WOODS HOLE OCEANOGRAPHIC INSTITUTION 1930

# NEWSLETTER

Volume 15 Number 3

March 1974

## GRICE AND SPENCER NAMED TO DEPARTMENT CHAIRMANSHIPS

Dr. Fye announced last week new chairmen for the Departments of Biology and Chemistry. George Grice assumes the chairmanship of the Biology Department and Derek Spencer becomes Chemistry Department chairman.

The retiring chairmen, Dick Backus (Biology) and John Hunt (Chemistry), will be returning full-time to science and continuing as Senior Scientists on the Institution scientific staff.

At departmental meetings, Dr. Fye expressed the Institution's appreciation to both retiring chairmen for the excellent leadership they have provided and said he was looking forward to continued excellence in both departments under the new helmsmen.

George Grice joined the Institution staff in 1959 following a year with the U.S. Fish and Wildlife Service and a year at the University of Hawaii on a Guggenheim Fellowship. His B.S. is from Clemson College, and he holds M.A. and Ph.D. degrees from Florida State University. He has served on advisory groups for the National Science Foundation and the Smithsonian Institution, and he spent 1971-72 in Washington as Program Manager for Environmental Quality for the International Decade of Oceanography. He also worked with the Intergovernmental Oceanographic Commission of UNESCO. His present work concerns the ecology, life history, and distribution of copepods.

Derek Spencer is a geochemist who has been with the Institution since 1965. Before then, he was Supervisor of Geochemical Research for Imperial Oil, Ltd., of Canada. He holds both a B.Sc. and a Ph.D. from the University of Manchester. His recent work has been largely devoted to the Geochemical Ocean Sections Study (GEOSECS). He serves on the program's executive committee and has been chief scientist for three of the 18 legs of the associated cruises.

Dick Backus joined the Institution staff in 1952 following completion of his Ph.D. work at Cornell University. He has also held a position as Associate in Ichthyology at Harvard since 1961. He has been chairman of the Biology Department since 1971. His present work concentrates on an extended study of the distribution of mid-water fishes.

Before joining the Institution 10 years ago as Chemistry Department chairman (it was the Department of Chemistry and Geology then), John Hunt was with Standard Oil of New Jersey for 15 years. He headed Geochemical Research at Standard Oil's Tulsa, Okla., Research Center. He has been active in several chemical and geochemical professional societies, and his present research interest focuses on petroleum geochemistry, particularly the origin of petroleum in off-shore sediment including the continental shelf, slope, and rise.

## MARINE POLICY LECTURE WILL FEATURE DISCUSSION ON MANGANESE NODULES

The first 1974 J. Seward Johnson Lecture in Marine Policy will offer a panel discussion at 8:00 p.m. March 18 on "The Significance of Manganese Nodules in the World Market and Policies for their Utilization."

Professor Edward L. Miles will moderate the discussion in Redfield Auditorium by John E. Flipse, President of Deepsea Ventures, Inc., of Gloucester Point, Virginia, and Professor Guilio Pontecorvo of the Columbia University Graduate School of Business. Moderator Miles is Senior Fellow in the Institution's Marine Policy and Ocean Management Program of Woods Hole and also Warburg Fellow at the Harvard University Center for International Affairs.

Issues to be discussed include the feasibility of large-scale mining of manganese nodules, the probable effects of such mining on the world market, and the economic and social costs of such exploitation.

Prof. Pontecorvo holds undergraduate and master's degrees from Dartmouth and a Ph.D. from the University of California, Berkeley. He has taught economics at several institutions and has been at Columbia since 1963. He has served as economic advisor to several international missions and advisory groups. He is a member of the University of Rhode Island's Law

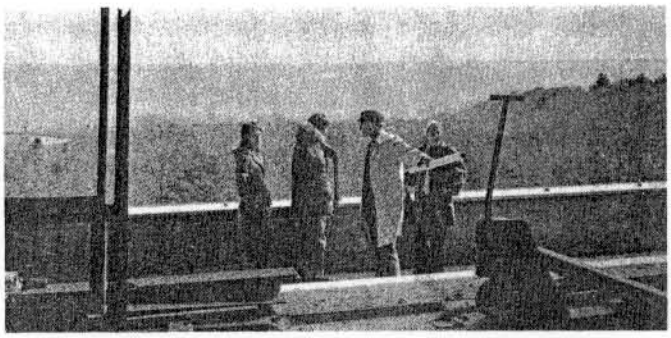
of the Sea Institute Executive Committee and a member of the Ocean Policy Committee of the National Academy of Sciences.

Mr. Flipse has been in the marine industry for more than 30 years at sea, teaching, consulting, and working in engineering design, project management, and research and development. He holds a bachelor's degree from MIT in naval architecture and marine engineering, and a master's degree in mechanical engineering from New York University.

Following 10 years on the staff of the New York State Maritime College, Mr. Flipse was a senior engineer for Sperry Gyroscope Company and then served 11 years in management for the Newport News Shipbuilding and Dry Dock Company. He became president of Deepsea Ventures in 1968. He is vice president for exploration and ocean operations of the Marine Technology Society.

The lecture series was initiated in 1972 as a tribute to J. Seward Johnson, a trustee of the Institution for the past 13 years, whose longstanding interest in man and the oceans has been influential in the establishment of the Institution's program in Marine Policy and Ocean Management.

On a site visit to the new building, Jimmy Gifford shows, left to right, Audrey Williams, Dolores Chausse, and Susan Tarbell where their Physical Oceanography offices will be in the central laboratory. Below: they visit the fifth floor conference room and its view on Vineyard Sound.



## ★ ★ ★ OCEANOGRAPHIC SHIP NOTES ★ ★ ★

**ATLANTIS II** is continuing coastal upwelling work for an IDOE project off Spanish Sahara on the west coast of Africa. Research on this leg, the second but designated Leg 1, concentrates on autotrophic processes with emphasis on characterizing the phytoplankton population and its physiological condition in relation to the circulation pattern of the upwelling in the area. Members of the scientific party are from the University of Washington, University of Rhode Island, Duke University, University of Alaska, Scripps, and the Spanish Institute of Oceanography.

**KNORR** is on a cruise track that takes her from San Juan to a point east of Bermuda and then south of Bermuda for collection of benthic animals, midwater fish, zooplankton, and planktonic larva. The second leg of this cruise, from Bermuda to Woods Hole, will be devoted to the biology of Gulf Stream rings with emphasis on spatial patterns of phytoplankton, zooplankton, and fish across a cold-core ring; further collection of planktonic larva for life history studies; research on the effect of controlled amount of copper on the heterotrophic activity of natural microbial populations, and possible reconnaissance of cold water blobs at the continental shelf/slope water interface. There will also be testing of the Omega Navigation system.

**ALVIN** and **LULU** are expected back in Woods Hole in mid-March following three months work in Florida and the Caribbean for Project FAMOUS training, studies for the Biology and Geology and Geophysics departments, and some instrumentation inspection and recovery work for the Navy. **ALVIN** made her 500th dive on January 31. Maintenance, some limited operations, and extensive preparation are scheduled for the two vessels between now and their June 5 departure with **KNORR** for the Azores and Project FAMOUS.

Leg 3 of the Southlant cruise on **CHAIN** in January and February centered around attempting to identify the triple junction where the South American, African, and Antarctic crustal plates meet. The cruise track was considerably limited because of the many icebergs the ship encountered south of 49 degrees South. The large icebergs show up on radar, but because the small (house-sized) icebergs have very low profiles and become lost in the sea scatter on the radar screen, the ship was

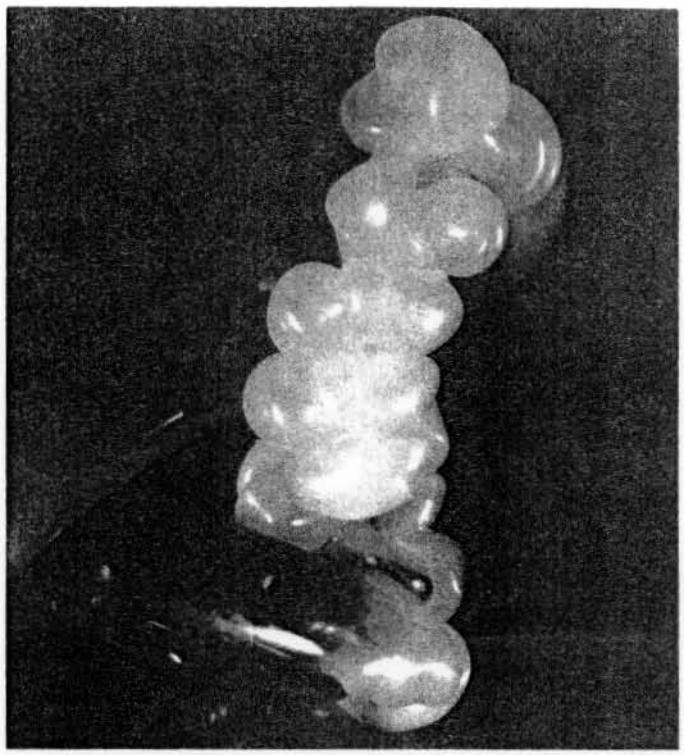
hove to for the dark hours of the night, about 2100 to 0400, to drift with the bergs.

Leg 3 found most of those aboard in the Antarctic for the first time. Chief Scientist Carl Bowin reports that they found it rather lonely, seeing no other ships for the month's Capetown-to-Capetown cruise, and there were mostly grey skies with occasional snow and blizzards. The water temperature was around one degree Centigrade and the air a little warmer. The albatross were numerous—particularly when the garbage was thrown overboard. Those aboard noted that the seas changed very rapidly, from calm to rough within 12 hours, receding to calm again in about 12 hours (North Atlantic storms take much longer to dissipate).

Regarding the scientific results, two fracture zones and two spreading centers were located and their azimuths determined. This information is critical to determining the geometry and kinetics of the present motions between these major earth plates. In addition, the trend of some old magnetic anomalies were tentatively identified and, if verified by further analysis, will contribute to our understanding of the history of the separation of Antarctica and Africa.

Leg 4 of the Southlant cruise has been continuing the studies of the South Atlantic triple junction, and Leg 5, which departs Capetown for Rio de Janeiro March 23 will include ongoing geophysical studies and investigation of chemical gradients at the water-sediment interface.

The geophysical studies include heat flow measurement and piston coring in the Mid-Atlantic Ridge area and continuous seismic profiling of the northern Cape Basin and southern Angola Basin. The possible movement of deep water through the Walvis Ridge at 32 degrees South will be investigated through water temperature profiles in that region. The determination of interstitial chemical gradients at the water-sediment interface are part of the program to evaluate fluxes of dissolved constituents between the oceans and underlying sediments.



**WHAT IS IT?** Mutant grapes? A strange new sea monster? If you can't guess, turn to the last page of the Newsletter.

Isabelle Williams tries her hand at extinguishing a liquid fire under the careful supervision of Lt. Raleigh Costa, right, Fire Inspector of the Falmouth Fire Department, and Cy Fennelly, center, Institution Safety Coordinator. The outdoor demonstration of fire extinguisher use followed a talk on February 22 in Redfield Auditorium by Cy Fennelly for Redfield personnel. He described the types and uses of various fire extinguishers and their application on four different classes of fires. Another training session on operation of fire extinguishers - which are meant for use between fire discovery and the arrival of trained fire fighters - is scheduled for Friday, March 15, at 1000 in Redfield Auditorium for occupants of the Bigelow and Smith buildings. A later session will be scheduled for occupants of other W.H.O.I. buildings. Attendance at these Institution Safety Training Program sessions is encouraged - it really can be a matter of life and death!

## 1400 BOOKS ORDERED FOR LIBRARY FROM SUGGESTIONS TO STUDY COMMITTEE

Nearly 1,400 new books are being ordered for addition to the MBL Library collection as a result of suggestions submitted to the Library Study Group by staff members. There will also be some additions to the journal collection of the library, with dates of the holdings being pushed back in some cases.

In the course of a year-long study, the Library Study Group of the Staff Committee determined that the library collection needed updating in some areas. The Institution made a sum of money available, and staff recommendations were solicited early in December.

Librarian Jane Fessenden says the books, which will amount to about 50 shelves' worth, are expected to arrive and go through the cataloging process over the next six months. The library will notify departments when a group of books recommended by that department have been shelved.

Numbers of books broken down into departmental recommendations are as follows: Ocean Engineering, 667; Geology and Geophysics, 477; Chemistry, 112; Physical Oceanography, 106; Biology, 50 (it *is*, after all, a biological library). These numbers show quantities to be ordered following checking of recommendations against holdings of the library to avoid duplication.

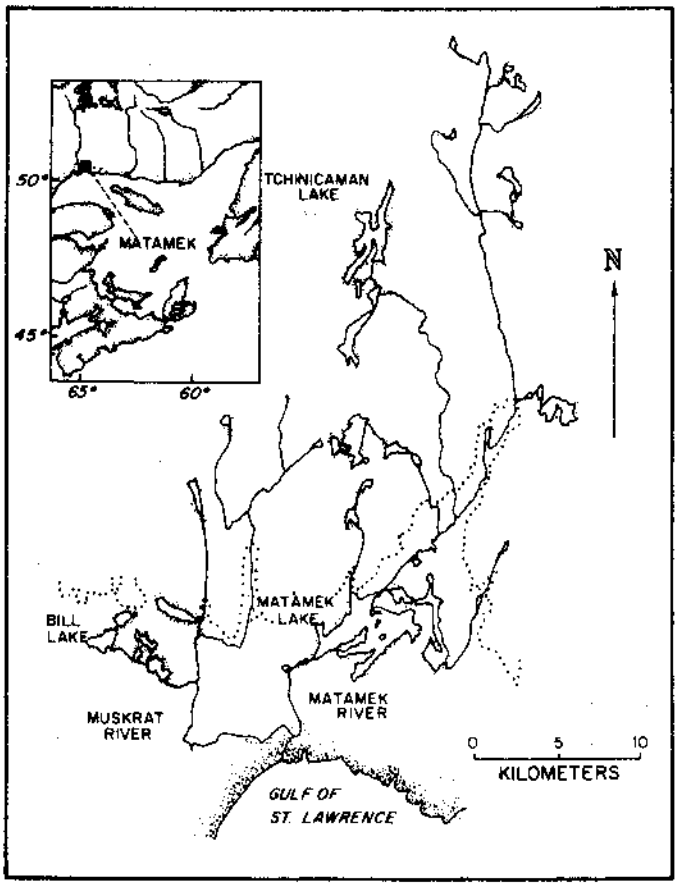
Staff members are encouraged to continue ordering current books through regular departmental channels to make updating the library an ongoing procedure.

## RESULTS ARE IN FROM BUS QUESTIONNAIRE

A bus service survey conducted by the Falmouth League of Women Voters in February indicated interest in a Falmouth-Woods Hole bus by more than 300 respondents. Peak demand for service was between 0745 and 0815 and 1645 and 1715.

Russell Palmer of Cape Cod Bus Lines said the interest indicated in the survey is not enough to run a Falmouth-Woods Hole bus without a subsidy. He said that limited morning and evening service is impractical for his business; for a 30-cent fare (the maximum indicated as reasonable by the survey), he would need an average of 40 people an hour 10 hours a day using the bus to attain a break-even costing.

A total of 1,313 questionnaires were distributed to employees of the Oceanographic, MBL, Fisheries, the Coast Guard, the Steamship Authority, and the Post Office. There were 789 returned with 439 of those coming from W.H.O.I.




There will be an increase in activity during 1974 at the Institution's Matamek Research Station on the North Shore of the St. Lawrence River in Quebec, Canada.

The 148-acre Matamek Research Station was acquired by the Institution in 1966 through the generosity of Honorary Trustee J. Seward Johnson, who has also provided continuing financial support to the operations at the station. Mr. Johnson attended a planning session held at W.H.O.I. last month for cooperating researchers from Woods Hole, University of Waterloo, Laval University, the University of Quebec, the University of Montreal, and the Province of Quebec.

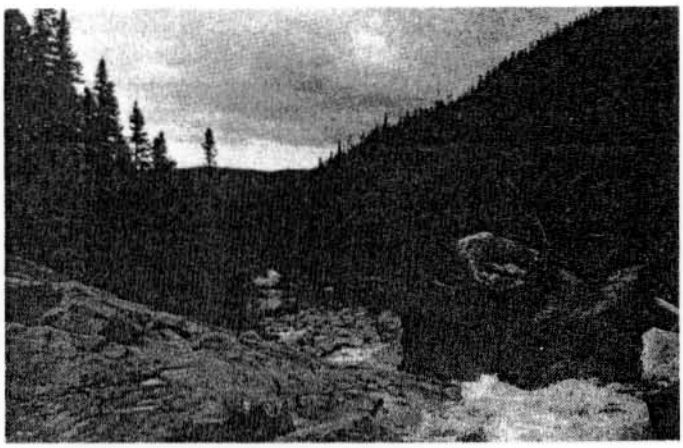
Studies at Matamek offer an excellent opportunity for a general scientific understanding of northern river systems and man's effect upon them. The Matamek River basin is essentially an unexploited wilderness. It has been set aside by the Province of Quebec as a scientific preserve but man is beginning to move into other parts of the North Shore area with hydro-electric dams, increased logging for pulp and paper production, and highways to facilitate logging and tourism.

W.H.O.I. scientific investigations at Matamek began in 1967 with studies of the fish species in the lower Matamek River and in Matamek Lake. Since then, the work has expanded each year with concentration on the

# MATAMEK

## NORTHERN SETTING FOR SCIENTIFIC STUDIES OF LAKES, RIVERS, STREAMS

Map at left shows the river system on the Institution's Matamek Research Station in Canada. Dotted line indicates the 180 meter Labrador escarpment. Picture below shows the beautiful wilderness above the escarpment on the Tchinicaman River. There are no fish upstream from here.



salmon and trout populations of the area. The large river-stream-lake system offers a rare opportunity to study salmon management in various environments. These investigations have been under the direction of Dr. Geoff Power, who spent last winter at W.H.O.I. on a sabbatical from the University of Waterloo. Dr. John Gibson, also from Waterloo, is spending this winter in Woods Hole and will be in charge of this summer's program. The scope of the research is to be enlarged beyond work related only to fish, and investigators from several institutions will work at Matamek.

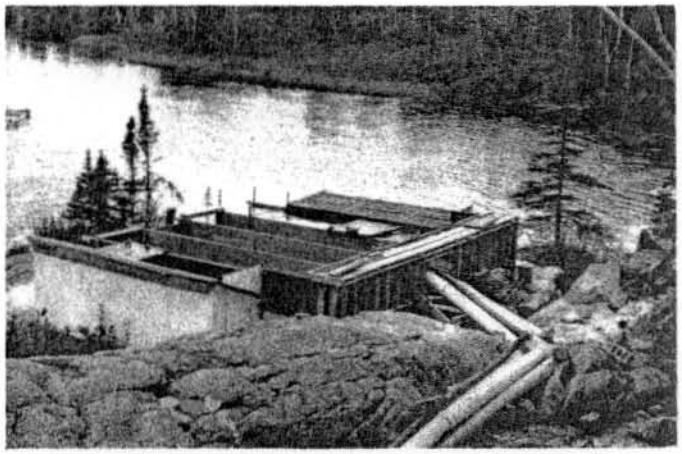
The upper reaches of the Matamek contain fishless lakes and streams inaccessible to fish from lower areas because of the 180 m Labrador escarpment, which has prevented the invasion of fish since the last glaciation. The fishless areas allow comparison of invertebrates from there with those from areas where they are cropped by fish. By transplanting salmon to the fishless areas their habitat and growth can be studied without the effects of inter-species competition.

The Quebec government is building a fishway, which will enable a count to be made of returning adult salmon. Other salmon studies will include survival in the rather acid lake environment and what salmon fry suffer in handling in transit from the hatchery to the wilderness.

In 1974 studies by Woods Hole scientists, John Milliman of Geology and Geophysics will study the limnology (scientific investigation of fresh water) of the area, and Dick Haedrich and John Gibson of Biology will be studying the fish communities and the benthic invertebrates.

Investigators from Waterloo will be working on the transplantation of salmon fry into lakes, on eel ecology, and on algae and zooplankton. A scientist from the University of Montreal will be working on the taxonomy of insects in the river, and researchers from the Water branch of the National Institute for Scientific Research (INRS-Eau) of the University of Quebec will study the chemistry of Matamek Lake, a pristine environment, as compared with hydroelectric development on other rivers along the north shore of the St. Lawrence. Other Quebec scientists will be working on osteology and phylogeny of salmon, and on hydrology and climatic factors in the watershed.

There will be great emphasis on preserving the wilderness quality of the research station. Improvements to the area are to be undisruptive and it is hoped that Matamek will serve as a model for inexpensive and practical ways of river system improvement and management. □



Fish behavior and habitat preferences can be observed at these experimental stream tanks at the second falls.

## SHIP'S CONSTRUCTION REP SILVERMAN DIES

Max Silverman, who was the Institution's construction representative to the shipbuilders for both the **ATLANTIS** II and the **KNORR** died unexpectedly February 14 at the age of 47. He was well-known to many at the Oceanographic, and we quote in part a memorial of biographical highlights written to council members by Jon Leiby as chairman of the Research Vessel Operators' Council:

*Max was primarily interested in ships and their operation. From his father I learned he had received an appointment to the Kings Point Merchant Marine Academy but a sudden turn of poor health prevented his attending. Since it seemed then that he couldn't pursue a career at sea, he went inland and studied geology at Colorado School of Mines. But seagoing instincts led him after graduation to Woods Hole to work with Maurice Ewing on ATLANTIS and then to an extensive oceanographic career at Scripps, after which he became involved in ship conversion, design, and construction at both laboratories and finally for the Navy.*

*At Scripps he was in charge of the conversion of ARGO and acquisition of ELLEN B. SCRIPPS. He was constructor's representative at Baltimore for Woods Hole during the building of ATLANTIS II, then returned to Scripps to handle construction of the sister ships THOMAS WASHINGTON for Scripps and THOMAS THOMPSON for University of Washington. He became involved in the Navy's design of the AGOR-14 class and was construction representative for MELVILLE for Scripps and KNORR for Woods Hole. Max was active in various Navy research ship problems and ultimately went to work for the Oceanographer of the Navy where he was the key investigator, designer, construction representative, and deliverer of the Navy's AGOR-utility class GYRE for Texas A & M and the MOANA WAVE for the University of Hawaii.*

*Max was an instigator of many events in the research business but above all once he started something he could be counted on to follow through; in fact, he often was called upon to complete many tasks started by others.*

The Newsletter is published monthly by the Woods Hole Oceanographic Institution for its employees. Notes, notices, and any items of interest to the Oceanographic community are welcomed by Editor Vicky Briscoe, office in the Coop, or phone 252.

## NOTICES

The current class at the Naval War College in Newport scheduled a visit by naval officers from 17 countries to the Institution for March 15. The program includes a general view of work at the Institution in the morning and presentations from Marine Policy and Ocean Management in the afternoon.

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Burr Steinbach's address in Hawaii is President, Oceanic Foundation, Makapuu Point, Waimanalo, HI 96795.

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Anyone wishing to pass along paperback books for the ships' libraries may deposit them in a box designated for that purpose and located in the stairwell just behind the Smith Reception Desk, and the port office will transfer them to the ships.

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Pottery, textiles, and batik will be featured in a show upstairs at Endeavour House March 18 to April 6. The participating craftsmen are Helen Jacobson, Brenda Saunders, and Jan Bonar (pottery); Corrine Reeves and Sheila Payne (batik); and Vivian Dreisbach and Vicky Briscoe (weaving).

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Work on the Falmouth-Woods Hole bicycle path is progressing, with planking of bridges the current project. The Department of Public Works reports that the path may be completed by the latter part of May.

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Stockroom supplies of interoffice envelopes are low, and anyone who has a few to spare is asked to forward them to the Stockroom. Also, if you have borrowed tools from the Stockroom that you are no longer using, please return them for others to use.

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The Safety Office urges great care for anyone transporting or storing gasoline in these days of shortage -- a gallon of gasoline has roughly the explosive potential of 14 sticks of dynamite!

Fire prevention regulations issued by the Office of the State Fire Marshal state that up to 7 gallons of gasoline may be stored in a home garage without a permit provided it is stored in metal or plastic containers which have been approved by the fire marshal (approved containers will bear the label of Underwriters Laboratories, Inc., or Factory Mutual Research). The capacity of each container should not exceed seven gallons.

Seven gallons of gasoline may be transported in an open vehicle or in a compartment of a closed vehicle separated from the passengers. Remember that your car's gas tank is designed to minimize the possibility of explosion and fire in case of an accident, but you are asking for trouble if you transport extra gas, even in approved containers. And please be very sure that all containers are tightly closed except when in use -- the fumes are highly flammable.

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A piano is often useful for Endeavour House activities, and if anyone has one they would like to contribute, Stella Livingston would be glad to know.

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**T.G.I.F. will be on tap under new management (student-staff combined) beginning Friday, March 15, at 1700 at Endeavour House.**

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Monthly coffee mornings for Woods Hole wives (and children) will continue through May. They are held the third Tuesday of each month at the Carriage House, Quissett Campus, from 1000 to 1130. Remaining dates are March 19, April 16, and May 21. Any questions may be addressed to Karen Joyce, 548-6789.

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The metrics are coming, and conversion charts will be useful. A 29 x 45-inch wall chart may be ordered from the Government Printing Office, Washington, D.C. 20402, at 55 cents. Its title is "Modernized Metric System, the International System of Units" (Catalog no. C 13.10:304/2). The wallet size "Metric Conversion Card" costs 25 cents (Catalog no. C 13.10:365/2).

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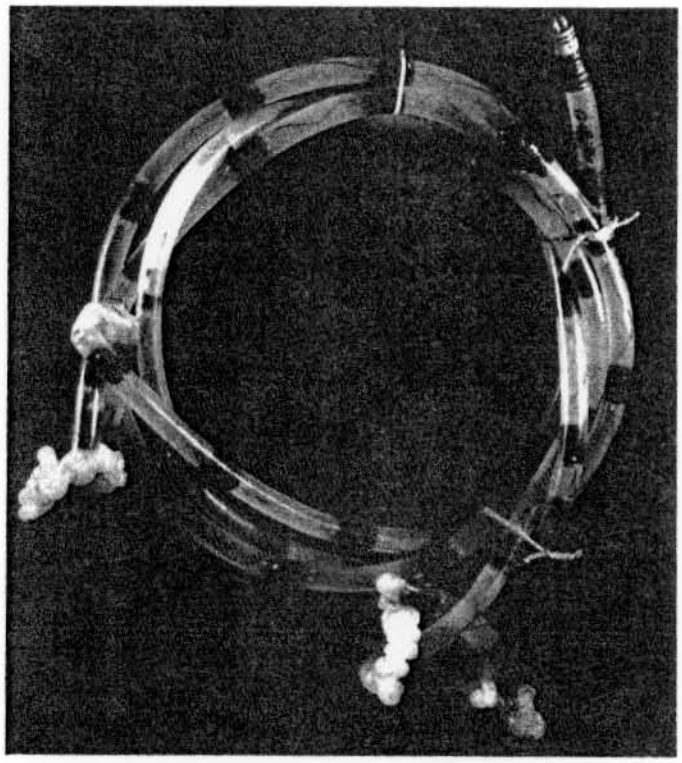

WHAT IS IT? Here is the larger view of a hydrophone array section that was caught in the screw of the CHAIN on an inopportune pitch during the Southlant cruise in the Antarctic. You may have seen a section of the array strung up for testing in the west stairwell of Bigelow in the past few months. Remarkably, the urethane plastic tubing housing the array was unbroken by its encounter with the screw. Four sections of the array are connected and towed from the ship to transmit seismic refraction data to the surface. Forty-four of the 50 transducers in this section were salvaged.

The idea of this sheet is to give everybody a chance to share ideas, efficient practices, and general information. If you have a bit of information that makes your life easier and that you think might be good for others to know about (or something you'd like us to find out about), call the Newsletter, ext. 252, and let us know.

Chart & Map Library

Newsletter
March 1974

The Institution Data Library at the DESC Building has available in its Chart & Map Section many useful and descriptive maps that may be borrowed for talks or lectures.

Special handling tubes are available to facilitate transfer of large charts or maps through the interoffice mail. A phone call to ext. 471 or 481 giving at least a day's notice will get the material in the mail.

The following list generally covers the charts and maps most requested. Other requests may be discussed with Bill Dunkle or Grace Witzell.

## Maps and Charts:

Basement
Bedrock Geology
Bathymetric
Climate
Currents
Earthquake
Geological
Glacial
Gravity
Hydrogical
Mineral
Magnetic
Oil-Gas
Physiographic
Structural
Soil
Sediment
Seismicity
Submarine Topography
Topographic
Temperature
Tides
Tectonic
Vegetation
Weather

## Special Subject Maps

Historical (New England)
Air Photos (East Coast, U.S.)
Ship Wrecks (East Coast, U.S.)
Great Lakes Charts
Hydrographic Surveys
USGS-NOS (East Coast, U.S.)
Canadian Field Sheets
(East Coast of Canada)
Submarine Cable Charts
U.S. Navy Collection Sheets
Great Circle
Operating Areas Chart
Strategic Plotting Charts
Pilot Charts
Maury Whale Charts
Aeronautical Charts

## General Maps Showing W.H.O.I. Data

Note: As all W.H.O.I. Data Sheets are continually updated, copies must be made before lending, and more than a day's notice is required.

World Index Maps
W.H.O.I. Cruises
Continuous Seismic Profiles
Continuous Magnetic Measurements
Continuous Gravity Measurements
Continuous Bathymetry (12 Kh2) (3.5 Kh2)
Camera Lowerings
Cores-Dredges-Grubs-Heat Flow
Sound Velocity Profiles
Early Thermistor Chain Measurements