

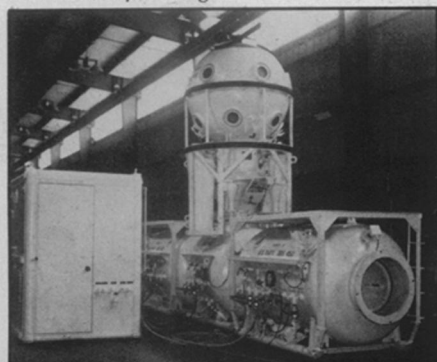
# R/V EAGLE

## Outward Bound for Science and Adventure

The rejuvenated World War II minesweeper sways gently in the wake of ships passing its berth beneath the San Francisco end of the Bay Bridge, its grey paint from the mothball fleet covered with a coat of white more appropriate to a research vessel. A trail of acrid smoke from an acetylene torch rises from the gutted main bridge, but, two decks below, a well-stocked film editing room is already turning out some of the world's best underwater footage. And film pays the bills.

The Research Vessel (R/V) *Eagle* represents a unique experiment, the culmination of several personal dreams. Its purpose is to conduct badly needed undersea research and raise public consciousness about ecological threats to the oceans through the sale of commercial films. "The film company will be profit making, but not profit taking," says Christopher S. Dann, who manages the complex business arrangements of the enterprise. Films will

*The detachable SDS-450 diving sphere (on top) and decompression chambers will aid deep diving.*



Photos: Sea Films, Inc.

A small enterprise aims at pushing the state of the art in undersea research, cinematography and diving technology

BY JOHN H. DOUGLAS

be sold by a profit-making company called Ocean Films Ltd. to support operation of the vessel. Public funds will then be sought to conduct research under the banner of Ocean Trust Foundation, a nonprofit group headed by Dann.

The original dream (and most of the initial funding) was that of Alfred F. Giddings, a burly native San Franciscan who has earned a reputation as one of the world's leading pioneers in underwater photography. Among his many cinematic credits, Giddings directed the underwater filming in the movie *The Deep*, for which he had to design and build his own camera equipment (the first reflex Panavision underwater system) and set up a new system of underwater stage lighting. With the money earned from such work, Giddings purchased and is outfitting the *Eagle*. (One stateroom is called the Benchley Suite in honor of the movie's author.)

The responsibility for overseeing scientific research in this new venture rests with Sylvia A. Earle, program director of Ocean Trust and chief scientist of the *Eagle*. One of the world's leading phycologists (those engaged in the study of sea

plants), she currently holds appointments at the University of California at Berkeley and the California Academy of Sciences. She is also a veteran aquanaut (SN: 5/10/75, p. 308), deeply committed to expanding the role of scientists as active observers in the deep-sea environment.

Combining basic ocean research with commercial filmmaking by means of a complex blend of private and public funding requires a lot of daring, as well as dreams. Although the principals of Ocean Trust do not invite the comparison, one way to understand the challenge facing the *Eagle* and its likely impact on television and scientific research is to outline the differences between this effort and that of Jacques Cousteau.

Like the crew of Cousteau's *Calypso*, Giddings and Earle and their associates will be filming for commercial television while pushing the state of the art in diving technology. But unlike Cousteau, who has made almost no contribution to the scientific literature in the traditional sense, Giddings plans to create a documentary film archive on the undersea environment by immediately duplicating and saving unedited film stock. Earle will oversee publication through traditional channels of the research conducted on the *Eagle*.

Whether we eventually see the Giddings films as part of a continuous television series, like those of Cousteau, or whether they are syndicated individually has not yet been decided. But one way or the

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other, several differences will be immediately apparent. "We're out for the ratings," says Ocean Trust president Dann, but the producers want to avoid focusing on personalities, as in the Cousteau series. Rather, the emphasis will be on the sea itself, and while the drama of conducting research and making films under adverse conditions will be included, the films are designed to stand alone as natural history documentaries.

Even before the *Eagle* is ready to sail, the first of the documentary films will be produced. Called *The History of Undersea Man*, the film will serve as what Dann calls "the survey course" to introduce the series. Later, the ship is expected to take five-year tours of duty, producing on each tour 12 films of one hour length each.

The first sea trials of the *Eagle* are expected to come late next year and the first tour of duty will be a circumnavigation of the Pacific Basin. The projected first film illustrates how research and filming will be combined. The setting will be deep reefs off of Hawaii, where commercial mining operations to recover coral for jewelry are threatening the life of some reefs. Sylvia Earle will attempt a baseline study so that conditions on the reef can be compared with those elsewhere in the world and so that later observations can determine the rate of deterioration. Filming will take place at a depth of 1,000 feet — requiring divers to breathe exotic gas mixtures

to avoid illness — and satellite navigation may be required to help relocate the study area for follow-up investigation.

Several scientists will be brought in to help conduct the baseline study. The policy of Ocean Trust will be to select experts from various fields to direct specific projects. Presumably some of them will be picked from the Trust's scientific advisory board, which includes such scientists as Paul Fye, the president of Woods Hole Oceanographic Institution, John McCosker, director of the Steinhart Aquarium, and James Miller of the National Oceanic and Atmospheric Administration. Some graduate students will also be invited to work on board the *Eagle* if the ship's facilities are necessary for their work.

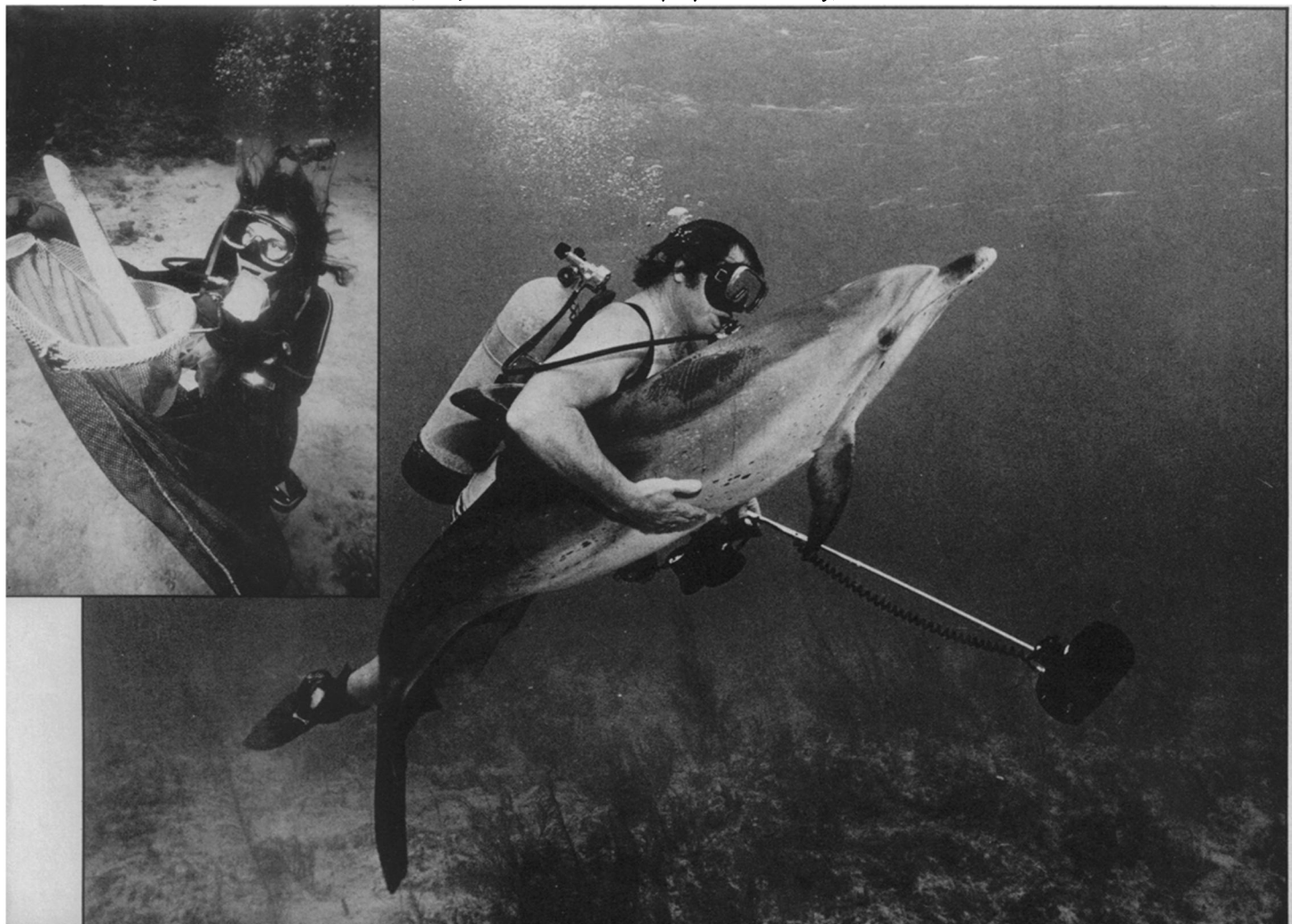
One of the key facilities the ship will offer for divers who need to work for extended periods at great depths will be the SDS-450 diving sphere. Originally designed for the Navy for use in submarine rescue, the sphere can be used to take divers down to a working site, let them "lock out" to do their work, then return to the surface while the pressure in the bell is maintained at the level they experienced at depth. The divers can then be transferred to decompression chambers that lock onto the mouth of the sphere. The sphere and chambers are on loan to Ocean Trust from NOAA, which is anxious to support work that will contribute to its man-in-the-sea program.

Because of the extreme diving requirements and the use of such sophisticated equipment, work on the *Eagle* is expected to generate some new knowledge and techniques in the diving art itself. Stanley Berman, a cardiovascular surgeon in Santa Cruz, has been recruited as the first member of a medical advisory board to supervise work in diving physiology. This work may eventually include experiments with various gas mixtures for breathing at depth and perhaps with different ascension techniques.

Leaving aside the adventure and technology, however — the microscopes with motor-driven cameras, the on-board aquariums specially designed for filming and research — the ultimate purpose of the project's founders lies beyond simply producing a new set of documentaries or scholarly contributions to *The Literature*. As the foundation prospectus puts it, the "ultimate goal is to influence the formation of public policy affecting conservation of the marine environment." Dann says most conservation organizations are losing ground: "I've never seen such incredibly bad marketing, bad management and waste as in these nonprofit organizations."

The ultimate dream behind the *Eagle* is to overcome this slump in conservation efforts through an imaginative balance of public and private financing, creative films and solid oceanic research. □

*Giddings with porpoise, and Earle (inset) with sea snake: The purpose is to study, document and conserve the wonders of the sea.*



Photos: Sea Films, Inc.