

BIOLOGY

Floating Biology Class

See Front Cover

► THE MAIDEN VOYAGE of Stanford University's seagoing classroom in marine biology began this month when the 136-foot auxiliary schooner *Te Vega*, seen on this week's front cover, set sail.

Three faculty members, 12 graduate students and a crew of 15 sailed for Honolulu on the first leg of a 10,000-mile voyage that will end Sept. 21 in Singapore. There a fresh contingent of biologists will replace most of the students and faculty.

Te Vega will then set out on the first of three cruises during which she will be part of the International Indian Ocean Expedition, a multi-nation effort to explore one of the world's least-known seas. This will take another year, after which the vessel will return to Monterey.

During *Te Vega's* two to three-year absence, scientists will be exchanged about every three months, approximating the university's academic quarters. The crew will be rotated annually.

The *Te Vega* program is underwritten by the National Science Foundation, and students selected to participate are awarded NSF fellowships. Director and chief scientist of the program is Prof. Rolf Bolin of Stanford's Hopkins Marine Station at Pacific Grove, adjacent to Monterey.

Students aboard the floating classroom are enrolled in a biological oceanography course for graduate students at Stanford.

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Martian Environment

► CERTAIN earth bacteria not only survive but grow satisfactorily in laboratories creating a Martian environment.

But there has to be a suitable medium, including water, Dr. R. S. Young of the National Aeronautics and Space Administration's Ames Research Center, Moffett Field, Calif., told the Fourth International Space Science Symposium in Warsaw, Poland. The first conclusive detection of water vapor on Mars was recently reported by the California Institute of Technology at Pasadena.

Great caution must be used in trying to understand possible life on Mars, Dr. Young said. Growing bacteria and other organisms in simulated Martian conditions emphasizes the "incredible adaptability" of earth microorganisms.

The tiny organisms reproduced in sufficient numbers to keep the colony alive during the three and one-half to four days of the experiment, in spite of losses due to freezing and thawing.

In previous experiments, bacteria and other organisms died from the repeated freezing and thawing, to simulate the harsh and radically changing environment of

Under faculty direction they will use a precision deep-sea fathometer, sonar, bottom samplers and corers, nets, submerged photometers and many other types of instruments and gear. Activities of their outgoing voyage will include shore and shallow water collecting in the vicinity of every port of call.

For the Indian Ocean investigations, when *Te Vega* will be one of more than 20 ships from a dozen cooperating nations, her faculty complement will be increased to seven and the number of students reduced to eight. She will work primarily around tropical shores and in shallow waters of island groups, terminating her three cruises at Colombo in Ceylon, Mauritius Island, and Zanzibar in Africa.

Te Vega is one of only two or three marine biological research vessels possessed by the United States. Nearly all other U.S. research vessels are purely oceanographic, concentrating on investigations of the sea's chemical and physical features, from which biologists find it difficult to explore the living organisms of the sea.

A former luxury cruise yacht in the Caribbean and the Pacific, *Te Vega* was built in 1930 by Fried-Krupp of Kiel, Germany. She carries 12,000 feet of sail, has a beam of 28 feet, a 17-foot draft, and weighs 242 gross tons. During World War II she served as a Coast Guard patrol ship and was later featured in a Cinerama movie, "South Sea Adventure."

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Mars. This time, however, there were longer periods between freezes and thaws, which more accurately approximated the equatorial Martian summer day-and-night cycle.

Knowledge of growth of earth organisms on Mars is important for two reasons, Dr. Young said. First, the extremely complex problem of decontaminating earth spacecraft depends upon proof that earth organisms do not present a hazard to other planets. Second, as much information as possible about survival on Mars or on other celestial objects is needed for designing instruments on spacecraft to detect and analyze such life if it exists.

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Atomic Fallout Found Harmless to Sea Life

► RADIOACTIVE FALLOUT holds no apparent dangers to animals of the sea.

But pollution and plant and animal diseases can bring changes to marine life, Dr. Ralph W. Dexter of Kent State University stated in Kent, Ohio.

Six years' study of marine populations by Dr. Dexter showed that radioactive fallout added to the sea at Cape Ann, Mass., during the past 15 years "has shown no apparent adverse effect." The marine communities of that area have remained stable during the past 29 years, he said. Most changes were either local or temporary in nature.

In an effort to trace marine food chains that might introduce radioactive materials for man, Dr. Dexter analyzed food fish landed by commercial fishing boats at Gloucester, Mass. Part of his study showed food preferences of whiting, redfish and pollock and indicated how radioactive materials from the sea might reach man's dinner table via these fish.

The research, supported by grants from the Atomic Energy Commission, included studies of small fresh water animals in Ohio and Illinois.

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Two Lambs Each Year —It's Done With Light

► FRENCH SHEEP breeders will soon be increasing their lamb supply if experiments on ewes and lambs become practical.

A French scientist has used light to increase the usual sexual season of ewes to two per year instead of one.

The action of light length on the sexual activity of domestic animals, particularly sheep, has been fully demonstrated, Dr. R. Ortavant of the research station for animal physiology, Jouy-en-Josas, France, told a New York Academy of Sciences meeting.

Good fertility in the ram was brought about when exposure to light was gauged accurately. A 10-hour light period was most productive, but inhibition of sperm production resulted during six-hour or 16-hour light exposure.

Dr. F. Hollwich of the University-Eye Clinic, Jena, Germany, reported experiments showing the influence of light by way of the eyes of animals.

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DENTISTRY

Loss of "Baby" Teeth Can Mean Trouble Later

► EARLY LOSS of "baby" teeth can mean trouble if the teeth on either side are allowed to drift. A new adjustable space maintainer is now available, however, which will keep the neighboring teeth in place.

Premature loss of teeth is one of the most common causes of faulty bite, or malocclusion, later on, Dr. Joseph J. Schachter of Saskatoon, Canada, reports in the *Journal of the American Dental Association*, June 1963. Drifting of teeth into the extracted area is nature's method of closing contacts.

Insertion of the appliance, which consists of a steel band connected with two adjustable wire tubes, is simple, and any general practitioner can take care of it.

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