

# NEWSLETTER

WOODS HOLE OCEANOGRAPHIC INSTITUTION

Vol. 13

July 6, 1972

No. 7



## FIRST MAJOR CRUISE GETS UNDERWAY

R/V KNORR, currently at sea on a ten-day trial and test run after her New York overhaul, is scheduled to depart Woods Hole on July 18 to begin GEOSECS (Geochemical Ocean Section Study).

During the planned nine-month GEOSECS project, water samples will be taken from different depths at 70 stations in the Atlantic. One goal of the study is a better understanding of the mechanism of ocean circulation, and scientists hope the samples will go a long way toward providing this information.

Derek Spencer (Chemistry Department) will be chief scientist for the first two legs of the KNORR's voyage, with leg two set to finish on September 5.

Prior to that, in August, the KNORR will head from above the Arctic Circle in a southerly track touching at Reykjavik, Bridgetown, Recife, Buenos Aires, and Punta Arenas, near the tip of South America. Samples will be taken from the North and South Atlantic oceans before the ship reaches the waters of the Weddell Sea, off Antarctica, by January.

The water samples, to be shipped to participating institutions, will be stored for future studies. The Oceanographic plans to maintain a water sample library in the GEOSECS Building.

Operation of the Geochemical Ocean Section Study will focus around two major cruises: the present cruise about to begin in the Atlantic ending in March, and the second set for June 1973 to March 1974 in the Pacific.

The project is funded by NSF, with its primary intention being to provide information on how the ocean mixes over long periods of time. Such information will be particularly important for an understanding of the dispersal of waste products added to the sea.

GEOSECS is a cooperative program among the nation's leading oceanographic institutions.

## NOTICES

Free fireplace logs in 4-foot lengths are available at the Quissett Campus Construction site. Help yourself.

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There has been a call for the return of extra inter-departmental mail envelopes to the stockroom. Cooperation is appreciated.

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For German translation of scientific articles, call Shirley Reck-siek at 540-1357.

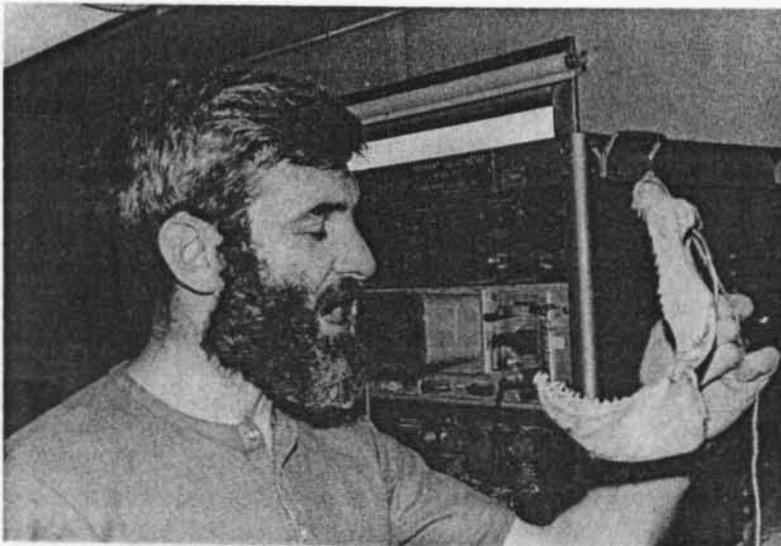
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To receive the monthly environmental newsletter published by the U.S. Environmental Protection Agency, free of charge, write:

Paul G. Keough  
Public Affairs Office  
E.P.A.  
J.F.K. Federal Building  
Boston, Mass. 02203

\*\*\*\*\*

TOVARISHCHI: The Russian study group is getting together again! If interested and have some knowledge of the language, even if rusty, contact Frank Manheim (below).



PRACTICING THE LANGUAGE

## TRUSTEES, CORPORATION MEMBERS, OFFICERS ELECTED

The Annual Meetings of the Board of Trustees and the Members of the Corporation, held Friday June 23, resulted in the following elections:

TRUSTEES OF THE CLASS OF 1976 - Mary Bunting, Melvin Conant, Lilli Schwenk Hornig, Howard Wesley Johnson, Joseph McKee Jr., Francis Welch.

EXECUTIVE COMMITTEE - Noel McLean, Harvey Brooks, Robert Cole, Paul Fye, Charles F. Adams, Townsend Hornor, Francis Welch.

MEMBERS OF THE CORPORATION - Henry Charnock, James Ebert, William Everdell III, Prosser Gifford, Hollis Hedberg, Columbus O'Donnell Iselin Jr., John Riley Jr., William McElroy, George L. Moses, John Sawyer, Denis Robinson, Roger Revelle.

OFFICERS OF THE CORPORATION - Paul Fye, President; Noel McLean, Chairman of the Board; Edwin Brooks Jr., Treasurer; Mary Sears, Clerk.

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## PREDICTIONS AID NAVIGATORS

According to Jan Hahn, who directed the Institution's participation in the Bermuda Race this year, the Gulf Stream predictions provided by airplane survey were quite significant to navigators in the race.

Using a U.S. Coast Guard airplane, Hahn gathered the information which enabled him to produce overlays showing the location and direction of the Gulf Stream. These were presented to skippers in a special issue of "Oceanus" during the pre-race meeting.

In addition to Hahn, Marv Stalcup, Bob Frazel, and Dana Densmore from the Institution worked to compile the Gulf Stream information.

Post-race analyses are being prepared now based on temperature charts which were kept up by the navigators themselves during the course of the race.

NOTICES AND ITEMS OF INTEREST FOR THE NEWSLETTER  
MAY BE PHONED IN TO EXTENSION 270 OR EXTENSION 252.

The 50 volumes published over 16 years make the "Report on the Scientific Results of the Voyage" probably the major single research project of all time, Burstyn said. The volumes contain nearly 30,000 pages including more than 3,000 lithographic plates, 200 maps, and copious woodcuts.

He went on to say that, for more than two decades - from its announcement in 1871 to the banquet held in 1895 to celebrate the publication of the final volume - the CHALLENGER Expedition and its Report occupied the entire lives of a dozen men and substantial portions of the lives of many hundreds more.

The 3 1/2 year voyage around the world and publication of its results cost the British government approximately 163,000 pounds - then, about \$815,000.

According to Burstyn, "Only now, a century after CHALLENGER set sail, can we celebrate her voyage and its results with a clear understanding of what the Expedition portended: an increase in the scale of scientific research beyond the compass of human individuals. The CHALLENGER Expedition, unique in its own century and scarcely duplicated in magnitude in ours, stands as a beacon on the route to what science has become."

The CHALLENGER Expedition Centenary, to be celebrated at the Second International Congress on the History of Oceanography, will be held September 12-20. Invited lecturers will speak on the conception and organization of the historic expedition, as well as its influence on subsequent progress in oceanography. Close to 100 papers will be presented.

Scientists from the Institution delivering talks are Rudy and Amelie Scheltema on "Deep-sea Dredging by the United States during the Nineteenth Century" and Gil Rowe discussing the history of the exploration of submarine canyons.

Papers from the Congress are to be published as two volumes of the Proceedings of the Royal Society of Edinburgh.

#### DOHERTY CHAIR OPEN

Dr. Klaus F. Hasselmann, former (and first) holder of the Institution's Doherty Professorship of Oceanography, has returned to the University of Hamburg's Institute of Geophysics. Appointed in July 1970 to the Doherty Chair, Hasselmann was involved in both teaching and research programs during his stay at the Institution. The Doherty Professorship, appointed with emphasis on experience in research and education, was established with an endowment gift in support of our graduate education program.

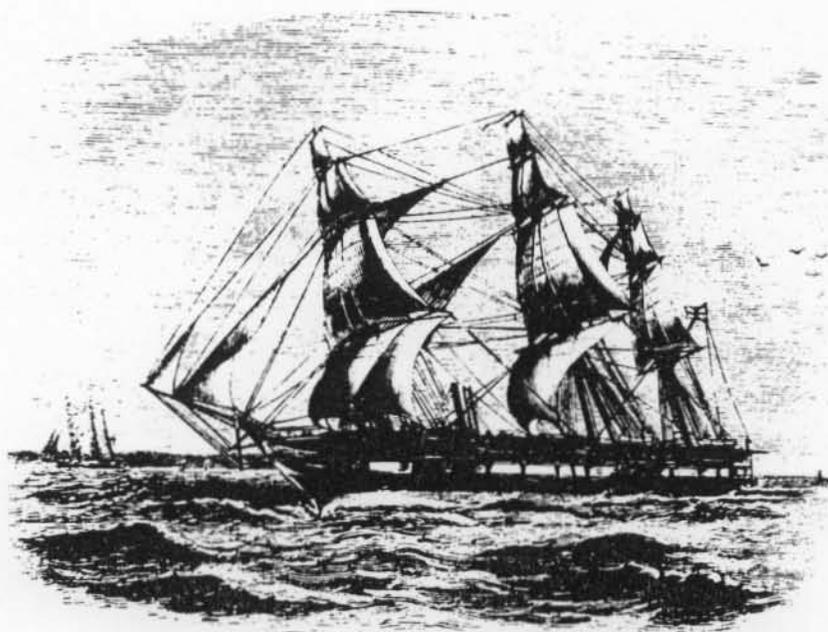
## CHALLENGER EXPEDITION: THE BEGINNING OF "BIG SCIENCE"

Centennial this year

"It is the most famous oceanographic expedition in history," according to historian Harold L. Burstyn who spoke at Journal Club on June 12. "The CHALLENGER Expedition is a precursor of modern oceanography."

To commemorate the sailing of H.M.S. CHALLENGER, nearly 100 years ago on December 21, 1872, a centenary celebration is set for September in Edinburgh. Burstyn, a guest investigator at the Institution, based his Journal Club talk on a paper he will present there.

In describing the "enormity of the project," he cited various statistics on the expedition. CHALLENGER's cruise lasted 41 months and in 710 days at sea the ship travelled 69,000 miles around the globe on 4,600 tons of coal. The ocean bottom was sounded 370 times and 255 serial temperatures were taken. From the hauls of trawl and dredge at 240 stations came 600 cases of specimens (animal, vegetable, and mineral).



The 226-foot vessel H.M.S. CHALLENGER was launched by the navy in 1858, but underwent extensive alterations 14 years later in preparation for the expedition.

Coordinating the geological aspects of the cruise will be Dave Ross, working with Bob Young and Joe MacIlvane of G&G. According to Ross, "We are trying to understand processes that are responsible for moving and depositing sediment on the sea floor, and by using SEAPROBE we can observe these processes directly."

Dick Haedrich, Gil Rowe, and Ken Smith from the Department of Biology will also take part in studies on the ship. One of their main goals, Rowe said, will be to examine the composition of fauna in and around submarine canyons.

From the Physical Oceanography Department, Bob Millard, Mike Parke, and Rory Thompson plan to study bottom mixing on the continental shelf and they intend to use SEAPROBE's cameras to assist in the task.

ALCOA SEAPROBE is expected in Woods Hole on or around July 9.



Search/Recovery Control Center: Data transmission circuits connect the shipboard control consoles to the sensor systems probing the deep ocean.

NEW FACES



Virginia Peltier  
Secretary  
ADMN/F. Mangelsdorf  
Gib. 105; Ext. 293



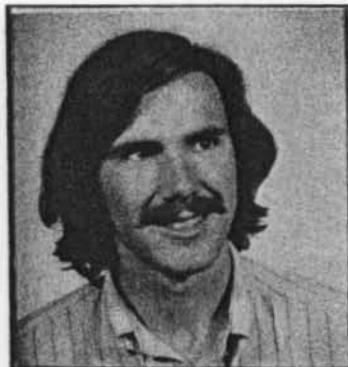
David L. Porter  
Summer Employee  
G&G/J. Phillips  
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Alexander N. Shor  
Summer Employee  
G&G/D. Johnson  
DESC 29; 540-0814



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Biology/S. Watson  
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Catherine Yuen  
Summer Employee  
Chemistry/P. Mangelsdorf  
Red. 3-42; Ext. 306

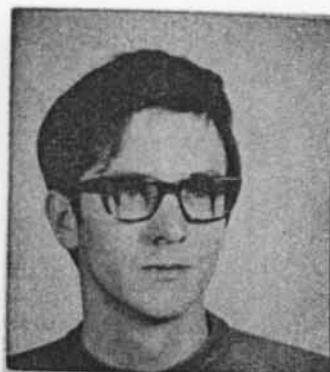
NEW FACES



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Biology/J. Teal  
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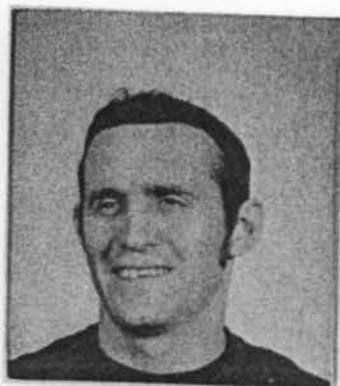
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Janet E. Pero  
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NEW FACES



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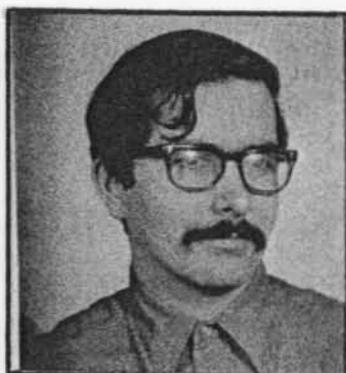
Serena Davis  
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Frances A. Forrestel  
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G&G/D. Ross  
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Roger A. Goldsmith  
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O.E./M. Rosenfeld  
Swift Hse.; Ext. 439



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Marian M. Head  
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ADMN/C. Innis  
Smith 205; Ext. 260/  
261



Shelly Henderson  
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Chemistry/W. McLarney  
CHEMOTAXIS; 548-8601



Denton B. Harris  
Guest Investigator  
O.E./S. Dexter  
Blake; Ext. 415



Hallie B. Keiler  
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Biology/F. Mather  
Red. 1-32; Ext. 336

NEW FACES



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O.E./M. Rosenfeld  
11 School St.; Ext. 436



Robert G. Andrews  
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Biology/H. Sanders  
Red. 1-38; Ext. 338



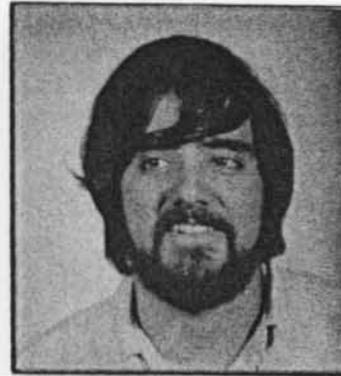
Barbara Brockhurst  
Student Helper  
P.O./W. Schmitz  
Smith 121; Ext. 238



Stephen K. Brigham  
Summer Employee  
ADMN/C. Innis  
Smith 205; Ext. 260-  
261



Karen M. Chambliss  
Summer Employee  
Chemistry/O. Zafiriou  
Red. 3-54; Ext. 302



Ernest G. Charette  
Apprentice Electrician  
ADMN/J. Mitchell  
Iselin Fac.; Ext. 255



Lee Clifford  
Guest Student Invest.  
Biology/E. Carpenter  
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Eric P. Dion  
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Chemistry/R. Gagosian  
Red. 3-37; Ext. 345



Louis R. D'Ambramo  
Summer Employee  
Biology/P. Wiebe  
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AUCTION SALE - SURPLUS PROPERTY  
AT PROPERTY OFFICE - BLAKE BUILDING

INSPECTION DATE JULY 11 & 12  
All day to Sale Time

SALE DATE JULY 12  
12:05 Noon

OPEN BIDDING - You set the Starting Price  
(except where noted)

<u>ITEM NO.</u>	<u>DESCRIPTION</u>
2	Goniometer - High Angle Spectrometer, s/n 5111707, mod. 42201-2, Philips. Was V.T. Bowen - used by J. Hathaway since 1968. Not complete.
4	Recorder, Tape, 4 Track Stereo, 1962, Lafayette Radio, mod. RK-143, s/n 0164, originally owned by Stevens - loose in case - possibly has been cannibalized.
5	Scanner - Crossbar, s/n 2136, Cunningham mod. 1-186, from Hudson Lab, was Walt Nichols.
6	Receiver - "Mohran", Heath Kit, GCIA, modified at Ft. Lauderdale, Fla. by J. Barrett, Qty. - 8.
7	Recorder - Free Fall - built by J. Barrett. Housings from Geodyne, PO 27141, 3/20/68, Drop Sonde. *Located in Falmouth Warehouse. Qty. 3
9	Typewriter 11" Pica, L.C. Smith, s/n 1375183B
10	Typewriter 11" Pica, Woodstock, s/n N551268
11	Recorder - Reproducer, Ampex 351-2, 2 channel, s/n 11987, w/SA10 Rack mounted speaker, PO 19623, NSF 10337, was Miller. \$100 minimum bid - or - will donate to school.
12	System Data Acquisition - Dymec, mod. Hewlett-Packard MG, M9, M10 2546A Mag Tape Coupler Mag Tape Recorder Power Supply 2911B Scanner Control PO A922 John W. Cooper NSF821
16	Converter - Frequency, C.M.L., mod. N175-2A, s/n 149, NSF821, PO A644, Walden - Miller
17	Saw - Radial - Sears, 9" less blade & spare motor, w/stand. Won't hold true angle with so many users. PO A5275, \$165.00 in 1965. *Located in Redfield Building Shop.
20	Camera - Aircraft, K-25 Fairchild - Striffler
21	Range - Electric, Apartment size, Tappan, 4-burner, Oven, Broiler, from V.I.P. apartment.
22	Dictating Machine - Gray \$5.00 min. Audograph 5A model
23	Dictating Machine - Gray \$5.00 min. Keynoter model
24	Automobile - Chevrolet, 4 door Sports van, 1965. Formerly used by C54 crew and Porter Crouse group. Requires work on brakes and engine. \$100.00 min. bid. *Located off D.E.S.C. drive. Extra seats stored in Swift Barn

\*Items 7, 17, 24 - located as noted

## SEAPROBE TO BE USED FOR CONTINENTAL SLOPE STUDIES

The deep ocean search and recovery vessel, ALCOA SEAPROBE, will be utilized by the Institution during July and part of August for studies on the continental slope.

Two 10-day cruises are planned, the first beginning July 12 and the second July 23, taking SEAPROBE to Alvin Canyon and Hudson Canyon respectively. Participating in multi-disciplinary studies will be W.H.O.I. biologists, geologists, and physical oceanographers.

The 243-foot all-aluminum ALCOA SEAPROBE is outfitted with sensor systems which can be employed for bottom search and examination purposes. Scientists plan to use side-scan sonar and television for target location, to assist in selective retrieval of oceanographic samples.

Recovery devices on the ship range from coring tools to grappling claws for lifting bottom objects to the surface. Once aboard ship, bottom samples will be used for chemical, geological, and biological studies.



The ship's wide beam (50 feet) accommodates extensive machine shop facilities, laboratory areas, and a well-deck working space.

### M.B.L. SUMMER LECTURE SLATE

- July 6 - "Muscle As A Chemical Engine - Part I"  
Douglas R. Wilkie, University College (London)
- July 7 - "Muscle As A Chemical Engine - Part II"  
Douglas R. Wilkie, University College (London)
- July 14- "Tumor Cell Membranes:With Beans In Search of the Culprit"  
Max Burger, Princeton University
- July 21- "Na-N Pump Sites:Control of their Numbers by Genes and  
Antibodies" - Philip Dunham, Syracuse University
- July 28- "Intercellular Bridges of Animal Germ Cells"  
William E. Telfer, University of Pennsylvania

The lectures will be presented at 8 p.m. in Lillie Auditorium.

### SUPPORT FOR LOCAL EDUCATION PROGRAM

The Institution has awarded a summer study fellowship to John A. Moody, head of the Marine Science Program at Lawrence High School.

The fellowship is funded by the Jessie Smith Noyes Foundation, and is intended to provide support for the application of marine science to projects of civic and community interest.

Moody, who currently has masters' level training in the physical sciences, will spend the summer attending lectures here, in addition to receiving instruction in various techniques involved in oceanography. His studies include a three-week biological cruise to Portugal on board the CHAIN.

The fellowship will provide Moody with an opportunity to increase his knowledge of oceanography to meet the demands of an expanding Marine Science Program at Lawrence High School.

### VISIT TO THE SOVIET UNION

"To Russia in Search of the Pliocene-Pleistocene Boundary" was the subject of last week's Peanut Butter Club presented by Bill Berggren (G&G). He recently returned from a nearly three-week visit to the Soviet Union for scientific meetings, and the Peanut Butter Club presentation featured slides and movies of his travels. According to Berggren, "Having worked in the Soviet Union in 1962 for half a year, this return a decade later provided a unique opportunity to observe and evaluate the changes that had occurred in that time." His experiences included lecturing - in Russian - at the University of Moscow and the Academy of Sciences in Kishinev.

## INSTITUTION ENCOURAGES YOUNG OCEANOGRAPHERS

The Institution's Secondary Schools Cooperative Effort in Oceanography (SSCEO) has prompted some fairly involved studies by at least two member schools -- Thompson Academy near Boston and Tabor Academy in Marion.

The SSCEO program, which has been in existence for a number of years now, is coordinated by Andy Jahn and Ed Carpenter, both in the Biology Department. Acting as scientific advisors to half a dozen participating schools on and off the Cape, they also arrange for speakers (usually from within the Institution) to address the high school students.

Thompson Academy is a private school located on Thompson Island off Boston, and its oceanography students have been conducting field work in the Harbor and Dorchester Bay. Together with Habitat School of the Environment, a one-year study program for students of any age, Thompson "oceanographers" have been working with plankton and measuring water temperature and currents.

Their studies have concentrated on the deepest part of Dorchester Bay directly northwest of Thompson Island, where since March they have monitored the plankton growth, water clarity, and temperature versus depth profile of the water. Thompson students have tested for E. coli bacteria levels (a domestic sewage indicator) at various points in the Harbor, and drift bottles have been placed in the water for current testing.

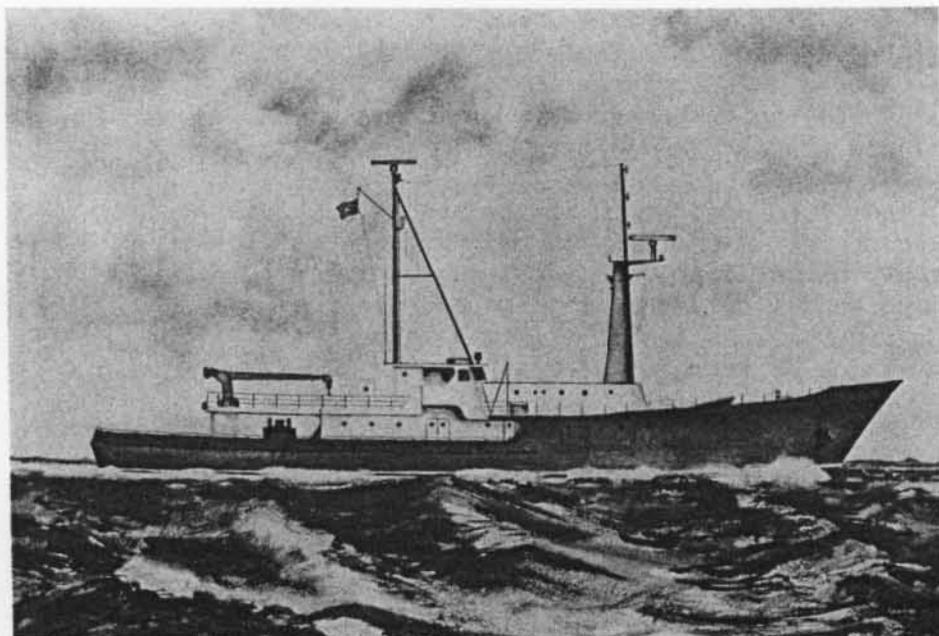
At the completion of the study, SSCEO students presented their results to the Institution. They reported high E. coli contamination off Kelly's Landing in South Boston, which was brought to the attention of the Massachusetts Department of Public Health.

Tabor Academy, also a member of the Woods Hole SSCEO, has obtained its own research ship -- a 39-foot ex-lobster boat, MAER. From the boat students have conducted infauna studies of the various bottom sediments in Sippican Harbor in Marion.

Samples were collected from stations randomly sited throughout the area, via Peterson grabs, and organisms taken to Tabor's laboratories for further study. At each station, measurements were taken on air temperature, wind speed, humidity, and water temperature. Final results of the students' efforts will be reported to the Institution.

According to Andy Jahn, SSCEO is a meaningful educational experience for the high school students, in addition to being a worthwhile community service project for the Institution. And Carpenter commented on the enthusiasm of the young oceanographers evidenced during Q&A sessions after lectures by Institution scientists.

EXPECTED COMPLETION DATE: LATE 1973



Artist's drawing of new intermediate size research vessel designed, according to Dr. Fye, "to meet the relatively short term but frequent seagoing needs of the Institution."

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#### RUSSIAN RESEARCH VESSEL HOSTS W.H.O.I. STUDENT

A student in the Joint M.I.T./W.H.O.I. Program, Jim Bishop, is currently on an oceanographic expedition aboard the Soviet research vessel DMITRI MENDELEEV.

Bishop, who is participating in studies on the ship during its cruise in the Pacific, will travel with the MENDELEEV from the Galapagos Islands to Peru.

A portion of the ship's course is along the East Pacific Rise, a chain of undersea "mountains" of particular interest to marine geologists. This rise, which runs in a northeasterly direction across the South Pacific, terminates in the Gulf of California, where it is associated with faults such as the earthquake-prone San Andreas.

Bishop is a student of Derek Spencer (Chemistry) and John Edmond of M.I.T. Chief of the expedition is Dr. A.P. Lisitzin of the P.P. Shirshov Institute of Oceanology, USSR Academy of Sciences.

## NEW DIESEL-POWERED SHIP FUNDED BY N.S.F.

A new medium-sized research vessel, designed mainly for duty in the Atlantic Ocean, will be constructed for the Institution with funds from the National Science Foundation. The 179-foot ship, with accommodations for 25 and a speed of more than 15 knots, has been designed by John W. Gilbert Associates, Inc. of Boston.

According to Dr. Paul Fye, "When completed, the vessel will provide a highly modern, medium-sized research ship which will fill a void in our fleet by allowing many of the smaller scientific projects to go to sea while freeing the larger vessels for programs of broader scope..."

Dr. Fye commented that the ship will operate at approximately one-half the cost of the larger vessels.

It has been designed with living accommodations placed low and amidships for minimum motion, and away from machinery areas (which are located forward) to reduce noise.

Navigation and laboratory areas are also amidships for reduced motion, with direct access to the main and upper deck working areas. Laboratory space in the ship's design calls for 1,350 square feet.

Working deck areas, amidships and aft, provide for greater flexibility in performing tasks over the side and stern of the ship. These areas are also protected from the weather when going ahead.

At low speeds, the vessel will be maneuvered by its steering nozzle rudder aft. This directs the flow of water by the turning of a nozzle shrouding the controllable pitch propeller tips, rather than deflecting it as with ordinary rudders. A large bow thruster controlled from the bridge also assists in maneuvering, and serves as a standby propulsion unit.

The new research ship will be capable of operating around the world, but special emphasis in design has been placed on conditions encountered in the North Atlantic Ocean. Basic seakeeping characteristics have been developed from those of large American and European fishing trawlers working in northern Atlantic waters throughout the year.

The Institution only reported word last Thursday that the National Science Foundation would provide funding for the ship. Its cost will be approximately \$2,800,000.

Construction of the diesel-powered vessel is expected to be complete 18 months from now, toward the end of 1973.