Cousteau Diving Saucer

October 23, 1964

Scripps Institution of Oceanography and Navy scientists have set up an ambitious schedule of work to make full use of the famous Cousteau Diving Saucer that will operate in the San Diego area for the next six months.

The Saucer, built by undersea pioneer Captain Jacques-Yves Cousteau, is a mobile deep sea research vehicle designed to explore the ocean floor at depths to 1,000 feet. It was used by Scripps scientists for two weeks last February for research in the La Jolla and Scripps Canyons less than a mile off the La Jolla shore line.

On the current schedule, the Saucer is expected to be put through its first dives off La Jolla during the first week in November. The Schedule, developed by Scripps and Navy scientists, lists dives in the San Diego area from November 1 through 21; San Clemente Island and the Outer Banks, November 22 through December 12; San Diego area, December 13 through January 2; the submarine canyons off the Mexican coast. January 3 through February 13; the San Diego area, February 14 through April 10; and the area around Point Mugu, April 11 through 24. From April 25 through 30 it is unassigned but will be in the San Diego area.

It is intended that both geological and biological studies will be conducted in the Diving Saucer by the scientists.

The geological studies will involve work in the canyons off La Jolla and in Mexico by Dr. Francis Shepard, Professor of Submarine Geology at Scripps, Dr. Douglas Inman, Associate Professor of marine Geology at Scripps and Dr. Robert F. Dill, NEL; a study of sediment transport by Dr. Inman and Dr. Edward L. Winterer, Associate Professor of Oceanography at Scripps; a study of the ocean floor where there has been little or no deposition by Dr. Tjeerd H. van Andel, Research Geologist at Scripps; and a study of the quaternary history of the continental shelf by Dr. Joseph E. Curray, Associate Research Geologist at Scripps and Mr. David G. Moore, NEL.

While working in the canyons, Drs. Shepard and Inman will make several dives to explore the lower end of Scripps Canyon near its junction with La Jolla Canyon, and to trace out the axis of La Jolla Canyon itself. Clues as to the means of transport of sediment over the very gentle gradients will be sought in Scripps Canyon.

Dr. Winterer is scheduled to make several dives in the La Jolla area to examine the northern edge of La Jolla Canyon and the edge of the narrow shelf northwest of Scripps Institution to see how fine-grained sediment enters the canyon.

Drs. van Andel and Curray are scheduled to spend about three days studying the Coronado Bank, a portion of the continental shelf off San Diego that is detached from the remainder of the shelf and therefore from direct supply of sediment. The relatively flat top of the bank, between 110 and 150 meters, is covered with relict shallow-water sand. The bank is the only near shore surface of shelf depths off southern California on which the characteristics of a non-deposition surface and the erosional features and relict sediments can be studied.

Dr. Shepard is scheduled to dive for three or four days in the canyon heads in the Cabo San Lucas area near the tip of Baja California to study the extent of the sand falls, the nature of the canyon walls and floor, and the nature of the bedrock. Dr. van Andel plans three days of dives to a shelf very near Cabo San Lucas which he has

studied before to study the shelf surface of non-deposition. A large portion of the navy Electronics Laboratory program will also be in the Cabo San Lucas area.

A total of 12 days of diving is scheduled in the area of Costa de Nayarit, Mexico, to study the sediments and depositional structure of the region of the mainland west coast between Mazatlan and Puerto Vallarta. The coastal plain and continental terrace of this region are dominated by the influence of the Rio Grande de Santiago, one of the major rivers of the west coast of Mexico. During Pleistocene periods of lowered sea level, the Rio Grande built a complex delta system on the shelf, and in placed it prograded the edge of the shelf seaward into deeper water.

The biological studies will be broken into two areas-- one concentrating on ecology, populations, behavior, and other biological problems in La Jolla Bay, and the other on studies more of a faunal nature. To give the scientists the greatest efficiency of operation, the biological work will be carried out in a limited area extending from La Jolla Bay on the north to the Coronado Islands on the south.

The principal investigators for the biological studies involving the Saucer are Dr. E. W. Fager and Dr. Carl Hubbs, both Professors of Biology at Scripps.

On dives concerning the first part of the program, detailed notes, supplemented by still and motion pictures will be recorded of the habitat, and of the distributions and reactions of animals in relation to the habitat. A standard transect will be established in La Jolla bay which will run from a depth of 50 meters to a depth of about 200 meters with the inshore end in the area of the inter-canyon shelf. Several dives will be made along the transect during the six months the Saucer is in the area to investigate changes with time and to provide a baseline for interpretation of differences between this and other locations.

At least one dive will be made at night on the transect to depths over 100 meters to see whether there is a diurnal change in fauna at these depths.

The second area of biological studies will involve a more general reconnaissance survey, more faunal research, more collecting of specimens, and more systematics. Emphasis will be laid on the observation and sampling of the faunas beyond ordinary SCUBA levels and on bottom too found for feasible dredging or trawling.

Some of the areas scheduled for research include a 50-fathom band where anchor lines have brought up branching coral so as to suggest the weak development of a coral reef in the area. Also, the Coronado Ridge, north of the Coronado Islands, where a very different habitat is to be found, will be studied.

Several dives are planned in the area of a rich rocky submarine habitat known as the "Rock Pile" south of the Coronado Islands where deeper parts are inaccessible to safe SCUBA operations. Drs. Fager and Hubbs have indicated they may make some dives during the height of the gray whale run next January to search for hitherto hidden information.