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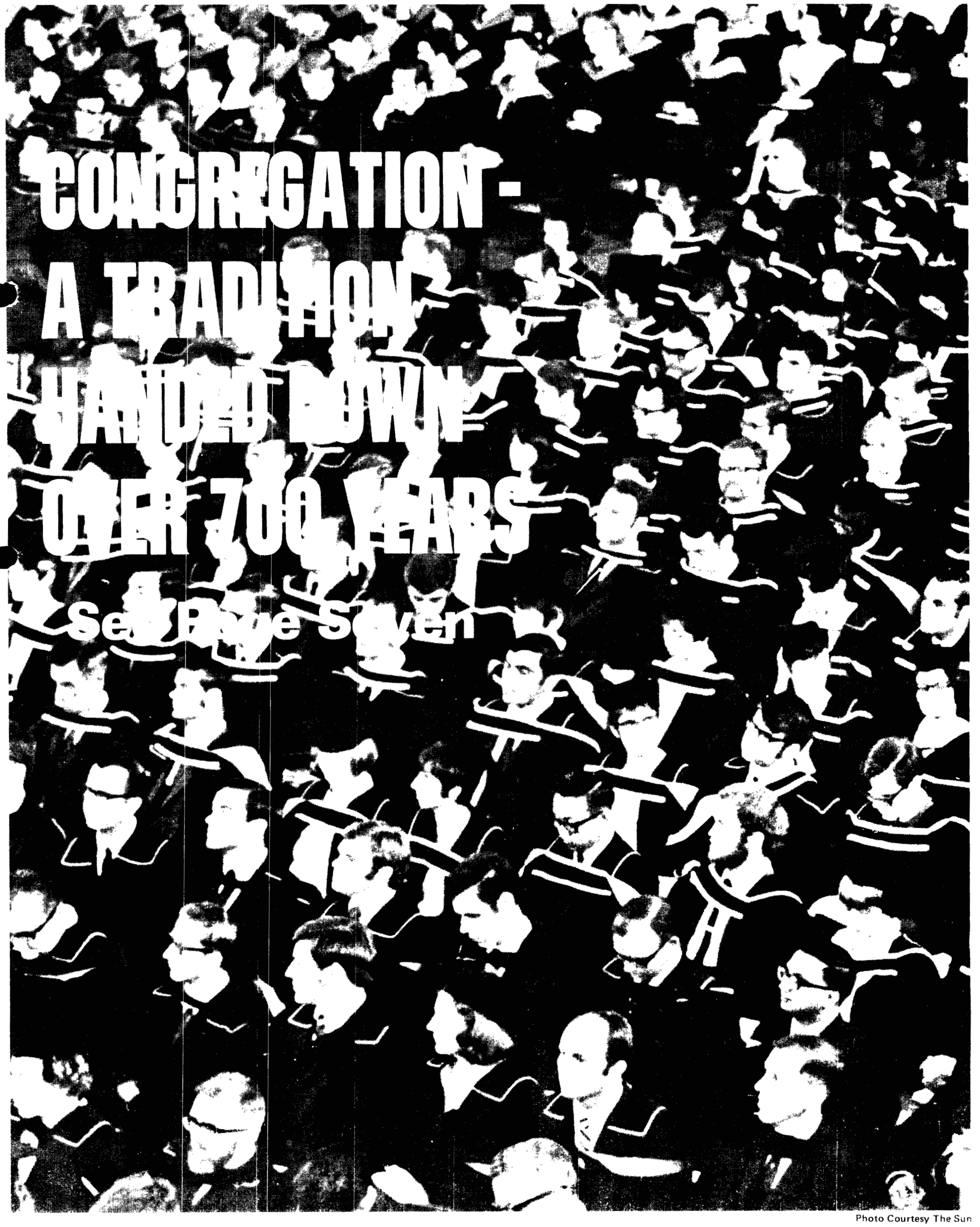
Historic Voyage Noted

When the Canadian oceanographic vessel **HUDSON** docks in Vancouver June 12 the ship will be more than half-way through a historic 41,000-mile voyage of scientific discovery in the Atlantic, Pacific and Arctic Oceans.

The majority of the scientists supervising various aspects of research during the voyage are either members of the UBC faculty or graduates of the Institute of Oceanography.

To mark the visit of the **HUDSON** to Vancouver, this issue of *UBC Reports* includes a four-page insert (Pages Three to Six) which details the voyage of the ship and describes various aspects of research underway in the Institute of Oceanography. The insert was written by UBC's Assistant Information Officer, Peter Thompson.

UBC will honor the officers and scientists of the **HUDSON** at a June 12 reception in the UBC Faculty Club to be attended by the Hon. J.J. Greene, federal minister of energy, mines and resources, who heads the government department which operates the ship.



CONGREGATION - A TRADITION HANDED DOWN OVER 700 YEARS

See Page Seven

Photo Courtesy The Sun

HON. JOHN NICHOLSON

PROF. RAYMOND FIRTH

PROF. JACOB BIELY

MR. JOHN M. BUCHANAN

FOUR HONORARY DEGREES AWARDED

UBC Graduates Another Record Class

A record spring graduating class of more than 3,000 students will receive their academic degrees at the University of B.C.'s 1970 Congregation ceremonies in the War Memorial Gymnasium May 27–29.

Also taking part in the annual ceremonies will be 500 of the 1,047-member graduating class whose degrees were approved by the UBC Senate in the fall of 1969.

Taken together, the fall and spring graduating classes total more than 4,000 students, a record number for UBC.

Presiding over the three-day Congregation for the first time will be Mr. Allan M. McGavin, who was installed as UBC's Chancellor at the conclusion of the 1969 ceremony. The ceremony begins each day at 2:15 p.m.

The Hon. John R. Nicholson, B.C.'s Lieutenant-Governor, will be one of four persons who will receive honorary degrees at Congregation. The honorary degree of doctor of laws (LL.D.) will be conferred on Mr. Nicholson on May 27.

On the second day of Congregation UBC will confer honorary doctor of science (D.Sc.) degrees on Prof. Raymond Firth, one of the world's foremost anthropologists, and Prof. Jacob Biely, a former UBC department head and one of Canada's leading agriculturalists.

On May 29 the honorary degree of doctor of laws will be conferred on Mr. John M. Buchanan, a UBC graduate who retired as Chancellor in 1969.

Mr. Nicholson had a noted career as a lawyer and in government before being appointed Lieutenant-Governor of B.C. in 1968.

Born in the Maritimes and educated at Dalhousie University in Halifax, Mr. Nicholson was called to the bar in B.C. in 1924. He practised law in Vancouver until the Second World War, when he entered government service in the department of munitions and supply. Assigned to organize Canada's synthetic rubber production program, he played a major role in the establishment of the Polymer Corporation and held the positions of general manager, managing director and executive vice-president.

Mr. Nicholson was elected to the federal Parliament in 1962 and held the posts of minister of forestry, postmaster-general, minister of citizenship and immigration, and minister of labor.

Prof. Raymond Firth, who teaches at the London School of Economics in England, was a pioneer in the development of field research techniques in anthropology.

His best-known book, "We, the Tikopia: A Sociological Study of Kinship in Primitive Polynesia," was the result of a two-year stay on the island of Tikopia, where he learned the language of the native people and observed their social habits and customs before writing his book.

Such on-the-spot fieldwork was rare when Dr. Firth used it in the early 1930s. His example was an important influence in the development of anthropology as a social science.

Dr. Firth also assisted in the development of anthropological research and the growth of new universities in almost every part of the Commonwealth, including former British colonies in Africa and Asia.

He has been a visiting professor at many of the world's major universities and has also worked extensively with UNESCO and other United Nations organizations. Dr. Firth spent four months at UBC in 1969 as a Canada Council fellow.

Prof. Jacob Biely has continued to carry out teaching and research duties at UBC since his retirement in 1968 as head of the Department of Poultry Science in the Faculty of Agricultural Sciences.

Prof. Biely has been associated with UBC since 1922 when he entered the Faculty of Agriculture as a student. He was head of the graduating class for the degree of bachelor of science in agriculture in 1926.

Prof. Biely joined the UBC faculty in 1935 and was named head of poultry science in 1952. He has earned an international reputation for his research in such fields as poultry disease, vitamin utilization, the action of antibiotics and the improvement of the nutritional value of grains.

Dr. Biely is a fellow of the Royal Society of Canada, the American Association for the Advancement of Science, the Agricultural Institute of Canada and the Poultry Science Association of America.

Mr. John M. Buchanan is one of UBC's earliest graduates (B.A., 1917) and was Chancellor of UBC from 1966 to 1969. UBC's Senate conferred on him the title of Chancellor Emeritus in June, 1969.

For more than 35 years Mr. Buchanan was associated with British Columbia Packers Ltd., one of the major fish packing companies in the province. He joined the company as an internal auditor in 1928 and rose to be vice-president and general manager, president and chairman of the board. He retired in 1964 but remained a director and chairman of the company's policy committee.

Mr. Buchanan has been active in University affairs as a former president of the UBC Alumni Association and a member of the Senate and Board of Governors. He was active in the University's capital gifts campaign in 1957 and 1958 and was the second recipient of the Great Trekker Award from the Alma Mater Society in 1951.

Following are the heads of the 1970 graduating class:

The Governor-General's Gold Medal (head of the graduating classes in Arts and Science, B.A. and B.Sc. degrees): Paul Garth Harrison.

The Wilfrid Sadler Memorial Gold Medal (head of the graduating class in Agriculture, B.Sc. degree): Timothy Garland.

The Association of Professional Engineers Gold Medal (head of the graduating class in Engineering, B.A.Sc. degree): John Bourne.

The Kiwanis Club Gold Medal and Prize, $100 (head of the graduating class in Commerce, B.Com. degree): Peter Robinson.

The University Medal for Arts and Science (head of the graduating class in Arts, B.A. degree): Gary J. Paterson.

The University Medal for Arts and Science (outstanding record in four-year course, B.Sc. degree): Thomas Stevens.

The Law Society Gold Medal and Prize, Call and Admission Fee (head of the graduating class in Law, LL.B. degree): Robert Diebolt.

The Hamber Gold Medal and Prize, $250 (head of the graduating class in Medicine, degree of M.D.): Donald W. Cockcroft.

The Horner Gold Medal for Pharmacy (head of the graduating class in Pharmacy, B.Sc. degree): Merridy A. Hastings.

The Helen L. Balfour Prize, $250 (head of the graduating class in Nursing, B.S.N. degree): Roswitha Herke.

The Canadian Institute of Forestry Medal (best all-round record in Forestry in all years of course, B.S.F. degree): A. Leslie Brown.

The H.R. MacMillan Prize in Forestry, $100 (head of the graduating class in Forestry, B.S.F. degree): A. Leslie Brown.

Dr. Maxwell A. Cameron Medal and Prize (head of the graduating class in Education, B.Ed. degree, secondary teaching field): Stephen Douglas Bailey.

Dr. Maxwell A. Cameron Medal and Prize (head of the graduating class in Education, B.Ed. degree, elementary teaching field): E. Diane Martens.

The College of Dental Surgeons of British Columbia Gold Medal (head of the graduating class in Dentistry, D.M.D. degree): Gerald D. Richards.

The Royal Architectural Institute of Canada Medal (outstanding student in Architecture, degree of B.Arch.): Allan R. Price.

The Ruth Cameron Medal for Librarianship (head of the graduating class in Librarianship, degree of B.L.S.): Judith O. Lowe.

The Canadian Association of Health, Physical Education and Recreation Medal (head of the graduating class in Physical Education, B.P.E. degree): David G. Russell.

British Columbia Professional Recreation Society Prize, $50 (head of the graduating class for degree of Bachelor of Recreation Education): Margaret E. Inkster.

Special University Prize, $100 (head of the graduating class in Home Economics, B.H.E. degree): Judith L. Pettit.

The College of Dental Surgeons of British Columbia Gold Medal (head of the graduating class in Dental Hygiene): Diane P. McBeth.

Special University Prize, $100 (outstanding in the graduating class in Social Work, M.S.W. degree): Novia Carter.

Special University Prize, $100 (outstanding student in master's degree program, Community and Regional Planning): Sheung Ling Chan.

Special University Prize, $100 (head of the graduating class in Music, B.Mus. degree): Gary Spilsted.

Special University Prize, $100 (head of the graduating class in Rehabilitation Medicine, degree of B.S.R.): Barbara J. Eden.

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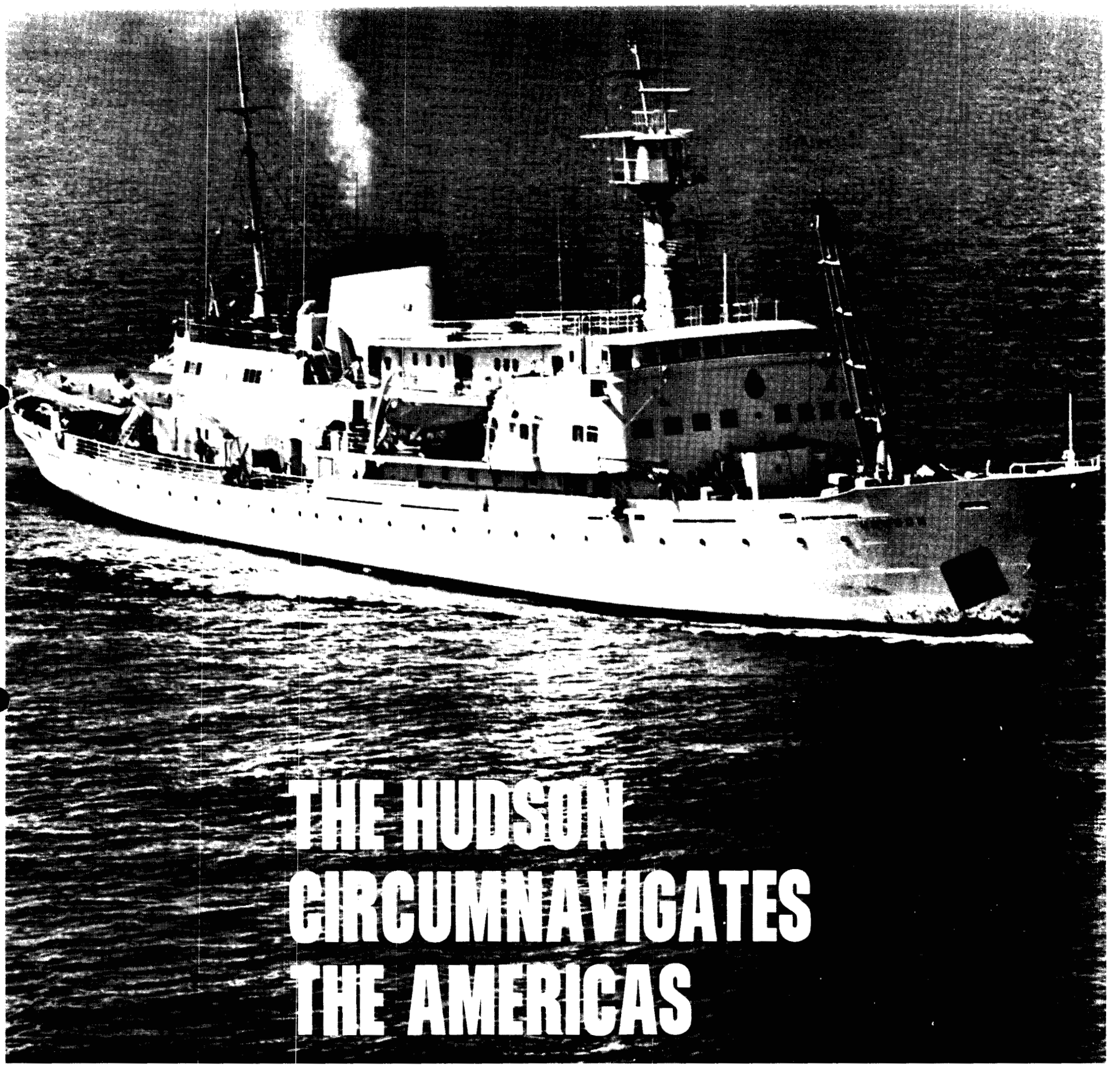
The Canadian oceanographic vessel HUDSON is due to arrive in Vancouver on June 12 during a historic circumnavigation of North and South America. Of the seven scientists originally assigned to supervise various legs of the voyage, no less than five are from UBC or have been connected with the University. In the article beginning below, UBC's Assistant Information Officer, Peter Thompson, describes the voyage of the HUDSON and the various scientific studies being carried out aboard the ship during its 41,000-mile journey.



THE HUDSON CIRCUMNAVIGATES THE AMERICAS

THE Canadian scientific ship **HUDSON** left Halifax in November last year on a one-year circumnavigation of the two Americas. The voyage is the first in history to loop North and South America and the first to carry out an oceanographic sampling of the Pacific Ocean from the Antarctic to Alaska. (See map on Page Six).

The expedition, known as **HUDSON 70**, is Canada's first oceanographic program on a world scale and Canada's largest contribution to the International Oceanographic Decade which begins this year.

Of the seven scientists originally assigned to supervise various legs of the 41,000-nautical-mile voyage, no less than five are from UBC or have been connected to the University.

The **HUDSON**, operated by the Atlantic Oceanographic Laboratory of the federal Department of Energy, Mines and Resources at the Bedford Institute in Dartmouth, N.S., has journeyed south through the North and South Atlantic, rounded the Cape Horn and is due in Vancouver June 12.

THE last leg of the expedition will be through the Northwest Passage and down to Halifax again. Most of the scientists aboard are from Canadian government laboratories or Canadian universities, though scientists from Chile, Argentina and the United States participated on some segments of the trip.

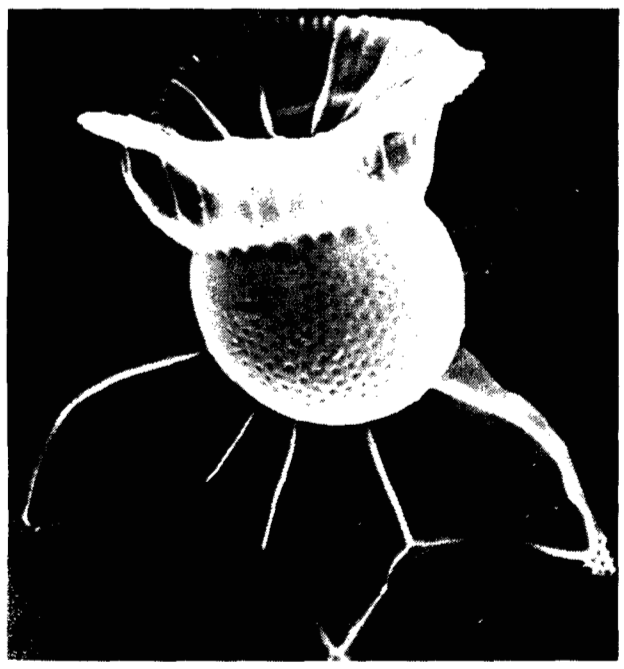
IT was originally intended that the **HUDSON** be under the scientific command of UBC men from the time she left Halifax until she leaves Victoria on the last two legs of her voyage through the Arctic Archipelago to the east coast.

The first and longest section of the voyage was from Halifax to Punta Arenas, Chile, with calls at Rio de Janeiro, Brazil; Buenos Aires, Argentina; and Puerto Williams, Chile.

Scientist-in-charge of this section was D.

Please turn to Page Six
See HISTORIC VOYAGE

DR. G.L. PICKARD, director of UBC's Institute of Oceanography, is one of five scientists-in-charge of various legs of the scientific voyage of the Canadian vessel **HUDSON**, which visits Vancouver June 12. His research is concerned with the physical oceanography of coastal and fiord waters.



Dinoflagellates, microscopic sea plants like the one shown here magnified more than 1,000 times by a scanning electron microscope, are being studied in the Institute of Oceanography by **Dr. F.J.R. Taylor.** A member of the same group of plants is responsible for shellfish poisoning on B.C.'s coast.

PROF. ROBERT STEWART, recently elected a member of the prestigious Royal Society of Great Britain, heads a research group in the Institute of Oceanography which is studying air-sea interaction. The group's work is basic to an understanding of weather formation and could lead to more reliable forecasting.

OCEANS GIVE UP SECR

By PETER THOMPSON
Assistant Information Officer, UBC

Minutes before the Canadian scientific ship **HUDSON** slipped out of Halifax on her historic voyage last November, federal Energy, Mines & Resources Minister Joe Greene said the expedition could play a direct role "in Canada's future social and economic development."

Since Canadians "obviously can't go to the moon" and since Canada has the longest coastline of any country – 59,670 miles, some of it still uncharted – it makes sense to concentrate our scientific investigations on oceanography, the minister said.

And that is exactly what Canada is doing. Canada is considered a major power in oceanography. The federal Bedford Institute at Dartmouth, Nova Scotia, is second in size in the world to the Scripps Institution in California.

MAJOR EMPLOYERS

The **HUDSON**, used in the 12-month oceanographic voyage described in the article beginning on Page Three, is the largest vessel of its kind outside of the Soviet Union.

So far oceanography in Canada has been dominated by the federal government and the four universities – UBC, Dalhousie, the University of Toronto and McGill – which teach the subject. Any reputation Canada enjoys is the result of the co-operative effort of these organizations. Representatives of federal departments and the universities form the influential Canadian Committee on Oceanography.

Up until now universities and government have been the major employers of graduates from UBC's Institute of Oceanography. Interest in oceanography heightened during the Second World War because of its military applications. Then the subject remained almost dormant until the mid-1950s when commercial ventures turned to the sea. The prediction now is that oil exploration in the Arctic and off Canadian coasts, especially the east coast, will result in an increasing demand by industry for oceanographers. Oceanographic techniques will also be heavily used in meteorology and pollution control.

Canadian industry is just beginning to show investment interest in the sea and lags behind the pattern in the United States where more than 300 of the 500 largest companies are reported to have their own ocean science programs.

Not long ago any mention of man gaining substantially from the riches of the oceans was dismissed as romantic foolishness. Today it does seem possible and the sea's wealth is generally accepted as so enormous that any fraction would be bountiful.

Oceanography, long a cinderella of science, promises to become the glamor science of the '70s. It has been selected as one of the five emerging industries – along with medical technology, pollution control, learning aids and nuclear energy – by Merrill, Lynch, Pierce, Fenner & Smith, largest brokerage firm in the world.

ESTABLISHED IN 1948

UBC's Institute of Oceanography was the first established in Canada. The Defense Research Board in 1948 suggested that oceanography be taught at a Canadian university. A year later, as the result of a recommendation of the National Conference of Canadian Universities (now the Association of Universities and Colleges of Canada), the Institute was formed at UBC as part of the Faculty of Graduate Studies.

The Institute is one of the most interdisciplinary organizations at the University. It includes various branches of physics, chemistry, geology, botany and zoology. Both staff and students are associated with the department of their basic science. Only graduate students are accepted.

More than 40 students were enrolled in the 1969–70 session. Fifteen faculty members are associated with the Institute.

The Institute's major interest has been physical oceanography. Since the early '60s Institute research in this area has been dominated by the problems of air-sea interaction involving, among other things, the transfer of energy from wind to water, wave generation and the transfer of thermal energy from the water to the atmosphere.

Research into these little-understood phenomena is necessary before man will ever be able to control the weather or forecast it with any accuracy beyond a day or two. The Institute is considered the world authority on air-sea interaction research. Investigations have been carried out since 1962 from an experimental station built on stilts half a mile off Spanish Banks. Recently, research on air-sea interaction has been done from locations at sea, including weather station Papa 500 miles west of B.C.

Institute oceanographers led by Prof. Robert Stewart took part in the Barbados Oceanographic and Meteorological Experiment (BOMEX) last summer. Prof. Stewart, a recently-elected member of the prestigious Royal Society of Great Britain was chief scientist on the Scripps vessel FLIP. His group was primarily concerned with studying the transfer of heat from the ocean to the air as latent heat in the form of water vapor.

Most of the heat the earth receives from the sun is stored in the oceans between 30 degrees north and 30 degrees south latitudes. But the earth loses heat by radiation almost uniformly from all latitudes. This means heat concentrated around the centre of the earth is transferred north and south. The heat isn't moved by displacement of water but by the atmosphere which receives the heat from the sea mostly in the form of water vapor.

TRANSFER OF HEAT

The amount of water vapor in the atmosphere determines to a large degree the type of weather. Since the transfer of latent heat in the form of water vapor is a long-term process, an understanding of its mechanism could lead to long-range weather forecasting. Forecasts are now done on a short-term atmospheric drift method in which the wind moves weather systems from one location to another.

Prof. Stewart and students working with him are now analysing data recorded during BOMEX. Prof. Stewart is vice-chairman of the Global Atmospheric Research Program's executive committee and is chairman of the Physical Oceanography Commission of the International Association for the Physical Sciences of the Ocean.

Another Institute group participating in BOMEX was led by Dr. Mikio Miyake who specializes in micrometeorology, which could be considered a sub-division of the air-sea interaction problem.

Dr. Miyake has been conducting research into winds, waves and ocean currents from the Spanish Banks experimental station since 1962 to find out how much energy is transferred from the wind to the water and the effect of this energy on wave and current formation. Similar experiments in other parts of the world showed great discrepancies. An International Intercomparison Experiment was held in 1968 at UBC to compare techniques to measure air turbulence used by oceanographers at the University of Washington, the Academy of Science of the Soviet Union and UBC. Intercomparisons

ETS FOR UBC OCEANOGRAPHERS

are being continued this summer in the USSR with UBC participation.

The Institute has been concerned with the oceanography of inlets or fiords since its formation. Almost all the inlets of B.C. have been investigated by Prof. G.L. Pickard, director of the Institute, and his associates, and recently studies have been made of the large fiords in southern Alaska.

Fiords occur in only four other areas of the world. Many of the Norwegian fiords were investigated by Norwegian scientists at the beginning of the century. Oceanographers from McGill have been active in the fiords of Baffin Island and Newfoundland. Fiords of southern New Zealand are being researched by scientists there. Little oceanographic investigation has been made of only one area — the extensive fiord system of southern Chile. The voyage of the **HUDSON** gave Prof. Pickard an opportunity to compare the inlets of Chile and B.C.

ANALYSE DATA

He will spend the summer analysing data collected from the **HUDSON**'s investigations off Chile. The fiords of B.C. and southern Alaska open on to the relatively [illegible]n north Pacific waters with low salinity. Chilean fiords open on to the cold, more saline Antarctic waters of the Humboldt Current, and many of the inlets have icebergs from glaciers in them, a feature B.C. fiords lack.

Prof. Pickard has established that inlet water off Chile has a high silt content indicating glacial erosion of the mainland. He said the amount of fresh water in the Chilean fiords was much less than found in B.C. inlets. Little information was available on the amount of river run-off into Chilean inlets before the **HUDSON** expedition and the character of the flora and fauna and bottom deposits were unknown.

Prof. Pickard is a member of the Science Council's Committee on Marine Science and Technology and was on the Fisheries Research Board's Task Force to study the Board's future.

[illegible]lthough traditionally oriented towards physical oceanography, the UBC Institute has also been active in geology, chemistry and biology. In the summer of 1966 a team headed by Prof. James Murray found manganese dioxide nodules running as high as 38 per cent manganese, one per cent nickel and .5 per cent copper at the bottom of Jervis Inlet 130 miles north of Vancouver under 1,200 feet of water.

The nodules were discovered on a submarine ridge which rises about 400 feet above two adjacent flat basins. Prof. Murray said the ridge was formed as the result of glacial action about 10,000 years ago, a short period in geological time. The nodules themselves were too soft to have withstood glacial movement. This seemed to indicate that the nodules were deposited very rapidly, probably as a chemical precipitate from either sea water or from water in the sediment.

MINERAL DEPOSITS

Prof. Murray has completed an investigation of manganese deposits in Jervis Inlet with Dr. E.V. Grill. Prof. Murray has also recently completed a continuous seismic profiling study of the Strait of Georgia, investigations of sedimentary processes on tidal flats at Boundary Bay and a study of the topography, petrology and tectonic evolution of Bowie Seamount.

Besides chemical studies of manganese nodules from Jervis Inlet, Dr. Grill has startec a general survey of manganese nodules in B.C. waters.

Dr. F.J.R. Taylor's main concern is with phytoplankton, the first link of the food chain of the sea. Phytoplankton are single-cell plants which drift near the surface and absorb light energy and use it to produce carbohydrates from chemicals in the water. He is particularly interested in the phytoplankton of the Indian and north Pacific Oceans.

Dr. Taylor has also been working for nine years on "red water" — a phenomenon which occurs when billions of certain types of phytoplankton gather for unknown reasons near the surface of the water, giving it a reddish tint. Red water has been recorded frequently off the B.C. coast. Last local incident was in English Bay in the summer of 1968.

He is studying the phytoplankton called dino-

Photo courtesy The Province

Research team of geologists in UBC's Institute of Oceanography headed by Prof. James Murray, right, found nudules containing 38 per cent manganese under 1,200 feet of water in Jervis Inlet on the B.C. coast in 1966. Members of Prof. Murray's group which discovered the nodules are graduate student Bob Macdonald, left and Dr. Edward V. Grill.

flagellates sometimes responsible for shellfish poisoning and the killing of sea fauna. Part of his investigation involves use of a scanning electron microscope to obtain a three-dimensional picture of the organism.

Dr. Taylor is also investigating the effects of the herbicide 2,4-D on phytoplankton and will carry out similar experiments with 2,4,5-T.

Dr. Alan G. Lewis is studying the requirements of zooplankton, tiny drifting animals which feed on phytoplankton and form a link in the sea's food chain. Like phytoplankton, zooplankton are influenced by the properties of the water and Dr. Lewis wants to find out what properties inhibit or stimulate their presence.

Zooplankton specimens are obtained from the Strait of Georgia. Their water environment is tested for temperature, salinity, trace metals and biological activity. By varying chemical properties of the water in the laboratory, Dr. Lewis hopes to determine minimum and optimum conditions for the type of zooplankton he is working with.

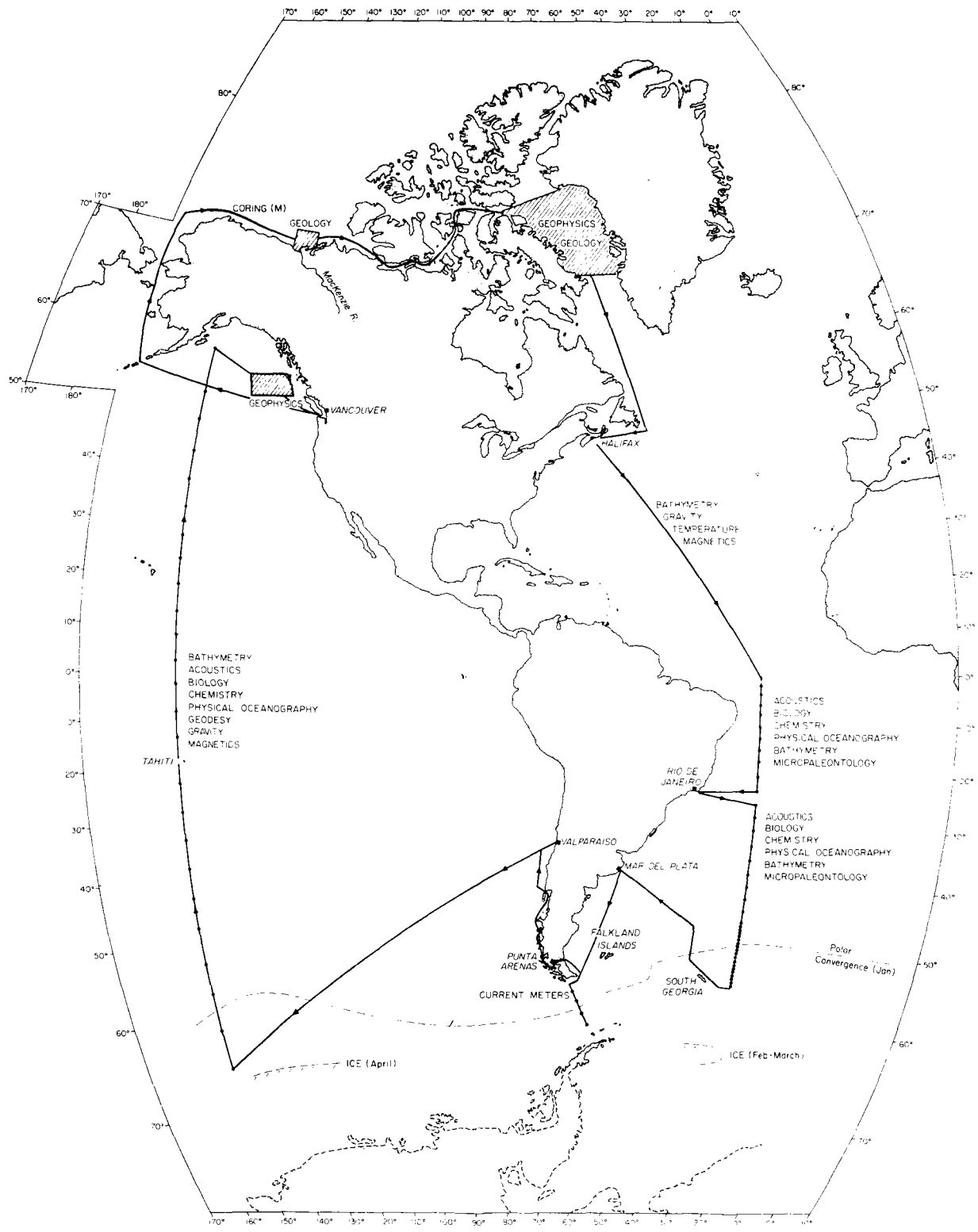
ECHO SOUNDERS

Extensive use of echo sounders in commercial fishing is the result of experimentation by scientists in underwater acoustics in the past. Prof. Brian M. Bary is taking advantage of a peculiar oceanographic feature of Saanich Inlet for further study of the biological effects of underwater acoustics.

Plankton and fish populations usually occur together. But in Saanich Inlet the layers are separated with the plankton layer at the top, allowing Dr. Bary to study the effects of both layers simultaneously. Four or five cruises a year are made on the project. The Institute uses oceanographic ships maintained by the Department of Energy, Mines and Resources.

Part of the Institute will move into the west wing of the new addition to the Biological Sciences Building this summer. The Institute is currently housed in tar paper shacks brought to the campus at the end of the Second World War.

Map at right shows the various legs of the historic voyage of the HUDSON, the Canadian scientific vessel currently circumnavigating the Americas while carrying out various scientific studies. Several of the scientists-in-charge of the research studies are members of the UBC faculty or graduates of UBC's Institute of Oceanography. When the ship leaves Vancouver June 15 it will sail north through Canadian Arctic waters and return to Halifax. Map courtesy the Department of Energy, Mines and Resources.



HISTORIC VOYAGE

Continued from Page Three

C.R. Mann who entered UBC in 1949 and received his Ph.D. from the University in 1953. He heads a group at the Atlantic Oceanographic Laboratory studying fundamental physical processes in the ocean.

Main interest of this section of the trip was research into the biological and chemical features of the oceans and the way they are influenced by movements of large masses of water and ocean currents.

ECHO soundings have indicated to science that organic material and fish populations at about the 1,000 metre level of the ocean are more dense than at any other level. Yet little is known of the size of species of life at this level.

Science has only an incomplete understanding of the primary circulation in the South Atlantic. The frigid waters of the Weddell Sea on the coast of the Antarctic Continent south of South America sink to the bottom of the sea and travel north along the bottom of both the Pacific and Atlantic Oceans well into the northern hemisphere.

As the cold water sinks it is replaced by warmer water from the surface, causing a complicated circulatory system.

After studying these biological and circulation mysteries the **HUDSON** took up a position in Drake Passage, the body of water between the Horn and the Antarctic Continent, to record the flow of the huge circumpolar current as it ran beneath the ship from east to west.

Prof. G.L. Pickard, director of UBC's Institute of Oceanography, was scientist-in-charge of the **HUDSON** from Punta Arenas to Valparaiso, Chile. Prof. Pickard is a member of the Fisheries Research Board of Canada and the Canadian Committee on Oceanography and represents Canada on Unesco's International Co-ordination Group for the Tsunami Warning System in the Pacific.

His interest is the physical oceanography of coastal and fiord waters, equatorial circulation and tsunamis, enormous waves caused by earthquakes on the ocean floor which travel through the deep seas at speeds of 300 miles per hour.

His section of the expedition was mainly concerned with studying the oceanography of Chilean fiords in collaboration with the Chilean government and Chilean scientists.

UBC's Institute of Oceanography has already carried out extensive research of the fiords of B.C. Comparison of these results with measurements taken along the Chilean coast could lead to development of fundamental principles of oceanography applying to all fiord systems in the world.

The **HUDSON** travelled southwest out of Valparaiso on the third leg of her voyage into the April icepacks of the Antarctic Ocean before swinging north to Papeete, the capital of Tahiti.

Scientist-in-charge was to be Dr. W.L. Ford, director of the Atlantic Oceanographic Laboratory. Dr. Ford was raised in Victoria and Vancouver and attended UBC. He was superintendent of the Canadian Pacific Naval Laboratory at Esquimalt from 1955 to 1959.

In February Dr. Ford was seconded to the Arrow oil spill on the coast of Nova Scotia as scientific co-ordinator and was replaced on the **HUDSON** by Mr. R.C. Melanson, regional hydrographer at the Atlantic Oceanographic Laboratory.

INVESTIGATION of magnetics, acoustics, gravity, biology, chemistry and physical oceanographic properties of the seas was done on this leg.

It is fitting that the Papeete to Vancouver segment is under the scientific direction of Dr. William M. Cameron, first member of UBC's Institute of Oceanography. He will be coming back to the Institute of Oceanography he helped establish in 1949.

Dr. Cameron took his master's degree in zoology from UBC in 1940 and later became a professor of oceanography. He was Director of Plans of Canada's Defense Research Board before assuming his present position as director of the Marine Sciences Branch of the Department of Energy, Mines and Resources.

HE is well known for his Arctic studies. Dr. Cameron was the senior Canadian scientist on the famed joint Canada-U.S. Beaufort Sea Expeditions. The United States nuclear-powered submarine NAUTILUS used results of his research on its historic voyage under the polar icepack.

The **HUDSON** will leave Vancouver June 15 for geophysical studies off the coast of B.C. On August 1 she will put into Victoria, hometown of Dr. C.D. Maunsell, scientific leader of this leg.

Dr. Maunsell took his B.A. at UBC in 1945, winning the Governor-General's Gold Medal, and his M.A. in 1947. After taking his Ph.D. at the University of California he came back to UBC as a teaching assistant in physics. Like Dr. Ford, he was attached to the Esquimalt Pacific Naval Laboratory.

He is now head of the Oceanographic Research Section of the Atlantic Oceanographic Laboratory.

The last two sections of **HUDSON 70** will be from Victoria to Resolute on Cornwallis Island and from there back to Halifax. Research in the Arctic will be done on the geological history of submergence of the Arctic Islands.

Channels between the Islands are thought to be submerged ancient river systems. By taking samples of sediment from the channel bottoms, scientists hope to determine the history of glaciers in the area, and the depth, temperature and size of the ancient Arctic Ocean.

The ceremony surrounding the conferring of a university degree has a long tradition stretching back some 700 years to the middle ages. In the article on this page, UBC's Assistant Information Officer, Doris Hopper, describes how some vestiges of that ancient ceremony are still visible in the 1970 UBC event.

DEGREE CEREMONY COLORFUL SPECTACLE

THOSE who take part in a university congregation ceremony participate in a tradition that has been handed down with unbroken continuity for some 700 years.

The ceremony had its origins, like universities themselves, during the middle ages and like many things ancient cannot be ascribed to any particular founder or date of origin.

It has been suggested that the ceremony originated in a time when literacy was not common and a public demonstration that a scholar had met the requirements for a degree was necessary so that the record might be kept in human memory.

From its beginnings the ceremony has been the occasion for the granting of degrees. The earliest academic degrees meant that a student was "licensed to teach" and today's advanced degrees still preserve this tradition in the use of the words "master" and "doctor" (originally synonymous) and both of which meant "teacher."

The earliest universities were founded between 1100–1200. Great teachers resided at Paris and Bologna and students who, like Chaucer's clerk of a later era, "would gladly learn and gladly teach", flocked to these centers from far and wide for instruction.

As these gatherings of students and teachers into "communities of scholars" occurred, the first two universities took shape at Paris and Bologna. Later, the third great university of the middle ages was established at Oxford, England.

Historically the word university has no connection with the universe or the universality of learning but denoted only the totality of a group.

The earliest universities were established either by secular or ecclesiastical authorities. The University of Bologna was under the protection of Emperor Frederick Barbarossa while the University of Paris was an outgrowth of the cathedral school of Notre Dame, whose chancellor controlled the granting of university degrees.

The increasing secularization of universities has divested most university chancellors of their degree-granting power but many chancellors, including UBC's, still play a prominent part in the Congregation ceremony by ceremonially conferring the degree on individual students.

At UBC, the power to grant degrees — both academic and honorary — is vested by law in the University Senate, a 101-member elected and appointed body made up of faculty members, students, graduates and a miscellaneous group appointed by various bodies.

Each year, a week before the first day of UBC's public graduating ceremony, the deans of UBC's eleven faculties present to Senate the names of candidates who have completed the requirements for the degree. Approval by Senate allows the graduating student to take part in the Congregation ceremony when the degree is bestowed on the student individually by the Chancellor, the supreme University dignitary elected every three years by the whole body of graduates and faculty members, which is collectively called Convocation.

UBC's Chancellor, Mr. Allan McGavin, presides over Congregation. The name of each graduating student is announced individually by the dean of his faculty. The student then kneels before the Chancellor and is tapped on the shoulder by the Chancellor with his cap to signify that the student has been admitted to his degree.

In this way, the original degree-granting function of the Chancellor is called to mind.

The details of congregation ceremonies and even the name varies from university to university. The ceremony is called "convocation" in many other universities, but UBC has always used the term Congregation, which means "calling together of the flock."

ONCE a format for the ceremony has been adopted changes are made only after great deliberation. To Dr. Malcolm McGregor, head of the Classics Department and UBC's present Director of Ceremonies, the Congregation ceremony is "almost holy." Although ritual and ceremony have tended to lose some of their esteem in modern society, Dr. McGregor says the UBC ceremony "has the sanction of centuries" and he doesn't think "anyone should make a mockery of it."

As UBC has grown in size the numbers of candidates presented for degrees has increased each year so that the ceremony is now held over a three-day period with degrees in the arts and humanities being presented on the first day, degrees from the Faculties of Education, Law, Commerce and Agricultural Sciences on the second, and degrees from the pure, applied and health sciences and all doctoral degrees being presented on the third.

AS the Congregation ceremony has become more time-consuming, there has been considerable pressure to reduce it. One method of abbreviating the ceremony, adopted at some universities, is to have all candidates for a particular degree rise together and be admitted as a group.

This form of ceremony has been strongly resisted UBC. Dr. McGregor explained that it is felt the individual awarding of degrees provides each student with a share of well-earned recognition and gives parents, wives, children and friends the opportunity to share that moment.

He explained that other aspects of the ceremony have been altered to retain recognition of individual achievement as an integral part of UBC's ceremony. This year's ceremony has been simplified, however, by shortening the remarks of the Chancellor and the President and eliminating addresses by an honorary degree recipient and the graduating class Valedictorian.

Although UBC's Congregation ceremony has undergone numerous alterations it has retained the essentials that give the ceremony its distinctive quality and connection with the past.

The office of mace bearer, for example, derives from medieval times in England when an official took office or opened his court and needed a bodyguard. In those days the mace, a formidable weapon, was held ready to protect the dignitary. Today, at UBC, it is the symbol of the authority of the Chancellor.

UBC's unique mace is carved from a block of yew in the shape of an Indian club and inscribed with symbols used by the Indians to represent real or mythical events in history. The mace is five feet, four-and-a-half inches long and weighs approximately 50 pounds. It is carried by Prof. Benjamin Moyls, acting dean of Graduate Studies.

The mace bearer plays an important role in the Congregation procession which begins at UBC's Student Union Building and makes its way across the campus to the War Memorial Gymnasium where the ceremony is held.

The procession is led by the deans of each of the 11 faculties, followed by the students who are candidates for the various degrees. Next comes the faculty, followed by the Chancellor's procession, which includes the Board of Governors, members of Senate, and representatives of the church, the services, government, the bench, other institutions, and all previous recipients of honorary degrees who choose to attend.

THE Chancellor's procession is followed by the Chancellor's party, which is led by the mace bearer and consists of the Chancellor, the President, the Registrar, the clergyman who reads the invocation, recipients of honorary degrees, ministers of the Crown and the Lieutenant-Governor.

The Congregation procession is a dramatic and colorful spectacle, enhanced by the profusion of colors that distinguish the academic dress which dignitaries, faculty and students don for the occasion.

Academic dress, with its flowing gowns, hoods, and assorted styles of cap is yet another part of the regalia of the Congregation ceremony inherited, albeit with modifications, from the middle ages. Legends have arisen regarding the origins of the costume and its uses. One story has it, for instance, that the hoods were once used by scholars to carry bread and books.

More mundane but more likely is the simple explanation that the hoods were used for warmth and protection against the elements. They remain an important part of academic dress because the colors used in the hoods indicate which degree has been earned and from which university it has been granted.

Degree holders always wear the distinctive academic dress of the university from which they graduated and during Congregation UBC faculty will be wearing academic dress representing most of the leading universities of the world.

UBC's colors are blue and gold. All undergraduate gowns are black, of ankle length with long sleeves and the yoke edged with khaki cord. The trim on the unlined hood of bachelor's gowns indicates the degree being conferred.

Master's gowns are of the same style as undergraduate gowns but without the cord around the yoke. The hoods are lined with the appropriate color for each degree.

The Ph.D. regalia consists of a gown of maroon silk material and sleeves of UBC blue with gold piping. The hood is blue silk lined with gold and the cap is called a Decanal bonnet, which looks like a Beefeater's hat and is of maroon silk with gold cord and tassle.

Among the most colorful costumes are the gowns worn by recipients of honorary degrees from UBC. The gowns and hoods are of scarlet, lined with dark blue velvet for the doctor of laws degree, dark purple lining for the doctor of science degree and with cream for the doctor of literature degree.

The granting of honorary degrees *honoris causa* (because of honor) is an important part of the Congregation ceremony. Most important of all, however, is the granting of degrees to the some 3,000 UBC students who are candidates this year. As each individual student makes his or her way across the platform, kneels before the Chancellor and is accepted into that "ancient and universal company of scholars," they become a bridge linking contemporary society with the middle ages.

LINKED with the past, it is fitting that the closing remarks of the Chancellor should admonish them to look to the future: "Many generations and peoples have contributed to the sum of your understanding and have obtained for you the freedom of enquiry that you have enjoyed in the pursuit of knowledge and values, which your degree represents. As graduates, you will bear a continuing responsibility to maintain these liberties and to use your knowledge and skills for the good, not only of yourselves, but of your community, of humanity at large, and of future generations of students. This is the *tradition* of our University."

UBC ALUMNI Contact

President Walter Gage chats with T. Barrie Lindsay, Alumni Association first vice-president, and Mrs. Lindsay (left) and Mr. and Mrs. Stuart Turner, co-ordinators of the Seattle alumni dinner. See story below.

NEW BRANCHES PROGRAM

Meet The President

A sell-out crowd greeted President Walter Gage and representatives of the Alumni board of management at the reception and dinner held April 24 by UBC alumni in the Seattle area.

The theme of the meeting was *Meet the President* and everyone did. They renewed old acquaintances and heard from President Gage about the many changes on the campus..

Additional meetings in this program are planned for June 3 in Kelowna and Penticton, and June 4 in Trail. Branches in Kamloops and Prince George will get their chance to meet the president on June 14 and 15 respectively. Alumni in these areas will receive additional information in the near future (the post office willing).

Invitation to New Grads

The Mini-week and the Maxi-weekend is the theme of the Young Alumni Club summer program. Cecil Green Park will be open from 7–11 p.m. on Thursdays from June 11 to August 20 (with the exception of June 25). The grads of '70 are invited to come down and drink in the view, play a little croquet and maybe fly a kite. All these extraordinary privileges are included with your $1 summer membership.

Barbecued chicken and suds is a great way to top off your graduating day. So bring your family and friends down to the Alumni-sponsored barbecue at Cecil Green Park on May 27, 28 and 29. Tickets are $2 per person and reservations are suggested at 228-3313. Dinner will be served between 5:30 and 7 p.m. and Green Park will be open until 11 p.m.

'It's as simple as that'

The term *alumni* occurs throughout the graduation ceremony. If you are a graduate you are an alumnus. It's as simple as that. Or is it?

Do you think that the education you have just received was good enough? Maybe you think it could have been better. Is UBC meeting the needs of the society it serves? You have some ideas on that too, no doubt.

Are you interested in making sure that UBC moves forward with the times, that students of the future have at least as good an opportunity as you have had? We think you are.

BIG INVESTMENT

You have put a lot of yourself in UBC. But, once you are gone, will you still have a chance to voice your opinions?

Yes. This is the purpose of the UBC Alumni Association. Through it you can have a continuing voice in the affairs of the University. You become a member of the Alumni Association automatically, upon graduation. You can make of it what you wish.

In September you will receive the *UBC Alumni Chronicle*, the Association's magazine and, when you are established, a request for a donation to help students and student-initiated projects. During your undergraduate years, it is possible that you were one of the many students who benefitted from this alumni giving program.

A continuing interest in University affairs is something you can always give. It's a gift highly valued by the University. To keep you in touch with the latest happenings on the campus and in University affairs, the Alumni Association holds branch meetings in major centers across Canada, in the U.S.A. and occasionally abroad. You will receive invitations to these functions and perhaps be surprised at the pleasure in seeing old friends and in hearing about the UBC you now may be quite eager to leave.

KEEP IN TOUCH

Will you keep in touch with us, your fellow graduates, and when the time is right, lend your support to the students of the future and the institution that, in many respects, has served you well?

Welcome, congratulations and best wishes!

Sholto Hebenton, BA'57, BA, BCL (Oxon), LLM (Harvard),
President, UBC Alumni Association.
Jack Stathers, BA'55, MA'58,
Executive Director.

EARLY UBC GRAD DIES

Dr. Roy L. Vollum, one of the University of B.C.'s earliest graduates and a noted bacteriologist at Oxford University in England, died suddenly of a heart attack at his home in England on March 30.

Born in Vancouver, Dr. Vollum stood second in UBC's 1919 graduating class for the bachelor of arts degree. He obtained his master of arts degree at UBC in bacteriology in 1921 and was named B.C.'s Rhodes Scholar the same year.

After obtaining his doctor of philosophy degree at Oxford, he stayed on at Lincoln College there and was associated with some of the world's most famous bacteriologists, including Sir Howard Florey, who shared the 1945 Nobel Prize for work on penicillin.

Dr. Vollum was most recently the director of the Public Health Laboratory at Oxford and bacteriologist at the Radcliffe Infirmary, Oxford University's teaching hospital.

Dr. Vollum was for many years UBC's representative on the Associaton of Universities of the British Commonwealth and was known as a good friend of UBC graduates who went to Oxford University for graduate training.

Dr. Vollum was married to the former Ella Crozier, a 1921 graduate of UBC, who survives him in England.

Don't Get Lost

The supersleuths in the alumni records department have the endless task of keeping track of the addresses of UBC's 50,000 graduates. They do this so that you will receive ballots for elections for Chancellor and the Senate and interesting mailing pieces such as *UBC Reports* and the *Alumni Chronicle*. So when you move, let us know.

Name . . . . . .
Degree . . . . . Year . . . . . .
New Address . . . . . .
. . . . . .