A Preliminary Description of Problems and Preventive Efforts;

Working Paper 8B, Procedures and Documentation of Subgroups 1-3: (1) State Planning and Management of Public Lands, (2) Policies and Mechanisms for the Management, Sale and Acquisition of Public Lands and Related Institutional Matters, (3) State Planning and Management of Public and Quasi-Public Facilities; Working Paper 8C, Procedures and Documentation by Subgroup 4: Data Needs and Data Manipulation.

Add two--land use

The series also includes Working Paper 8D, Symposium: A Survey of Programs for Statewide Land Resource Inventories; Working Paper 8E, State Land Planning and Regulatory Functions: Proposals and Programs from the Several States and a Draft Bill for Wisconsin; Working Paper 8F, Preferential Taxation of Agricultural and Open Space Lands: A Proposal for Wisconsin; Working Paper 8G, Environmental Impact Evaluation Procedures: Some Recommendations for Wisconsin.

The seminar was supported by a grant from the National Science Foundation, the RANN Division (Research Applied to National Needs). Single copies of the publications are available at cost from the Institute for Environmental Studies, Room 1349, 1225 W. Dayton St., Madison 53706.

Jon Kusler, lecturer with the institute, was research director for the seminar. The chairmen of the four seminar subgroups were: Profs. Gerald R. Stairs, forestry; Duncan A. Harkin, agricultural economics; John E. Conway, law; and Philip H. Lewis, landscape architecture.

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## news release

MADISON--The University of Wisconsin-Madison Center for Climatic Research (CCR) has been awarded a grant to reconstruct past climates and past climatic changes by the Advanced Research Projects Agency (ARPA) of the Department of Defense.

The one-year \$80,560 grant, accepted recently by UW System regents, will be monitored by the Air Force Office of Scientific Research and administered locally by the UW-Madison Institute for Environmental Studies. The work will be done in collaboration with Prof. Harold Fritts, Laboratory for Tree-Ring Research, University of Arizona.

John Kutzbach, director of CCR, professor of meteorology and environmental studies, and principal investigator of this study, explains that reconstruction of past climates involves studying proxy series. These are records of environmental occurrences that reflect, in some manner, the changing climate of a particular site. Throughout much of the world, actual weather records are available only for the past 100 years, so information about earlier climates can only be obtained from proxy records.

Past climatic information is of practical use for planning in such areas as agriculture, water use, recreation, transportation and construction, Kutzbach explains. Also, since considerable national effort is being devoted to the study of man's possible impact on climate, it is essential that a parallel effort be devoted to obtaining actual climatic records for determining the range of natural climatic variability.

## Add one--Past Climates

Kutzbach explains that several methods are used to determine proxy series. Tree growth rings are valuable for studying short-term climatic variability over the past 1000 years. For long time scales -- pollen type and distribution and shellfish remains in bogs or lake bottoms can provide indications of climatic variability on time scales of about 100 years over the past several thousand years.

Also of use are historical records--quality and quantity of harvest, phenological events, and reports of unusual changes in local flora and fauna. However, these historical records are often difficult to interpret, could be due to factors other than climate, and don't go back very far in time, Kutzbach says.

After a proxy series is identified it is then calibrated with actual climatic data. These relationships are then used to estimate climatic variation in the past for time periods where there is little or no climatic data.

Initial reconstruction of these series will focus on North America; subsequent ones will cover large portions of the Northern Hemisphere for the past several hundred years. In selected regions climate patterns will be reconstructed for the past several thousand years.

Profs. David Baerreis, anthropology, and (Reid A. Bryson,) meteorology and director, Institute for Environmental Studies, are also investigators on this study. Also participating are Wayne Wendland, meteorology and geography, and Dr. Albert M. Swain, Raymond L. Steventon and Lawrence A. Conrad, Center for Climatic Research.

# # #



**news** Immediately  
**release**

6/28/72 bba

MADISON--University of Wisconsin-Madison Chancellor Edwin Young has appointed five Leonardo Scholars to participate in an intensive seminar on identifying national resource policy needs and alternative resource goals.

No long-term national policy concerning wise management of national resources now exists, Young noted.

The seminar hopefully will be the first of a continuing series allowing faculty members to participate full-time in inter-disciplinary approaches to major problem areas, according to (Prof. Reid A. Bryson) director of the Institute for Environmental Studies which will administer the project.

Profs. Wesley K. Foell, nuclear engineering; Matthew Holden jr., political science; James B. MacDonald, law; Van R. Potter, oncology; and Jan M. Vansina, history and anthropology, are the first Leonardo Scholars.

"These men are outstanding in their fields and are well-qualified to participate in such a broad-based effort," Young said. Two or three participants representing industry and government also will be appointed.

The objective of the seminar is to develop and publish criteria and procedural methods which can be used to establish goals necessary to the protection of the environment. It will begin second semester of the next academic year and run full-time through the following summer. No state funds will be required.

Add one--Leonardo seminar

The Leonardo Seminar is named after Leonardo da Vinci, 15th century Italian artist, architect, engineer, and scientist, who symbolizes the intellectual "universal" man.

"This seminar can be the beginning of a 'university for professors' within the University providing a mix of backgrounds to give each participant a chance to learn something of the concepts and attitudes of other disciplines--an overview now needed in attempting to understand and solve the complex problems of today's world," Young stated.

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news  
release

Immediately

11/10/71 bba

MADISON--The Center for Climatic Research, University of Wisconsin-Madison, has been awarded \$180,000 by the National Science Foundation to continue its interdisciplinary research program in climatology.

This is the eighth year of operation for the Center, which is under the direction of meteorology Profs. John E. Kutzbach and (Reid A. Bryson,) director of the Institute for Environmental Studies.

Its basic objectives are the understanding of the world pattern of climate, its mechanism and evolution in time, and impact of climate on patterns and changes of ecological systems.

Center researchers are exploring whether atmospheric particulates--man-made as well as natural pollutants such as volcanic dust--produce climatic changes. For example, it is possible that the occurrence of severe winters in the past decade over much of the northern and eastern United States has been associated with a corresponding increase of global volcanic activity, Kutzbach says.

How man modifies climate on metropolitan and regional scales also is under investigation. Researchers are studying the history of the Rajputana Desert of India and exploring the possibility of modifying the climate.

Current interdisciplinary research projects involve use of historical, archeological, and botanical evidence of past environments to piece together the climatic history of North America. Certain aspects of Wisconsin's climatic history during the past 10,000 years have been revealed.

An understanding of past climatic variability and its causes will aid in the study of present and possible future climatic changes, Kutzbach explains.

# UW news

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

Release:

Immediately

7/29/71 mcg

MADISON (Prof. Reid A. Bryson, director of the University of Wisconsin Institute for Environmental Studies, will discuss the strains on our environment at 7 p.m. Monday in Wisconsin Center auditorium.

The sixth of eight speakers for the University Forum on the Contemporary Scene, Prof. Bryson will speak for 50 minutes, then conduct a discussion period. He will be introduced by Prof. Frederick W. Haberman, Forum moderator.

Dr. Bryson joined the UW faculty in 1946, founded the meteorology department in 1948 and the Center for Climatic Research in 1962, was named director of the environment institute in February, 1970.

A graduate of Denison University who holds the Ph.D. of the University of Chicago, Dr. Bryson is widely known for his research in climatic changes brought about by man's activities. He has published more than 100 papers and articles on his studies of lakes, oceans, the seasons, and the atmosphere, traveling to every corner of the world to collect his material.

The last two speakers on the Forum are Madison Mayor William D. Dyke, whose topic is "The Cities: Can They Survive?" and Prof. Karlos Moser, School of Music, who will discuss "The Joys and Absurdities of Opera."

All Forum talks are open to the public. UW juniors and seniors are enrolled for one credit.

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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

5/20/71 mel

MADISON--University of Wisconsin (Prof. Reid A. Bryson) will receive an honorary Doctor of Science degree from Denison University, Granville, Ohio, May 31.

Prof. Bryson, a climatologist world-renowned for his work on the role of man in changing climate, is director of the Institute for Environmental Studies.

After earning his B.A. in geology from Denison, Bryson joined the UW faculty in 1946 and two years later founded the meteorology department. The same year he received his Ph.D. in meteorology from the University of Chicago.

Under his leadership, the new department grew remarkably, and today a large fraction of the nation's graduate and undergraduate degrees in meteorology is earned at Madison. The department is the largest in the U.S.

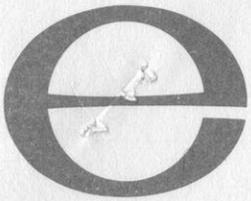
In cooperation with the Indian Meteorological Service, Dr. Bryson studied atmospheric dust over India and modification of the climate in the Rajasthan Desert. From these studies he concluded that man's agricultural practices have turned the area--once a fertile grassland--into the desert it is today.

In 1962 Bryson established the UW Center for Climatic Research to further the study of climatology. It is now the foremost climatology program in the nation.

Named director of IES last year, Bryson has been elected a fellow of the American Meteorological Society and named to the Environmental Studies Board of the National Academy of Sciences-National Academy of Engineering, in addition to other honors.

He has published more than 110 papers and articles on his studies of lakes, the atmosphere, and the relation of climate and life.

###



**news** Immediately  
**release**

5/18/71 ml/jb

MADISON--Wisconsin Gov. Patrick J. Lucey and University of Wisconsin Pres. John C. Weaver Tuesday hailed the \$1.49 million grant to the Institute for Environmental Studies as a significant indication of the UW's capability to solve today's environmental problems.

The grant from the National Science Foundation will enable the institute to develop problem-solving research programs on the Madison campus. These programs, Gov. Lucey stated, "will provide essential information to assist the state in carrying out its programs." He also noted:

"The grant demonstrates the capability of the IES to conduct interdisciplinary research of complex environmental problems."

Pres. Weaver said he would recommend acceptance of the grant to the UW regents "with great pleasure, since it indicates how effectively the University has responded to the growing public interest in current problems and how our institute has demonstrated our special ability for work in this area in just 15 months."

Rep. Robert Kastenmeier (D-Watertwon), who announced the grant in Washington, D.C., said "the interdisciplinary approach is our best hope of finding solutions to man's complex relationship with his surroundings."

Dr. Reid A. Bryson, IES director, commented:

Add one--IES grant

"We seek to provide a university environment in which integrated environmental studies can be accomplished, and in which the fruits of such research can be reflected in improved campus teaching and community services.

"The three-year grant is a major element in the IES' plan to strengthen its present capabilities and undertake new programs in the environmental studies area."

Madison campus Chancellor Edwin Young said:

"It is particularly gratifying that this program capitalizes on the great strength of the Madison faculty in the environmental area, and that it focuses on problems important to the people of Wisconsin."

Dr. Bryson outlined IES projects, these including population redistribution; management of residuals from urban, agricultural, and industrial wastes; recycling specific wastes; quantitative systems description and simulation of land-water interactions; the social processes of regional space utilization and resource distribution; and time-lags in detecting critical environmental consequences of technological innovations.

Associated units of IES also have active, interdisciplinary programs on the environment. The Marine Studies Center, the Center for Climatic Research, Remote Sensing Group, and the Lake Wingra Ecosystem Project of the International Biological Program are now administered by the institute.

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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**

**3/16/71**

UIR Science Writing Division (263-2811)

By JEAN LANG

MADISON, Wis.--Man's misuse of the land over the past 150 years is showing up in our streams.

"Stream patterns should reflect the climate of the time," says University of Wisconsin geographer James Knox. "Our present streams do not.

"Hillside erosion occurring today is similar to the kind of massive erosion that occurred about 6000 years ago when the Midwest experienced a sudden climatic change," he explains.

While the causes of erosion then and now are essentially the same --heavy run-off from disturbed or sparsely covered slopes -- 6000 years ago the land was in a long period of drought and vegetation was naturally sparse.

Now, however, the heavy sediments which have altered the stream patterns are the product of man's activity.

"In fact," says Knox, "one-fifth to one-quarter of present stream bank sediments in Wisconsin have accumulated since man began cultivating the land."

Prof. Knox, whose special interest is landscape evolution, finds southwestern Wisconsin an ideal area for his studies.

"This portion of the state is on a boundary or tension zone between polar and subtropical air masses. Because of this, small changes in air circulation can produce major changes in weather patterns, which in turn, have pronounced effects on the landscape."

Add one--Knox

With the aid of data gathered by (Prof. Reid Bryson) of the UW Center for Climatic Research, Knox has managed to trace the history of Wisconsin's landscape from a known dry period about 6000 years ago.

At that time, Knox believes, the icesheet had retreated to northern Canada and dry winds from the western plains swept the Midwest for seven or eight months a year. Prairie grasses covered the presently wooded slopes and were subject to frequent fires.

Then, rather suddenly, a little less than 6000 years ago, the dry wind season shortened, rainfall increased, and deciduous trees began to grow on the once dry slopes.

Vegetation changes always lag somewhat behind new weather patterns, so that when this climatic shift began, the hillsides were probably still sparsely vegetated and unable to absorb the increased rainfall, he says.

As a result, run-off gullied the hillsides and large amounts of sediment were washed out into the valley floodplains. Fine sediments settled on top of older gravels and formed an abrupt layer that can be seen today in the stream valleys of southwestern Wisconsin.

Eventually the landscape adjusted to the more humid climate. Forest vegetation invaded the region, preventing massive erosion. Rivers evolved stable channels in response to moderate loads of silt.

Then about 150 years ago, modern man arrived in the Midwest. He hastily cleared the native forest cover to plant his grains and other low density vegetation. He stripped the soil cover to mine the earth and he graded hillsides to lay out his housing tracts.

"Once again," says Knox, "the disturbed, sparsely covered hillsides were unable to retain the water of heavy rains, and silts have filled the stream valleys as they did 6000 years ago."

###



**news  
release**

Immediately

2/23/71 mel

CONTACT: PROF. REID BRYSON  
(608) 262-2860 (Office)

MADISON, Wis.--Madison has a carbon monoxide problem comparable to that in large, highly polluted cities--including New York, Chicago, Los Angeles, Cincinnati, and Philadelphia--according to results of a study announced today by the University of Wisconsin's Institute for Environmental Studies (IES).

Carbon monoxide (CO) concentrations as high as 160 parts per million (ppm) were recorded in rush-hour traffic along East Johnson st., while the maximum eight-hour average for State st., a shopping area, was 33 ppm. This exceeds the California state air quality standard of 30 ppm.

These concentrations are high enough to cause serious physiological effects in all persons, particularly drivers in heavy traffic, cigaret smokers, pregnant women, and persons with coronary heart disease, severe anemia, cardiovascular disease, or abnormal metabolic states.

Sharon Nicholson Hastenrath, now a graduate student, conducted the study as an honor's thesis for a bachelor's degree in meteorology at Wisconsin.

"We were alerted to the possible magnitude of CO in Madison by measurements taken by the Wisconsin Department of Natural Resources," said (Prof. Reid A. Bryson, IES director, who supervised the study.

Mrs. Hastenrath took 568 CO measurements using a stain-length colorimetric test at four principal sites in Madison. Average CO levels at the State st. sampling station were 15 ppm; an east side residential area, 10 ppm; University Arboretum,

Add one--carbon monoxide

6 ppm; and on the roof of a 15-story campus building, 4 ppm. Peak concentrations at street level occur around 8 a.m. and 5 p.m.

In spot checking, she recorded measurements of 13 ppm inside University Hospitals, 44 ppm in a service garage, and as high as 59 ppm on sidewalks and street corners.

Highest concentrations were obtained by measuring CO at car window level while driving in traffic. Levels of 160 ppm were obtained in East Johnson st. traffic, and 64 ppm in East Gorham st. traffic.

Maximum five-minute CO concentrations in traffic in various other cities are: Los Angeles, 81 ppm; Chicago, 78 ppm; Philadelphia, 67 ppm; and Cincinnati, 50 ppm.

"Even more important in terms of health effects are the CO levels maintained over periods of time," Mrs. Hastenrath reported. "The daytime eight-hour average on State st. is generally 21 ppm but sometimes is as high as 33 ppm. The four-hour averages vary between 13 and 37 ppm."

By comparison, eight-hour averages for Cincinnati are 21 ppm; Chicago, 44 ppm; Philadelphia, 36 ppm; Los Angeles, 28 ppm.

CO combines with the pigment hemoglobin in blood, displacing the oxygen that hemoglobin normally transports. The CO-hemoglobin bond is 200 times tighter than the bond with oxygen, so even small amounts of CO can hinder the supply of oxygen to tissues.

When the oxygen supply to tissues is reduced, the heart and lungs must work harder, and this may produce a critical strain in persons with heart and lung diseases.

Symptoms of CO poisoning often experienced by people in traffic jams and on freeways include loss of visual acuity, decreased muscular coordination, and increased reaction time, headache, and nausea.

Persons with increased susceptibility to CO may be adversely affected by eight-hour levels such as those recorded on State st.

Add two--carbon monoxide

Mrs. Hastenrath next correlated CO levels with both urban and meteorological factors. She found that CO levels in the Arboretum and on the rooftop are highest during periods of predominantly south and southeast winds.

"The strong correlation of CO at these sites with south and southeast winds leads us to believe that highly industrialized centers to the southeast, particularly the Chicago area, are contributing to Madison's pollution problem," she said.

She carried her study one step further and analyzed visibility data for Madison, Lone Rock (a relatively pollution-free city 40 miles west of Madison), and Chicago. Low visibility in relatively dry air is strongly related to atmospheric pollution.

Low visibility--and hence high pollution--in both Madison and Lone Rock is significantly correlated with south and southeast winds, she found.

"Thus the CO levels in the Arboretum and on the rooftop are very likely influenced by pollution from sources outside Madison," she said.

Prof. Bryson said: "We know we're getting particulates in Madison from Chicago industry, and now we think we can detect CO from Chicago when the winds are from the southeast. This suggests that we ought to find out whether Madison may also be getting sulfur dioxides from there."

Mrs. Hastenrath added: "However, the main source of Madison's CO pollution, 99 per cent of it, is still the automobile. Low route speeds, heavy idling, and large traffic volume account for the high CO levels on State, Johnson, and other busy streets."

###



news  
release

For release Wednesday, Jan. 13, 1971

1/12/71 mel

WASHINGTON, D.C.--Air pollution costs consumers \$13 to \$30 billion annually in economic damages in the United States, the director of the University of Wisconsin's Institute for Environmental Studies said Wednesday.

"Direct costs of air pollution are hard to estimate, but they are certainly more than what we spend each year for education in the entire U.S.," Prof. Reid A. Bryson said at an ecology seminar sponsored by Volt Information Services.

"Ironically, these direct costs of air pollution are called part of the gross national product. The GNP includes industries that make money from pollution-- such as detergent manufacturers, car washes, commercial laundries, and even hospitals."

If half the air pollution in major cities was reduced, Americans would save an estimated \$2 billion each year in direct health care costs. Episodes such as the 1952 London smog cost \$80 to \$120 million in lives lost, if an arbitrary value of only \$20,000 is placed on a human life. Similarly, if only one-fifth of emphysema deaths are caused by air pollution, the resulting costs are \$200 million a year.

In the New York-New Jersey metropolitan area, Prof. Bryson said, air pollution increases household maintenance costs by \$2.7 billion yearly, Agricultural losses caused directly by air pollution amount to \$500 million annually, including \$132 million losses in California alone.

Add one--air pollution costs

"The indirect effects of air pollution are probably even greater than direct economic costs, and may be more crucial in the long run by changing the climate," Bryson, an atmospheric scientist, said.

Cities--because of man-made structures, heating, and industrialization--are two-three degrees (F) warmer than the surrounding countryside, are up to a thousand times dustier, and have 30 per cent less sunlight, 50 to 90 per cent less ultraviolet light, and eight to 10 per cent more precipitation.

"These changes, together with a witches' brew of sulfur dioxides, nitrogen oxides, hydrocarbons, olefins, and carbon monoxides, create a distinctive local climate particularly disadvantageous to health," Bryson pointed out.

Air pollution also has a global climatic effect. Particulates in the atmosphere make the earth a brighter, more reflective planet and cause more of the sun's energy to be absorbed above the surface of the earth, rather than at the surface.

Only a seven per cent increase in turbidity in the atmosphere makes the earth one percent more reflective, and thereby one degree (C) colder.

The earth is now getting colder, and Bryson believes this may be because half of the particulates in the atmosphere are being added by man's activities.

A colder climate, caused by air pollution, can have great economic impact. Bryson estimates that a winter averaging two degrees (F) colder means that 40 million families in the U.S. must buy 200 million gallons extra fuel for heating.

Little is known of other economic effects of a changing climate on agriculture, transportation, clothing, and so on, he said.

"We don't even know how sensitive food production is to shifting patterns of precipitation and temperature."

With the economic stakes so high, and because the effects of air pollution are global in scope, Bryson concluded, national air pollution standards are not sufficient to correct the problem.

# uw news

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

Release: FRIDAY, NOV. 6, NOON

11/5/70

UIR Science Writing Division (262-5984)

By LINDA WEIMER

MADISON--(Advance for release at noon, Friday, Nov. 6)--The United States is the most densely populated country on earth, a University of Wisconsin professor said Friday.

(Reid A. Bryson), addressing the president's luncheon at the annual Community Newspaper Conference on the UW Madison campus, noted that population is too often mistaken to mean only the number of people living in a given area.

"While the United States has only about 60 people per square mile, each one of those people has roughly 150 'energy slaves' working for him -- cars, washing machines, electric lights -- all of which require food, in the form of fuel, and all of which have metabolic wastes," he said.

"In essence, our country is supporting an equivalent population closer to 9,000 per square mile -- or nearly half the world's total for the U.S. as a whole."

With such a load, it is no surprise that we are facing an environmental crisis. "There are sewers for human waste," Bryson remarked, "but where are the sewers for our machine wastes?"

Bryson said that while the number of people is doubling about every 50 years, the number of energy slaves is doubling every 10 years. Thus, he estimated that resulting problems of fuel supply and waste disposal are going up by 100-fold every half century or so.

Bryson, director of Wisconsin's new Institute for Environmental Studies, divided his talk to the group into two general areas -- the nature of environmental problems, and what the University is doing to help solve them.

Add one--Bryson

Bryson feels a major environmental problem is the compounding effects of pollution and overpopulation.

"In the next 20-30 years," he told the newspapermen, "Wisconsin's human population will double, which means the circulations of your newspapers will probably double. But the number of your advertisers will probably also double. Thus, we will probably have twice as many readers reading papers twice as large."

"With twice as many readers reading twice the current size newspaper, publishers will need four times the amount of paper. So, we will have to cut down four times as many trees and dispose of four times as much paper waste. In short, we will be taxing the environment four times as heavily even though there are only twice the number of people."

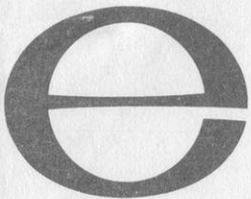
Bryson pointed out that this geometric progression is at the core of many environmental problems. "It wouldn't be quite so bad if having twice the number of people meant twice the amount of pollution, but this is never the case."

In discussing what Wisconsin is doing to alleviate environmental problems, Bryson said that for years, University scientists have been looking at bits and pieces of these problems, and as a matter of fact, doing very well on these pieces.

Unfortunately, universities are historically set up by disciplines, he noted. However, if we consider the major problems of society, including those of the environment, none lie within a single discipline.

As a result, the newly founded Institute for Environmental Studies is concerned now with tying together research skills around the campus and coordinating interdisciplinary attacks on environmental problems in such areas as pollution, population growth and distribution, and ecological disturbance.

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The University of Wisconsin Institute for Environmental Studies 1225 West Dayton Street Madison 53706 Telephone: (608) 262-2860

**news  
release**

For release Wednesday, Jan. 13, 1971

1/12/71 mel

MADISON--Prof. Reid A. Bryson, director of the University of Wisconsin's Institute for Environmental Studies, was elected a fellow of the American Meteorological Society at its annual meeting in San Francisco Wednesday.

Those elected as fellows have made outstanding contributions to the science or application of meteorology, climatology, or other area of atmospheric science during a substantial period of years.

Wisconsin Profs. Heinz Lettau and Verner E. Suomi are also fellows of the organization.

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# UW news

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

Release: Tuesday noon, May 19th

5/18/70 ms1

Institute for Environmental Studies  
1225 West Dayton St., Madison, Wis.  
(608) 262-2860  
Contact: Marlette Larsen

WASHINGTON, D.C.--(Advance for release at noon, May 19)--Universities have a major responsibility to mobilize their resources to aid in solving environmental problems, a leading environmental scientist testified Tuesday before a congressional committee.

Comprehensive, interdisciplinary programs of education and research are needed to deal effectively with the intricate features of the environment and their social, economic and political consequences, stated Reid A. Bryson, director of the University of Wisconsin's Institute for Environmental Studies.

He testified before the Subcommittee on Education of the U.S. Senate in a hearing on Senate bill 3151, the Environmental Quality Education Act.

"It is apparent that man has begun to tear apart the fine fabric of the very resources upon which he is so totally dependent. Yet the environment is rapidly deteriorating at a time when ever increasing numbers of people depend upon it and are seeking greater uses of it," Dr. Bryson said.

The University has a clear responsibility for the survival and improvement of life for civilized man.

"Our entire educational system," he pointed out, "has a responsibility not only to preserve and transmit the knowledge, wisdom and values of the past, but also to discover and develop that which will ensure the survival of the present and future generations with improvement in the quality of life.

Add one--Environmental education

"We can no longer afford the luxury of assuming that the future will take care of itself," Bryson warned.

"We need a better understanding of the physical and biological effects of the natural and man-made environment upon man.

"We must gain a clearer understanding of the relationships of all living things to their physical and biological surroundings.

"We must learn how to keep the earth's environment in a condition capable of maintaining life throughout the decades and centuries of the future."

Bryson pointed to the general lack of understanding of the nature of the man-environment system by both the public and academicians.

"There is widespread public concern over environmental quality today, which will continue and increase, but there is considerable dissonance because of the complexity of the problem and the lack of knowledge," he said.

The lack of rational solutions for environmental problems has created a sense of frustration in individuals, Bryson emphasized. Environmental education that elucidates problems or makes people more aware of them will only increase this frustration unless the educational process also deals with means and methods for solution.

Further, Bryson observed, much of the material on environmental problems has been rhetorical. Environmental education must deal with the need to quantify the factors influencing the environment and their interrelationships by constructing models of ecosystems.

"A prime purpose of education is to help the citizen discover who he is and how he relates to the rest of the world," he said.

Yet lack of integration of traditional university discipline-oriented courses and research is probably the most important reason for the general lack of understanding of man as an integral element of a complex system, he pointed out.

## Add two--environmental education

"Integrative environmental curricula can do much to alleviate the general failure of traditional curricula to achieve this goal."

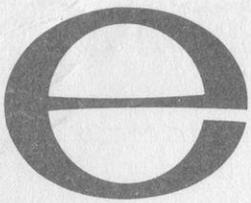
Thus, new curricula aimed at environmental understanding and ecological awareness should not be composed of "shopping lists" of traditional courses and subjects.

As an example of the new, integrative approach to environmental education, Dr. Bryson explained the goals and functions of the University of Wisconsin's Institute for Environmental Studies. Integrating focus of the Institute is the man-environment system: the relationships between man, individually and collectively, and his natural and man-made environment.

The University of Wisconsin has a long-standing reputation in the environmental studies area, Bryson said, and establishment of the Institute now makes it possible to integrate its environmental research and education effort into a broad understanding of the man-environment system, in all its biological, physical, social and cultural aspects.

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Ed. note: Copies of Dr. Bryson's statement are available from the Institute office.



The University of Wisconsin Institute for Environmental Studies 1225 West Dayton Street Madison 53706 Telephone: (608) 262-2860

news  
release

Immediately

10/23/70 mel

MADISON, Wis. -- Prof. Reid A. Bryson, director of the University of Wisconsin's Institute for Environmental Studies, has been named to the Environmental Studies Board of the National Academy of Sciences and National Academy of Engineering.

The national board will serve the two academies, the government, and the nation in coordinating and advising on programs relating to protection of the environment.

An important function of the Environmental Studies Board will be to promote understanding and cooperation among scientists, engineers, lawyers, statesmen, and laymen concerned with the complex problems of man's environment. The board will provide a means of contact between local agencies and centralized centers of scientific activities, such as the two academies. It will also serve the legislative and executive branches of government on environmental matters.

Dr. Bryson, professor of meteorology and geography, is widely known for his research on world climatology, particularly climatic changes brought about by man's activities.

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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**

2/24/70 bi

For further information contact:  
Bruce Ingersoll, UIR Science Writing Division (262-5984)

MADISON, Wis. -- Prof. Reid A. Bryson has been named director of the University of Wisconsin's growing Institute for Environmental Studies, Chancellor Edwin Young announced Tuesday.

Bryson, founder of the UW meteorology department, replaces Prof. Gerard Rohlich who resigned Feb. 1. Rohlich, director of the Water Resources Center, has taken a leave of absence this semester to be a visiting professor at the University of Helsinki, Finland.

Prof. John E. Ross, chairman of the agricultural journalism department, will continue as associate director of the interdisciplinary institute, which was established two years ago.

On the recommendation of the chancellor's Advisory Committee on Environmental Studies, the institute has been moved out of the Graduate School and attached directly to Chancellor Young's office.

The organizational change enables the institute's new director to encourage additional undergraduate and graduate courses in environmental studies.

"It is quite possible that the institute in the near future would seek authority so that the undergraduate courses could lead to degree-granting programs in the environmental sciences," Prof. Joe B. Wilson, chairman of the environmental studies committee, noted.

Add one--Bryson

Bryson and Ross will also be responsible for fund-raising and coordinating interdepartmental research on environmental problems.

They met today with National Science Foundation officials in Washington to learn how the University can better qualify for research grants.

"The Institute for Environmental Studies is Wisconsin's answer to the call for a Survival U," said Bryson. "I hope to make it the best of its kind in the country."

He envisions in the near future 5,000 undergraduates taking broad-based courses in the environment taught by faculty members in existing colleges and schools.

"We have one of the best staffs of ecologists in the U.S. here at Wisconsin. I want to see it put to effective use," Bryson said.

Bryson came to the Madison campus as an assistant professor of geology and meteorology in 1946. After receiving his Ph.D. in meteorology from the University of Chicago, he established the UW meteorology department in 1948 and organized the Center for Climatic Research in 1962. Associate Prof. John E. Kutzbach has just taken over for Bryson as director of the center.

Ross obtained his UW Ph.D. in mass communications in 1954 and has been a member of the agricultural journalism department since 1950.

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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**

1/29/70

UIR Science Writing Division (262-5984)

By BRUCE INGERSOLL

MADISON, Wis.--"The loss of human life in Vietnam will be nothing in comparison to what is going to happen within a decade or so," says University of Wisconsin scientist Reid A. Bryson.

He foresees mass famine in both hemispheres unless world population is checked. Already the total number of American deaths in Vietnam is being surpassed every four days by starvation's global toll.

"Starvation is no more pleasant a death than being shot," Bryson says. "The next major war may well be a war for survival, a war for food and resources."

Bryson thinks such a war will most likely break out in Asia where the population pressure on the land is greater than anywhere else on the globe.

"If China and India can't feed their people, they may look towards the lush land of Southeast Asia," Bryson fears.

This eventuality is often considered in India, as Bryson has discovered on 10 trips over there.

The United States will probably be drawn into these wars for survival as long as it remains so diplomatically committed on the far side of the Pacific, he believes.

Americans make up six per cent of the world's population, and although we export surplus food, we still consume more than 50 per cent of the world's resources.

Add one--Bryson

"Do we have a moral right to such a huge share?" Bryson asks. "Would we ever be willing to make do with less--with our fair share, which would be about one-tenth as much as we use now?"

Were we to eliminate poverty in this country and still maintain our current standard of living, we would require an even greater share of global resources. "Have-not nations aren't going to stand for it," he maintains.

"The U.S. is the biggest slave-holding nation in history," Bryson says. "Every American holds slaves--energy slaves."

Coal, oil, natural gas, and atomic power are what feed our energy slaves. Every American has the equivalent of nearly 500 energy slaves at his disposal. An automobile represents a chain-gang of slaves. A power plant houses a slave retinue beyond the dreams of emperors.

There are problems associated with energy slave-holding, Bryson notes. Slave gangs do more than propel cars and generate electricity.

"They are inhaling air to burn fuel and exhaling air fouled by wastes and depleted in oxygen," he explains. "These slaves--our cars and trucks, our fossil-fueled power plants and industries--are polluting the air we breathe with their metabolic byproducts.

"We provide sewers for our own wastes, yet fail to provide any for the wastes of our slaves."

As our population grows and our standard of living climbs, we will be hard-pressed to keep this air pollution problem from worsening, he believes.

Bryson is a climatologist who has devoted his career to studying climatic trends over the ages, and yet he feels there is no point nowadays in fretting about the onset of an ice age.

Add two--Bryson

"It takes 2,000 to 3,000 years for glaciers to get going," he says. "The future of man depends on the next 20 to 50 years. If we make it past the year 2020, then we can worry about ice ages."

Now Americans, Indians, and every other people must face the ultimate environmental question--survival. Bryson asks:

"Will we curb our biological instinct to reproduce?"

"Will we bring under control the metabolic wastes and polluted exhalations of our energy slaves?"

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# UW news

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

Release: Advance for PMS Friday, Dec. 27

UIR Science Writing Division (262-5984)

By JAMES A LARSEN

DALLAS, Tex.--(Advance for PMS Friday, Dec. 27)--The climate of the world has shown a cooling trend since 1940, the result of increased smoke and dust pollution, and major climatic changes will result if pollution is not checked.

This warning was issued today (Dec. 27) by a leading climatologist to scientists attending the annual meeting of the American Association for the Advancement of Science.

Reid A. Bryson of the University of Wisconsin pointed out that the industrial revolution is still under way, and every year more smoke, carbon dioxide, dust and other pollutants are dumped into the already over-burdened atmosphere.

"The trend of world temperature in this century appears to be directly related to the trends of atmospheric carbon dioxide content and atmospheric turbidity or dustiness," he said.

Increased carbon dioxide tends to raise atmospheric temperatures and turbidity tends to lower temperatures, he pointed out.

"Since 1940 the effect of the rapid rise of atmospheric turbidity appears to have exceeded the effect of rising carbon dioxide, resulting in a rapid downward trend of temperature," Bryson continued.

Both cities and rural areas create dust and smoke in the atmosphere. There are millions of square miles of rural land with at least a seasonal smoke or dust problem. Winds carry the polluted air to all regions of the world.

Add one--Bryson AAAS

Brazil, Southeast Asia and Central Africa have a blue haze, probably smoke from agricultural burning, and Africa, Arabia, India, Pakistan and China have a brown haze of blowing dust from dry soil and deserts.

In many areas, Bryson said, the high pollution level is so constant that it no longer attracts attention, either from residents of the area or from local meteorologists.

That the dust is largely man-made is shown by the fact that 14 parts per billion of the dust falling on the Caribbean island of Barbados is DDT, indicating that the dust has blown from tilled fields.

Industrialization, however, has resulted in the most striking pollution increase. Soviet cities, for example, have increased the smoke content of the air over the Caucasus 19-fold since 1930. In recent years, turbidity of the air over Washington, D. C., has gone up 57 per cent. Over Switzerland it has increased 88 per cent. There was a 30 per cent increase in turbidity over the Pacific between 1957 and 1967. Smoky days in Chicago rose from 20 per year before 1930 to 320 per year in 1948; recent decreases are due to increasing frequencies of north winds which blow the smoke over areas other than Chicago.

Bryson described studies that he, along with Wayne Wendland, Dr. James T. Peterson and other Wisconsin scientists, conducted over the deserts of northern India. They found, for example, that 600-800 micrograms of dust per square meter of air exist to altitudes of 9,000 feet in this region. This upsets atmospheric energy balances sufficiently to produce a continual drying effect. The area is now desert but once was lush grazing land.

The desert here is man-made, due to the over-grazing of domestic animals since pre-historic time. To reverse the process and change the desert back to grassland is perfectly possible, the scientists say, but is difficult because the desert peoples would have to change ways of living.

Add two--Bryson AAAS

Increased carbon dioxide content of the atmosphere is the consequence of expanded cultivation, clearing of forests, and draining of bogs, according to many scientists. Exposure of soil humus has increased rates of oxidation of organic material which produces carbon dioxide in large amounts.

Ultimate effects on world climate of increases in dust, smoke, and carbon dioxide is unpredictable, Bryson continued, but it is inconceivable that the change would be beneficial.

"Increased turbidity should reduce the meridional radiation gradient and thus weaken the westerlies," he explained. "This can have profound climatic effects. Such a weakening has been characteristic of the climatic change in the present decade."

Jet contrails, he added, constitute another problem since contrails trigger formation of cirrus clouds. Today, where jet aircraft are operating, cirrus clouds have increased five to ten per cent.

Bryson demonstrated that as soon as there are 300 supersonic transports normally in the air at one time, the cirrus cloud cover over the region of operation of most SST's might easily be 100 per cent.

Bryson concluded that such a continuous cloud cover would have marked climatic effects, but this would not be the only disadvantage.

"We would like our grandchildren to experience blue skies more often than on rare occasions," he said.

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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**

10/23/69

UIR Science Writing Division (262-5984)

Contact James A. Larsen

MADISON, Wis.--The single most important fact of life for this generation--and for those to come in the foreseeable future--is the population explosion, Prof.

[Reid A. Bryson,] University of Wisconsin climatologist, has warned.

Bryson spoke at an American Meteorological Society Symposium held this week at the University of Wisconsin in celebration of the dedication of the University's new Meteorology and Space Science building.

He said world population levels by the turn of the century will have reached saturation--the point at which the population will go up and down in accord with the success or failure of the world's crops. Poor crop years will be followed by mass starvation.

"Understanding of climate will, under these conditions, be of even more importance than it is today," he said, referring to the fact that thousands of lives and millions of dollars can be saved through a single accurate storm forecast.

He said atmospheric scientists must accept their social responsibility for undertaking studies of climate related to the crucial needs of mankind apparent in the foreseeable future. Climatic knowledge related to improved agriculture and all areas of human health and welfare will become matters of life or death for millions of people throughout the world.

Add one--climatology

The symposium attracted nearly 200 scientists from throughout the country. At the banquet, Bryson outlined the history of the department of meteorology at Wisconsin from its beginnings in 1948 when he was chairman and Verner Suomi was the only other professor. Suomi subsequently developed the meteorological satellites for gathering climatic information, and Bryson has become a world authority on climatology and climatic change.

Kenneth Hare, climatologist from the University of Toronto and former president of the University of British Columbia, also advocated expansion of the scope of the science of climatology to take in the interactions of the atmosphere with the entire biota of the world.

Interactions between life and atmosphere are so complexly interwoven that it is impossible to consider the one without the other, Hare said. The effect of life on the atmosphere--particularly the effect of man's activities--may critically affect the climate of the future.

He ridiculed the prevailing popular attitude, labeling it a political posture, that it will ever be possible to "restore the original quality of our environment." He said it is manifestly impossible to restore lands, forests, and atmosphere to the condition they were in before man spread across the face of the earth.

"Our only hope is that we can keep the environment from deteriorating to a condition intolerable for life," Hare said. "We can anticipate for the foreseeable future a long term and enduring lack of equilibrium that we will have to find means of dealing with."

He said knowledge was now sufficient to indicate that climates can change quickly from one state to another--for example, from the kind of climate we now have to one more characteristic of the glacial ages. What triggers these changes, however, is not yet known.

Add two--climatology

There may be unsuspected triggering mechanisms that can be tripped by air pollution or any number of other consequences of increasing industrialization and expanding human populations, he stated, adding:

"There may exist potentially explosive and self-amplifying changes that can be brought about by the condition of the biosphere. Climatologists must now begin to take this possibility into account and expand their studies to include such things.

"Meteorologists must not do only the things that come easy to a physical scientist--they must become truly environmental scientists."

A warning pertinent to the possibility of climatic change was voiced by Lauriston Marshall of the department of physics at Southern Illinois University. He said some studies have indicated that DDT affects not only animals but photosynthesis in plants as well. Since it is photosynthesis in the plant life of the world's lands and oceans that maintains the oxygen balance of the atmosphere, there is a chance that DDT is endangering not only the physiological health of animals but also the oxygen supply of the world.

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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**

12/13/68

By LYNN BEHNKE

MADISON--Like scattered pockets of cold air joining for the first week of winter weather, the University of Wisconsin's department of meteorology is abandoning a half dozen locations about campus to unite in one new building.

More than 100 professors, research assistants, technicians, and administrative staff members from the department are moving into the new Meteorology and Space Science Building at 1225 W. Dayton.

Mrs. Marie Riggs, department secretary for 13 years, has been preparing for the transition since August. Sorting departmental files first opened 20 years ago is not an afternoon's diversion.

Frank Sechrist, assistant professor of meteorology and a member of the team headed by Prof. Eberhard Wahl in coordinating the move, may not worry about losing a favorite pipe in the shuffle between buildings, but the students in Atmospheric Science II will continue to expect him in class, on time, and with any lecture notes he may have planned to use.

The problems Mrs. Riggs and Prof. Sechrist encounter while moving from the labyrinthine fourth floor of Science Hall are representative as the department of meteorology, chaired by Prof. Lyle H. Horn, completes the move into the Meteorology and Space Science Building.

Add one--space building

The building stands at the corner of West Dayton and Orchard Streets. Rising 15 stories, gingerly spread at the top like a towering cumulus, the \$4.5 million structure will be shared by the department of meteorology and the Space Science and Engineering Center, an offspring of the former. SSEC will occupy the 1st seven floors, including the basement, of the building's office space and research facilities.

This allocation of its space reflects in part the funding of the building. The State provided approximately \$1.6 million toward construction of the building. The remainder was contributed by the National Aeronautics and Space Administration and the National Science Foundation, who contributed about \$1.7 million and \$1.2 million, respectively.

Classes have been running smoothly within the department despite the activity of moving. Though the new research complex will not house classroom facilities -- classes will be continued on other parts of the campus -- meteorology students are enthusiastic about the move.

"Students see only conveniences in the move," Sechrist said, burdening his cluttered office in Science Hall with an armful of dusty boxes from some other cluttered office . "Graduate students will benefit from the expanded office space and research facilities. Undergraduates will have room to expand and complete model weather stations."

[Prof. Reid A. Bryson] anticipates the conveniences of expanded facilities as much as his students do. To him the fact that the members of the meteorology department will share one common location is even more promising, however. "A staff working close together comprises a kind of critical mass," Bryson explained. "One professor stimulates the thinking of his colleagues and the entire department shares the reaction."

Prof. Bryson can be found on the 13th floor of the new building. He is as well qualified as anyone to discuss the dynamics of Wisconsin's department of meteorology. Twenty years ago Bryson was Wisconsin's department of meteorology.

Add two--space building

Reid Bryson first came to the Madison campus in 1946 as an assistant professor of geology and meteorology. He received his Ph.D. in meteorology from the University of Chicago in 1948. In the same year, Wisconsin's department of meteorology was established under his leadership.

That July, Bryson doubled the department's staff by recruiting a colleague from Chicago's meteorology department, offering to drive the recruit and his family to Madison in his own car. On the way from Chicago, Bryson gambled the credentials of Wisconsin's shiny-new department by assuring his passengers the rainstorm they had entered would break at the Wisconsin state line.

It did. The Verner Suomi family settled in Madison and Prof. Suomi has remained with the University's meteorology department. Currently he is director of the Space Science and Engineering Center.

The meteorology department slowly continued to attract teachers and students -- slowly until the late fifties.

"From about 1957 to 1965 the department just about doubled every year," Bryson recalled. "Today a third of the nation's Ph.D.'s and M.A.'s in meteorology graduate from the University of Wisconsin. One quarter of the country's bachelor degrees in meteorology are earned here."

Meanwhile, the three rooms available to the department in 1948 had been succeeded by six buildings.

But students and professors both have learned that growth figures fail as a reliable measure of a department's vitality. A truer scale might examine achievements attending diverse interests.

"The department is not here to train weathermen," Bryson began. "We are concerned with understanding our environment. In the meteorology department that concern has led to registering the earth's heat loss with orbiting observation systems and extended to an examination of the oceans' deepest currents.

Add three--space building

"It has prompted a revitalized research program in long-range weather forecasting and urged the development of methods enabling us to reconstruct climatic conditions contemporary with field data centuries old."

Bryson is not concerned with displaying the department's laurels. He reverts to the notion of "critical mass" and continues:

"Specialization could have endangered the department, especially being physically fragmented as it has been the last few years. Having the department in one building again reduces that danger, and that is important. The interaction between our members which hastened our growth a decade ago can be expected to recur."

Interaction between the department of meteorology and other departments will continue as well. The Space Science and Engineering Center evolved as a focus for University-wide effort in space science and technology. The department of meteorology has participated in multi-disciplinary projects since its inception.

"Much of the department's strength can be attributed to its history of active collaboration with departments ranging from the department of anthropology to the department of zoology," Bryson attests.

Bryson is also conscious of the administration's role in developing the department of meteorology. "Wisconsin is a place where ideas are given a hearing; it is a wide open community of scholars. The administration has backed us in diverse projects since the department first began 20 years ago."

Today Wisconsin offers its students one of the best meteorology departments in the nation. "Teaching is still our most important job," Prof. Bryson stated. "The department's reputation will stand independently of its research.

"Nearly one-quarter of the University's undergrads take meteorology courses sometime during their <sup>four</sup> years here. We are trying to give them the best liberal arts undergraduate teaching we can, and if you are interested in a strong university, you see the primary dividend of growth in its attraction of money and staff to teach more students better."

# UW news

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

Release: 3 p.m. Wednesday, June 19

6/14/68 bw

UIR Science Writing Division (262-5984)

By BILL WITT

MADISON, Wis.--University of Wisconsin meteorologists are taking the temperature of Hudson Bay via airplane in new studies of this huge inland sea in northern Canada.

Wayne M. Wendland, a doctoral candidate, told an ecology symposium on remote sensing techniques at the Wisconsin Center Wednesday afternoon that he and Prof. Reid A. Bryson flew 4,000 miles over the 472,000-square-mile bay to gather data on its surface temperature patterns.

Using infra-red sensing thermometers mounted in planes, they measured surface heat radiation from a circle of about 40 feet in diameter when viewed from a distance of 1,000 feet, Wendland said. The planes flew predetermined courses and measured radiation temperatures continuously when the water was visible.

This was the first time that surface temperature patterns had been determined on Hudson Bay from the air rather than by the much slower method of lowering buckets or sensors from boats, Wendland said.

The symposium Wendland addressed was part of the American Institute of Biological Sciences conference on environmental biology being held this week on the University of Wisconsin campus.

The meteorologists were generally able to reinforce previous indications that the melt water from the thawing pack-ice remains a distinct body significantly colder than surrounding waters almost until the fall freeze-up.

Add one--Wendland-Bryson

The summer season is brief. Break-up begins in June and the bay is usually ice-free by the end of August, he said. Freeze-up begins in October and the bay is nearly covered by ice by late December.

These large-scale surface temperature "structures" greatly influence the overhead air and along the surrounding shores, Wendland explained. During winter, for example, the ice cover creates a surface much like the Arctic tundra. During summer, the temperatures of air masses passing over open water may be markedly changed.

Since Hudson Bay is the birthplace of air masses for eastern Canada and modifies all air passing over it, changes in surface water temperature are extremely important to the climatologist and ecologist. Until recently, surface temperature information consisted only of a few isolated measurements taken from boats. New techniques such as remote sensing are providing vital information at accelerated rates.

These surface temperature patterns provide information from areas where no weather stations exist. This information can then be used to better determine this large area's climate and provide inputs for computerized weather forecasting.

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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**

12/12/68

UIR Science Writing Division (262-5984)

By BRUCE INGERSOLL

MADISON, Wis.--Rummaging in an Indian dump heap has helped two University of Wisconsin scientists determine the climate of the Great Plains long before Columbus stumbled onto the New World.

In learning about prehistoric weather trends, climatologist Reid Bryson and anthropologist David Baerreis found an explanation for the disappearance of an entire Indian nation from the Iowa prairie about 1400 A.D.

Artifacts and pollen samples unearthed from the dump heap indicate that a prolonged drought transformed the face of central North America and doomed the Indians known as the Mill Creek People.

A dry episode lasted roughly from 1160 to 1430 and coincided with years of unusually rainy weather in the British Isles and Western Europe, according to Baerreis and Bryson.

They began their unique research after noting that European climatologists established through 12th and 13th century literature and history that prevailing westerly winds off the Atlantic became much stronger after 1160, turning croplands into quagmires in the English Midlands and driving moist air deep into the Continent.

Since westerlies are a global weather pattern, the scientists reasoned that they also blew harder off the Pacific and penetrated much deeper into North America at the same time. In crossing the mountainous West, the westerlies lost their moisture.

- more -

Add one--dump heap

Being stronger, the westerlies pushed a wedge of dry Pacific air to the eastern edge of the Great Plains, Bryson and Baerreis figured. Drought followed, as did hard times for the Mill Creek Indians who grew corn and stalked deer in the wooded valleys of western Iowa.

Analysis of pollen grains deposited in the soil over the centuries showed a drastic change in vegetation after 1160 -- evidence that stronger westerlies did indeed cause, and prolong, widespread drought.

The oak and hickory trees withered and died and were replaced by willows and cottonwoods along the watercourses, while the tall prairie grasses gave way to shorter, more drought-resistant species.

The bones rummaged from the dump heap indicated that the deer disappeared with their forest habitat, forcing the Indians to rely on buffalo for hides and meat.

Bryson and Baerreis reached this conclusion because the number of deer bones thinned in the middle of the heap and were covered by deposits containing buffalo bones.

As a result, the Mill Creek People had to modify their sedentary way of life, for even the buffalo were scarce. They eventually had to rely on their vegetable patches, parched as they were.

Still, the drought was relentless, and famine inevitable. Hunger in time drove the Indians from their settlements. They finally disappeared from the prairie, according to the Wisconsin scientists.

Just as the Okies fled the Dust Bowl and were assimilated by California during the Depression, the uprooted Mill Creek Indians might have been absorbed by more fortunate tribes -- shortly before the drought broke around 1430.

Their identity was lost and their culture was reduced to a dump heap on the bank of Mill Creek, the Iowa stream for which they were named.

# UW news

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

Release: **Immediately**

2/17/67 mes

UIR Science Writing Division (262-5984)

By MARLETTE SWENSON

MADISON, Wis.--Man is responsible for changing the weather over many parts of the world--largely through building cities--a University of Wisconsin meteorologist believes.

"Ever since the first primitive man threw a skin over his shoulder and discovered that it made him warm, he has been practicing climatic modification,"

Prof. Reid A. Bryson says. "Without conscious effort, man has actually modified the climate of large areas."

Bryson, director of the Wisconsin Center for Climatic Research, points this out in the February issue of the UIR Research Newsletter, a quarterly publication of the University-Industry Research Program. Internationally known for his studies on climatic modification, Prof. Bryson has recently been studying the atmosphere over the Rajasthan Desert of India where, according to calculations, the climate should be much wetter than it is. Vast quantities of dust in the atmosphere seem to hold the clue to why this area is now desert instead of grazing lands.

In the Newsletter article, Bryson points out that man is increasing the dustiness over the United States by human activity, urbanization, industrialization, mechanization and population growth. By building cities, man has created an urban climate which is distinctly different than the climate in rural areas.

Add one--Changing weather

"For example," Prof. Bryson writes, "when man builds a city he may water-proof as much as half of the area; consequently, the city is drier and the surface underfoot is drier than the open countryside. In addition to traffic stirring up dust in the city, there are chimneys putting out thousands of tons of smoke per day."

Cities also have more fog and rain. Chicago, for instance, has about 8-10 per cent more rain than the surrounding countryside.

"And, believe it or not," Prof. Bryson points out, "cities have less rain on Sundays than on other days of the week. The small reduction in the frequency of rain on Sundays and holidays indicates that the smoke produced by industry, providing condensation nuclei for rain, is one of the culprits involved."

Temperatures also differ in cities. "Concrete and pavement of the city soak up heat during the day and release it at night, so days may have temperatures lower than the countryside and nights may be higher. The frost-free season in Chicago, for example, is 197 days, while in the surrounding counties it is only 167 days."

Just how dusty are cities? The Wisconsin meteorologist says cities have 10 to 15 times as many particles in the air as country air. "In heavily industrialized, uncontrolled areas there may be 10,000 times as many dust particles in the air," he says.

"This dust load affects the quality of sunlight which falls on the city," he continues. "It provides condensation nuclei for the formation of fog. It contains sulphur dioxide, sulphuric acid, ozone, ozonated hydrocarbons and lead. It also contains 10 times as many microorganisms as the open countryside."

One of the ways in which dust changes the atmosphere is to make the earth a brighter planet. "When sunlight falls on a dusty globe, more sunlight is reflected. A dusty globe, reflecting more light, lets less sunlight reach the surface." Thus, cities have up to one-third less sunlight and 90 per cent less ultraviolet light than the countryside.

Add two--Changing weather

Atmospheric dustiness, in turn, may be responsible for the down-turn in the trend of world temperatures, Bryson believes.

"An increase of two per cent in the world's atmospheric dust load will reflect enough sunlight away from the earth so the temperature of the world will drop by one-fourth degree Centigrade," he explains. "Since 1950, the earth has cooled off as much as it warmed up in the previous 150 years. The amount it has cooled off is just about what would be expected from the increase of dustiness in the atmosphere."

Because of the gradual cooling of the earth, we are now getting back to weather conditions like those of the 1830's, when there were frequent references to midsummer snows and frosts.

"In other words, a small change in the world temperatures may be associated with big differences in local climate," Prof. Bryson says. "Interestingly enough, in the early 1800's the East coast was hot and dry in summer. In the last few years the East has been hot and dry in the summer and Wisconsin has had midsummer frosts."

The Wisconsin meteorologist concludes: "I think it probable that man has inadvertently modified the climate of the world!"

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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**

12/28/66 **jb**

MADISON, Wis.--To answer what it calls an "ever-increasing need," the University of Wisconsin plans to produce a major atlas of Wisconsin.

An undertaking of the Madison campus of the University, the project is being worked out by the Committee on the Atlas of Wisconsin. The committee was appointed by Chancellor R. W. Fleming, with approval of his administrative council.

A major objective of the program is to produce a high quality but inexpensive atlas suitable for classroom, home, and office use. It will include sections on history, climate, agriculture, population, water resources, transportation, mining, industry, and other subjects.

"The project is not conceived to produce a single book of maps," the committee stated. "Rather it is intended that ultimately several types of publications will result.

"The atlas will contain the wealth of geographical and topical data regularly needed by many people, the average citizen, the scholar, the lawmaker, the law enforcement officer, the state employe.

"A considerable amount of this data already exists, but in a variety of forms with varying reliability and on map bases of greatly different character."

Actual cartography will be done in the UW Cartographic Laboratory, with publication by the University of Wisconsin Press.

Add one--Atlas

The special committee is headed by Prof. Arthur H. Robinson, chairman of the geography department and director of the laboratory. The other members:

Prof. Frederic G. Cassidy, English; Clarence W. Olmstead, Randall D. Sale, and Robert W. Finley, geography, John A. Russell, hospital administration; James R. Love, soils, Thompson Webb and Reid A. Bryson, meteorology; H. C. Hutchins, curriculum and instruction; John A. Duffie, solar laboratory; Eldon C. Wagner, civil engineering;

Jacob H. Beuscher, law; William L. Blockstein, pharmacy; and Robert W. Heins, mining and metals.

# # #

# UW news

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

Release: **Immediately**

12/16/66 mcg

MADISON, Wis. [Prof. Reid Bryson] of the meteorology department at the University of Wisconsin, Madison, has been given a two-year grant of 275,990 rupees to continue his research in the Rajasthan desert of northwest India.

Amounting to approximately \$39,000, the grant comes from the Environmental Science Service Administration of the U.S. government.

In January Prof. Bryson and a group of colleagues in meteorology will spend three weeks in India laying the ground-work for the extended study. His colleagues are Profs. John E. Kutzbach and Charles R. Stearns, and graduate student Walter Dabberdt, Sheboygan.

Eventually the project will include a series of studies by his colleagues in anthropology, history, botany, geography, agriculture, and palynology, the study of fossil pollen.

Financial support for Prof. Bryson's project, which seeks to make the desert bloom, has already come from the National Science Foundation and the U.S. Navy Research Department.

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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

9/22/67 nke

UIR Science Writing Division (262-5984)

MADISON--Three University of Wisconsin meteorologists will discuss "Is Climate Changing?" Tuesday, September 26 at 8 p.m. on WHA-TV.

[Prof. Reid Bryson] of the UW meteorology department and Dr. Harvey Nichols, palynologist at the Center for Climatic Research, along with graduate student Val Mitchell will review techniques used to identify past climates and trends and will talk about what future changes are indicated.

Purpose of the program, sponsored and prepared by the UW Graduate Meteorology Club, is to give a better understanding of man's environment.

Future television programs scheduled by the club will deal with space science, weather modification and desert weather.

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# U.W. NEWS

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

Release: **Immediately**

5/27/66 tg

MADISON, Wis. — [Prof. Reid A. Bryson, ] founder of the meteorology department at the University of Wisconsin, will return to his undergraduate alma mater, Denison University in Granville, Ohio, June 11, to receive a citation "in recognition of outstanding achievement and service which reflect honor upon Denison University."

Dr. Bryson is an expert in world climatology and has just returned from a two-week trip to Eastern Asia where he led a scientific team to explore the atmosphere over the Ragasthan Desert in India.

This was the sixth time the globe-trotting scientist has traveled around the world. In his travels for science he has visited 40 countries and has crossed the Atlantic and Pacific oceans 10 times.

After graduating from Denison University in 1941, Prof. Bryson served in the Air Force where he spent almost three years in the islands of the Pacific Ocean studying tropical climatology.

He came to Wisconsin in 1946 as assistant professor of geology and meteorology and founded the meteorology department in 1948. Bryson received his Ph.D. in meteorology from the University of Chicago in 1948.

Dr. Bryson has published more than 80 articles which include studies of oceans, lakes, the atmosphere and seasons. His special fields of research are tropical climatology, dynamic climatology and physical limnology. From 1949-1956 he directed a study of the dynamics of Madison's Lake Mendota.

Add one--Bryson award

Prof. Bryson is currently a member of the National Academy of Science committee on Climatology, advisory to the U.S. Weather Bureau and the committee on Remote Sensing of Environment. He is a trustee of the University Corporation for Atmospheric Research.

Dr. Bryson is a member of the American Meteorological Society, the American Geophysical Union, the Society of Limnology and Oceanographers, the Wisconsin Phenological Society and the Society for American Archaeology.

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# U.W. NEWS

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

Telephone (Area Code 608) 262-3571

Release: Immediately

4/22/66 jal

By JAMES A. LARSEN

MADISON, Wis.--University of Wisconsin scientists have launched an airborne probe of the atmosphere over India and parts of eastern Asia in an effort to answer the riddle of the Rajasthan Desert.

The riddle is a meteorological one, and concerns the climatic characteristics of northern India where, according to calculations, the climate should be much wetter than it is.

Prof. Reid A. Bryson, UW meteorologist, is leading the scientific team which left Madison April 19 to explore the atmosphere over the Rajasthan with a specially instrumented Navy P3A Lockheed Orion patrol aircraft. Vast quantities of dust in the atmosphere holds the clue to why this area--some thousands of square miles--is now desert, Bryson pointed out.

The Rajasthan was not always desert. Archeological evidence indicates it was once rather heavily populated by people who practiced agriculture and kept domestic animals. Bryson noted in 1962 that dust is sometimes so thick in this area that it reduces visibility to as little as one or two miles.

This quantity of dust, Bryson believes, may account for discrepancies between known characteristics of the atmosphere and theoretical explanations derived by means of mathematical calculations. It appears that the dust originates from the surface of the desert, and through feedback mechanisms acts to maintain the desert.

-more-

Add one--Desert study

This leads to another fascinating aspect of the study. UW scientists David A. Baerreis, anthropologist, and Harvey Nichols, palynologist, are exploring the possibility that the ancient inhabitants of this region, the Harappan people, inadvertently may have created the desert.

As the Harappans expanded fields and pasture lands, they may have broken the protective cover of vegetation over a sufficiently wide area to permit winds to pick up enough dust to trigger the desert conditions. The Harappans disappeared from the area about 1500 B.C., to be replaced after a thousand years by a people with a simple culture who, in turn, were disappearing by 500 A.D.

Bryson and Baerreis emphasize that this is a tentative explanation, but one which is in accord with the known facts.

The aircraft used in the study, a Lockheed Orion designed for military use, is provided by the Navy's Air Development Squadron One, Key West, Fla. Dust measuring instruments have been mounted on the plane by the Naval Air Test Center, Patuxent River, Md. The UW scientists hope that data on the actual density of dust particles, in addition to information on the origin of the dust, will provide sufficient evidence to confirm their theory.

UW scientists who are along on the flight to operate the instruments and make additional meteorological observations include Wayne Wendland and James Peterson, graduate students in the department of meteorology, and Raymond Steventon, instrumentation specialist for the flight.

A similar flight scheduled to make the dust survey of the Rajasthan last year was cancelled because of the border conflict in Northern India.

Scientists studying the Indian climate have shown that, in theory, the curious conditions over the Rajasthan Desert are essential to maintain the present day monsoon circulation in the area. Changes in the desert conditions might bring rains to the Rajasthan, just as they occur over the rest of India during the monsoon season.

Add two--Desert study

It is conceivable, the UW scientists point out, that broad scale dust control by surface manipulation in the Rajasthan might once again allow the monsoons to sweep into the desert, re-establishing the area as an arable region.

Since the Rajasthan lies near the Punjab and the Indian state of Uttar Pradesh, an area containing an enormous population, expansion of the arable land would constitute tremendous relief to an area literally "bursting its seams," the UW scientists point out.

Navy crew members participating in the flight include:

Capt. Jack S. Laney, pilot; Cdr. James F. Rex, co-pilot; SLDR (RCAF) Ernest Wray, navigator; Lt. Eric A. McVadon, co-pilot; Lt. James Browning, flight engineer; ADR2 Russell D. Dennis, flight engineer; ADJ2 Jerry D. McGhee, flight engineer; AE2 Jasper Helton, electrician; AMS2 Dennis R. White, metalsmith; AT1 Calvin C. Thompson, technician; AX1 William G. Barnes, technician; and A02 Larry G. Willingham, technician.

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TAMNON-KY  
MIMPO BOND

# U.W. NEWS

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

Release:

2/2/66 wd

Immediately

By WILLIAM DYER

MADISON, Wis.--Freshwater clamshells may have a new and hitherto unsuspected scientific value.

The composition of freshwater clamshells may provide clues for describing past climates and predicting future climatic change, according to University of Wisconsin scientists working to find hints as to the cause of climatic variation.

Wisconsin researchers hope that studies now being conducted will reveal that climate has an effect upon concentrations of certain elements, particularly strontium, in the chemical composition of clamshells.

If it does, clamshells found in prehistoric Indian villages may help scientists determine what the climate was like during certain periods of the earth's past history. From this they hope to learn more about climatic change, its cause and effects.

Under the direction of Prof. G. Fred Lee, the clamshell project is part of a major program of climatic research headed by [Prof. Reid A. Bryson] of the meteorology department and David A. Baerreis of anthropology.

In prehistoric American cultures, Indians living near rivers used clams for food, discarding the shells in refuse areas.

At three archeological sites in Iowa, occupied by Indians from 1000-1300 A.D., the Wisconsin scientists unearthed 15 different layers of refuse, each six inches deep and each representing a period of 20 to 25 years.

-more-

Add one--Indians and climate

If substantial differences in shell composition from layer to layer are found, the scientists may be able to tell when the climate in that area was wetter or drier than average.

The Iowa clams grew in rivers, which usually change in composition with the swell and ebb of wet and dry years. If differences in clamshell composition from layer to layer in the archeological sites correspond to changes in composition of the water in which the clams lived, then shell composition would reflect climatic change.

To determine if water environment has such an effect, the scientists are comparing clams of the same species from four Wisconsin lakes--Booth, Nashota, Beaver, and Mendota.

Though only a few clams from each lake have been tested, preliminary evidence shows that clams from a lake with greater amounts of strontium in its water have correspondingly greater amounts of this element in their shells.

If the study shows that water composition has some effect on clams from Wisconsin lakes, the researchers caution that it will do no more than allow a "calculated guess" that the rivers in which prehistoric clams grew had a similar effect on them.

But using this data, in conjunction with other evidence will permit reasonably valid conclusions concerning past climates during this period. For example, data from the prehistoric clamshells will be interpreted in the light of other archeological evidence of climatic conditions from the Iowa sites.

The result of the project should also indicate the possibility of using shells of marine clams and other hardshelled marine life to study climatic conditions of the past.

By such studies of past climates, scientists expect eventually to draw general conclusions regarding climatic change, in the hope that future changes can be predicted with accuracy.

# U.W. NEWS

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

Release:

**Immediately**

1/28/66 mcg

MADISON, Wis.--The Center for Developing Nations on the Madison campus of the University of Wisconsin will sponsor a special seminar during the second semester for graduate students who have served in the Peace Corps or had similar experience overseas.

Listed as a special section of economics 925 and sociology 925, the two-credit seminar will deal with socio-economic problems of underdeveloped countries. Scheduled to lecture are faculty members with broad experience in these countries-- Prof. Peter Dorner, agricultural economics, Latin America; Prof. Everett Hawkins, economics, Southeast Asia; Prof. Reid Bryson, meteorology, western Pacific and India; Prof. J.H. Beuscher, law, Latin America; visiting Prof. Kai Loo Huang, economics, southeast Asia and China; Prof. Robert Miller, anthropology, India; and Prof. Joseph Elder, sociology, India.

Edward E. Werner, director of the Center, is coordinator of the seminar.

In addition to examining existing methods in overseas assistance work with University experts, students will hear specialists from government and private agencies that administer aid and assistance programs.

The class will meet on Tuesdays from 1:20 to 3:15 p.m. in room 201 Commerce.

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# U.W. NEWS

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

Release:

12/13/65 bas

Immediately

MADISON, Wis.--U.S. Senator Gaylord Nelson and four University of Wisconsin faculty members and administrators will be initiated as honorary members of Phi Kappa Phi, national honor society, Prof. Clay Schoenfeld, president of the organization, announced Monday.

The honorary members will be initiated at a special program Jan. 16 in the Wisconsin Union Theater on the Madison campus.

Neil Cafferty, vice-president for business and finance, and Profs. Louise Young, home management; Julius Weinberg, philosophy; and [Reid Bryson,] meteorology, were selected by the executive committee of the Wisconsin chapter of the national honor society for their contributions to the education field.

Nelson received his LL.B. degree from the University of Wisconsin in 1942. In his two terms as governor of the state and as a U.S. Senator, Nelson has worked closely with the University on the problems of education.

Prof. Young joined the University faculty in 1945 as an instructor in home economics extension and became a full professor in 1950. She had previously served as a home agent in Illinois and taught in Illinois secondary schools, in the Illinois Extension Service, and at the University of Missouri. She was presented the Superior Service Award from the U.S. Department of Agriculture in 1958.

-more-

Add one--Phi Kappa Phi

Cafferty received his B.S. from Wisconsin in electrical engineering in 1923. He joined the University administration as an accountant in 1926 after a brief period in consulting and industrial engineering.

In 1946 he was named University controller and in 1957 business manager for the University. In 1962 Cafferty was named vice-president for business affairs, and now serves as vice president for business and finance.

Active in business organizations in the education field for many years, Cafferty was named to the executive committee of the Central Association of College and University Business Officers in 1964.

Bryson, noted UW meteorologist and expert on the physics of lake temperatures, is director of the Center for Climatic Research in the department of meteorology. He came to the University in 1946 as assistant professor of geology and geography and was named full professor in the meteorology department in 1956.

During 1959 Bryson served as visiting lecturer in meteorology to small colleges under sponsorship of the American Meteorology Society. An active researcher, Dr. Bryson's published works center on tropical meteorology, physical limnology and dynamic climatology. He holds membership in many scientific and honorary societies.

A William F. Vilas Professorship, a lifetime appointment made to a handful of Wisconsin's top faculty was awarded to Julius Weinberg in 1963. A noted scholar in medieval, early modern and contemporary philosophy, he joined the University in 1947 as an assistant professor in the philosophy department.

The philosopher was appointed to the University's Institute for Research in the Humanities for 1961-62 and the following year became a permanent member of the Institute.

Before coming to the University, Weinberg taught at Cornell University and the University of Cincinnati. He was president of the American Philosophical Association, western division, in 1964-65.

# U.W. NEWS

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

Release:

12/31/65 bas

Immediately

MADISON, Wis.--U. S. Senator Gaylord Nelson will speak at a special initiation ceremony for new members of Phi Kappa Phi, national honor society, on Sunday, Jan. 16, at 3:00 p.m. in the Wisconsin Union Theater on the Madison campus of the University of Wisconsin.

Senator Nelson is also one of five persons who will be initiated as honorary members of the society during the program. Other honorary members include Neil Cafferty, University vice president for business and finance; and University professors Louise Young, home management department; Julius Weinberg, philosophy department; and [Reid Bryson], meteorology department.

During the ceremony, Dr. E. B. Fred, president emeritus of the University of Wisconsin will receive the Phi Kappa Phi first national distinguished service award for his outstanding contributions to the field of education. Dr. Fred served as 12th president of the University from 1945 until his retirement in 1958.

New student initiates will also be welcomed to the society during the ceremonies. Parents, friends and the public are invited to attend.

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# U.W. NEWS

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

Release:

1/12/66 bas

Immediately

MADISON, Wis.--More than 250 students and faculty members of the University of Wisconsin will be honored in a special ceremony of Phi Kappa Phi, national honor society, Sunday (Jan. 16) at 3 p.m. in the Wisconsin Union Theater.

UW President Emeritus E. B. Fred will be presented the society's first national distinguished service citation by Theodore Zillman, assistant to the University's vice president of business affairs and national vice president of Phi Kappa Phi. Dr. Fred was nominated for the award by the local chapter and selected by the national officers.

Four University faculty members will be presented honorary membership to the society during the program. They include Louise Young, home management, who will be introduced by Prof. Emma Jordre, Phi Kappa Phi recorder; Reid Bryson, meteorology, introduced by Prof. Paul Jones, Phi Kappa Phi secretary; Neil Cafferty, vice president for business and finance and trust officer, introduced by Assistant Dean Kenneth Shiels, Phi Kappa Phi president emeritus; and Julius Weinberg, philosophy, introduced by Prof. Clay Schoenfeld, Phi Kappa Phi president.

U.S. Senator Gaylord Nelson, who will deliver an address on conservation during the program, will also be presented an honorary membership to the society. He will be introduced by Prof. James McCamy, Phi Kappa Phi vice president.

For the first time this year a student member of the society will preside during the ceremony and introduce the student initiates. He is David Knox, a University senior and president of the Wisconsin Union.

Add one--Phi Kappa Phi

Some 250 juniors and seniors at the University will be initiated during the program. They were selected on the basis of outstanding scholastic and community service achievements.

Parents, friends, and the public are invited to attend the ceremony in the Union Theater.

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# U.W. NEWS

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

Telephone (Area Code 608) 262-3571  
1/11/66 rf

Release: Immediately

MADISON, Wis.--Two hundred and fifty students, four faculty-staff members, and a U.S. Senator will be initiated into membership in the University of Wisconsin Madison chapter of Phi Kappa Phi, national scholastic honor society, at the annual initiation ceremony at 3 p.m. Sunday, Jan. 16, in the Wisconsin Union Theater on the Madison campus.

President Emeritus Edwin B. Fred of the University will receive the first national merit citation of Phi Kappa Phi at the ceremony. Dr. Fred, who was nominated for the award by the Wisconsin chapter of the society and selected by the national officers, served as 12th president of the University from 1945 until his retirement in 1958.

Initiated into honorary membership of the society will be Wisconsin's Senator Gaylord Nelson and UW faculty-staff members Neil Cafferty, vice president for business and finance and trust officer; Prof. Julius Weinberg, philosophy and Humanities Research Institute; Prof. Louise Young, home economics; and Prof. Reid Bryson, meteorology.

Sen. Nelson is scheduled to deliver the major address at the ceremony on the subject, "Scholarship and Public Service."

Of the 250 students elected to the society, 170 are seniors and 80 are juniors. Election to the society is on the basis of scholarship, extracurricular activities, and faculty recommendations as to character, leadership, and general good citizenship.

add one--Phi Kappa Phi

Students elected are:

Patricia Guile, Antigo; Michael Liethen, Barbara Dafoe, Judith Hart, and Robert Ochiltree, all of Appleton; Clifford Tomfohrde, Arpin; Dennis Fisher, Sandra Prothero, and Barbara Wenban, all of Baraboo; Edward Jesse, Elizabeth Taylor, and Gloria Paulson, Barron; Mary Sustman, Beaver Dam; Stanley Fry, Boscobel; Jeanette Neitzel, Bowler; Judith Berkholtz, Brillion; John Boyes, and Daniel Kailing, Brookfield; Jane Roberts, Brooklyn; Carolyn Meise, Cleveland; John Stichman and Kurt Marshek, both of Clintonville; Allen Booth, Cuba City; Mrs. Karen Alvord, Cudahy; Margaret Knight, Dalton; Elaine Erickson and Roger Schwebs, both of De Forest; Michael Hutjens and Judith Schink, both of De Pere;

John Rowe, Dodgeville; Richard Arnold, and Ann Hagen, Eau Claire; Samuel Cohen, Edgerton; Jean Kitzmann, Eland; Carol McCool, Elkhorn; Thomas Peterson, Ellsworth; Donald Nelson, Elm Grove; Layton Rikkers, Fond du Lac; Ruby Peterson, Frederic; John Garske, Glenwood City; Mary Daniels, and Steven Hartman, Green Bay; James Krzeminski, Greenfield; Robert Gottsacker, Hartland; Stephen Reed, Hartford; John Ebbott, Helenville;

David Feingold, Robert Holt, Kenneth Feldman, Kathleen Harker, Mary McCarten, James O'Connor, Sharon Olson, Ellen Trachsel, and Charlene Coutre, all of Janesville; Robert Chalice, Carol Watson, and Gerald Perona, all of Kenosha;

Dennis Merritt, Kewaunee; Thomas Stiefvater, Kiel; Jacqueline Berben, Kimberly; Barbara Backus (454 Woodside Ter.), Anna Fredenslund (501 Eagle Hts.), Gail Marie Haberman (701 Huron Hill), Mary Huseby (2900 Waunona Way), Mrs. Joanna Klein (2334 Allied Dr.), Richard Meier (521 Piper Dr.), Kathy Myers (3210 Oxford Rd.), Mrs. Mary Ann Opelt (1011 Homer St.), James Schlatter (1143 Amherst St.), Mrs. Linda Sorenson (1493 Carver St.), Marcia Stahmann (939 University Bay Dr.), Susan Thiede (4825 Bayfield Ter.), Janet Westing (1107 Wellesley Rd.), Jean Andrews (1112 W. Johnson St.), Mrs. Evelyn Olson (921 University Bay Dr.), Michael Figler (220 N. Meadow), Robert Forbes (8 W. Gilman),

add two--Phi Kappa Phi

Patricia Hansen (4321 Upland Dr.), Michael Flandt (444 W. Main), Kay Heggestad (509 S. Mills), John Leonard (6219 Countryside La.), Ronny Lubcke (2213 Simpson St.), Donna Marshall (4718 Fond du Lac Trail), Robert McNown (526 Algoma), Marianna Monk (2601 Dahle St.), Mrs. Marilyn Myers (104 S. Brooks), David Penn (114 Vaughn Ct.), Laurance Pierce (3522 Concord Ave.), Mary Porter (1710 Baker Ave.), Robert Reznichak (1245 Morrison Ct.), Robert Roden (3330 Tallyho La.), Mrs. Sherwood Schwalbach (205 E. Washington Ave.), Mrs. Judith Smotkin (625 Skyview Pl.), Janet Spector (810 Cabot La.), James Stinger (1715 Kendall Ave.), Allan Topp (3014 Harvard Dr.), Herbert Wang (3999 Plymouth Cir.), Donald Zillman (408 N. Henry St.), Frederick Carstensen (251 Langdon St.), Steven Cox (306 W. Sunset Ct.), and Mrs. Ruth Doss (45 N. Orchard), all of Madison;

Michael Garey and Barbara Raeuber, Manitowoc; David Groose, Marquette; Bruce Krueger, and Sheryl Peters, Marshfield; Helen Larson, Mauston; Kenneth Piper, Menomonee Falls; Carl Giesler, Sharon Ripp, and Mary Magnuson, all of Middleton;

Steven Boettcher (4520 S. Lenox), Mardie Kaufer (4839 N. Elkhart), Mary Koch (1745 N. Hi Mount), Bruce Schultz (1800 Popular), Kay Smith (717 S. 28th St.), Daniel Anderson (2475 S. 8th St.), Barbara Balkansky (5155 N. Santa Monica), Lou Ann Bardeen (1601 N. Farwell Ave.), and Sue Biller (6737 N. Santa Monica), Clive Frazier (5507 N. Lydell Ave.), Janet Hindin (430 E. Hampton Rd.), Kathleen Koge (3002 N. 61 St.), William Nasgovitz (3713 N. 87), Carol Pritchard (5526 N. 42),

Alice Robinson (6601 N. Bethmaur La.), Phyllis Tribbey (7533 N. Bell Rd.), Elizabeth Weiss (3303 N. Sherman Blvd.), Jeffrey Zink (2725 S. 44), Diane Cohen (3251 N. Maryland), Patricia Cook (5001 N. Palisades), Kathleen Creighton (4340 W. Eggert Pl.), Robert Czubkowski (2974 S. 102), and Neil Eisenberg (3901 N. Lake Dr.), all of Milwaukee;

John King and Malcolm Burdick, both of Milton Junction; Tom Ivey, Mineral Point; Charles Ellestad, Monona; William Zellmer, Montello; Diane Kjervik, Mount Horeb;

-more-

add three--Phi Kappa Phi

Jerry Klein, Paul Mennes, and Jan Pollnow, all of Neenah; Lowell Schoengarth, Neillsville; Eric Jakel, New Berlin; Mary Jo Freitag, New Glarus; Gay Wallace, Norwalk; Nancy Cochran, William Cowen, Christine Nelson, Lester Schmoll, Joan Fries, and Janet Gomoll, Oshkosh; Raymond Evers, Plymouth; Roberta Alder, Port Washington; Bonnie Dibble, Russell Brauning, Nancy Myrvold, Patricia Niess, and John Phillips, all of Racine; Louis Jung, Randolph; Harmie Schilf, Ripon;

Linda Baumgarten, Rock Springs; Barbara Vetter, Rothschild; Dennis Schultz, Seymour; Diane Wasserman and Kathryn Eggert, Shawano; John Ruppenthal, Lloyd Wittstock, John Kroos, and Wendy Walthers, all of Sheboygan; Raymond Degner, Shell Lake; Norman Marks, Shorewood; Jon Ronning, Star Prairie; Harold Randecker, Stoughton; Lu Ann Closser, Suring; Mildred North, Verona; Betty Forrester, Walworth; James Kuth, Waterford; Gail Parshall and Richard Cahill, Waukesha; Donald Winkler, Waupaca; Andrea Miller, Carol Blackford, Ronald Borchardt, Nancy Klemm, and Thomas Tinkham, all of Wausau; Sharon Guten and Karlynn Schmidt, both of Wauwatosa; William Jasperson, Wisconsin Rapids;

Thomas Rendall, Boulder, Colorado; Marie Burns, Orlando, Florida; Madelon DeYoung, Western Springs, Ill.; Patricia Huntsman, East St. Louis, Ill.; David Simon, Bonnie Strauss, Burton Weltman, Janet Weatherwax, Alan Greene, and Eleanor Hanauer, all of Chicago, Ill.; George Crapple, La Grange Park, Ill.; Patricia Plecas, Thornton, Ill.; Barbara Pettersen, Palatine, Ill.; Annette Hendry, St. Charles, Ill.; Richard Kammer, Freeport, Ill.; James Keefer, and Michael Minkoff, Mt. Prospect, Ill.; Dianne Smith, Elgin, Ill.; Nancy Eagle and Joan Friedland, both of Evanston, Ill.; Nancy Williams, Kankakee, Ill.; Karl Reichardt, Rock Falls, Ill.; Justin Zivin, Lincolnwood, Ill.; James Baum, Highland Park, Ill.; Arline Hersch, Gary Indiana; Mary Fitton and Linda Mokrejs, both of Cedar Rapids, Iowa; Barbara Lamb, Des Moines, Iowa; Ellen Spathelf, Edgewater, Md.;

add four--Phi Kappa Phi

Mary Buhamel, Dedham, Mass.; Carol Swanson, Lincoln, Mass.; Linda Sirkus, St. Louis, Mo.; Stephen Wexler, Hackensack, N.J.; Margaret Waletzky, Princeton, N.J.; Susan Steiner, Great Neck, N.Y.; Roberta Ernstoff, Belle Harbor, N.Y.; Bernadine Gerard, Bethpage, N.Y.; Lucille Gluck, Brooklyn, N.Y.; Nancy Gow, Glen Cove, N.Y.; Richard Hays, West Point, N.Y.; Susan Kolko, Rochester, N.Y.;

Ronnie A. Littenberg, Carol Schutz, Christopher Horton, and Susan Levine, all of New York City; Ruth Lerner, Flushing, N.Y.; Ruth Valentine, Northport, N.Y.; Jane Jacob, Ann Arbor, Mich.; Charles Friedman, Cleveland, Ohio; Catherine Mack, Lima, Ohio; Harold Mast, Wooster, Ohio; Susan Hunt, Tulsa, Oklahoma; John Boyle, Scranton, Pa.; Virginia Hagelstein, Erie, Pa.; Marcia Smith, Arlington, Va.;

Peter Fernandes, Subryanville, British Guiana; Dunson Cheng, Kowloon, Hong Kong; and Othman Shemisa, Benghazi, Libya.

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# U.W. NEWS

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

7/28/64 vh

RELEASE:

Immediately

MADISON, Wis.--Verner E. Suomi, University of Wisconsin professor of meteorology and widely known leader in the UW space research program, has been appointed chief scientist for the United States Weather Bureau, the University announced Tuesday.

The 49-year-old teacher and expert in studies of the atmosphere and its various phenomena related to heat, moisture, and wind, will take office the first week in September at Washington, D.C.

Prof. Suomi is the first person to be appointed to the new position with duties of advising the chief of the bureau and reviewing the content and adequacy of the Weather Bureau's scientific program. The position requires that it be filled for periods of one to two years by leading scientists from American universities and private industry.

Prof. Suomi will serve for one year, but will return to the Madison campus frequently to work with UW graduate students in meteorology.

He said UW space activities in meteorology will be continued in his absence under the direction of Prof. Robert Parent, who has been associated with the program since its beginning.

"None of our space activities could have occurred without the help of Professor Parent," Prof. Suomi stressed.

The new chief scientist of the nation's weather center received the Clarence LeRoy Meisinger Award from the American Meteorological Society in 1961 for his work in atmospheric radiation. He became widely known to the public as a Wisconsin scientist when the U.S. satellite program got underway in the late 1950s.

-more-

Add one--Suomi

After two disappointing rocket failures, Explorer VII, carrying UW instruments to measure the earth's heat budget, was sent into orbit in October, 1959. The instruments, constituting one of seven experimental packages on board Explorer VII, were designed by a 12-man team under the leadership of Prof. Suomi.

The great importance of cloud systems in controlling the earth's heat loss was established by the data gained through Explorer VII. At the time of launching, Explorer VII was the largest of U.S. satellites.

Tiros III, launched in July, 1961, Tiros IV, in February, 1962, and Tiros VII, in June, 1963, lifted similar instruments into space and extended UW studies of the earth's heat budget.

Prof. Suomi joined the Wisconsin staff in 1948 as an assistant professor of meteorology. He was appointed associate professor in 1950 and full professor in 1958. The Eveleth, Minn., native received his Ph.D. degree in meteorology from the University of Chicago in 1953.

When he first came to Wisconsin one of his chief interests concerned moisture measurements in the stratosphere. He has worked also on water loss from soils, on water evaporation measurements and the question of how plants use their supplies of heat and water.

With UW meteorologist Dr. Reid Bryson he has studied deep-water lake currents. In 1955, with the U.S. Weather Bureau meteorologist Pete Kuhn, <sup>Prof.</sup>/Suomi developed an improved and very economical instrument to measure radiation which has since been widely used. In 1956 he did a sonic anemometer study of turbulence near the ground and in 1957 a study of the plant climate of Wisconsin.

Begun by Suomi in 1953, a study of a cornfield's heat budget--how much sun energy the field absorbs and how much of the energy is reflected back into the atmosphere--was the beginning of the investigations which later were carried into space by the newly developing earth satellites.

-more-

Add two--Suomi

The new chief scientist of America's Weather Bureau, who lives in Madison at 10 Rosewood Circle, is married to the former Paula Meyer, a teacher at Cherokee Junior High School, and is the father of two sons, Stephen and Eric, and a daughter Lois.

During the first quarter of 1962 he served with the National Science Foundation in Washington as associate program director for atmospheric sciences. He is at present a member of the panel on weather and climate modification sponsored by the National Academy of Sciences.

##

# U.W. NEWS

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

Telephone (Area Code 608) 262-3571

Release: **Immediately**

7/15/65 mcg

MADISON, Wis.--Four University of Wisconsin professors with expert knowledge of the subject will discuss global as well as local aspects of "The Great Water Shortage" over WHA-TV (Channel 21) and the state FM network at 8 p.m. Monday (July 19).

They are Gerard A. Rohlich, professor of civil engineering and director of the new state water research center; Prof. Reid Bryson, meteorologist; Prof. James Villemonte of civil engineering and the University Hydraulics laboratory; and Prof. Arthur Hasler, director of the University Lake Laboratory.

Roy Vogelmann, WHA director of news and special events for radio and TV will moderate the roundtable discussion.

##

# WIRE NEWS

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

8/16/63 jcp

RELEASE:

Immediately

MADISON, Wis.--The University of Wisconsin will join 10 other major midwestern universities in a new interinstitutional program for training graduate students in bioclimatology, study of the effects of weather on man, animals, and plants, Dr. Robert L. Clodius, UW vice president-academic affairs, reported Friday.

The universities, already cooperating in a variety of academic fields through the Committee on Institutional Cooperation (CIC), will begin the joint program in bioclimatology in September. A \$238,016 grant from the Division of Air Pollution, U. S. Public Health Service, will support the program for three years.

Vice Pres. Clodius is Wisconsin's CIC institutional representative. UW meteorologist Dr. Robert A. Ragotzkie, who was out of the city this week, has been closely involved in planning the bioclimatology program.

"The Universities of Wisconsin and Michigan will contribute to climatological training of bioclimatology students through their departments of meteorology," explained Dr. Reid A. Bryson, climatologist in UW's meteorology department. Wisconsin's graduate program in meteorology is the largest in the country.

Dr. Frederick Sargent II, professor of physiology at the University of Illinois and chairman of the CIC Graduate Training Program in Bioclimatology, said, "Selected students can obtain interdisciplinary training and utilize unique facilities at these institutions for their research."

-more-

Add one--bioclimatology

The new CIC plan will enable doctoral students in such fields as meteorology, physiology, geography, and zoology to enrich their graduate programs through contact with many of the Midwest's top scientists.

Dr. Sargent offered the example of a student who wants experience in meteorology and biology and to specialize in bioclimatology of farm animals.

"For instance, he could take his meteorology and biology at Wisconsin or Michigan and then move to Purdue to complete his education with work in bioclimatology of farm animals."

UW's Dr. Bryson explained that part of the U. S. Public Health grant would help students to travel from one campus to another and provide instruments for their research. The grant also would pay traveling expenses for professors when it came time to examine a doctoral candidate, who was once their student.

Wisconsin's proposed \$4,200,000 Biotron, a controlled weather laboratory for plants and animals, would be a unique facility for graduate students in bioclimatology.

Dr. Stanley F. Salwak, CIC staff director, cited the new training program as illustrative of the broad aim of the CIC to avoid costly duplication while strengthening the combined offerings of the 11 universities.

The member CIC institutions are University of Chicago, University of Illinois, Indiana University, State University of Iowa, University of Michigan, Michigan State University, University of Minnesota, Northwestern University, Ohio State University, Purdue University, and University of Wisconsin.

# U. W. NEWS

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

10/29/63 j1

RELEASE:

Immediately

MADISON, Wis.--Reid A. Bryson, professor of meteorology at the University of Wisconsin at Madison, is among scientists who will present research papers at the World Meteorological Organization's Symposium on Tropical Meteorology to be held in November in Rotorua, New Zealand.

Bryson will present a paper on research conducted in India last spring, entitled "Preliminary Results of an Investigation of Premonsoon Haze over India With Radiationsonde."

He will lecture at the University of Malaya and universities in Delhi and Bombay, and will continue monsoon investigations while in India.

###

1963 SUMMER TRAVEL

TO: University of Wisconsin faculty members

FROM: University News Service, Observatory Hill Office

Information is being gathered on summer travel plans of faculty members for the annual roundup article to be released to news media and to appear in MEMO. Your cooperation is solicited.

Brief mention is made of faculty members who will be away from the campus for summer travel, research, attendance at conference or convention, or as a visiting faculty member at another institution.

It will be appreciated if you will enter information below, add any pertinent details, and return to University News Service, Observatory Hill Office, by June 5.

\*\*\*\*\*

Full name:

Reid A Bryson

Faculty rank:

Professor

Department:

Meteorology

Destination:

Canadian Arctic and Subarctic

Purpose of travel:

Research

Dates of trip:

June 6 - July 6 via departmental floatplane

Other information:

# FEATURE STORY

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

RELEASE:

Immediately

3/13/63 jl

By JAMES LARSEN

MADISON, Wis.--A carbon-14 dating laboratory for establishing the age of ancient carbonaceous fossil materials has been installed on the University of Wisconsin campus at Madison.

The laboratory is part of the UW Meteorology department's Center for Climatic Research in studies leading to a better understanding of ancient climates of the earth--and, ultimately, to an improved understanding of long-term climatic changes.

Scientists in many other fields will participate in the use of the Wisconsin carbon-14 dating facilities. It is anticipated that those finding the new equipment of greatest value will include anthropologists, soil scientists, geologists, and biologists interested in the past environment of plants and animals.

Wisconsin anthropologists, for example, will use the laboratory to establish the time period during which such areas as Aztalan were occupied by the early Indian cultures. Even more important, perhaps, they will now be able to determine the speed with which tribal customs and cultural patterns changed.

The knowledge may throw some light on the adaptability of human beings to environmental change, and the speed with which ancient man changed habits and customs in response to changes in the environment.

And this is but one example of the multitude of uses to which the carbon-14 dating laboratory can be put.

-more-

add one--carbon-14

"All of these fields are related to one another," [Reid A. Bryson,] director of the climatic research program, points out, "and all are related to climate--for example, knowledge of ancient civilizations, plants, animals, soils, and rock formations, all provide information on climate, but we must know the time to which this information applies."

"The problems encountered in the unraveling of past climates are enormously complex--and palaeoclimatology is perhaps the most interdisciplinary of fields in natural science," Prof. Bryson adds. "The information to be obtained will give us a greatly improved understanding of modern climates, and may give us leads for predicting what will happen in the future on a long-term basis."

The \$26,000 machine now installed on the Madison campus will be operated by Dr. Margaret Bender, chemist and wife of a member of the UW chemistry department. The device will become available for research use within a few weeks following the initial period required for standarization procedures.

The installation will be used exclusively for dating of ancient materials of scientific interest, Prof. Bryson adds, and cannot be made available for establishing the age of antiques or other such items.

"We are interested in a study in depth of past climates--as far back as the evidence will permit us to go," he adds.

Other research programs in the new Wisconsin Center for Climatic Research, established last year with a grant from the National Science Foundation, include a global program of research on present-day climates with especial attention to the climates of oceanic, polar, and desert areas.

Other programs have also been undertaken on the influence of the oceans on world-wide climate; on characteristics of the climate of areas where meteorological stations are now absent or so widely-spaced as to give only the most sparse data; on the regional distribution of certain important climatic factors such as albedo, emissivity, and moisture; on the feasibility of utilizing satellite data for world climatology; and studies of the climates of other planets.

# U. W. NEWS

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

10/30/62 j1

RELEASE:

Immediately

MADISON, Wis.--The first \$200,000 of a grant to establish a Center for Climatic Research in the department of meteorology at the University of Wisconsin has been received by the UW from the National Science Foundation.

The grant will finance a greatly expanded program of research in the UW department of meteorology, largely around a nucleus of the department's already active interdisciplinary research program.

"Climatology deals with the atmospheric elements that give a region its character and individuality," Reid A. Bryson, professor of meteorology and center director, points out. "The initial emphasis of this group will be upon extension of our understanding of the present global climate, especially polar, oceanic, and desert areas, and upon a study of the climates of the past."

Bryson adds that much of the research now underway in the department would be expanded under the new program, including development of automatic processing systems for handling the large masses of weather data now becoming available, study of oceanic climates and influence of the seas upon world climate, extension of knowledge of polar regions, studies of albedo, emissivity, and moisture balances, and a search for evidence leading to a better understanding of the past climates over the world.

Studies will also be undertaken of the feasibility of utilizing satellite data for world climatology and of extending terrestrial climatic principles to studies of the climates of other planets.

-more-

Add one--climatic research

During recent years, studies of world climatology have not kept pace with the rapid expansion of physical studies of the atmosphere, and the new Center for Climatic Research will greatly expand research possibilities in this field.

"Recently climatology has been underdeveloped in terms of its importance, undermanned in our teaching programs, and underestimated in terms of its potential value to mankind," Bryson points out.

He adds that establishing the program at Wisconsin was at least partly the result of Wisconsin's strong tradition of free interdisciplinary cooperation.

"The department of meteorology contains within its own faculty competence in meteorology, geography, geophysics, zoology, oceanography, botany, geology and chemistry," Bryson adds. Additionally, the UW meteorology department is now the largest in the nation in terms of numbers of graduate students currently enrolled.

Bryson points out that facilities and personnel of the new research center will be available to aid the large numbers of individuals in State government and the University who are engaged in research with meteorological aspects.

The grant will be presented to UW regents for acceptance at their Nov. 9 meeting.

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# U. W. NEWS

11/13/61 jl

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

RELEASE:

Immediately

By JAMES A. LARSEN

MADISON, Wis.--University of Wisconsin meteorologists using an advanced statistical technique known as power spectrum analysis have disproved the theory that sun-spot cycles show up in the annual growth rings of trees.

The theory now shown to be untenable is that sun-spot cycles have an influence upon the earth's climate of sufficient intensity to show up in the annual growth rate of trees in the southwestern U.S. It had been postulated in this theory that variations in growth rate from year to year reflected varying sun-spot activity.

It is believed that the climatic history of the past millenium can be inferred from variations in width of the annual growth rings of the ancient trees. However, some scientists held that an 11-year, or 22-year cycle in the tree rings could be detected and that it was caused by the 11-year sun-spot cycle. There was, additionally, speculation on what sort of climatic change could be caused by sun-spot variation and how these changes could be reflected in the rate of growth of trees.

Now John Dutton and Prof. Reid A. Bryson of the UW meteorology department have shown that the supposed 11-year or 22-year cycles in the ancient trees are more apparent than real. Rigorous analysis of the tree ring data by the power spectrum-- a statistical method to detect cycles--has shown that no 11-year or 22-year cycle exists in the tree ring data. Thus, there can be no correlation between the sun-spot cycles and tree growth.

The two scientists have found, however, that some cycles do exist in the annual ring thickness of these trees--But the question is open as to whether these cycles are significant.



-more-

## Add one--tree rings

For example, instead of an 11-year cycle, the ancient sequoias show cycles at 2.1, 2.7, 3.4, 5.8, 13, 16, 20, and 30 years. The Wisconsin scientists point out, however, that the shorter cycles are not strong enough in any individual tree to be accepted unconditionally, but they show up quite often, though weakly, in many different trees.

The longer cycles, on the other hand, are quite strong, but the precision of the method declines with cycle length, and so these cannot be accepted without reservation. The conclusion at present is that no cycles of sufficient strength to be accepted without reservation exist in the tree rings, and none exist at an 11-year interval required by the sun-spot theory.

"Summing up the power spectrum evidence on cycles," the scientists say, "we must conclude that they are well hidden, if present at all. There is little evidence of important periodicities in the tree-ring thickness series that have been studied."

There is some indication, however, that the two-to-three-year cycles follow variations in July rainfall in the southwestern U.S. This would be expected, as the water available in the soils of this area is probably the most important thing affecting rate of tree growth from one year to the next, the scientists add.

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# U. W. NEWS

1/23/62 gr

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

RELEASE:

Immediately

By GENE RODGERS

MADISON, Wis.--The Wisconsin Phenological Society, a statewide organization without parallel in the country, held its second annual meeting this week at the University of Wisconsin in connection with Farm and Home Week.

Phenology is the science of the relations between climate and periodic natural phenomena such as the blooming of plant species, freezing and thawing of lakes and of the ground, emergence of insects from cocoons, and hundreds of other occurrences geared to seasonal climatic changes.

The society was formally incorporated last year to gather phenological data from all over the state. A network of some 600 members in all counties works in cooperation with state and university meteorologists and agricultural experts.

In 1961, for instance, Malcolm Dana, associate professor of horticulture, collected reports on when common lilacs were first seen to bloom. He was able to construct a map similar to a weather map, where identical dates were connected by isochromes. A pattern of blooming from south to north was clearly seen.

In the business meeting Philip Smith, state entomologist, was elected president of the society. Prof. Jen-Yu Wang was elected vice-president. James Dickson, emeritus professor of plant pathology, was made an honorary member for his long and distinguished service to phenology.

Because it is a relatively new science, phenology is primarily descriptive, and phenologists devote much of their effort simply to observing what happens. In the future they hope to explain why the patterns occur, and to develop mathematical formulas for predicting when and where periodic phenomena will occur.

-more-



## Add one--phenology

An attempt at a phenological calendar was suggested at the meeting. This would be of greater use to farmers and others whose work is seasonally related than is the present astronomical calendar.

It was also suggested that phenological stations similar to weather stations be established.

In other talks emergence of promethium moths from their cocoons, blossoming of the tobacco plant, and appearance of root worms on corn were discussed as phenological measurements.

Meteorology Prof. Reid A. Bryson described how a group of Wisconsin scientists and a Navy crew flew a patrol craft through northern Canada and took time lapse movies of the lake covered landscape to determine how fast the "freeze line" moved southward. The Navy will use the information to determine when ice or water will be available as landing fields for air or sea planes.

Jen-Yu Wang, assistant professor of meteorology and soils, discussed the possibility of making crop predictions without forecasting the weather.

Arthur Peterson, associate professor of soils, described how he uses reports from undertakers and cemetery managers throughout the state to chart the depth of frost penetration in the ground.

# U. W. NEWS

5/16/61 jl

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

RELEASE:

Immediately

By JAMES LARSEN

MADISON, Wis.--Midwestern distances from the world's seas are no longer a barrier to scientific studies, participants in the University of Wisconsin's Symposium on Oceanography in the Midwest said Monday.

The nation's leading oceanographers met at Madison to discuss expansion of oceanographic programs as part of a national effort to increase knowledge of the seas from basic scientific and military standpoints.

Richard H. Fleming of the University of Washington said the really challenging problems of the future go beyond mapping and measuring. He said the U.S. now needs to know not so much more about what is in the ocean but why it is there--the processes at work, the heat budgets, the reasons why the sea behaves as it does.

He added that research on the scientifically challenging problems will improve knowledge of the basic scientific laws at work on the ocean as a "living entity."

Fritz Koczy of the University of Miami said that the measurement of oceanographic phenomena was the first step toward improved understanding, but "then must come the theoretical work to explain the questions which arise from the data obtained."

"These questions," he added, "can be answered in the Midwest as well as they can at the sea's edge."

Reid A. Bryson of the University of Wisconsin pointed out that great areas of the sea are relatively static, due in part at least to the fact that air temperatures and ocean surface temperatures do not differ by much.

-more-

Add one--oceanographers

"Half of the earth," he said, "is a region where we have a beautiful and complete balance between air and sea surface, where the temperatures differ by less than two degrees over much of the area."

However, some areas, particularly along coasts, are characterized by great contrasts between air and sea temperatures and these areas are particularly interesting because of the rapidly changing sea and weather conditions which result.

"These areas may be remote experimentally," Bryson said, "but not theoretically, and they pose problems which can be as readily approached in the Midwest as elsewhere."

Bryson said the fact that the sea is composed of salt water makes no difference in studies of the interaction of events of weather and water. Studies of waves and of wave action, for example, can be undertaken either place with comparable results, and the same is true of many other aspects of oceanic research.

"Science in the Midwest offers great theoretical assistance to oceanography," Bryson said, "especially to those events of high flux and to the transient phenomena which occur at the edge of the sea."

Bryson added that lakes are models of the sea and that research into many aspects of oceanography can be conducted best in small bodies of water because of the greater ease with which work can be performed.

Arthur D. Hasler of the University of Wisconsin reviewed research on small lakes in Wisconsin which have helped to explain oceanographic problems, such as the navigational abilities of the Pacific salmon. John C. Ayers of the University of Michigan pointed out that the Great Lakes offer an excellent training ground for oceanographers.

"Most of the influences which are studied in the oceans are equally available in the Great Lakes," Ayers said.

Hasler asserted that national programs of oceanographic expansion would be sorely lacking in scope if they did not include expansion of work on the inland lakes.

Add two--oceanographers

In his welcome address to the group, UW Pres. Conrad A. Elvehjem stressed the need for expanded research programs, saying "it has become one of our national goals to obtain a vastly improved understanding of the seas around us, and I speak for everyone at Wisconsin, and for the entire Midwest I am sure, when I say we are privileged to assist in this venture.

"Increased knowledge of oceanography can serve both to link us in a common bond with other nations and, if needed, serve as a bulwark in our defense," Elvehjem said.

The symposium drew more than 100 participants, many from the nation's coastal oceanographic stations at the edge of the Atlantic and Pacific oceans. The symposium was sponsored by the U.S. Office of Naval Research, the National Science Foundation, and the Committee on Institutional Cooperation (CIC) of the Council of Ten and the University of Chicago.

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# U. W. NEWS

3/15/61 j1

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

RELEASE:

Immediately

MADISON, Wis.--A unique opportunity to compare tree growth with detailed daily weather records taken for three-quarters of a century within 100 yards of the trees is being exploited at the University of Wisconsin.

University scientists interested in studying how year-to-year differences in weather are reflected in the rate at which trees grow have asked for a "slice" from the base of each of the oaks now being removed to make way for a Social Studies Building at the center of the Madison campus.

Scientists working on the study--part of the UW meteorology department's research on the biological effects of weather and climate--will first measure the width of each of the annual growth rings. Then, by comparing the ring widths with climatic records, valuable information can be obtained on how weather differences from one year to the next affect tree growth rates.

This will also give the UW scientists a chance to attempt a different approach to tree-ring studies in temperate climates, improving upon older methods which, it is felt, apply only to trees growing in deserts and cold climates. The new method utilizes modern electronic computers.

"The Bascom Woods' trees are especially valuable for a study of this kind," says Prof. Reid A. Bryson, department of meteorology chairman and project director, "because the old North Hall weather station was situated within 100 yards of the trees, thus making extremely close correlations possible. Moreover, the trees are sufficiently old to make the comparative study possible for as far back as the North Hall weather records go--about 75 years."

-more-

Add one--Bascom Woods

Bryson also pointed out that a whole "slice" from a tree is more valuable than a core, which can be obtained by conventional forestry methods for measuring growth increment, because variations in ring width around the entire circumference of the tree can be averaged.

The study will also include comparison of the growth rates of the trees on the UW campus to that of trees in the northern parts of the American continent.

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# U. W. NEWS

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

1/19/61 j1

RELEASE:

Immediately

MADISON, Wis.--The state's newest scientific organization, the Wisconsin Phenological Society, will hold its first annual meeting Jan. 23 at the University of Wisconsin.

The society is composed of some 600 observer-members from every county in the state, plus a group of Wisconsin scientists interested in conducting research with phenological data.

Phenology, says Prof. Reid A. Bryson, chairman of meteorology at Wisconsin and president of the new society, is the study of the dates of occurrence of natural events--the blooming of plant species, freezing and thawing of lakes and of the ground, turning of leaves in the fall, and hundreds of other occurrences geared to seasonal climatic changes.

"The observers of the society constitute a grass-roots data collecting organization," Bryson adds. "Scientists and observers throughout the state have joined together to promote a project of mutual interest."

The society's annual meeting is to be held during the UW's Farm and Home Week. Most observer-members are residents of rural areas, many of whom will be attending the College of Agriculture's annual event, and this will give them a chance to attend the society's meeting as well.

The data being gathered is required for studies of natural events of importance to agriculture, certain industries, and other fields of endeavor. The data will be analyzed by agricultural scientists, entomologists, botanists, soil scientists, conservationists, meteorologists, and others.

-more-

add one, phenological society

One of the projects arousing considerable current interest is the collection of information on the date the soil freezes in the various parts of the state and the frost depth at various months of the year. Information of this kind has never before been obtained on a state-wide basis.

Bryson said the society welcomes new members interested in participating in the activities of the society and making observations in their locality. There are no dues required for membership--the data substitute for dues. The society probably will be incorporated so that needed funds for operation can be obtained from industries and agencies interested in the research.

Persons interested in the work of the society should write to Philip Smith, entomologist with the Wisconsin Department of Agriculture, Box 351, Madison, or Donald R. Thompson, Game Branch, Wisconsin Conservation Department, Madison, the secretary and vice-president of the society respectively. An outline of data required and methods to obtain it will be sent to everyone expressing interest. A self-addressed stamped envelope is required, however, to insure a reply.

The annual meeting of the society is to be held at 1:30, Jan. 23, in the Play Circle of the Wisconsin Union on the UW campus.

###

# FEATURE STORY

12/29/60 j1

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

By JAMES A. LARSEN

MADISON, Wis.--Underwater waves may be as important as surface waves in the annual cycle of warming and cooling in a lake, according to evidence gathered by two University of Wisconsin lake scientists.

The scientists--Prof. Reid Bryson and Robert Ragotzkie of the UW meteorology department--have found that underwater waves have many of the characteristics of surface waves; they travel at considerable speed, some of those measured were as high as 10 feet, and they often curl and break like the familiar whitecaps on the surface.

The flow of underwater waves was discovered by Bryson and Ragotzkie during temperature studies of Lakes Mendota and Trout--the first lake borders the University of Wisconsin campus, the second is located in northern Wisconsin.

Using a string of thermopiles--electrical temperature-measuring devices--hanging vertically in the water, the scientists found, as would be expected, that the lake, during summer, is divided into two layers, an upper warm layer and a lower cold layer. And they found, as would be expected, that where these two layers meet there exists a thermocline, where the warm layer lies on the cold layer like a blanket of light oil.

What they also found--and did not expect--was that a thermopile located right at the point of contact between the warm upper layer and cold lower layer showed rhythmic variations in temperature.

The limnologists reasoned that this could only mean that waves stream along the top of the cold layer much like waves on the surface of the lake. Subsequent measurements proved this to be the case.

-more-

## Add one--lake temperature

The internal waves seem to follow the same general direction of movement as the surface waves of the lake. This is surprising, since the greatest concentration of energy available for producing the waves would appear to be at the downwind end of a lake.

"Where and how progressive internal waves originate remains unknown," Bryson and Ragotzkie say.

They point out, however, that internal waves may help account for the warming up of the lower lake waters during summer. Theoretically, it might be expected that the thermocline would prevent much heat transfer from upper to lower water levels.

When internal waves "break," however, they probably drag warm water into the lower layers, much like a breaking wave. will trap air bubbles beneath its curling top and drag them beneath the surface.

These internal waves may also account for the fact that there appears to be less of an oxygen deficit than might be expected in the thermocline during warm summer weather despite the fact that dead and decaying microscopic organisms collect in this layer, and that, in addition, the lower cold water usually lacks oxygen.

The Wisconsin scientists add that, in theory, there is no fundamental difference between the internal and surface waves of a lake:

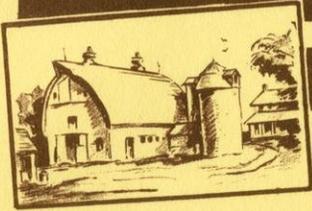
"Indeed, surface waves are a special case of internal waves where the medium as well as the density changes in the vertical and the density of the upper medium is negligible compared to that of the lower," they point out.

###

**FRESHMAN FORUM**  
**Second Semester, 1960-61**

Professor Reid A. Bryson  
Chairman, Department of Meteorology

Prof. Bryson studies how climate changes and why certain areas have the climates they do. In addition, he is one of United States' few physical limnologists, scientists who study such things as currents and internal waves in lakes. His varied interests have also included tropical meteorology, geology and geography. He is a member of the board of trustees executive committee of the University Corporation for Atmospheric Research.



SPECIAL TO WISCONSIN DAILIES

For Release :

December 21, 1960  
Noon Release

FILE

Madison, --A unique new organization, the only one of its kind in North America, will hold an organizational meeting during Farm and Home Week at the University of Wisconsin in January.

The Wisconsin Phenological Society will meet to elect officers and plan its program.

What is Phenology? [Reid Bryson], meteorologist at the University, says it's the study of natural events related to climate. For example, what is the average date for Wisconsin lakes to freeze over, or for various animals to hibernate in fall, or crocuses to bloom in spring?

Bryson says knowledge of the sequence of these natural events would greatly aid studies in many fields--climate, plants and animals, for example.

The Wisconsin Phenological Society, though just now organizing formally, has formed a network of observer members in every Wisconsin county. Some 650 people interested in this sort of thing are already members.

The Society seeks membership spread over a geographical area so it can compare events in nature in various locations.

The group will welcome members who are interested in reporting these natural events or in helping analyze them. The Society provides regular schedules for people to work from.

The first annual meeting will be held Monday afternoon, Jan. 23 starting at 1:30 p. m. in the Play Circle of the Memorial Union at the University.

# # #

# U. W. NEWS

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

2/12/62 j1

RELEASE:

Immediately

MADISON, Wis.--A conference at which outstanding scientists in meteorology and related fields will attempt to draw together existing information on climate of the 11th and 16th centuries will be held at the Institute for Humanistic Studies, Aspen, Colo., June 16-24.

The conference is an outgrowth of recent discoveries of significance to the field of paleoclimatology--the study of the climates of the past. Through use of certain types of fossils and other information, scientists have begun to piece together the nature of past climates. It is hoped that eventually it will be possible to predict long-term climatic cycles.

Reid A. Bryson, University of Wisconsin meteorologist, is chairman of the conference. The meeting is jointly sponsored by the National Academy of Sciences--National Research Council ad hoc committee on paleoclimatology and the National Center for Atmospheric Research. Attendance is by invitation, and leading American scientists as well as those from Japan, England, Mexico, Russia, Pakistan, Finland, Iceland, and Canada have been asked to attend.

Also among those attending will be David Baerreis and Chester Chard of the UW department of anthropology, Karl Butzer of the department of geography, and Jonathan Sauer of the departments of botany and geography.

Other conference committee members are Walter Bailey, U.S. Office of Naval Research; James Griffin, University of Michigan; Paul Julian, University Corporation for Atmospheric Research; Terah Smiley, University of Arizona, Philip Thompson, National Center for Atmospheric Research, and Fred Ward, Air Force Cambridge Research Labs.

# U. W. NEWS

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

6/26/62 gr

RELEASE:

Immediately

MADISON, Wis.--Seven University of Wisconsin faculty members will play major roles in the 15th International Congress of Limnology to be held on the campus here Aug. 20-25.

They will be among the more than 500 delegates, including 200 from foreign nations, to attend the sessions on lake and stream investigations. Some 30 sub-divisions of fresh water science will be discussed.

Prof. A. D. Hasler, director of the UW Hydrobiology Laboratory, is chairman of the executive committee and organizer of the congress. He will preside over the opening session and present two papers: "Transport of Radionuclides in an Ice-covered Lake" in association with project assistant Gene E. Likens, and "A Study of Daily Activity of Daphnia and White Bass in Lake Mendota" with project assistant Donald C. McNaught.

Prof. Gerard A. Rohlich, director of the Hydraulic and Sanitary Laboratory, and project assistant George P. Fitzgerald will talk on "Biological Removal of Nutrients from Treated Sewage." Prof. Rohlich will chair a session on recovery of nutrients from organic effluents.

Prof. Reid A. Bryson will speak on "The Air Water Interface," and Prof. R. A. Ragotzkie, is scheduled to discuss "The Thermocline Depth in Lakes." Both are meteorologists.

The Congress, to be held for the first time in this country, is sponsored by the National Academy of Sciences and the National Research Council. It is financially supported by several federal and private organizations.



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# MADISON NEWS

3/12/62 ns

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

RELEASE: **Immediately**

MADISON--University of Wisconsin Prof. Andrew H. Clark, honorary president of the Association of American Geographers, will deliver a major address at the organization's annual meeting in Miami, Fla., April 25.

On leave in England this year, Prof. Clark will fly to the United States to speak on "Praemia Geographiae," or the rewards of a professional career in geography.

-0-

Prof. Reid A. Bryson, UW meteorology department, will deliver a paper at the regional conference of Southeast Asian Geographers to be held in Kuala Lumpur, Malaya, April 2-14.

Also attending as a representative of the American Academy of Science, Prof. Bryson will speak on "The Resonance Theory of the Origin of Certain Typhoons Associated with Easterly Waves."

Prof. Frederick J. Simoons, UW geography department, will accompany Prof. Bryson as a member of the American delegation to the session.

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# U. W. NEWS

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

RELEASE:

2/28/62 jb

Immediately

By JACK BURKE

MADISON, Wis.--Exchange space information with Russia? Certainly, if Premier Khrushchev's offer was made in good faith and "if politics are kept out of it."

Such was the concensus expressed Wednesday on the U.S.S.R. leader's proposal by five leading University of Wisconsin scientists.

"This is very definitely a step in the right direction," said Prof. Ragnar Rollefson, physics, former director of the Midwestern Universities Research Association, based on the UW campus, and former chief scientist for the U.S. Army. He said:

"I regard this as more important than launching another space ship. Shooting missiles, I feel, is saber rattling, especially so since Russia hit the moon. This cooperation would do more to avert nuclear conflict than anything else, I believe.

"Pres. Kennedy should welcome this plan and make sure it works out. I know scientists would cooperate wholeheartedly. We are about equal on information now, so neither nation would suffer from the move. Much could be gained. It would certainly improve presently-strained relationships internationally."

So also said Prof. Robert J. Parent, electrical engineering authority, who stated:

"From the viewpoint of the scientists, Khrushchev's offer makes sense... It was made in good faith. As far as cost is concerned, it would be most worthwhile to avoid needless duplication, which now exists. I feel there's more rapport between scientists of Russian and the U.S.A. than there is between politicians

-more-



Add one--Info exchange

Prof. Parent, director of the UW Electrical Standards Laboratories, is a member of the Wisconsin satellite research team.

"The exchange would work out if politics are kept out of it," Prof. Reid A. Bryson, meteorologist, trustee of the National Center for Atmospheric Research, contended.

"A lot of us like to see complete, free and equal exchange of space information. But if politics gets involved, more would be lost than gained. This would have to be a genuine cooperative program, nothing less.

"My only reservation is the part human nature would play. The offer is most desirable. Neither country can afford the great cost of complete space exploration, when one considers the other things that ought to be done. Now there is too much stress on one thing. It would be more efficient to work together."

A biochemist, Dr. Philip P. Cohen, acting dean of the UW Medical School who visited Russia last year, declared:

"I feel very strongly about this exchange--I think it would be wonderful.

"Science represents an avenue of approach to break down political barriers that no other group can match. Scientists, of all lands, have much in common. Russian scientists are as dedicated as we are. Our objectives and goals are unequivocal. The image of U.S. scientists and our science is regarded most favorably in the U.S.S.R. and elsewhere.

"If so empowered, we could take a lot of pressure off the space race. The initiative should have come from us, and I'm somewhat disappointed it had to come from outside our shores. Getting together would coordinate the segment of our society least involved in political overtones. We should push it."

Prof. Arthur D. Code, chairman of the UW department of astronomy and director of its Washburn Observatory, agreed, adding:

"Virtually any scientific cooperation between nations has been profitable--not only scientifically, but also pushing for international good will. This would be a real good idea. I can visualize a joint expedition to the moon, with manned space flights from different countries, as a significant step toward world peace."

# U. W. NEWS

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

2/12/62 j1

RELEASE:

Immediately

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# MADISON NEWS

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

2/12/62 ns

Immediately

MADISON--Reid A. Bryson, professor of meteorology at the University of Wisconsin, has been selected to represent the National Academy of Sciences-National Research Council Committee on Geography at the Conference of Southeast Asian Geographers, Kuala Lumpur, Malaya, April 1-8.

His itinerary will include Spain, Saudi Arabia, Pakistan, India, Thailand, and other countries. Bryson will present a paper on origin of certain types of typhoons.

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Prof. John V. Irwin, head of the University Speech and Hearing Centers, served as special consultant, oral pharyngeal development and function section, National Institute of Dental Research, National Institutes of Health, on leave during the first semester.

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Prof. Arnold E. Aronson of the UW speech department has been elected chairman of the Speech and Hearing Disorders Interest Group of the Speech Association of America.

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Dr. Van R. Potter, of the oncology department in the UW Medical School, addressed the Land-Grant Centennial celebration Monday, Feb. 12, at South Dakota State College, Brookings. Dr. Potter, a graduate of South Dakota State, spoke on "Concept of Human Progress."

-0-

Dr. Maxine McDivitt, UW professor of home economics, took part in the Nutrition Education Conference in Washington, D. C., Jan. 29-31.

###

# WIRE NEWS

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

12/11/61 gr

RELEASE:

Immediately

MADISON, Wis.--The establishment of a new national laboratory to probe basic weather and atmospheric processes will formally be celebrated at ceremonies Dec. 12 and 13 in Boulder, Colo.

The University of Wisconsin will share the operation of the laboratory with 13 other universities. UW Vice-President A. W. Peterson and meteorology Prof. Reid A. Bryson are members of the board of trustees of the administering corporation, and have been active in planning for the laboratory since its inception.

High officials of the 14 member universities of the University Corporation for Atmospheric Research (UCAR) will meet for the ceremonies, together with national, state, and local representatives. Prof. Bryson will represent UW Pres. Conrad A. Elvehjem.

The mission of the laboratory, called the National Center for Atmospheric Research (NCAR), is the study of the earth's atmosphere and the influences on it from the ground and ocean, and from the sun and cosmic sources. It may lead to improvement of long and short term weather prediction, and to a realistic assessment of weather control on local, regional, and continental scales.

The NCAR resulted from a suggestion of the National Academy of Sciences. It recommended in 1958 that a national center be formed to tackle problems whose solution was beyond the ability of individual universities.

-more-

Add one--NCAR

The National Science Foundation is supporting the center, which since last year has been located temporarily at the University of Colorado. Plans are being drawn for a permanent laboratory to be located on Table Mountain, near Boulder. It will house about 500 people when completed in six or seven years.

The Colorado ceremonies will also merge the UCAR with the High Altitude Observatory (HAO), which has operated solar and astrophysical research facilities in Boulder and Climax for the past 15 years.

The HAO is one of the leading observatories in the field of astrogeophysics which is the study of the sun, its atmosphere, and its effects on the atmospheres of Earth, Venus, and Jupiter.

Although the center is administered by UCAR, research will not be restricted to these universities. "On something as global as the atmosphere, the only sensible approach is an international one, and so the laboratory will be national and international in nature," according to Prof. Bryson.

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## BIOGRAPHY

Reid A. Bryson

Professor Reid A. Bryson joined the faculty of the University of Wisconsin-Madison in 1946 at the end of his military service as a Major in the Weather Service of the Army Air Corps. His first appointment was in the Department of Geology (in which he had been a graduate student prior to World War II) and in Geography. In 1948 he started the Department of Meteorology and was its first professor and chairman. That department is now the largest and one of the most prestigious in the nation.

While on leave at the University of Arizona in 1956-57 he also started their Department of Atmospheric Science.

Throughout his career, Bryson has been interested in interdisciplinary studies, and especially in the relation between human history and the physical environment, especially climate. He was active in the University's Interdisciplinary Studies Committee on the Future of Man, and the following committees which led to the establishment of the Institute for Environmental Studies, being named its first Director in 1970.

Bryson received his B.A. degree in Geology at Denison University in 1941, his Ph.D. in Meteorology at Chicago in 1948 and an honorary D.Sc. from Denison in 1971. He has written about 190 articles and 5 books ranging over geology, limnology, meteorology, climatology, archaeology and geography. One book received the Banta Medal for Literary Achievement, and one article, a mixture of related original poetry and science, was chosen as the "outstanding learned article of 1981" by the Educational Press Association.

Born in Detroit, Michigan, in 1920, he regards Wisconsin as his home state, his profession as primarily teaching, and his field as interdisciplinary earth science with a strong humanistic component.

# U. W. NEWS

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

11/21/61 j1

RELEASE:

Immediately

MADISON, Wis.--University of Wisconsin meteorologists riding a four-engined Navy Neptune research bomber have been following the progress of winter as it closes in over the northern hemisphere.

The UW climatologists have been utilizing the long-range capabilities of the P2V Neptune to study the freeze-up pattern of northern lakes, a technique useful in determining the pattern of winter weather as it spreads southward.

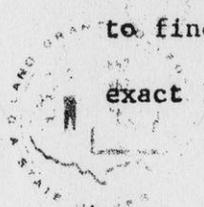
Directing the project are UW meteorologists Reid A. Bryson and Robert A. Ragotzkie.

"The freeze-up pattern of lakes over a wide area gives us important clues to the nature of the annual cycle of heating and cooling of the earth's surface," says Ragotzkie, who headed the flying team of UW meteorologists on "Operation Freeze-Up."

The annual cycle of heating and cooling is short on heating and long on cooling in the north, as might be expected. Lakes at the northern end of the study area began freezing up during the first week in October. The freeze-line, as the scientists call the front of frozen lakes, has been followed by the scientists since mid-October.

The Navy Neptune patrol bomber is ideally suited to the purpose. It has exceptionally long range and can fly in all weather. This allowed the scientists to find the freeze-line and follow it in a criss-cross pattern to determine its exact location from day to day.

-more-



# RADIO NEWS

4/14/49

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

RELEASE: Sunday, Apr. 17  
and thereafter

Madison, Wis.--The story of the search by two young Wisconsin scientists into the mysteries of weather and plant life will be told this week on the University of Wisconsin Symphony orchestra broadcasts on 64 radio stations in Wisconsin and Upper Michigan.

The intermission speaker, Dr. Reid Bryson, will tell of the project he and his fellow meteorologist, Vernor Suomi, are working on, a project which combines the talents of a team of experts in biology, agriculture, and engineering.

They are seeking precise measurements of the relation of weather to crops.

The orchestra will feature a group of selections included in the Wisconsin High School Music association contest repertory this year: a Bach chorale fugue, "All Glory Be to God on High;" an "Air" by Jonathan Battishill; the adagietto from "L'Arlesienne Suite No. 1;" and the "Air d'Ballet" from Carl von Gluck's opera, "Alceste."

The program will be broadcast in this area by

EDITORS: PLEASE PICK UP LOCAL LISTINGS FROM THE ATTACHED SHEETS.

UNIVERSITY OF WISCONSIN  
NEWS SERVICE

WASHBURN OFFICE BUILDING  
MADISON 6, WISCONSIN

OFFICE OF THE DIRECTOR

April 6, 1949

Dear Sir:

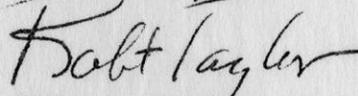
The University of Wisconsin Band and Symphony Orchestra match talents in the next two shows in our current series.

Program 59, for broadcast during the week from April 10 through 16, will feature the band with Emmett Sarig conducting. The numbers: Kenneth Alford's march "Dunedin," "Tramp, Tramp, Tramp" from the Schubert musical "Naughty Marietta," an oriental "Kurdish Fire Dance," and the march, "Our State Guard." The intermission speaker will be Prof. Robben Fleming, director of the University Industrial Relations Center. He'll explain the workings of the Center.

Program 60, for broadcast during the week from April 17 through 23, will feature the University Symphony Orchestra, Richard C. Church conducting. The selections chosen for the show, all compositions included in the Wisconsin High School Music association contest repertory this year, include a Bach chorale fugue, "All Glory Be to God on High," an "Air" by Jonathan Battishill, the adagietto from "L'Arlesienne Suite Number One," and the "Air d'Ballet" from Carl von Gluck's opera "Alceste." The intermission speaker will be Dr. Reid Bryson, who is doing some interesting weather studies at the University.

Thanks once again for your splendid cooperation in bringing these programs to your listeners.

Sincerely,



Robert Taylor  
Director



# U. W. NEWS

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

2/18/49

RELEASE: Monday, February 21

## CUTLINES FOR ACCOMPANYING PICTURE

Professor Suomi is shown mounting a new sensitive electronic wind detector on a 36-foot tower in a corn field at the University of Wisconsin. The data from this device and an equally sensitive instrument for measuring humidity, when fed into a special computer now being developed, should yield much more precise information on the amount of moisture and heat leaving and returning to the ground than was previously available.

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# FEATURE STORY

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

2/18/49

RELEASE: Monday, Feb. 21

by Kenneth G. Johnson

One of the fundamental problems of agricultural research-- how crops use their supplies of heat and water --is being attacked by the team work of five departments at the University of Wisconsin.

Their discoveries, interpreted in long-range terms of plant breeding and soil use, may some day prove of incalculable value to farmers.

How can such diverse departments as electrical engineering, meteorology, civil engineering, soils, and plant pathology work on the same problem? The answer lies in the complex nature of the problem and an idea of the two-man faculty of the recently-established Wisconsin meteorology department.

The two men, Profs. Verner Suomi and Reid Bryson, discovered that the University of Wisconsin owns the biggest flower pot in the world--a 120 acre corn field on the University campus.

The field was created by filling in a bay of Lake Mendota and has been used for 28 years to raise food for dairy cattle. Since it is below lake level, water seeps in from the lake. Whenever it reaches the desired level, an automatic pump sucks out the excess.

What the young scientists realized is that the field acts as a lysimeter--a moisture-testing instrument based on the flower pot principle. The amount of moisture coming in, via rain and seepage, and the amount going out, via the electric pump, can all be measured, just as it could in a giant flower pot.

For the first time, scientists are able to study the water-temperature cycle of growing plants in a very large area under known conditions. The difference between the income and outgo is the amount used by the corn and returned to the air through evaporation.

But even this valuable data does not satisfy the scientists. They are now developing delicate instruments to follow the evaporation part of the water cycle.

Water is easy to measure when it is a liquid, but in its gaseous form it can be quite elusive.

Agriculturalists have been studying this problem using rough reports on rainfall and temperature for many years but have always been hampered by a lack of accurate data. The meteorologists hope to get continuous records, detailed with tenth-of-a-second changes, of the moisture and heat actually received by the area and used by the plants.

That information could become of major importance in the hands of plant and soil scientists.

It could help them understand the growth of plants and their needs. It could indicate the possibilities of various crops in different regions and the strains of plants worth breeding for specific conditions.

ad two--Suomi

"Although the meteorology department is working on the project under a grant from the Wisconsin Alumni Research foundation (WARF), the effectiveness of our research is greatly enhanced by the cooperation of a number of departments on the campus," Professor Suomi said. "Four departments are giving us constant aid and still others have offered valuable suggestions. The 'teamwork' approach in research is a strong Wisconsin tradition.

"Prof. Arno T. Lenz of the civil engineering department has set up a device to measure the water flowing off the field.

"Prof. Vincent C. Rideout of the electrical engineering department is helping in the construction of a computer that will come<sup>/out/</sup> with an answer instead of a large volume of graphs. By feeding the data we obtain from our instruments into such a device, our answers will be more accurate and hundreds of man-hours, usually spent interpreting graphs, will be saved. The data will be tape-recorded in the field, then run through the computer back at the office. In this way we can not only keep an original record on tape but can keep the delicate computer in a more protected place.

"The problem is one the plant pathology department has been studying for a long time and Prof. James G. Dickson of that department has been our guiding light.

"The role of the soil in the heat-moisture cycle is pretty much a mystery to us, so we turned to Prof. Robert J. Muckenhirn of the soils department for help on that phase of the problem.

"No matter whom we have asked for help, we've always received an enthusiastic response."

ad three--Suomi

One of the instruments for gathering split-second data is a dew point indicator invented by Professor Suomi. It is many times more sensitive to changes in humidity than gauges now in use.

The instrument measures the amount of humidity in the air by finding the temperature needed to condense it, the way a cold surface takes moisture from nearby air as "sweat" on a sultry day.

Suomi's instrument uses a tiny mirror cooled by a <sup>/copper/</sup>cooled/rod beneath it. As the mirror is cooled below the dew point and condensation starts to fog it, a photo-electric eye watching the process from above turns on an electric heater. The heater is precisely controlled to balance the cooling, and the rod and heater keep the mirror's surface exactly at the dew point.

When the humidity of the air changes, the instrument's hot-cold balance shifts automatically to bring the mirror to the temperature of the new dew point. The mirror's temperature becomes an index of humidity.

A second instrument is being developed to record simultaneously the up-and-down flow of air and the temperature of that air by measuring the speed of sound in it. The speed of sound in air varies with the temperature and sound can be "pushed" or held back by the wind. This device uses principles of radio to time sound waves.

The two instruments, when combined with the electrical computer, will be called a fluxmeter. The device is expected to record continuously changes in humidity, temperature, and wind within a tenth of a second. The records of the electric pump will be used as a check against the evaporation readings of the fluxmeter. Once the instrument has proven its value, it will be usable in areas where there is no "flower pot" and electric pump to aid calculations.

ad four--Suomi

Although these micro-meteorological devices were not ready for use this past summer, the researchers gathered data from their giant flower pot.

They learned, for example, that the corn and the electric pump work as a smooth-running team to take moisture out of the field. The corn "pumps" by transpiration--taking water in through its roots and permitting it to evaporate into the air.

Records of the operation of the electric pump showed that it works hard all night while the corn "pumps" are idle. At dawn, as sunlight begins to touch the field, the corn starts "pumping", reducing the water level until the electric pump can slow down.

On a hot day, the corn pumps away briskly, while on a cloudy day, it sucks out the water more slowly.

"We hope our instruments and our methods will make a worthwhile contribution to this problem," Professor Suomi said. "When interpreted in relation to the studies of photosynthesis and plant growth now being conducted by University chemists, biologists, and physicists, our findings may prove of immense practical value to farmers.

"We are particularly fortunate here at Wisconsin in having authorities in a number of fields all on one campus. The work we are attempting to do is too broad to be confined to one department or even one college. The response we have received from other departments has been most gratifying."

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# FEATURE STORY

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

8/21/52

RELEASE:

August 28, Thursday

By SELMA PARKER

Madison, Wis.--Secret waves, surging fathoms deep, make Lake Mendota's subsurface fascinating as any human's subconscious to University of Wisconsin meteorologists.

Just as psychiatrists find emotional turmoil beneath calm exteriors when they study temperament, these scientists were studying Mendota's "temperament," her flexible temperature layers, when they found that the lake can look like a glassy mirror and still hide violent waves.

The four meteorologists, who are now engaged in a concentrated attack on their water project, after three exploratory years of "coke-bottle" fishing in the lake and "bathtub sloshing" in the laboratory, are [Reid Bryson], department chairman, Charles Stearns and P. M. Kuhn, meteorology research assistants, and R. A. Ragotzkie, working on a joint Ph.D. in Meteorology and Zoology.

Strange fishing calls for strange gear--and instead of the conventional fishhook, Bryson and Stearns dangle a five-pronged hook sealed in a coke bottle from the end of their line.

The hook is one end of a thermopile that picks up the temperature at a fixed depth and sends it up to a thermocouple amplifier in the boat. The portable amplifier, unlike anything available on the market, was perfected by Stearns, under the direction of Prof. V. E. Suomi. Temperature variations appear as wavy lines on a roll of graph paper.

ad one--wave study

If there were no waves below, there would be no pronounced temperature ripples on the graph, because ordinarily the "thermocline", the sharp borderline between the warm upper layer and the cold one beneath, remains at a fairly stable level.

But violent waves do exist, and they churn the hot and cold layers at the thermocline. The temperature at one spot shoots up, drops down, over and over again, and its pattern is repeated in miniature on the graph.

What causes this subsurface turmoil? On a windy day the top waves are pushed along the lake, piling up the water at one end. The waves, the water pile-up, and underwater ledges are responsible for pressure differences that create new waves at a lower level.

Twenty-four hours later, the lake may have settled to a silky smoothness externally, but these internal waves are still rolling along effortlessly, often larger than surface waves because they represent less energy.

"It would take a 60 mile-an-hour wind to raise four-foot waves at the top," says Bryson, "but so little energy is needed to deform the inner surface that half-foot waves of the upper level are equal to ten-foot waves below. There is little to stop them until they get deep enough to be chopped up by lakebottom irregularities."

The more violent the waves, the better Bryson likes it, because he needs a violent answer for the question bothering him and his colleagues. Here's the way Bryson explains it:

"The summer sun heats Mendota's warm upper layer degree by degree until about the middle of July. Then the temperature stands still, and something new begins--the warm layer moves steadily downward, until by September it has pushed the thermocline and the cold layer out of existence.

-more-

ad two--wave study

"What heats the water so far below the surface? None of the off-hand answers will do. The sun can't penetrate that far, and Mendota's most sensational windstorms only dent her surface. Molecular exchange of hot and cold water at the thermocline?--That would take years, not days.

"No, it takes some pretty violent mixing to heat up a whole lake in a hurry. It's our hunch that these lower waves, whose existence we've proved, are strong enough to do the trick. We're gathering data now, and we hope to prove that the waves are like a giant mixmaster, with the lake a bowl in which hot and cold are blended to a 'batter' of uniform temperature."

Ragotzkie and Kuhn are the "bathtub team." Working with a tank model in the laboratory they have created subsurface waves that break at one end of the tank, and have studied the new underwater wave crop. Comparing lake and tank statistics, they have just prepared a report, "On the Nature of Fresh Water Internal Waves."

Laymen might feel that the meteorology department, having proved that rough underwater waves exist, already has the answer to the question of what warms up Lake Mendota. But scientists don't reach conclusions that swiftly.

"We need a lot more data, a great deal more research, before we can call this idea more than just a hunch," says Bryson.

####

# UW news

From The University of Wisconsin-Madison / News Service, Bascom Hall, 500 Lincoln Drive, Madison 53706 / Telephone: (608) 262-3571

Release: **Immediately**

11/13/78 jhs

## METEOROLOGY DEPARTMENT TO CELEBRATE 30TH ANNIVERSARY

MADISON--The meteorology department will celebrate its 30 years as a degree-granting division of the University of Wisconsin-Madison Friday and Saturday (Nov. 17-18) with an open house and with looks at the past and future of weather prediction.

The department was founded July 1, 1948, with (Professor Reid A. Bryson) at the helm.

The open house Friday, from 9 a.m.-3 p.m., will give alumni and the public a look at department quarters in the Meteorology and Space Science Building, 1225 W. Dayton St., a 15-story tower capped by twin satellite antennas. Inside, the department operates an advanced weather station linked to the U.S. Weather Service and has computer screens displaying satellite weather pictures.

Later Friday, from 4-6 p.m. in Room B-1 of Lowell Hall, 610 Langdon St., three meteorology professors--including Bryson--will discuss the past, present, and future of weathercasting. Bryson will address problems in forecasting while Heinz H. Lettau will talk about early weather experiments. Verner E. Suomi, who joined the department the same year Bryson started it, will talk about the future of weather forecasting.

The session is free and open to the public.

A Friday night invited banquet at Lowell Hall has already drawn 150 responses and will feature Professor F. Kenneth Hare, director of the Institute for Environmental Studies at the University of Toronto. A past president of the Royal

Add one--meteorology department

Meteorology Society and a councillor of its American counterpart, Hare will talk about UW-Madison's role in the study of climatology.

On Saturday, the department will look at its own strengths and weaknesses through a panel discussion involving four alumni: Professor Warren Knapp of Cornell University, William Smith of the National Oceanographic and Atmospheric Agency, Air Force Major Gerald Dittberner and Madison television weathercaster Terry Kelly of WKOW.

Since its founding three decades ago, the department has graduated 105 students with doctorates and about 180 students with master's degrees. It produces more than 20 bachelor's degree graduates a year.

Although degrees have been granted for only the past 30 years, the history of weather research and instruction at UW-Madison goes back to 1853 when Professor J. W. Sterling and some students began making observations from atop North Hall. One of those students was the famed naturalist, John Muir.

The first course in meteorology was taught by F. H. King, first American professor of agricultural physics and founder of the UW soils department, and the science and art of weather has been taught continuously here since 1888.

Another leading name in Wisconsin meteorology was the late Eric R. Miller, who left the U.S. Weather Bureau to join the faculty in 1908. In 1920, on WHA radio, he introduced the first broadcast weather forecast.

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## Add one--Operation. Freeze Up

"It is of interest that in the far north the line is quite distinct and definite," says Ragotzkie, "with a relatively narrow transition zone between areas where all lakes are open to those where they are all closed. Farther south, this is not the case--the transition zone is very broad, extending several hundred miles north and south."

This difference between the early winter weather of the far north and that of the south has not been noted before, to the UW scientists' knowledge, primarily because this is the first time a fall freeze-up has been followed in such detail.

The scientists are employing the annual heat budgets of lakes in the various regions of the northern hemisphere as climatic indicators. It is, in a sense, as though the lakes serve as remote natural weather recording stations.

"Using this information, we can make certain inferences regarding climate," says Bryson in describing the research. "It is expected that the information will be important in studies--both at Wisconsin and elsewhere--of long-term climatic changes and broad weather patterns over the northern hemisphere."

For example, one of the team of flying scientists, James A. Larsen, UW science editor and project botanist, is using the climatic information to interpret differences in the natural vegetation of the earth's surface from prairie to treeline and into the far northern tundra; another scientist, Bernie Lettau, is studying the heating and cooling of soils and peat deposits throughout the vast area covered by the research.

Other UW scientists taking part in the research are James McFadden, who is developing methods of obtaining temperatures of land and water surfaces from an aircraft; Mark Shulman, who is utilizing growth rings of trees to obtain information on climatic changes of the past; and Ernie Sabbagh, a climatologist with Antarctic experience. Victor W. Sim, a geographer of the Canadian Department of Mines and Technical Surveys, participated in some flights as an observer.

# U. W. NEWS

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

10/17/61 jb

RELEASE:

Immediately

MADISON, Wis.--For the first time, the International Congress of Limnology will meet in the United States. The 15th session will be held at the University of Wisconsin next Aug. 20-25.

More than 500 delegates, including 200 from foreign nations, will attend, according to Prof. A. D. Hasler, director of the UW Hydrobiology Laboratory and chairman of the executive committee for the congress.

Two members of the Wisconsin faculty will present papers. They are Dr. Gerard A. Rohlich, director of the Hydraulic and Sanitary Laboratory, and Prof. Reid A. Bryson, meteorologist.

The program, to cover a wide range of subjects related to the study of lakes and streams, will include tours to Rhinelander, Trout Lake, Milwaukee and Port Washington, Wis. Tours to other parts of North America are being arranged for the guests after the congress adjourns.

The array of speakers includes limnology authorities from Finland, Russia, South America, Canada, the United States, Austria, France and Germany.

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# MADISON NEWS

9/25/61 ns

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

RELEASE: Immediately

MADISON--Edward J. Connors, superintendent of University of Wisconsin Hospitals, will chair a panel discussion on supervisory training in hospitals at the American Hospitals Association meeting, Atlantic City, N.J., Sept. 28.

Richard R. Vevle, assistant superintendent, will also attend the meeting.

-0-

Prof. Reid A. Bryson, of the UW meteorology department, plans to attend the First National Shallow Water Research conference next month, a progressive gathering which will take him to three states.

The meetings will be held Oct. 20-28 at John Hopkins University, Florida State University and the University of California at Los Angeles.

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Mrs. A. J. Shafer, staff member of the UW department of physical education for women, who was recently elected president of the Wisconsin Garden Club Federation, has been granted a life membership in the National Council of Garden Clubs.

During this month Mrs. Shafer served as program chairman for the Wisconsin federation's annual convention, held in Madison, and took part last week in the program of the central region of the National Council in Chicago.

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Prof. Reinaldo S. Barreto, UW department of anesthesiology, presented a paper at the meeting of the Wisconsin Surgical Society Sept. 16 at Wausau.

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Dr. Ruth A. Stoerker and Dr. James H. Barbour, UW department of anesthesiology, attended the meeting of the New England Society of Anesthesiologists at Portsmouth, N.H., Sept. 11-16.

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# MADISON NEWS

5/5/60 jl

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

RELEASE: Immediately

MADISON, Wis.--Prof. Reid A. Bryson, chairman of the University of Wisconsin department of meteorology, has been elected a member of the executive committee of the board of trustees of the University Corporation for Atmospheric Research.

This organization is composed of 14 member universities conducting graduate instruction and research in meteorology. It was formed to develop large-scale facilities at which students and faculty members from each school can conduct research.

Prof. Bryson will serve as scientific representative from the University of Wisconsin. A.W. Peterson, vice-president in charge of business and finance, is Wisconsin's administrative representative on the committee.

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# MADISON NEWS

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

RELEASE:

5/6/60 ml

Immediately

MADISON--Two University of Wisconsin professors have been invited to speak in Chicago this weekend (of May 6) at a symposium on Quantitative Methods in Geography. The meeting is under auspices of the National Research Council and sponsored by the geography branch of the Office of Naval Research.

The invited speakers are [Reid A. Bryson], chairman of the UW department of meteorology, and Arthur H. Robinson, professor of geography and faculty member of the UW Integrated Liberal Studies curriculum.

Robinson will speak on "Some Aspects of the Statistical Surface." His paper concerns certain statistical methods applied to regional variations of such things as population density or precipitation. Co-author of the paper is Miss Lucy Caroe, formerly a fellowship student at Wisconsin who is now at Cambridge University, England.

The second paper was written by Prof. Bryson and John Dutton, a project assistant in meteorology. Entitled "The Variance Spectra of Certain Natural Series," it deals with changes revealed through a study of 3,000 years of tree ring data and certain statistical techniques applied to terrain.

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# U. W. NEWS

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

4/29/60 j1

RELEASE:

MADISON, Wis.--The state's official organization for the advancement of knowledge, the Wisconsin Academy of Sciences, Arts, and Letters, will hold its annual meeting at the University of Wisconsin May 6-8.

The Academy membership is made up of Wisconsin citizens in all walks of life, engineers, lawyers, teachers, college professors, doctors, librarians, housewives, and many others, who have an interest in advancing knowledge and education in scientific and cultural fields.

This year's meeting will have as its special feature a symposium on "Wisconsin's Inland Lakes," with speakers drawn from the state's outstanding scientists and historians. Speakers include Arthur D. Hasler, well-known University of Wisconsin lake scientist; Reid A. Bryson, noted UW meteorologist and expert on the physics of lake temperatures; Gerard A. Rohlich, UW specialist on water contamination; Edward Schnerberger, head of lake research for the State Conservation Department; Alice Smith, historian and member of the State Historical Society staff; and Frederic G. Cassidy, linguist and expert on how the various state lakes and other areas were given their names.

Other scientific and scholarly sessions of the program will feature a number of papers to be presented by Wisconsin scientists and scholars from all parts of the state. Separate sessions will be given over to biological and physical sciences and the various fields of the humanities. The sessions for formal papers will be held Saturday. A reception Friday evening will begin the week-end meeting, and field trips will be held Sunday to observe University research projects on Lake Mendota and in the University Arboretum and to visit the Edgewood Academy Biological Station.

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add\*one--Academy of Sciences, Arts, and Letters

Outstanding state high school student-scientists will hold a concurrent session of the Wisconsin Junior Academy of Science on Saturday afternoon. The annual academy banquet is Saturday night.

All interested Wisconsin residents are invited to the meeting without charge.

The meeting is the 90th annual session to be held by the Academy. It was founded in 1870 and chartered by the state with its specific purpose "the promotion of sciences, arts, and letters in the state of Wisconsin." At the present time, some 80 percent of the active members live in some 40 cities and rural areas of Wisconsin. The remainder live in 26 other states.

The Academy, in addition to holding regular annual meetings to permit members to report on their interests and research efforts, publishes an annual scholarly journal, the Transactions, and a quarterly magazine, The Wisconsin Academy Review. Membership is open to all interested persons, and the annual dues are nominal.

"The Academy affords an excellent opportunity for all persons interested in the sciences, the arts, or literature, whether their interest is professional or whether they are amateurs or hobbyists, to keep up with the state events in their field," says Prof. Roger E. Schwenn, Academy secretary and University of Wisconsin librarian.

# FEATURE STORY

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

12/23/59 ml

RELEASE:

Immediately

By MACK LAING

MADISON, Wis.--A special airplane is flying an interesting mission these days from a busy little airport near here.

It has a "restricted" sign on it and if you looked closely, you could spot some unusual bumps on its belly and back.

It's a flying meteorological observation station. The pilot and crew are University of Wisconsin scientists.

Several times a week the blue and yellow twin-engined Cessna 310 with the big numbers N4884 on its starboard wing leaves the field and zigzags around the Madison area---over Lake Mendota, Waunakee, Lodi, Lake Wisconsin, Sauk City, Mazomanie, Arena, Cross Plains and back to its Middleton base.

On a typical day last week, the pilot was calling off the turns and his assistant was writing down time and location as they flew the roughly rectangular course.

Every few minutes, another time and location was called and written down. Wisconsin River slipped by below, another turn was made. Now over a range of low hills, again over an iced-in lake, then over flat farmland, always with occasional turns, new courses, more writing.

It's part of one of the projects conceived in the University's meteorology department. It's under the direction of Prof. Heinz H. Lettau and department chairman Prof. Reid A. Bryson.

-more-

add one--weather plane

The pilots in the flying program are: project assistant John Dutton, a meteorology graduate student who flies the Cessna 310 and Prof. Robert A. Ragotzkie, who will fly the department's newly-acquired Cessna 195.

Other researchers are: Capt. Kenneth Bauer, an Air Force meteorologist doing graduate work at UW; Walter H. Bailey, of the Office of Naval Research who is with the meteorological department for a year, and Bruce Giese, an electrical engineering student who helps to keep the instruments in working order.

Sponsored by both the Army and Navy, these University scientists have taken to the air for research on the planetary boundary layer of our atmosphere. That's the part of the atmosphere that lies between earth's surface and a height of about 5,000 feet.

In this atmospheric layer, many processes are going on. Sun rays are hitting earth--partly being absorbed, partly being bounced off--and temperatures, winds and turbulence are changing in relation to the "roughness" of the earth below.

It is obvious to scientists that these processes must be related. The Wisconsin researchers are trying to find the exact relationships. They also hope to know more about how these processes relate to the earth's surface--its roughness, its lakes, forests and farmland. Another part of the question is how the relationships change through the seasons and how they change from one area to another.

Before, the meteorologists put up towers and took measurements from them at a fixed location. Now, using an aircraft, the department can not only take its measuring instruments higher and over wider ranges, but can also pinpoint places of special weather interest where other towers might be useful.

The University's single-engined Cessna 195 is still being instrumented. Some of the instruments on the Cessna 310 were designed by UW meteorologists.

As the plane goes over its regular flight pattern at 2,000 feet, several measurements are taken.

add two--weather plane

Two pyrhelimeters, which look like 150-watt light bulbs sticking out a few inches from the top and bottom of the plane's body, measure sun energy.

The top pyrhelimeter measures short-wave energy coming toward the earth. The bottom one measures the amount of that energy reflected by the earth's surface. The ratio is called the albedo, and it gives a measure of the percentage of the sun's heat reflected by the earth.

The seasonal and geographic variations of the albedo are something no one knows much about. As far as the Wisconsin researchers know, they are among the first to measure these variations in such a broad program.

Another pair of instruments on the top and bottom of the aircraft are devices called economical net radiometers. These measure total incoming and outgoing radiation. This means both the sun's visible rays and the long, invisible infra-red waves from earth--the kind of radiation you feel when you stand in front of a fireplace.

By subtracting the pyrhelimeter measurements from the radiometer measurements, the scientists can determine the heat transfers between the earth and the atmosphere.

Another instrument, soon to be added to both planes, takes a direct measurement of temperature at the earth's surface.

A recording machine sits on the back seat of the five-passenger 310, flipping white blips of light onto a roll of light-sensitive paper. This gives a permanent record of what the outside instruments "saw" on the ground and provides the detailed information that goes toward the total picture. The clipboard jottings of the pilot's assistant refer the recorder's information to time and location.

The weathermen on wings have several different flight patterns. One is a short hour's hop around Madison. Another takes them on a longer jaunt into the northern half of the state. Because Wisconsin is a "melting-pot" of terrain and vegetation--lakes, fields, forests, flatlands and bluffs--the researchers are able

add three--weather plane

to study in detail the interaction of the atmospheric processes, ground features and the seasons in many different environments, but still be conveniently within 50 miles of home.

Another part of the project, in which the Navy is interested, is an overall environmental study from Madison to the Arctic Ocean. A lot of planning and field-work has gone into this northern project and flight investigations will probably begin next summer.

Again, this will be an attempt to answer the question: With all the interacting processes in our environment--atmospheric, lake, and vegetation--what are the few dependable measurements out of all the possible ones, which will allow us to make an accurate approximation of the big picture of our total environment?

The budget of energy--how much sun energy comes in and how much goes out--and how much is used to heat the ground and the air, or to evaporate water--is perhaps the best total description of the environmental processes.

As an example of seasonal change, meteorologists know that a lake absorbs roughly 95 per cent of the summer sun's energy but in the winter 50 per cent is bounced back.

A similar example of geographic change is a lake absorbing 95 per cent in summer, next to farm fields which are absorbing only about 85 per cent of the sun energy.

This causes a transfer of heat through the earth's atmosphere from the equator toward the poles. Heat transfers are what meteorologists want to know more about--for the whole world, for Wisconsin or for a lake or cornfield.

For this movement of heat is one of the basic causes of weather.

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# U. W. NEWS

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

11/4/59 hd

RELEASE:

Immediately

MADISON--Reid Bryson, chairman of the University of Wisconsin meteorology department, announced this week that crocus bulbs have been sent to observer-members of the recently formed Wisconsin Phenological Society.

The society's membership is comprised of an observer-network and individuals working in the biological and weather sciences who hope to establish better correlations between weather and various natural events such as the flowering of plants, yields of crops, and lake-ice breakup.

Crocus bulbs, grown in the Netherlands, were contributed by the Holland Bulb Grower's Association. These bulbs are being planted to permit volunteer observations and reports on the development of identical vegetative material in 1960 by members in all of the state's 71 counties.

Bryson, serving as chairman of the Wisconsin Phenological Society, indicated that observations of this nature may help greatly in interpreting early spring weather for all sections of Wisconsin.

As far as is known, the state-wide organization is the first such society to be established in the United States.

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7-7-59  
add one--travelers

Hughes, English, representing the University and reading a paper before the International Association of University Professors of English in Lausanne, Switzerland;

Instrs. Charles Forker and Joan Larsen, English, doing research in English libraries; Instr. Frank Horlbeck, art history, attending the meeting of the Royal Archaeological Institute at Brighton, England, and studying medieval architecture throughout western Europe; Prof. Menahem Mansoor, Hebrew studies, conducting a party of clergymen on a traveling workshop to the Holy Lands;

Prof. Warrington W. Colescott, art education, conducting an educational art tour of Europe; Prof. Dean Meeker, art education, studying in Italy, France, and Spain; Prof. Rudolph E. Langer, director of the U.S. Army Mathematics Research Center on the campus, and staff member Dr. Hans F. Bueckner, attending a conference on information processing in Paris;

Dean of Women Martha Peterson and Dr. Maxine Bennett, surgery, touring Scandinavia; Prof. Jost Hermand, German, traveling in Europe; Prof. Harold E. Kubly, commerce, also traveling in Europe; Prof. William G. Reeder, zoology, visiting laboratories in Europe; Dr. Donald W. Smith, medical microbiology, delivering two papers in Florence, attending the International Union on TB in Istanbul, and visiting western Europe; Prof. Harry D. Wolfe, commerce, working on a book in Copenhagen; and Teaching Asst. Raymond Bigger, English, teaching at a Quaker workcamp in France.

Faculty members in Canada include Profs. William S. Laughlin and Chester Chard, anthropology, on Southhampton Island studying Eskimos; Prof. Reid A. Bryson, meteorology, acting as principal investigator, and Prof. Erwin N. Hiebert, history of science, as historian, for Project Lake Ice near the Arctic Circle.

Prof. Hazel Alberson, comparative literature, and Esther Weightman, education, are traveling in Mexico; and Prof. Milton Barnett, anthropology, is studying the impact of the Wisconsin solar cooker on various Mexican Indian tribes.

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# U. W. NEWS

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

7/3/59 eda

RELEASE:

Immediately

MADISON, Wis.--The State Public Service Commission Thursday granted University of Wisconsin scientists permission to erect a small tower on the bed of Lake Mendota for investigation of climatic factors over the lake and their effect on lake circulation.

The triangular steel structure, much like a television antenna, will be located 1,000 feet west of Second Point at a site 2,000 feet from the lakeshore. It is to be anchored on a shoal 10 feet below the water's surface and will rise 20 to 30 feet above the water.

Charles R. Stearns, meteorology department project assistant, said Thursday that it should be in operation by Aug. 1. Stearns, together with Prof. Reid A. Bryson, meteorology chairman, and Prof. Heinz H. Lettau, principal investigator, secured Army support for the project and mapped out plans for the new research facility. It will be used cooperatively by University meteorologists and zoologists.

Total cost of the tower and its instruments is expected to be \$10,000. Another \$15,000 worth of equipment for recording instrument measurements will be located in a small building on shore near the Tent Colony, linked with the tower by two cables along the lake bed.

The tower will be illuminated by a permanent white light and a flashing red light. It will be removed when the lake closes, but may also operate from the ice surface during the winter.

The tower is designed for continuous measurements of wind velocity and direction, sunlight falling on the lake and reflected from it, heat radiated from the lake, light penetration below the water's surface, air and water temperature,

-more-

add one--Tower

water level, wave height, and sub-surface currents.

Data on these variables will be available at all times for use in other meteorological and zoological studies as well.

Zoologists hope to find in the new information a clue to how microscopic foods for white bass and perch--algae and daphnia--are spread through the lake.

Even more important to them is the opportunity to make cumulative records of environmental factors in the lake such as light penetration, temperature, and currents, as an aid to all lake biology projects.

Sub-surface currents will be measured at six different levels. And photo-cells will be used to record the penetration of light below the surface of the water at three different depths.

Meteorology department scientists are principally concerned with how air flows over the lake. Previous observations have shown that wind patterns differ over land and water, making the "over water" observation point a necessity for current studies on the interaction between air and water.

Wind velocity and air temperature will be recorded when desired by anemometers and thermometers at five positions on the tower ranging from 20 feet to slightly more than a foot above the water's surface. Sonic enemometers will be used to measure vertical wind velocities.

Information on all these variables will be used to determine "wind stress"--a quantity which expresses the total force per unit area exerted on the lake surface by wind. It is this force which drives lake currents. Wind stress, lake and air temperature, underwater currents, and radiant heat all work together to account for the intensity of lake circulation, and the lake's heat budget--the sum of heat coming in and going out.

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# WIRE NEWS

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

5/21/59 er

RELEASE:

Immediately

MADISON--Six University of Wisconsin undergraduates will be enrolled this summer in a new program which will take them into Canada and college laboratories for their first real taste of research.

The students will be part of a plan by the National Science Foundation to "encourage bright and capable undergraduates to learn the meaning of science through research" and to "capture the teachable moment when the young undergraduate shows early interest in scientific research", Alan Waterman, foundation director, said Thursday.

At Wisconsin the students will participate in a broad study combining geochemistry, ecology, limnology, and meteorology under the joint direction of Prof. Reid Bryson and John Neess.

Beginning in June, and continuing into the 1959-60 school year, the program will involve travel and field work in Canada and Wisconsin, as well as much computation and lab work on campus.

Support for the students involved will come from a \$8,920 grant to the University from NSF. Nationally, the grants made to 200 schools total \$1,700,000, and will provide funds to enroll more than 2,000 students.

At other universities the program will include research in other fields. Projects may be individual or team studies, involving several undergraduates and faculty members.

The Foundation hopes that this experience will prove "most stimulating to student and teacher alike." Additional benefits are expected to include the recruitment of superior graduate students for advanced degree work, according to Prof. Neess.

# U. W. NEWS

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

RELEASE:

3/23/59 jl

Immediately

MADISON, Wis.--Two University of Wisconsin faculty members, Prof. Reid A. Bryson and Vice Pres. A. W. Peterson, have been appointed trustees of the newly-organized University Corporation for Atmospheric Research and they will participate in a board meeting April 2 in Tucson, Ariz.

Bryson is chairman of the UW department of meteorology and Peterson is UW vice president in charge of business and finance.

Purpose of the new organization is three-fold: to encourage research on the earth's atmosphere, increase the number of trained scientists available for research, and provide additional support for graduate training programs in meteorology in the nation's universities.

Twelve universities, in addition to Wisconsin, are participating in the program. They are the Massachusetts Institute of Technology, New York University, Florida State University, Cornell University, University of Chicago, St. Louis University, Texas College of Agriculture and Mines, University of Arizona, University of California at Los Angeles, Pennsylvania State University, University of Washington, and University of Michigan.

At the present time, Bryson points out, some 200-300 scientists in the United States are engaged in meteorological research, too few in view of the numbers engaged in other types of scientific work and in view of the importance of meteorological investigations to the national welfare and defense. The new group has been formed at the suggestion of the National Academy of Science.

He added that the first task of the organization will be to obtain funds to establish a National Institute for Atmospheric Research at one of the member universities.

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add one-- faculty items

Schwalbach recently was appointed chairman of the national committee on foreign art exchanges.

-0-

[Dr. Reid Allen Bryson,] professor of meteorology at the University, will speak on the science of meteorology in two lectures April 20 at Concordia College, Moorhead, Minn.

During 1959 he is serving as visiting lecturer in meteorology to a number of colleges under sponsorship of the American Meteorological Society.

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# MADISON NEWS

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

3/16/59 ns

RELEASE: Immediately

MADISON--Martha Peterson, dean of women, and Emily Chervenik, coordinator of placement services, will represent the University of Wisconsin at the National Association of Women Deans and Counselors convention March 18-22 in Cleveland.

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Prof. Charles P. Yost, safety education, and John E. Anderson, G. Lawrence Rarick and J. Grove Wolf, physical education, will represent the University at the National Association for Health, Physical Education and Recreation meeting in Portland, Ore. March 29-April 2.

Anderson is president of the Wisconsin Association for Health, Physical Education, and Recreation Association. Yost is chairman of the safety education section meeting, Rarick of the teacher training section, and Wolf the research laboratory section. Rarick was recently elected to the American Academy of Physical Education.

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Prof. Joseph R. Dillinger of the University physics department will serve as visiting lecturer in physics at Grinnell College, Grinnell, Iowa, March 12-13.

His visit is sponsored by the American Association of Physics Teachers and the American Institute of Physics as part of a nationwide program, now in its second year, to stimulate interest in physics.

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Prof. James A. Schwalbach and Hardean Naeseth of the University art education faculty attended the annual meeting of the National Art Education Association in New York recently.

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# FEATURE STORY

2/23/59 eda

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

RELEASE: Immediately

By ED AFBISCHER

MADISON, Wis.--Evidence that Lake Mendota is an ocean in miniature in many respects--including submarine canyons--has been put forth by University of Wisconsin scientists.

In a report to the UW Lakes and Streams committee, [Prof. Reid A. Bryson] and Alison Lathbury of the UW meteorology department point out that:

1. The gently sloping shoreline area between the depth of zero and 20 feet is analogous to continental shelves in the oceans:
2. The steeply sloping area from 20 to 60 feet resembles the continental slopes of an ocean--the first 15 feet having the steepest gradient; and
3. The area below 60 feet is comparable to an ocean's abyssal flats.

Lake contours also show three distinct gullies, gullies that are miniature reproductions of submarine canyons found in oceans.

These gullies have sharp heads cut into the continental shelf of the lake, steep walls, clear-cut plunge pools, and slight but definite sills where they emerge into their channels and flow into the central deep.

The most prominent canyon lies southwest of Governor's Island. It runs northwest-southeast a few hundred yards from the island, and drops off from 45 feet at its head to an 84 foot maximum. From maximum depth in its plunge pool the canyon slopes upward, rising to 64 feet at the outlet.

The Governor's Island canyon runs 1,800 yards from its head to the point where it merges with the lake flat. And it is barely 200 yards wide. The slope of the canyon walls is steep, especially on the eastern side.

add one--Lake Mendota

There is considerable difference in heights of the eastern and western rims. The east rim lies just 10 feet below the surface, while the western rim is down 50 to 60 feet.

The Wisconsin researchers say it is reasonable to suggest that the canyon, and its two counterparts, were formed by the scouring effect of turbid water.

Turbid water is contributed directly at times by the Yahara River which flows into the lake at Catfish Bay. But more frequently turbidity is due to wave action on the shoal in the bay.

The glacial history of the Madison area is of interest to those attempting to puzzle out the origin of the canyons.

This was an area with well-defined rivers and valleys in pre-glacial times. Glaciation destroyed the old drainage pattern and left an irregular cover of ground moraine.

Lake Mendota is located in one of many depressions in this moraine. Temporary filling with ice might have made a slight impression in the drift, but this bears no relationship to the present canyons. Thus it is clear to the two University meteorologists that the canyons are a post-glacial feature.

Various theories have suggested that oceanic canyons may be due to changes in sea level, diastrophic events, artesian spring sapping, mud flow and landslides, and turbidity currents.

The only feasible explanation in a lake like Mendota is the turbidity flow hypothesis, Lathbury and Bryson say. Light transmission tests, though not in themselves indicative of silt and mud in suspension, have been linked with water density to show clearly that water of low transmissivity--water carrying a large amount of suspended sediment--is transported south of Governor's Island.

Suspended silt and mud makes water heavier and it sinks toward the lake floor by the force of gravity. This water, it is suggested, has the necessary abrasive power to scour the canyon.

# U. W. NEWS

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

7/26/58 er

RELEASE:

July 26

EAGLE RIVER, Wis.--Participation in a nationwide atmospheric research and education program by the University of Wisconsin was approved today by the Board of Regents.

The UW will be one of at least 13 universities throughout the country to form a non-profit corporation for the study of problems in climate control, satellite instrumentation, solar flares, high atmosphere effects on weather, and cosmic radiation. This research will call for an estimated \$11,000,000 budget annually.

Work on these and related matters will require more resources than any of the member schools has available. This was explained by Prof. Reid A. Bryson, UW meteorology department chairman, who is expected to be Wisconsin's representative on the group's board of directors.

Research projects of the corporation, which has not yet been named, will be directed by the National Institute for Atmospheric Research. Other branches will administer programs for fellowships, faculty visits, and other educational assistance.

Support for formation of the organization has been voiced by the President's Science Advisory Committee, National Academy of Science, and National Science Foundation. In addition, the recent Governors' Conference gave unanimous approval to the proposal.

Wisconsin and each member school will provide an initial investment of \$2,500, and annual payments of up to \$2,000 for five years thereafter. The bulk of the funds for research are expected to come from congressional appropriations. Various foundations may contribute to the educational program.

In addition to Prof. Bryson as scientific representative, the UW will probably appoint A. W. Peterson, vice-president for business and finance, as a

more

Add one - Atmosphere research

fiscal officer. Other faculty members, in meteorology and perhaps in other departments, will join in specific research projects.

Headquarters and laboratory location has not yet been decided, but Prof. Bryson comments, "We would like to have it here at Wisconsin."

UW already holds membership in such other cooperative organizations for scientific research as Midwest Universities Research Association (MURA) with headquarters in Madison, Association of Universities for Research in Astronomy (AURA), and the recently formed Associated Midwest Universities organization for cooperation with the Atomic Energy Commission's Argonne National Laboratory.

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# FEATURE STORY

1/5/59 eda

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

RELEASE: **Immediately**

By ED AEBISCHER

MADISON, Wis.--Nothing gives University of Wisconsin meteorologists more satisfaction than a prediction come true. And December weather bore out statistical analysis almost perfectly.

From the sharp dip in 20-year averages on flow of cold Canadian air into this country they could foresee the almost Spring-like warmth around Christmas.

Findings like this were summed up back in March when meteorology department chairman Reid Bryson and project associate Jim Lahey published "The March of the Seasons," an outline of just one of many natural calendars that can be found in the singular changes of state and action in the atmosphere.

Primary singularities--changes in meteorological phenomena which delineate seasons--are the basis of a natural calendar.

The singularity concept means that persistent weather patterns are broken up by rapid changes, instead of by gradual, progressive changes in solar radiation. Ultimately, however, slow changes in solar radiation do give rise to seasons.

Natural calendars go back to Aztec civilization. Then, symbols identifying the seasons were carved in relief around the Great Stone of the Sun.

In establishing their calendar, the two Wisconsin meteorologists picked out 17 different indices observed or derived from weather phenomena. Examples are flow of air between the U.S. and Canada, and "storminess," an ingenious index devised by G. P. Wadsworth in 1948 based on differences in pressure around a given parallel of latitude.

Bryson and Lahey plotted the ups and down of these 17 indices against the

-more-

add one--seasons

months of the year. To arrive at a natural calendar they picked out the points of significant change on each of the 17 graphs, and marked them on a composite chart.

Many major changes fell within a few days of each other. For instance, at or around March 21 significant changes were noted in nine of the indices. At a point late in June, eight major changes fell together. Around Aug. 21, six indices lined up, and five fell almost exactly on Nov. 1.

These four most prominent divisions became natural seasons. Sub-seasons occur when two or three indices coincide on the chart. Such a case in mid-January marks one of four sub-seasons in Winter.

Here is the seasonal calendar that emerges from the singularities.

WINTER--Nov. 1 to March 21--a period of high storminess with the major polar frontal system far to the south in the Northern Hemisphere.

SPRING--March 21 to June 25--a period of intermediate storminess with diminishing frontal intensity.

SUMMER--June 25 to Aug. 21--a period of little storminess and weak fronts.

AUTUMN--Aug. 21 to Nov. 1--a period of increasing storminess with the polar front moving southward and intensifying.

Still open to speculation, the Wisconsin meteorologists admit, is the question of just what triggers changes in boundary conditions, and accounts for the natural seasons.

One possibility that Bryson and Lahey say deserves immediate investigation is the rapid disappearance of the snow cover over very large areas of the Arctic in mid-June. The rapid change between high albedo (light reflected from the earth's surface) due to snow, and low albedo which is characteristic of brown tundra vegetation must have a considerable effect on the global heat budget, they point out.

The Wisconsin pair concludes that if "natural or meteorological seasons occupy similar portions of the calendar each year, then climatic statistics should not be expressed in terms of only monthly and seasonal averages, but should be summarized as natural periods," as in "March of the Seasons."

# FEATURE STORY

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

RELEASE:

Immediately

1/28/59 j1

MADISON, Wis.--The American author Thoreau termed a lake "a landscape's most beautiful and expressive feature."

University of Wisconsin scientists are working to show that a lake is also one of the earth's most sensitive gauges for measuring the energy-budget which characterizes the climate of a region.

A lake, for example, gathers heat from the summer sun. It loses heat during the long, cold months of winter. This heat budget--usually expressed in calories--varies with latitude and who knows how many events of weather such as winds, rains, snow, and cloud cover.

The convenient thing about a lake heat-budget, the scientists explain, is that it summarizes all of these events of climate and weather--integrating all into one easily-calculated quantity. By measuring the water temperature at regular intervals throughout the year, it is possible to arrive at a summary figure characteristic of the climate of the area in which the lake is situated.

It is, in a way, a system of reducing a tremendous number of variables into one, easily understood figure which provides a scientific picture of how climate works on the landscape--upon the plants, animals, geological forms, and lakes.

Interestingly enough, the character of a lake is determined to a considerable extent by its heat-budget. Northern lakes are clear and cold, often supporting limited plant and animal life. More southerly lakes are warm, supporting a larger variety and quantity of living things.

-more-

## Ad One--Lakeice

The same principle, in general, holds true for the vegetation which covers the landscape. Vegetation is subject to the same climatic events which work upon a lake. The plant life of a specific region, therefore, also represents, at least in part, a summing-up of environmental conditions.

The team of scientists embarking upon this study of lakes and regional vegetation is led by Prof. Reid A. Bryson, chairman of the University of Wisconsin meteorology department.

For an initial pilot-plant study of lake heat-budgets, begun in April of last year, lakes at 10 sites located roughly on a line between Lake Mendota at Madison--where the University of Wisconsin is situated--and Zed Lake at latitude 57° in northern Manitoba were selected.

Through the summer, University scientists took detailed temperature records of these lakes, using electrical thermometers attached to lines which permit the scientists to make readings at all depths.

The team conducting the work included, in addition to Bryson, James F. Lahey, climatologist, John Dutton, meteorologist and pilot of the especially-equipped airplane used to measure solar radiation, and James A. Larsen, project botanist. The radiation studies tie in with other meteorology department projects which are providing new information on the energy sources and transformations which power the world's weather.

Ice and lake studies are nothing new at the University of Wisconsin. One-time UW President Edward A. Birge began his academic career collecting data on the life-forms and heat-budget of Lake Mendota, beginning in 1894.

Since that time, lake heat-budget studies--or physical limnology as scientists term this particular field of research--have continued to be an important facet of UW meteorology department research.

Lake research expanded from Lake Mendota to other lakes in the northern part of Wisconsin during subsequent decades, and has also expanded into many other

Add Two--Lakeice

departments of the University--including zoology, botany, chemistry, bacteriology, and a host of others--and Wisconsin scientists are rated among world leaders in studies of many different aspects of lake science.

Scientists on "Project Lakeice," however, are investigating the use of heat-budgets and vegetation as climatic indicators.

During the course of the pilot study this past year, data on the heat budgets of the lakes, regional climatic indices, and vegetation types surrounding the lakes, has been gathered, along with measurements of ice-thickness during winter.

With a field assistant, Peter Hanson, a UW graduate now working as an Air Force physiologist, Larsen spent the summer conducting botanical surveys of major types of vegetational communities in areas around the study lakes.

Dutton and an assistant, John Kutzbach, an electrical engineering student, concentrated on measuring heat content and thermal stratification of the lakes and making air surveys of radiation to and from land and water surfaces.

Two of the researchers, Lahey and Larsen, recently returned from a two-week tour of the lakes, now frozen and in the depths of the northern winter. During the course of the work at the northernmost lakes, daytime air temperatures of -20 were commonplace, and -40 was encountered at Moosenose Lake at Ilford, Manitoba.

Local residents were careful to explain that they were enjoying a mild spell. During Christmas Holidays, for example, temperatures of -60 were common throughout the province and -72 was reported from the mining town of Thompson, located just north of a point along the railroad to Churchill.

Using the data on lakes and vegetation now available from the pilot study, the scientists now begin the task of relating the two kinds of information. Using aerial photographs of large areas surrounding the lakes, the botanists will determine the percentage of area occupied by the various vegetation types. The meteorologists will make initial calculations of lake heat budgets. The relationships between the two--between climate and vegetation--will be studied.

### Add Three--Lakeice

One of the practical implications of the project is that heat-budgets of remote lakes for which no accurate records exist can be inferred from studies of the vegetation surrounding these lakes.

From this inference, it may be possible to estimate thickness of ice for any particular lake during the winter months, after taking into account such things as snow depth, air temperatures, winds, and periods of time during which the ice may have been snow-free.

This information would be of considerable value to persons pursuing many types of activity in the Subarctic, and who plan to use remote lakes as airstrips or for winter transport using caterpillar tractor trains, for example.

In subsequent years, the Wisconsin meteorologists plan to penetrate farther north, into the little-known regions beyond timberline, where the vast Arctic tundra stretches across Canada's Northwest Territories.

Here the problems of ice--both of inland lakes and covering the sea where the atomic-powered Nautilus recently sailed--and of the relationships between vegetation and climate have been termed two of the most challenging in Arctic science.

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# FEATURE STORY

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

RELEASE:

Immediately

7/21/58 mcg

BY HAZEL MCGRATH

MADISON, Wis.--Travelers abroad this season are likely to rub shoulders with University of Wisconsin professors on the Spanish Steps in Rome, in the streets of Bucharest or Tel Aviv, or on the campus of Gadea Mada University in Indonesia.

They may meet them in Moscow or Munich, in Manila or Manchester, in Lisbon, Locarno, Brussels, Istanbul, Bangkok, Singapore, Panama City, New Delhi, or anywhere in the world that professional meetings, knotty research problems, or the lure of faraway places have drawn them.

Some are circling the globe in the scant weeks of summer. This small group includes Prof. Glenn Trewartha of geography and Prof. Reid A. Bryson of meteorology who are conducting research in climatology; Prof. Edwin Young of economics who is checking on the UW-Gadea Mada University economics project in Indonesia; and Miss Alma Bridgman, retired executive secretary of the economics department who, after more than 35 years of devoted service to the department, is flying around the world and finding friends at every stop.

The European delegation includes Emer. Prof. E. E. Witte of economics and his wife, who are touring the continent on funds given them for the purpose by students, colleagues, and friends on his retirement last year; Emer. Prof. Don D. Lescohier, economics, and his wife, who are traveling in eastern Europe and the Middle East; Prof. Paul G. Jones of the music faculty, who will stop at the Brussels Fair, attend a reunion with his former teachers at the American Conservatory in Fontainebleau, travel through Spain, Portugal, and Italy, and take in the Mozart Festival in Salzburg;

more

# CUT LINES

1/8/58 j1

*Bryson, Reid*  
*(See meteorology PIX file)*

FROM THE UNIVERSITY OF WISCONSIN NEWS SERVICE, MADISON 6, WISCONSIN  
**AT WILL**  
**RELEASE:**

Ice thickness on Lake Mendota is checked by University of Wisconsin meteorologist Reid Bryson (left) and geologist Robert Black. Bryson is directing a research project into some of the characteristics of ice and the energy budget of lakes along a transect from Lake Mendota to northern Manitoba, Canada. The project also aims at revealing some of the geologic and vegetational features of the areas around lakes. The instrument on the ice is one used to record the light transmission capabilities of ice and water. It is lowered into the lake and reveals the amount of light which the ice and water are capable of transmitting to various depths.

--Gary Schulz Photo

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# FEATURE STORY

12/2/57 j1

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

RELEASE: Immediately

By James A. Larsen

MADISON, Wis.--Thousands of lakes of the northern portion of this hemisphere and Europe--famed for their beauty and recreational attributes--within recent years have become the subject of an unusual increase in scientific interest.

The interest is centered upon neither beauty nor recreation--but rather upon a unique potential for use during winter when snow and ice stretch across the continents.

It is becoming apparent that these lakes may have considerable military value. Across the Arctic wastes lie hundreds of potential air fields--bases for winter transportation routes and defense.

University of Wisconsin meteorologists under Prof. Reid A. Bryson have begun a study of the ice of northern lakes--research which may help open the Arctic to winter transport, and who knows how many additional practical pursuits.

Among the facts which must be gathered are average dates of freezing and thawing of lakes in various parts of the continent, thickness of ice at various times of winter, and, hence, the weight that the ice could be expected to support safely.

The scientists are studying the importance of ice ridges and other characteristics of an ice sheet. Are ice ridges, for example, indicative of thick or thin ice? Does snow cover increase or decrease ice thickness in spring? Questions like these must be answered before practical utilization can take place.

In a report on ice research to the UW lake investigations committee, Bryson and William W. Bunge, Jr., pointed out recently that the history of research on ice is a long one. Sweden, Finland, Germany, and Switzerland pioneered the work in the 1800's, some was conducted in Japan and in the United States--mostly,

-more-

add one--ice research

in the case of the latter, at the University of Wisconsin.

Within recent years, Russia has apparently undertaken a tremendous amount of ice research, largely from the point of view of military application.

Others interested in ice and its effects are biologists attempting to alleviate winter-kill of fish, as well as loggers and shippers who have transportation problems aggravated by ice.

The late Edward A. Birge, famed lake scientist and UW president, collected at least 27 years of ice thickness data on Lake Mendota in Madison, Wis., and about 30 years of winter water temperature--for various periods during 1894-1930.

"The first investigations seem to have arisen out of the curiosity of amateurs," Bryson and Bunge point out. "Diary records of the opening and closing of lakes were kept by fisherman, ice cutters, and other interested people. Engineers have been interested in ice's effects on dams, while geologists have a long-standing interest in ice's role in producing shoreline features.

"Military science has spent considerable money and is achieving good results in basic research in all branches of the subject," the Wisconsin scientists point out, "and in more narrow military problems such as trafficability of ice to tanks and feasibility of using frozen lakes for landing fields."

Europeans--notably Russians, Norwegians, Germans, and Scandinavians--have voluminous records on dates of freezing and thawing of their lakes. There are observations for 50 years on 1,864 lakes in Sweden, and a series of observations on Lake Suwa that date from the year 1443. This information has been invaluable to meteorologists attempting to trace climatic changes.

A good deal of information has been obtained regarding processes involved in lake freezing and thawing. These processes are more complex than might at first be imagined--involved, each in its way, are air temperature, solar radiation and its effect on water temperature, evaporation, turbulence, conduction of heat, depth of the lake, area, elevation, shape, local precipitation, snow cover, and others.

-more-

Add two--ice research

One question scientists asked long ago, for example, was "Why does a lake freeze from the edges inward?" A physicist named Ernest Dorsey once answered this question in these words:

"As the water of a pond is being cooled, it is warmer than the air; consequently currents of warm air rise from the center of the surface, and cold air sweeps in from the sides. This chills the lateral waters, and is itself warmed thereby; thus the center of the surface remains warmer than the edge, and if the air temperature is not very low, the center may remain unfrozen long after the banks are bordered with ice."

Almost everyone familiar with northern lakes knows that a strong wind can "hold open" a lake many days.

"Even light breezes stir the water enough to prevent the necessary cool surface layer from forming," say Bryson and Bunge. "If the wind is holding a lake open, its cessation will usually herald a suddenly thickening ice sheet."

A recently-discovered manuscript of Birge--now being edited for publication<sup>by</sup> Bunge and John Neess, University of Wisconsin zoologist, shows that this early-day limnologist recorded many pertinent observations on the characteristic manner in which Lake Mendota freezes over.

Birge pointed out that there is often a considerable interval between the time the surface water has reached freezing temperatures and the time the lake freezes over. For Lake Mendota, this interval is from two to seven weeks. This retardation in actual formation of ice after temperature of the water has reached freezing is in large part due to the wind which keeps ice from forming.

Ice thickness has always interested persons who must travel across frozen lakes or rivers. One fact revealed by the Wisconsin scientists is that the ice along each side of a pressure ridge is usually thinner than average. The ice here has been forced downward from the weight of the ridge, and the lower portion has been melted by the water beneath.

Add three--ice research

Another fact--no less interesting but perhaps of less practical import to use of frozen lakes for transportation or airfields--is that the ice sheet forms from the bottom in fall and melts from the top in spring. Whatever the temperature of the surface of the ice sheet, its lower edge is always exactly 0° Centigrade or 32° Fahrenheit. Whenever the water at the lower edge gets colder from loss of its heat to the ice layer above, it is converted to ice crystals which grow to the ice sheet.

During the warming days of spring, the surface of the ice melts, and water collects on the surface in puddles. The water in these puddles finally gets high enough to flow off in streams to holes--around the edges or through pressure ridge cracks--and eventually the ice sheet melts and drains away.

It often happens, the UW scientists point out, that the thinner ice along the edges of pressure ridges is melted by the puddles, and in spring the first open-water leads in a lake form next to the pressure ridges thrown up by expanding ice during the cold days of winter.

"If there is a strong wind before much thinning," Bryson and Bunge write, "the ice will blow off dramatically and often with shore destruction.

"There are many popular misconceptions about the opening of the lake. One is that the ice sinks. These notions arise because the lake can clear within an hour.

"The minute the wind 'gets hold' of the exposed warm water, it is washed over the ice that remains and causes it to melt rapidly. If the wind is strong, it can move the ice rapidly off the water. Sometimes tremendous quantities of ice will pile up on downwind bars and shorelines," Bryson and Bunge point out.

Winter-kill of fish is one of the most severe and destructive effects of ice in northern, shallow lakes, the Wisconsin scientists say.

"A year of heavy winter kill may cost the state millions of dollars in lost tourist trade," they add.

Add four--ice research

"The problem lakes are those in which the fish die in years with unusually cold and snowy springs. The reason the ice cover is deadly is that a snow layer prevents photosynthesis, so that oxygen is consumed and not replaced by plant life. The fish die, then, for lack of oxygen in the water," Bryson and Bunge continue, quoting the zoologists.

William Schmitz, of the UW lake laboratory research team, has aerated lake water by means of long underwater pipes through which compressed air is forced. The air escapes through holes in the pipe and bubbles upward through the water.

Enough oxygen is made available to the lake--and the fish--to permit the fish to survive, but the method is expensive. Another researcher attempted to run outboard motors in holes cut in the ice in Beaver Dam lake, but there was no apparent effect on the oxygen content.

These are merely some of the problems that present-day researchers on ice are tackling. Many more exist, and a large number of agencies are now attacking them--both industrial and military.

One fact stands out--of contemporary researchers on the subject, the Russians have shown more interest in ice research than perhaps any other nation. Perhaps, say Bryson and Bunge, this is a reflection of their desire for air bases in the far north, where a knowledge of ice thickness could make every lake a potential landing field.

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# U. W. NEWS

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

8/30/57 j1

RELEASE:

Immediately

MADISON, Wis.--Three Wisconsin meteorologists have conducted studies, using weather data for the past 45 years, which explains why annual September rains occur with almost clocklike regularity.

Prof. Reid A. Bryson and James F. Lahey of the University of Wisconsin meteorology department and Paul J. Waite of the U.S. Weather Bureau point out that there is nothing new in the knowledge that September rains are a fairly dependable annual event. Farmers often try to seed their fields to catch these rains before winter sets in. The amount of rainfall in September averages just a little less than that for June, the month in which highest rainfall usually occurs.

The typical September rains are general only within a fairly restricted region the scientists say--a circle bounded by a line running from the western tip of Lake Superior to the edge of South Dakota and Nebraska, then eastward to Ohio. States completely within the circle are Wisconsin, Michigan, Iowa, and Indiana.

The rains usually follow a dry spell in late August which seems to be as regular an occurrence as the rains.

The September rainy period is a result of the change in weather patterns and air flow that mark the beginning of the shift from summer to winter, the meteorologists declare. The flow of warm, moist air from the south--which has been going on most of the summer--is now blocked by a counter-flow of cool air from the north. Mixing of great masses of these two kinds of air takes place--and clouds and rain are the result.

The peak of the September rains occurs, on the average over the 45-year period, on the 18th.

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ad one-- September rains

But, interestingly enough, there are also marked peaks in average rainfall on Sept. 5, 11, and 26, in addition to the 18th. This peak every seven or eight days throughout the month seems to be the result of the slow west-to-east movement of the entire weather pattern, and the slow passage of cold fronts across Wisconsin. Once a front has passed, a few clear days may result before the next rain.

Following the September rains, the entire continental weather pattern changes and becomes strangely stable, often for a long period of time. There are the beautiful days of Wisconsin's Indian summer which last sometimes throughout the entire month of October.

At this time, the Wisconsin men point-out, the flow of air across the Rockies and eastward over Canada and the U.S. western states is nearly unmarred by centers of deep "lows". Instead, skies are often clear across the entire United States and even across Canada to the low that seems perpetual in the Greenland-Iceland area.

"While the actual dates of these weather events change from year to year, the events can be expected to occur in most years," say Bryson, Lahey, and Waite.

It is the difference in actual dates of occurrence, of course, that harasses meteorologists. But the Wisconsin scientists are conducting extensive research into the characteristic patterns of weather, and this may eventually lead to methods by which the dates of these major annual changes can be predicted some time in advance.

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# U. W. NEWS

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

8/13/56 jd

RELEASE:

Immediately

MADISON--Long range forecasting -- one of the most challenging and most practical problems of meteorology -- will be discussed by 40 of the nation's top meteorologists at a conference on the University of Wisconsin campus Tuesday through Friday (Aug. 14-17).

The conference is under the joint sponsorship of the University's meteorology department and the U. S. Air Force's Geophysical Research Directorate (GRD).

Present attempts at long range forecasting just don't work, according to Prof. Reid A. Bryson, of the Wisconsin department, who points out that correct and reliable long range forecasts would be of immeasurable value.

Dr. Eberhard Wahl, of GRD, explains that "this problem is one of the most challenging in our science and of extreme potential value."

But Dr. Wahl emphasizes that "we do not have to apologize for the inadequacy of the current state" of long range forecasting.

"The development of improved techniques for extended and long range forecasting will depend in a large part upon the ability to achieve a better understanding of the complex physical processes governing the fluctuations of the general circulation of the atmosphere."

Much of the work aimed at the long range forecasting problem today is directly concerned with developing a better understanding of the world-wide weather patterns which have a direct effect upon the weather in any individual area. The University of Wisconsin meteorology department, on a contract with GRD, is

ad one--long range forecasting  
working in this field.

All of the speakers at the four-day conference have been working on the problem of long range forecasting, some of them for many years. Several different angles that have been used to attack the problem will be further explored during the meetings.

The purpose of the conference, Bryson explains, is not to develop a working procedure for making long range forecasts, but to explore the research paths which may lead to such a procedure.

The conference will enable individual researchers to see where their own work fits into the general picture and provide them with ideas for making their work more productive.

Included in research areas to be discussed are the use of statistical methods for determining the significant processes and changes in the atmosphere, the study of weather data for past years to find important reoccurring patterns, and the use of high-speed electronic computers to mathematically predict general weather behavior and to make actual forecasts.

Another topic scheduled for discussion is what effect solar changes -- such as sunspots and solar flares -- may have on daily weather.

Meteorologists from as far as Japan and Germany will be attending.

Among conference speakers will be Prof. H. C. Willett, of the Massachusetts Institute of Technology; Lt. Col. Phillip W. Thompson, Washington, D. C., of the U. S. Air Force; Dr. Herman Flohn, of the German Weather Service; Dr. Robert White, Boston, a GRD section chief;

Speakers from the University of Wisconsin will include Bryson, and Dr. Oscar Essenwanger, project associate here.

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# U. W. NEWS

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

1/26/56 j1

RELEASE:

Thursday, Feb. 2, 1956

MADISON--There's no getting around it. Wisconsin winters are cold. They are colder than many spots on earth that are of equal distance from the equator.

So states Prof. Reid Bryson of the University of Wisconsin meteorology department in the latest issue of the "Wisconsin Academy Review", published by the Wisconsin Academy of Sciences, Arts, and Letters.

Bryson points out, however, that there are some logical explanations for Wisconsin's winter weather and the frequency of below-zero days during winter months.

"Of particular interest to Wisconsin," he writes, "are the air masses which originate over the snow-covered surface of Arctic Canada, over the cold waters of the North Pacific, and over the warm Gulf of Mexico, Caribbean and Tropical Atlantic."

While it may seem strange to include these tropical air-masses in an explanation of Wisconsin's winter weather, the reason is simple.

"This last warm mass affects Wisconsin winters primarily in that it is the source of the moisture which brings our winter snow," Bryson writes. "In doing this, it appears only far above the surface of the state and doesn't help out our winter temperatures very much."

Cold air masses that cross Wisconsin during December, January, and the first part of February most frequently have their source in the North Pacific.

-more-

ad one--Bryson

Those that cross Wisconsin from then through March usually come from Canada, Bryson points out.

"Rather frequently, Pacific or Canadian air, after passing the state the first time, will loop down into the southern United States, and then return along the Mississippi Valley to give us breaks of somewhat warmer weather," he adds.

Even when the state is under the influence of winds from the North Pacific, an occasional loop of cold Canadian air will sweep down, causing a cold snap.

"We in southern Wisconsin can be glad that the Canadian air stops as frequently as it does in the mid-part of the state," Bryson adds, "for Spooner has those real cold ones which get below -20 degrees during the night almost 15 times as frequently as Madison."

But those loops of Canadian air have their advantages, too, Bryson adds. They give northern Wisconsin its cool summer days when the rest of the state swelters.

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# FEATURE STORY

2/15/55

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

By JACK SPEILLER

MADISON, Wis.--University of Wisconsin scientists are attempting to "fingerprint" the weather.

Sponsored by the U. S. Air Force, "Operation Fingerprint," now in its second year, hopes to accomplish as an ultimate goal a more accurate long-range forecast of weather.

Fingerprints have long aided police in the identification of criminals. The whorls, or wavy lines in the print, form particular patterns, which are numbered, and then used as a basis of comparison with an existing fingerprint.

Prof. Reid Bryson, UW meteorologist, reveals that work now is in progress to devise mathematically a series of code numbers to apply to the similar wavy pressure lines on weather maps.

"Then by comparing similarities and differences in weather maps over periods of time," the professor explains, "we can describe mathematically and objectively different weather patterns."

Previously the mathematical technique of devising code numbers to describe weather whorls was so time-consuming and took so much figuring that the system was not fully worked out, the professor says.

The technique itself has been known for 75 years.

Prof. Bryson tells of one exploratory effort during World War II to apply the technique to only one portion of a weather map, but the figuring was done by hand.

-more-

ad one--Bryson

"Now we've devised a way to employ numerical lab computing machines," he reveals, referring to the Numerical Analysis Laboratory machines at the University of Wisconsin.

However, he emphasizes the need for human thought in using electronic devices. "Once the equations have been set up," the meteorologist says, "we have to give the electronic brain 1,940 different instructions to enable the machine to calculate the numbers for one day's weather!"

Prof. Bryson says that once the necessary 13 code numbers are found to describe weather whorls, they will serve as a basis of comparison between maps.

"Operation Fingerprint" will then have its measuring device.

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# CUT LINES

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

12/21/54

RELEASE: Immediately

MADISON--Madison area television audiences are some of the most weather-wise of any in the nation--all three Madison TV stations have a member of the University of Wisconsin meteorology department as weather prognosticator and lecturer on the principles behind the weather.

Left to right, the weather experts are William Lowry, research assistant who helps on the new weekly WHA-TV weather program conducted by [Prof. Reid Bryson] and Peter M. Kuhn; Prof. Bryson; Paul Ekern, assistant professor of meteorology and soils; and Kuhn, a project associate. Both Ekern and Kuhn have the weather programs on the two Madison commercial TV stations.

Ekern and Kuhn obtain their weather information every evening from the U. S. Weather Bureau Airport Station at Truax Field and relay it with expert interpretations and explanations to Madison's television viewers. Kuhn uses a plastic map and often shows photographs of clouds and meteorological conditions to help demonstrate the reasoning behind the current forecast. He emphasizes the weather as it influences Madison. Ekern uses a magnetic map to which he can quickly affix the various weather symbols, and he claims to have the most optimistic snowflake  
/symbols in the profession--"they look just like daisies."

Both Ekern and Kuhn encourage television viewers to phone them for driving tips and other weather information since the Truax weather station is attempting to cut down on the number of phone calls received during an already too crowded day. Ekern and Kuhn say that--providing they have it--they will be more than willing to impart the information requested.

--Gary Schulz Photo

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# WIRE NEWS

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

3/12/54

RELEASE:

Immediately

MADISON, Wis.--Now Madison's ice fishermen, boaters, and skaters can help University of Wisconsin scientists.

[Prof. Reid Bryson, meteorologist, says his department needs information on the thickness of the ice on Madison lakes at various periods in the past, and will be grateful for any aid from people who have kept diaries or records.

The scientists, under the direction of Prof. Bryson, are studying the basic nature of pressure ridges on ice; how ridges are formed, why they extend in one direction during some years and in other directions in intervening periods, how many there are, and the various types formed during the winter period.

Prof. Bryson asks that persons with information on the ice thickness, particularly Lake Mendota ice thickness, send their names and addresses to him at the UW's Science Hall so that he may get in touch with them.

He stressed the point that this lift from the amateur observers will be a great service to the research project.

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# U. W. NEWS

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

7/24/53

RELEASE:

Immediately

MADISON, Wis.--Thirty of the top scientists studying utilization of solar energy will meet for a symposium at the University of Wisconsin Sept. 12, 13, and 14, the UW announced today.

The symposium, sponsored jointly by the National Science Foundation and the University, is being called "to review and explore the nonagricultural utilization of solar energy and to find areas where scientific research should be encouraged," according to the announcement.

Preliminary programs indicate that subjects will range into these broad fields.

Solar house-heating including water-heating and cooking, solar engines and storage of power, solar evaporation of sea water, agricultural and algal fuel, retardation of frost damage, meteorology, attainment of high temperatures with solar energy, chemical and photochemical conversion and storage of solar energy, and direct conversion of solar energy into electricity.

The committee planning the symposium is headed by Prof. Farrington Daniels of the UW chemistry department, and includes Prof. Werner A. Baum, Florida State University department of meteorology; Dr. F. G. Brickwedde, National Bureau of Standards, Washington, D. C.; Prof. H. C. Hottel, Massachusetts Institute of Technology department of chemical engineering; Prof. E. D. Howe, University of California College of Engineering; and Dr. R. A. Morgen, National Science Foundation, Washington, D. C.

-more-

There will be no formal printed papers, the planning committee indicated, but a summary of the proceedings will probably be issued. Visiting scientists will be quartered at the University Club on the Wisconsin campus, and will hold their meetings there "so that the discussions may be continued as long as desired," the committee indicated.

Among the scientists expected to participate, in addition to the committee members, are:

Dr. C. G. Abbot, Smithsonian Institution; Prof. E. A. Allcut, University of Toronto; Prof. L. B. Anderson, Massachusetts Institute of Technology; Dr. W. A. Arnold, Oak Ridge National Laboratory; Dean L. M. Boelter, University of California at Los Angeles; Prof. F. A. Brooks, University of California; UW Prof. R. A. Bryson; Prof. William Conn, Rockhurst College; Glenn Elmore, C.F. Kettering Foundation; Dr. Joseph Farber, Consolidated Vultee Corporation;

Prof. Hans Gaffron, University of Chicago; Prof. L. J. Heidt, Massachusetts Institute of Technology; Dr. George O. G. Lof, Denver, Colo.; A. W. Kenny, Du Pont Company; Prof. Henry Linschitz, Syracuse University; Prof. R. G. W. Norrish, University of Cambridge, England; Palmer Putman, Washington, D. C.; Dr. Eugene Rabinowitch, University of Illinois; Dr. K. S. Spiegler, Polytechnic Institute of Brooklyn;

UW Prof. V. E. Suomi; Dr. Maria Telkes, Massachusetts Institute of Technology; Pierre Trombe, Laboratoire de l'Energie Solaire, Port de Mont Louis, France; Austin Whillier, Massachusetts Institute of Technology; and Prof. O. R. Wulf, California Institute of Technology.

####

March 4, 1953

Miss Dorothy Carpenter, Pres.  
Denison Scientific Association  
Denison University  
Granville, Ohio

Dear Miss Carpenter:

Professor Reid A. Bryson has asked this office to send  
the enclosed photograph and biographical sketch to you.

We hope this meets your need.

Very truly yours,

Naemi Burtch

DENISON UNIVERSITY

FOUNDED 1831

GRANVILLE, OHIO

DEPARTMENT OF  
MATHEMATICS

February 25, 1953

Professor Reid A. Bryson  
Dept. of Meteorology  
University of Wisconsin  
Madison, Wisconsin

Dear Professor Bryson:

Since it is now only two weeks until you will be with us for the Herrick Memorial Lecture, we are eager to be getting our publicity ready. I believe that Dr. Smith wrote you that we would like to have a picture to use with the newspaper write-ups, and also we would appreciate perhaps a paragraph of introduction or summary about your lecture. We would also be glad to receive other items of biographical nature than already are available in the American Men of Science publication. Would it be possible for you to send us this information and picture by return mail in order that our publicity director will have plenty of time to order a cut made? Thank you very much. We are looking forward eagerly to hearing you on March 10th.

Yours very truly,

*Dorothy Carpenter*

President,  
Denison Scientific Association

# CLIMATE AND MAN THROUGH THE AGES

*Reid A. Bryson,* Assoc. Prof. of Meteorology

The mysteries of weather and plant life are gradually being unravelled by Prof. Bryson and his fellow research-workers who are currently seeking precise measurements of the relation of weather to crops. A graduate of Denison university and the Universities of Chicago and Wisconsin, Prof. Bryson served with the Air Weather Service during WW II in the Pacific area. In 1945 he edited the "Introduction to Tropical Meteorology" for the USAAF weather service. He is a member of Phi Beta Kappa, the American Geophysical Union, the American Meteorological Society, Sigma Xi, and the AAUP.

# FEATURE STORY

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

2/15/51

RELEASE: Immediately

*file*

Madison, Wis.—If you did plenty of shivering during January—and who didn't?—and said "I can't remember when it's been this cold"—and who didn't?—you had good reason, 'cause it was one of the coldest Januaries in many a year. So say University of Wisconsin meteorologists.

When their cars froze up, noses got nipped, and temperature instruments sluggishly wobbled at sub-zero levels, Profs. V. E. Suomi and [R. A. Bryson], and Lothar A. Joos, U. S. weather bureau station, decided to find out just how this January compared with "the old days" in the Madison area. They found:

This January the mercury plummeted to -10 or below seven times. In all previous six Januaries combined, there were only 14 readings of -10 or below.

In the previous six Januaries, half the daily minimum temperatures were colder than 12 degrees. In 1951, half these readings were six or below, a drop of six degrees. The greatest cluster was at six degrees, and of those readings below six, only three fell between five above and five below. The rest were brrrrer.

And, in January, 1951, there were three days colder than the coldest day of the previous six Januaries. A -37 reading set an all-time record low at Truax field station. On another occasion, the mercury stayed below zero for 65 consecutive hours, the coldest four-day period since 1936.

Add 1 - Weather

At the other extreme (there was some warmth during the month, believe it or not), thawing temperatures were reached during eight days. But, in spite of these "high level" readings, other periods were so cold that the monthly average temperature fell three degrees below normal.

A bountiful layer of snow accompanied 1951's frigid opening, with 20.6 inches falling. This total is the greatest for the month since 1943.

From November through January, snowfall totaled 46 inches, the most for that period since 1909-10, and with February's eight inches added, the winter total to date is 54 inches. This is more than that recorded during any full winter season since 1928-29, and with the usual heavy March snows yet to come, there is a good chance that Winter 1950-51 will set a new record for snowfall, the UW scientists say.

Goin' south?

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# MADISON NEWS

3/5/53

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

RELEASE: **Immediately**

MADISON--Prof. Reid A. Bryson, chairman of the University of Wisconsin meteorology department, will be guest speaker at Denison University, Granville, O., on March 10.

A Denison alumnus, Prof. Bryson has been a member of the UW faculty since 1946.

His speech, entitled "Climate and Man Through the Ages," will discuss the historical aspects of weather changes and some indications of what the world's future climate will be like.

Prof. Bryson is conducting pioneer investigations of lake water circulation at Wisconsin.

##

# CUT LINES

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

8/21/52

RELEASE day, Aug. 28

B

This tank gives University of Wisconsin meteorologists a fish-eye view of waves that duplicate those hidden in Lake Mendota's depths. Sets of coils heat the top level and cool the lower one to temperatures that match the lake's hot and cold layers. R. A. Ragotzkie is seen introducing drops of a special dye that "prefers" the warmer temperature, creating an inky layer clearly separated from the colder waters below. Waves at the "thermocline," the temperature borderline, are thus sharply outlined, and Reid Bryson, seen with pencil and stopwatch, can clock their course.

##

# FEATURE STORY

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

2/8/51

RELEASE: Thursday, Feb. 15

Madison, Wis.—University of Wisconsin meteorologists have fished up a pair of new facts about northern lakes from the depths of Lake Mendota which are going to revise existing theories.

Prof. R. A. Bryson and V. E. Suomi have reported to the University lakes and streams investigating committee that they have measured currents in deep water, where present theory says none are supposed to be. And, they also reported that after a rain there are large increases in the dissolved oxygen content of deep water where the amount of oxygen normally is low.

The two scientists not only have uncovered the facts but have been able to explain them, an important step toward complete understanding of lake composition, its animal life and vegetation.

During summer months, Bryson explains, a lake basically is divided into three layers: a warm surface layer of nearly uniform temperature, which changes in depth and heat with the season; cold bottom waters, also of a nearly uniform temperature; and a middle layer, called the thermocline, which divides the other two.

The thermocline, Bryson points out, acts as an almost impermeable layer, which prevents the interchange of surface and bottom water. The thermocline disappears in the spring and fall, at which times there is a complete interchange of all lake water.

--more--

ad one--lakes

But during the summer, each level is clearly defined.

Surface currents are caused by wind, but the thermocline prevents these currents from being transmitted to the bottom layer. This gave rise to the theory that deep waters were free of currents.

Bryson and Suomi do not agree with that theory.

"We found that currents do exist in the bottom water layer and measured them," Bryson says. "We found these currents as fast as those in the surface layer.

"Our next job was to determine how these currents were created."

The explanation boils down to the fact that lakes actually tilt, and the tilting action causes a pressure which in turn causes the currents.

A lake tilts in this way:

As wind blows across a lake, it pushes surface water downwind. This skims surface water from the upwind side, reducing the depth of the surface layer, and piles it downwind, slightly increasing the surface layer depth there.

The shift of the surface layer causes the thermocline to be forced down on the downwind side, the tilting effect, Bryson explains.

"As the thermocline tilts," Bryson points out, "it exerts pressure on the downwind bottom water layer of the lake. This causes the deeper water to circulate, thus setting up the currents."

Other research studies have shown that the dissolved oxygen content of deep water increases greatly after a rain. Although rain water is cold and has a greater density (weight) than the warmer surface water, the two scientists do not believe that the oxygen-loaded rain water sinks through the thermocline, thus bringing more oxygen into the deeper waters. Their research has shown that rain water falling into a lake mixes with surface water.

"But," says Bryson, "the streams tributary to Lake Mendota provide a mechanism for carrying dissolved oxygen into the deep waters. Prior to the rain, the water from the tributaries was warmer than the warmest lake water and would be expected to spread on the surface.

"After the rain, the muddy, well-aerated runoff water is heavy. When this water enters the lake, it sinks to a level which has a corresponding density, which usually is in the thermocline or the deep water layer.

"During and immediately following the periods of extremely heavy rain, many of the streams tributary to Lake Mendota run at flood stage with cold water carrying a large load of suspended sediment and abnormal amounts of dissolved oxygen. These tributaries provide the mechanism for occasional midsummer renewal of deep water oxygen," Bryson concludes.

##

# U. W. NEWS

6/16/52

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

RELEASE:

Immediately

MADISON, Wis.—Chairmen chosen to head departments in the University of Wisconsin College of Letters and Science during the 1952-53 academic year were announced today by Dean Mark H. Ingraham.

They are:

Art History, J. F. Kienitz; Botany, J. F. Stauffer; Chemistry, Farrington Daniels, M. Leslie Holt, associate chairman; Classics, W. R. Agard; Comparative Literature, G. N. G. Orsini; Comparative Philology and Linguistics, R-M. S. Heffner; Economics, E. E. Witte; English, M. Y. Hughes; French and Italian, Julian Harris; Geography, A. H. Robinson, first semester, Richard Hartshorne, second semester;

Geology, S. A. Tyler; German, R-M. S. Heffner; History, F. H. Harrington; History of Science, Marshall Clagett; Integrated Liberal Studies, R. C. Pooley; Mathematics, C. C. MacDuffee; Meteorology, [R. A. Bryson]; Music, S. T. Burns; Philosophy, A. C. Garnett; Physics, Ragnar Rollefson; Political Science, W. H. Young; Psychology, D. A. Grant; Scandinavian Languages, Finar Haugen;

Slavic Languages, E. I. Zawacki; Sociology and Anthropology, Howard Becker; Spanish and Portuguese, E. R. Mulvihill; Speech, A. T. Weaver; and Zoology, J. T. Emlen.

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# FEATURE STORY

9/7/51

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

RELEASE Tuesday, September 13

Madison, Wis.--How much could man change Wisconsin's weather?

Farmers agree that if a rainy spell could be halted at haying time, or some rain added during a dry growing season, yields and income would both rise.

Reid Bryson, meteorologist at the University of Wisconsin, says that in some individual cases man might reduce or increase the amount of rain. But broad, sweeping promises to increase or decrease total rainfall for the crop season are impossible to fulfill.

To back this up, Bryson points to some facts about Wisconsin weather.

Two air currents--a warm one moving north from the Gulf of Mexico and a cold mass drifting south from Canada--are the usual requirements for rain in most parts of Wisconsin.

When these two air currents meet, the moisture in the warm air mass forms small water droplets or clouds.

The problem is to get some of these small water droplets to fall.

Nature does this in several ways.

When droplets are carried by upward wind drafts to an altitude where the temperature is below freezing, droplets freeze into small ice crystals if "nuclei" are present. Nuclei are "seeds" from which ice crystals form.

Sometimes the droplets do not freeze. This is known as supercooling.

If ice crystals grow large enough, they begin falling. On the way down, they melt into rain.

-more-

ad one--rainfall

These ice crystals in clouds are necessary for raindrops to grow large enough to fall, says Bryson.

And natural nuclei, when present in supercooled clouds, cause rain to fall. But sometimes water droplets don't freeze. That is a thing rainmakers can do something about.

They use trillions of minute silver iodide particles to "seed" these supercooled clouds. The silver iodide particles act as artificial nuclei, allowing supercooled droplets to freeze. When big enough, the droplets fall as rain.

Generating machines costing around \$50 can be used to send silver iodide particles into clouds by smoke. Lack of natural nuclei, however, is not usually the trouble for low rainfall in Wisconsin.

It's easier to reduce the amount of rain, says Bryson. All rainmakers do is generate too much silver iodide. If too many nuclei are generated--say one for each supercooled droplet--each one will form a small ice needle and float away as another type of cloud.

Bryson points out that the conditions under which rainmakers can produce rain--and nature can't--aren't very common.

"It just isn't possible," he adds, "to promise farmers more or less rain for several years."

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# WIRE NEWS

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

12/14/50

RELEASE:

Immediately

*File*

Madison, Wis.—Representatives of the Illinois Water Survey division were on the University of Wisconsin campus Thursday to consult with UW Meteorologists R. A. Bryson and V. E. Suomi about water evaporation and its measurement.

Professor Bryson talked to the group on the importance of the evaporation problem in hydrology, climatology, and agriculture. Professor Suomi discussed measuring devices and gave a demonstration of equipment used at the University of Wisconsin.

##

6-15-50

ad one--faculty promotions

Those appointed associate professor included:

Robert A. Alberty, Edwin M. Larsen--chemistry; L. Reed Tripp--  
economics; Vernon Carstensen--history, graduate school, and agricultural economics;  
[Reid A. Bryson]--meteorology; Verner E. Suomi--meteorology, biometry, and physics;  
Leo J. Steffens--music; James F. Crow--zoology and genetics; Peter R. Morrison--  
zoology and physiology; Takeru Higuchi--pharmacy; Ruth E. Allcott, Theodore L.  
Harris, Francis Shoemaker--education; Hugh L. Cook, Harlow W. Halverson--  
agricultural economics; Dale W. Smith--agronomy; Robert W. Bray--animal husbandry.

Joshua Lederberg--genetics; Mrs. Iva R. Mortimer--home economics;  
Burdean E. Struckmeyer--horticulture; Gerald E. Annin--poultry husbandry; Guy R.  
Spencer--veterinary science; Margaret A. Kohli--physical medicine; Kenneth B.  
McDonough--pediatrics; John W. Harman, Joseph J. Lalich--pathology; Ray E. Green--  
pharmacology; Quillian R. Murphy--physiology; Peter A. Duehr--surgery; Gerald A.  
LePage--cancer research; Robert F. Roeming, Helmut Summ, Eldon D. Warner--  
Milwaukee Center.

Those appointed assistant professor include:

Charles A. Boyd, Michael Wales--chemistry; Herbert M. Howe--classics;  
Edwin Young--economics; Robert K. Presson--English; Robert M. Gates--geology;  
Cornelius L. Golightly, William F. Goodwin--philosophy; Dean J. Moeker, Arthur  
A. Vierthaler, John H. Wilde--art education; Jesse N. Williams--biochemistry;  
Cloyd E. Zehner--dairy husbandry; William C. Winder--dairy industry; Stanley D.  
Beck--economic entomology; Vilas W. Matthias--University farms; Mrs. Kathryn  
R. Lohr--home economics; David T. Berman--veterinary science.

Donald Voegeli--radio station WHA; Ruben A. Imm--electrical engineer-  
ing; Donald F. Livermore--mechanical engineering; James B. Bower--commerce;  
Hans Johan Van Baaren--pathology; Frank D. Bernard--surgery; Gerald C. Mueller--  
cancer research.

release:

Bryson

University of Wisconsin-Madison meteorologist Reid A. Bryson, interviewed Sunday night in his Madison home, said he had read the CIA report to be released today.

"The CIA's job is to analyse possible situations that might be significant to the US and the report does that quite well."

Climate studies conducted by Bryson, Joseph Smagorinsky, a member of the national oceanographic and atmospheric administration, Hubert Lamb, an English Climatologist, and Mikhail Budyko, a Russian climatologist, were major sources for the report.

The report had predicted mass starvation in India, a famine every five years in China and the loss of a major wheat growing area in Russia due to changes in the world's climate.

Bryson evaluated the CIA report as a "realistic assessment of a situation that may occur in the next few years" but took issue with the implication by the Associated Press Wire Service that he had said it would occur. This was an overstatement, he said, of one of his publications that indicated such events would happen if the past climate trend continued.

Bryson said his work was not a prediction but only a warning of what may happen.

"There has been a cooling trend in the world's climate, which began in 1945, and, if this trend continues, it will

# UW news

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

Release:

Bryson  
Add 1

severely affect the world food situation," he said. "This is not to say it will definitely happen, however. A change in any number of conditions could stop the trend."

The greenhouse theory states that the increased carbon dioxide dispersed into the atmosphere by burning fossil fuels will increase the earth's surface temperature. The greater volume of carbon dioxide will act as a layer of insulation, pushing heat back to the earth just as a blanket holds in a person's body heat.

Some meteorologists who agree with this theory have said the increased temperature will partially melt the polar ice caps causing major floods in coastal areas.

The other theory--the dust effect--states that dust particles, emitted by human activity and volcanic eruptions, will act as an atmospheric "shield," reflecting a portion of the sun's warming rays back to space.

Bryson said an overall temperature drop of only one degree celsius from the present level will sharply affect food production in some areas of the world.

Recently, in an attempt to see "which effect will win," Bryson and another scientist developed a computer model of the earth's climate. They used predictions of increased carbon dioxide and dust emissions resulting from expanded use of fossil fuels such as coal and petroleum. They then "plugged in" the variable of volcanic eruptions.

"According to this model, if these eruptions continue at

# UW news

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

Release:

*Bryson  
Add 2*

the present rate or increase, the added dust will cause the world's climate to continue its cooling trend for some years," he said. "If, however, volcanic eruptions decrease, the trend will stop or reverse much sooner."

Bryson said a change in carbon dioxide or dust levels as the result of air pollution also will affect the world's weather for better or worse.

This study and others were published in scientific journals. The results were included in the CIA report.

Bryson said it did not bother him to find his research used in the report. He said all published information is free to anyone who want to use it--including the CIA.

"If the cooling trend continues, there's going to be all hell to pay for it," Bryson said. "Massive crop failures in South Asia will cause starvation. Desperate people with nothing to lose might fight for food."

1-6-83

REID A. BRYSON

Birth Date and Place: June 7, 1920; Detroit, Michigan

Degrees: B.A., Denison University, 1941, Geology  
Ph.D., University of Chicago, 1948, Meteorology  
D.Sc., Denison University, 1971

Positions: Assistant Professor of Geology and Meteorology,  
University of Wisconsin, 1946-48  
Meteorology, 1948-50  
Associate Professor of Meteorology, University of Wisconsin,  
1950-56  
Professor of Meteorology, University of Arizona, 1956-57,  
Chairman, 1956-57  
Professor of Meteorology, University of Wisconsin, 1957-present  
Chairman: 1948-50, 1952-54, 1957-61, first semester 1961-62  
Professor of Meteorology and Geography, University of  
Wisconsin, 1968-  
Director, Institute for Environmental Studies, University  
of Wisconsin, 1970-

Military: U.S. Army Air Corps, 1942-45, Major

Memberships: Fellow of the American Meteorological Society  
Association of American Geographers  
Wisconsin Phenological Society, President 1961  
Society for American Archaeology  
Arid Zone Research Association of India

Significant National Committees:

- American Meteorology Society Committee on Paleoclimatology,  
Chairman
- American Geophysical Union Committee on Paleoclimatology,  
Chairman
- Association of American Geographers Committee on Climatology
- NAS-NRC Ad Hoc Committee on Paleoclimatology, Chairman
- NAS-NRC Committee on Geography Advisory to Office of Naval  
Research, Chairman
- NAS-NRC Committee on Atmospheric Sciences Planning Conferences  
July 1961, Conference on Climatology
- NAS-NRC Committee on Interdisciplinary Problems
- NAS-NRC Committee on Climatology Advisory to U.S. Weather  
Bureau
- NAS-NRC Committee on Military Geography
- NAS-NRC Committee on Remote Sensing of Environment
- UCAR Trustee

Significant National Committees (Continued):

NAS-NAE Environmental Studies Board  
NSF-Division of Atmospheric Sciences, 1973-74, Consultant,  
Division of Environmental Sciences, Advisory Panel  
Consultant to North Central Association of Colleges and  
Secondary Schools  
Advisory Editor, Environmental Conservation Journal  
NSF Panel on Integrated Basic Research  
Member, Council, Smithsonian Institution, 1976-79

Significant University Committees:

Lakes and Streams Investigations Committee  
Physical Sciences Division Executive Committee, Chairman  
Freshman Forum Committee  
Water Resources Committee  
Interdisciplinary Studies Committee on Future of Man,  
Chairman 1962-67  
Madison Campus Special Committee on Environmental Studies,  
Chairman  
Space Sciences Committee  
Graduate School Administrative Committee  
International Programs Policies Committee  
Letters and Sciences Curriculum Committees  
Division of Statistics, Chairman  
University Faculty Assembly  
Chancellor's Advisory Committee

Miscellaneous:

Established Department of Meteorology, University of Wisconsin, 1948  
Honorary Vice President, International Quaternary Association,  
1964-65  
Counselor American Quaternary Association, 1971-73  
Advisory Board, Arctic and Alpine Research Institute  
DNR Citizen's Advisory Committee on Environmental Matters, 1976-78  
Wisconsin Air Pollution Control Council, 1971-73  
Wisconsin Academy of Sciences, Arts & Letters, President, 1981  
Explorers Club, Fellow, 1980-

Major Research Projects:

Principal Investigator, Dynamics of Lake Mendota, 1949-56,  
Sponsored by University of Wisconsin

Major Research Projects (Continued):

Principal Investigator, Study of Large Scale Singularities, 1951-58, Sponsored by Geophysics Research Directorate of the Air Force Cambridge Research Center  
Principal Investigator, Studies in Stratified Climatology, 1960-62, Sponsored by Geophysics Research Directorate of the Air Force Cambridge Research Center  
Principal Investigator, Field Climatology in Canada, 1959-66, Sponsored by Office of Naval Research  
Principal Investigator, Center for Climatic Research, 1962-70 Sponsored by National Science Foundation  
Co-Investigator, Historical Climatology and Cultural Change (with D. A. Baerreis, Principal Investigator)  
Cooperative Research Program with India Meteorological Department on Climatic Modification in Indian Desert Climate/Food Research Project, 1973-

Publications: In Journals of Meteorology, Geography, Oceanography, Hydrology, Archaeology. Over 180 publications.

Five Books

Consultancies:

Consultant to Facilities Division, NSF, 1965-68.  
U.S. Geological Survey Geography Section  
United Nations Environment Programme (Senior Consultant)  
U.N. Food and Agriculture Organization  
National Science Foundation  
Environment Canada  
WED Enterprises (Disney Productions), 1981

International Lectures, Workshops and Conferences:

- \*Traveling Panel, First Conference on Coastal and Shallow Water Oceanography, Baltimore, Tallahassee, Los Angeles, 1961
- Official U.S. Delegate, Regional Conference of Southeast Asian Geographers, Malaya, 1962
- General Chairman, Conference on Climate of 11th and 16th Centuries, Aspen, Colorado, 1962
- WMO-IUGG Conference on Tropical Meteorology, New Zealand, 1963
- WMO-IUGG Symposium on Polar Meteorology, Geneva, Switzerland, 1966
- \*International Conference on Environmental Future, Helsinki, Finland, 1971
- \*Panelist, Tenth World Food Production Conferences, Lima, Peru, and Tokyo, Japan, 1974

International Lectures, Workshops and Conferences (Continued):

- \*Japan Meteorological Agency, Tokyo, Japan, 1974
- \*International Federation of Institute for Advanced Study, Bonn, Germany, 1974
- \*World Council of Churches, Geneva, 1974
- \*The President of Mexico, Mexican Ministry of Agriculture, 1974, 1977. International Federation of Institutes for Advanced Study, Berlin, Germany, 1974
- \*Australian Branch, Royal Meteorological Society, 1975
- \*Canadian National Research Board, 1975
- Rockefeller Foundation, Bellagio, Italy, 1975
- Food and Agriculture Organization of the United Nations, 1975
- World Meteorological Organization Symposium, 1975
- United Nations Environment Programme, 1975, 1976, 1977
- \*IFIAS Workshop on "Soil Resources of the Earth, Their Utilization and Preservation," Samarkand, U.S.S.R., 1976
- International Conferences on Environmental Future, Reykjavik, Iceland, 1977
- World Meteorological Organization World Climate Conference, Geneva, Switzerland, 1979
- World Meteorological Organization Workshop on Long-Range Forecasting for Mediterranean, Instructor, Sicily, 1979
- \*Center for Atmospheric Sciences, University of Mexico, Mexico City, 1979
- \*16th Pan American Food Production Conference, Orlando, FL., 1980
- \*16th Asia-Pacific Food Production Conference, New Delhi, India, 1980
- \*Agribusiness Seminar, Northwestern University, Evanston, IL, 1980
- \*Paleoclimate Conference, Joint U.S.-France, Paris, France, 1980
- \*Keys Memorial Lecture, Trinity College, Toronto, 1982

Special Interests:

(1) World Climatology, especially historical climatology and climatic change. Extensive field experience in Pacific, northern Canada and South Asia. (2) Climate and climatic change in relation to archaeology and history. (3) Inter-disciplinary environmental studies.

Listed in Who's Who in America

Banta Award for Literary Achievement for Climates of Hunger, 1978

Hubert H. Humphrey Distinguished Professor, Macalester College, Minnesota, 1979

\*Invited contributions

6 January 1983

## BIOGRAPHY

### Reid A. Bryson

Professor Reid A. Bryson joined the faculty of the University of Wisconsin-Madison in 1946 at the end of his military service as a Major in the Weather Service of the Army Air Corps. His first appointment was in the Department of Geology (in which he had been a graduate student prior to World War II) and in Geography. In 1948 he started the Department of Meteorology and was its first professor and chairman. That department is now the largest and one of the most prestigious in the nation.

While on leave at the University of Arizona in 1956-57 he also started their Department of Atmospheric Science.

Throughout his career, Bryson has been interested in interdisciplinary studies, and especially in the relation between human history and the physical environment, especially climate. He was active in the University's Interdisciplinary Studies Committee on the Future of Man, and the following committees which led to the establishment of the Institute for Environmental Studies, being named its first Director in 1970.

Bryson received his B.A. degree in Geology at Denison University in 1941, his Ph.D. in Meteorology at Chicago in 1948 and an honorary D.Sc. from Denison in 1971. He has written about 190 articles and 5 books ranging over geology, limnology, meteorology, climatology, archaeology and geography. One book received the Banta Medal for Literary Achievement, and one article, a mixture of related original poetry and science, was chosen as the "outstanding learned article of 1981" by the Educational Press Association.

Born in Detroit, Michigan, in 1920, he regards Wisconsin as his home state, his profession as primarily teaching, and his field as interdisciplinary earth science with a strong humanistic component.

DR. REID BRYSON  
Director, University of Wisconsin  
Institute for Environmental Studies  
Professor of Meteorology and Geography

News and Publications Service  
University of Wisconsin  
Madison, Wisconsin (608)262-3571

A native of Detroit, Mich., where he was born June 7, 1920, Dr. Reid A. Bryson first joined the University of Wisconsin faculty in Madison in 1946. With the exception of one year, 1956-57, when he served as chairman of the University of Arizona meteorology department, he has been a member of the UW staff.

Founder of the UW meteorology department, he was named director of the growing institute in February, 1970. When he accepted that position, he stated:

"The institute is Wisconsin's answer to the call for a Survival U. I hope to make it the best of its kind in the country."

Dr. Bryson earned his B.A. in geology at Denison University in 1941 and his Ph.D. in meteorology at the University of Chicago in 1948.

Widely known for his research on world climatology, particularly climatic changes brought about by man's activities, he established the meteorology department in 1948 and the Center for Climatic Research in 1962.

Under his direction, the department grew remarkably--and today a third of the nation's Ph.D.'s and M.A.'s and one-fourth of bachelor degrees in meteorology are earned at Madison. It is now recognized as the largest in the U.S.

Dr. Bryson has served as principal investigator for the Geophysics Research Directorate of the U.S. Air Force Cambridge Research Center, U.S. Office of Naval Research, and the National Science Foundation. His national committee assignments included those with the American Meteorology Society, American Geophysical Union, Association of American Geographers, the National Academy of Sciences, the Committee on Remote Sensing of Environment, and as advisor to the U.S. Weather Bureau. He is

Add one- Bryson

a trustee of the University Corporation for Atmospheric Research.

He also holds membership in the Wisconsin Phenological Society, which he served as president in 1961; the Society for American Archaeology; and the Society of Limnology and Oceanography.

Engaged in research in world climatology, he has traveled to all parts of the globe. In cooperation with the Indian Meteorological Service, he has worked on realization of radiometer soundings in the free atmosphere over India.

In 1966 Dr. Bryson returned to the campus of Denison University to receive a citation "in recognition of outstanding achievement and service."

The institute director has published more than 100 papers and articles covering his studies of lakes, oceans, the seasons, and the atmosphere.

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C11-37

Reid A. Bryson

as of 10/14/66

Birth date and place: June 7, 1920; Detroit, Michigan

Degrees: B.A., Denison University, 1941, Geology;  
Ph.D., University of Chicago, 1948, Meteorology.

Positions: Assistant Professor of Geology and Meteorology,  
University of Wisconsin 1946-48;  
Meteorology, 1948-50  
Associate Professor of Meteorology, University  
of Wisconsin 1950-56  
Professor of Meteorology, University of  
Arizona, 1956-57, Chairman  
Professor of Meteorology, University of  
Wisconsin, 1957-Present  
Chairman: 1948-50, 1952-54, 1957-61, 1st  
semester 1961-62

Military: U. S. Army Air Force, 1942-45, Major

Memberships: American Meteorological Society  
American Geophysical Union  
Society of Limnology and Oceanography  
Association of American Geographers  
Wisconsin Phenological Society, President 1961  
Society for American Archaeology

**Significant National Committees:**

American Meteorology Society Committee on  
Paleoclimatology, Chairman  
American Geophysical Union Committee on  
Paleoclimatology, Chairman  
Association of American Geographers Com-  
mittee on Climatology  
NAS-NRC Ad Hoc Committee on Paleoclimatology,  
Chairman  
NAS-NRC Committee on Geography Advisory to  
Office of Naval Research, Chairman  
NAS-NRC Committee on Atmospheric Sciences  
Planning Conferences July 1961, Con-  
ference on Climatology  
NAS-NRC Committee on Interdisciplinary Problems  
NAS-NRC Committee on Climatology Advisory  
to U. S. Weather Bureau  
NAS-NRC Committee on Military Geography (Current)  
NAS-NRC Committee on Remote Sensing of  
Environment (Current)  
UCAR Trustee

Significant University Committees:

Lakes and Streams Investigations Committee (not current)  
Freshman Forum Committee (not current)  
Water Resources Committee  
Interdisciplinary Studies Committee on  
Future of Man (Chrmn., 1962-66)  
Madison Campus Special Committee on  
Environmental Studies (Chrmn.)  
Space Sciences Committee  
Graduate School Administrative Committee  
International Programs Policies Committee (not current)  
Letters & Sciences Curriculum Committee (not current)  
Division of Statistics (Chrmn.)

Miscellaneous: Established Department of Meteorology,  
University of Wisconsin, 1948  
Honorary Vice President, International  
Quaternary Association 1964-65  
Consultant to Facilities Division, NSF  
1965-67

Major Research Projects:

Principal Investigator--Dynamics of Lake Mendota--  
1949-1956--Sponsored by University of Wisconsin  
Principal Investigator--Study of Large Scale Singularities  
--1951-58--Sponsored by Geophysics Research  
Directorate of the Air Force Cambridge Research  
Center  
Principal Investigator--Studies in Stratified Clima-  
tology--1960-62--Sponsored by Geophysics Research  
Directorate of the Air Force Cambridge Research  
Center  
Principal Investigator--Field Climatology in Canada--  
1959-66--Sponsored by Office of Naval Research  
Principal Investigator--Center for Climatic Research--  
1962- Sponsored by National Science Foundation  
Co-Investigator--Historical Climatology and Cultural  
Change (with D. A. Baerreis, Principal Investigator)  
Cooperative Research program with India Meteorological  
Dept. on Climatic Modification in Indian Desert

Publications in journals of Meteorology, Geography,  
Oceanography, Hydrology, Archaeology. 80 publications

Three books.

International Conferences:

Traveling Panel--First Conference on Coastal and  
Shallow Water Oceanography, Baltimore, Tallahassee,  
Los Angeles--1961  
Official U.S. Delegate--Regional Conference of Southeast  
Asian Geographers, Malaya 1962  
General Chairman--Conference on Climate of 11th and 16th  
Centuries, Aspen, Colorado 1962  
WMO-IUGG Conference on Tropical Meteorology, New Zealand  
1963  
WMO-IUGG Symposium on Polar Meteorology, Geneva,  
Switzerland, 1966

Special field is world climatology. Spent 2½ years' field experience in islands of the Pacific (Hawaii, Line Islands, Gilberts, Marshalls, Marianas, Philippines, and Okinawa). Specialized training in tropical meteorology and climatology in Puerto Rico; research visits to Greenland, Iceland, Brazil, Senegal, Ghana, the Congo, Kenya, Malaya, Mexico, Peru. Field experience in Alaska and Canadian Arctic (6 summers). Travel elsewhere in Africa and Asia. Climatic research in India, spring 1963 to present. Cooperation with the Indian Meteorological Service (New Delhi), for the realization of radiometer soundings in the free atmosphere over India.

Date:

FACULTY INFORMATION SHEET  
University News Service  
The University of Wisconsin

DATE OF FILLING IN FORM 1 Nov 58

NAME BRYSON, Reid Allen

POSITION (academic rank, department, date of appointment, etc.)

Professor of Meteorology since 1956  
Chairman, Dept. of Meteorology

PREVIOUS POSITIONS YOU HAVE HELD (please give status, institution, dates)

Univ. of Wisc. 1946 - present

Asst. Prof. 1946 - 1948 Geology 1/2 time Geography 1/2 time

Asst Prof 1948 - 1952 Meteorology

Assoc Prof 52 - 56 Meteorology

On leave as Prof. of Meteorology at U. of Arizona 1956-57

Prof. 56 - present Meteorology

EDUCATION (please give dates of degrees granted or dates of attendance)

Undergraduate college Denison Univ., Granville, O. BA 1941 Geology

Graduate college U. of Chicago Ph D 1948 Meteorology

Grad. work. in geology at Wisconsin 1941-42, 46

SPECIAL FIELD(S) OF STUDY OR RESEARCH (give dates of completion of any major

projects) 1943-1948 Tropical Meteorology

1949 - present Physical Limnology esp. currents in lakes  
and their mechanism - lake ice

1950 - present Dynamic Climatology  
major work on singularities completed 1958  
2 climatic atlases published 1958

IF YOU HAVE A FAVORITE PHOTOGRAPH OF YOURSELF, PLEASE ATTACH A GLOSSY PRINT, OR INDICATE WHERE WE CAN SECURE ONE.

PUBLICATIONS (books and articles with dates) "Atlas of 500 mb wind characteristics" 1958,  
"Atlas of 5 Day Normal Sea-level pressure charts" 1958,

HONORS AND/OR AWARDS YOU HAVE RECEIVED (dates) \_\_\_\_\_

HONORARY FRATERNITIES, PROFESSIONAL SOCIETIES, CLUBS TO WHICH YOU BELONG (list  
dates of offices held) Sigma Xi

Amer. Meteor. Soc., Amer. Geophys. Union,  
Amer. Soc. for Limnology and Oceanography  
Assoc. of Amer. Geographers.

DATE AND PLACE OF BIRTH Detroit, Mich. 7 June 1920

IF MARRIED, GIVE WIFE'S MAIDEN NAME, DATE OF MARRIAGE, AND NAMES AND BIRTH DATES  
OF CHILDREN Frances Williamson. 13 June 1942

Anne 5 Febr 1947, William 16 July 1949, Robert  
28 Nov 1950, Thomas 17 Oct 1952

IN ADDITION TO THE ABOVE "WHO'S WHO" TYPE INFORMATION, WE WOULD APPRECIATE A FEW  
INFORMAL NOTES ON THE CLASSES YOU TEACH, YOUR HOBBIES, YOUR SERVICE OR WAR WORK,  
YOUR PUBLIC SERVICE, ETC. Air Force 1942-1945 Major

Dr. Reid Allen Bryson

Professor of Meteorology

done

Prof. Bryson was born June 7, 1920, in Detroit,

Michigan. He received his B.A. degree in geology from Denison University, Granville, Ohio, in 1941.

The University of Chicago granted Prof. Bryson the Ph.D. in meteorology in 1948. Previous to this he had done graduate work in geology at the University of Wisconsin in 1941-42 and 1946. From 1942-45 Bryson was an Air Force major.

Since 1946 Bryson has been associated with the University of Wisconsin, as assistant professor of geology and geography (1946-48), assistant professor of meteorology (1948-52), associate professor of meteorology (1952-56), and as a full professor in the meteorology department since 1956.

Prof. Bryson spent 1956-57 on leave at the University of Arizona.

limnology

His special fields of research and study have been tropical meteorology (1943-48), physical limnology—especially currents in lakes and their mechanism, and lake ice (1949-present), and dynamic climatology—major work on singularities completed in 1958, two climatic atlases published in 1958—(1950-present).

Most recent of ~~Prof. Bryson's~~ numerous publications by Prof. Bryson are "Atlas of 500 mb Wind Characteristics" (1958), "Atlas of 5-Day Normal Sea-level Pressure Charts" (1958), "The March of the Seasons" (1958), and "~~Sublacustrine?~~ (see blue book on Van's desk)" (1959) "Studies of the Physiographic Features of Lake Mendota. Sublacustrine gullies" (1958).

Prof. Bryson is a member of Sigma Xi, American Meteorological Society, American Geophysical Union, American Society for Limnology and Oceanography, and Association of American Geographers.

During 1959 he will serve as visiting lecturer in meteorology to small colleges under the sponsorship of the American Meteorological Society.

(2) Bryson.

Prof. Bryson married the former Frances Williamson, June 13, 1942.  
The Brysons have four children, Anne, February 5, 1947; William,  
July 16, 1949; Robert, Nov. 28, 1950; and Thomas, Oct. 17,  
1952.

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PUBLICATIONS AND REPORTS BY R. A. BRYSON

1. Bryson, R.A., Fowler, E.C., Riebel, H.W., "A Preliminary Report on the Summer Air Masses of the Mediterranean", University of Chicago, Department of Meteorology, 1943 (Limited distribution).
2. Bryson, R.A., Fowler, E.C., Riebel, H.W., "Winter Air Masses at Malta", University of Chicago, Dept. of Meteorology, 1943 (Limited distribution).
3. Bryson, R.A., Fowler, E.C., Riebel, H.W., "Selected European Weather Charts", University of Chicago, Department of Meteorology, 1943.
4. Bryson, R.A., Fowler, E.C., Riebel, H.W., "The Air Masses of the Mediterranean in "A Report on Synoptic Conditions in the Mediterranean Area", University of Chicago, Institute of Meteorology Misc. Repts. No. 14, 1944.
5. Allen, P.W., and Bryson, R.A., "Tropical Microanalysis", Institute of Tropical Meteorology Lecture Notes No. 1, Rio Piedros, P.R., 1944 (Rev. Chicago 1944).
6. Bryson, R.A., editor, "Introduction to Tropical Meteorology", U.S.A.A.F. Weather Service 1945.
7. Bryson, R.A., "The Cloudform Stability Scale", First Weather Group, A.A.F. P.O.A., 1945.
8. Bryson, R.A., "The Nature of the Easterly Wave", A symposium on the weather of the Western Pacific, by the staff of the A.A.F. Weather Central at Guam, M.I.
9. Bryson, R.A., "On a Lunar Bi-fortnightly Tide in the Atmosphere", Transactions, American Geophysical Union, Volume 29, Number 4, August 1948.
10. Bryson, R.A., "A Cloudform-Stability Scale for Tropical Oceanic Areas", Bulletin of the American Meteorological Society, Vol. 32, April 1951.
11. Bryson, R.A., "Studies on the Weather of the Tropical West Pacific by Means of the Cloudform Stability Scale", Bulletin of the American Meteorological Society, Vol. 32, May 1951.
12. Bryson, R.A., "An Example of Easterly Wave Analysis in the Tropical Western Pacific", A.W.S. Technical Report 105-75.

13. Suomi, V.E., and Bryson, R.A., "The Circulation of Lake Mendota", Transactions, American Geophysical Union, 33:707-712, 1952.
14. White, F.D., Bryson, R.A., and Doremus, R.B., University of Chicago, Institute of Meteorology, Weather Reconnaissance, 1944. 24 illus., diags 27 cm.
15. Bryson, R.A., and Suomi, V.E., "Midsummer Renewal of Oxygen within the Hypolimnion", Jour. Marine Research, Vol. 10, No. 3, 1951.
16. Bryson, R.A., and Kuhn, P.M., "On Certain Oscillatory Motions of Lakes", (Being prepared for publication).
17. Bryson, R.A., and Stearns, C.R., "The Wind Stress on Lake Mendota", (Being prepared for publication).
18. Ragotzkie, R.A., and Bryson, R.A., "Correlation of Currents with the Distribution of Adult Daphnia in Lake Mendota", Jour. Marine Res., 12:157-172, 1933.
19. Bryson, R.A., and Ragotzkie, R.A., "Rate of Water Replacement in a Bay of Lake Mendota, Wisconsin", Amer. Jour. Sci., 253:533-539, 1955.
20. Bryson, R.A., and Lowry, W.P., "Synoptic Climatology at the Arizona Summer Precipitation Singularity", Bull. Amer. Met. Soc., 36, 329-339, 1955.
21. Bryson, R.A., and Kuhn, P.M., "On the Measurement of Bottom Stress in Lakes", Trans. Amer. Geophys. Union, 36: 612-614, 1955.
22. Ragotzkie, R.A., and Bryson, R.A., "Hydrography of the Duplin River, Sapelo Island, Georgia", Bull. of Marine Sci. of Gulf, and Caribbean, 5: 297-314, 1955.
23. Bryson, R.A., and Bunge, W.W. Jr., "The 'Stress-Drop' in Lake Mendota", Limnol. and Oceanogr. 1: 42-46, 1955.
24. Bryson, R.A., "Factors in Tucson Summer Rainfall" Univ. of Ariz., Tech. Repts. on the Met. and Clim. of Arid Regions No. 4, 1957.
25. Bryson, R.A., "Fourier Analysis of the Annual March of Precipitation in Australia", Univ. of Ariz, Tech. Repts. on Met. and Clim. of Arid Regions No. 5, 1957.
26. Bryson, R.A., "The Annual March of Precipitation in Arizona, New Mexico, and Northwestern Mexico" Univ. of Ariz. Tech. Repts. on Met. and Clim. of Arid Regions No. 6, 1957.

27. Robinson, A.H., and Bryson, R.A., "A method for describing quantitatively the correspondence of geographical distributions" Annals, Amer. Assn. Geogr. 47:379-391, 1957.
28. Lahey, J.F., Bryson, R.A., and Wahl, E., Atlas of Five-Day Normal Sea-Level Pressure Charts for the Northern Hemisphere, Univ. of Wisconsin Press, 1958.
29. Lahey, J.F., Bryson, R.A., et al. Atlas of 500 mb Wind Characteristics, Univ. of Wisconsin Press, 1958.

MAY 4 1949

FACULTY INFORMATION SHEET  
University News Service  
The University of Wisconsin

NEWS SERVICE

NAME Reid A. Bryson

POSITION (academic rank, department, date of appointment, etc.)

Ass<sup>r.</sup>~~istant~~ Professor, Department of Meteorology. (Department Chairman) 1946

Came to UW in 1946 as Asst. Prof.

PREVIOUS POSITIONS YOU HAVE HELD (please give status, institution, dates)

Instructor U of Chicago 1942-44

Major in Army Air Force 1944-45

EDUCATION (please give dates of degrees granted or dates of attendance)

Undergraduate college Denison University, Granville, O. - 1937-41 BA degree

Graduate college University of Wisconsin - 1941-42, '46-47

University of Chicago - 1942-43, '46, '47, '48 PhD degree '48

SPECIAL FIELD(S) OF STUDY OR RESEARCH (give dates of completion of any major projects)

IF YOU HAVE A FAVORITE PHOTOGRAPH OF YOURSELF, PLEASE ATTACH A GLOSSY PRINT, OR INDICATE WHERE WE CAN SECURE ONE.

PUBLICATIONS (dates) (please turn to back sheet)

HONORS AND/OR AWARDS YOU HAVE RECEIVED (dates)

HONORARY FRATERNITIES, SOCIETIES, CLUBS TO WHICH YOU BELONG (list dates of offices held) Phi Beta Kappa, Wisconsin Alumni Research Foundation Fellow, ~~YMAA~~, ~~G. I. Herrick Geological Society~~, American Geophysical Union, American Meteorological Society, American Association of University Professors, Reserve Officers Association Sigma Xi

DATE AND PLACE OF BIRTH June 7, 1920 - Detroit, Michigan

IF MARRIED, GIVE WIFE'S MAIDEN NAME AND NAMES AND AGES OF CHILDREN

Williamson, Frances Edith - wife

Bryson, Anne Carol

IN ADDITION TO THE ABOVE "WHO'S WHO" TYPE INFORMATION, WE WOULD APPRECIATE A FEW INFORMAL NOTES ON THE CLASSES YOU TEACH, YOUR HOBBIES, YOUR SERVICE OR WAR WORK, YOUR PUBLIC SERVICE, ETC.

Air Weather Service - engaged in training meteorology cadets - with the 20th

Air Force in the Pacific area, with the rank of major.

(please use reverse side of these pages for additional information)

PUBLICATIONS:

1. Bryson, R. A., Fowler, E. C., Riebel, H. W., "A Preliminary Report on the Summer Air Masses of the Mediterranean," University of Chicago, Department of Meteorology, 1943 (Limited distribution)
2. Bryson, R. A., Fowler, E. C., Riebel, H. W., "Winter Air Masses at Malta," University of Chicago, Department of Meteorology, 1943 (Limited distribution)
3. Bryson, R. A., Fowler, E. C., Riebel, H. W., "Selected European Weather Charts," University of Chicago, Department of Meteorology, 1943
4. Bryson, R. A., Fowler, E. C., Riebel, H. W., "The Air Masses of the Mediterranean," in "A Report on Synoptic Conditions in the Mediterranean Area," University of Chicago, Institute of Meteorology Misc. Repts. No. 14, 1944
5. Allen, P. W., and Bryson, R. A., "Tropical Microanalysis," Institute of Tropical Meteorology Lecture Notes #1, Rio Piedros, P.R., 1944 (Revised, Chicago, 1944)
6. Bryson, R. A., editor, "Introduction to Tropical Meteorology," U.S.A.A.F. Weather Service, 1945
7. Bryson, R. A., "The Cloudform Stability Scale," First Weather Group, A.A.F.P.O.A., 1945
8. Bryson, R. A., "The Nature of the Easterly Wave," First Weather Group, A.A.F.P.O.A., 1945
9. Bryson, R. A., "On a lunar bi-fortnightly tide in the atmosphere," Transactions, American Geophysical Union, Volume 29, Number 4, August 1948
10. Bryson, R. A. "A Cloudform Stability Scale for Tropical Oceanic Areas", (in press)