Research sub trapped; two crew members die of exposure

On Jan. 29, 1971, the Smithsonian Institution held commissioning ceremonies for a small research submarine, revolutionary in design. The new minisub carried hope for a better understanding of sea life and for new insights into ways of better protecting our waterways from further pollution.

Two years ago, the Johnson-Sea-Link, designed by Edwin A. Link, was the most sophisticated diving craft of its kind. It was one of a new generation of small submersible vehicles that were built to penetrate the shallow depths of the continental shelf. More than 100 innovations were incorporated in its design to contribute to safety.

Yet, despite all safety devices, tragedy struck the minisub this week and resulted in the deaths by carbon dioxide of two oceanographers: Clayton Link of Binghamton, N.Y., son of the designer-builder of the sub, and Albert Stover of West Palm Beach, Fla. Two crewmen that survived were pilot, Archibald Menzies of Vero Beach, Fla., and Robert Meek, an ichthyologist from Santa Barbara, Calif.

The 23-foot acrylic and aluminum submarine became ensnarled Sunday (June 17) in the superstructure of an old World War II destroyer scuttled last year for a fish sanctuary 15 miles southeast of Key West, Fla. The crew was exploring the hulk to see how subtropical fish had converted the destroyer into an artificial reef. When the minisub wandered too far into the wreckage, it became entangled in a curtain of steel cables. Only after 31 hours of intensive rescue efforts could the sub be brought to the surface.

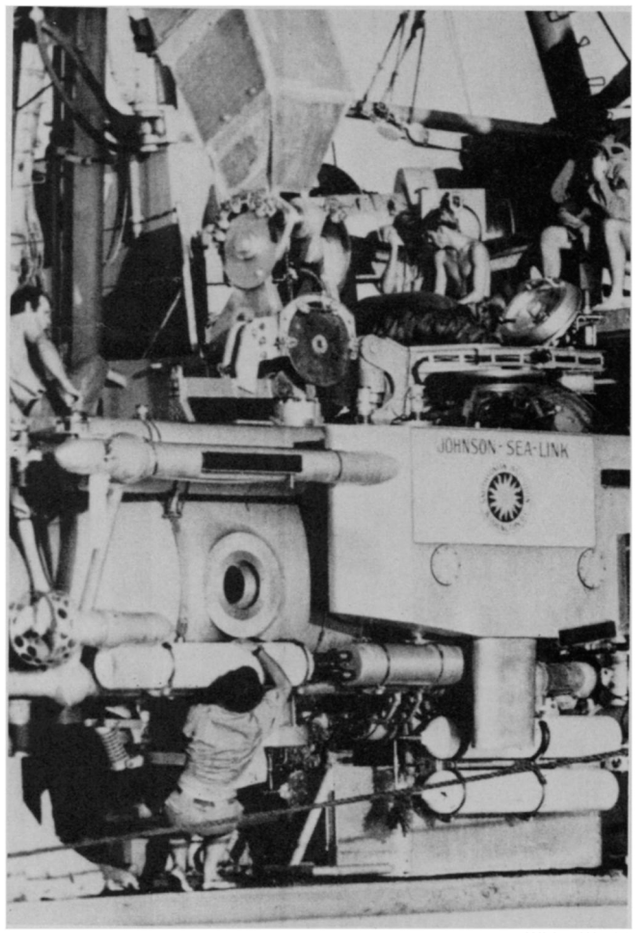
The principal concern at the time of the rescue attempts was the build up of carbon dioxide aboard the minisub. Baralyme, a chemical that absorbs carbon dioxide, does not function well at low temperatures. Monday morning temperature in the aft section of the sub fell to 40 degrees F. due to the chilling water outside the craft and to the heat conducting ability of aluminum. The rear chamber is almost entirely made of aluminum. When a malfunction of the pressurization and heating system occurred, no steps could be taken by the men in the aft section to counter the falling temperature. The men became unconscious about 7 to 8 hours before the craft was surfaced and they never revived.

The forward compartment is a large transparent acrylic bubble. The men in this section were not endangered by loss of heat due to the chilly water since acrylic is not a heat conductor. But they were threatened by a diminishing supply of oxygen.

When it was first found that Navy divers could not reach the wreckage without entangling their lifelines and thus endangering their lives, a special diving chamber was flown in from San Diego, Calif. The diving bell made two unsuccessful attempts to rescue the men. The first time the diving bell went down 160 feet but it had to resurface because a diver had trouble with his mask. The second attempt reached the bottom of the ocean but difficulties with strong currents allowed only one diver to leave the bell at a time.

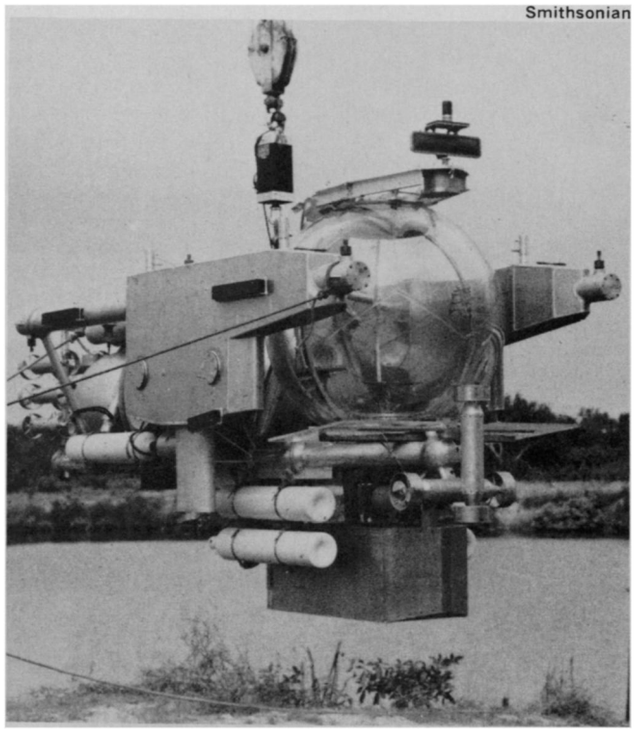
The last rescue effort was made by both the Navy rescue ship, Tringa, and the commercial salvage vessel, W. B. Wood. Tringa lowered a grappling hook and W. B. Wood lowered a television camera to help guide the grapple line. After groping around the floor of the ocean, the hook finally caught on the minisub and was able to yank it to the surface.

The two men in the front section of the sub, Menzies and Meek, were able to leave their craft immediately after it surfaced. Their compartment had remained pressurized at sea level. The aft section was slowly decompressed in a vain attempt to save the two trapped men. □



Wide World

Rescuers gather around the research minisub on the deck of its mother ship, Sea Diver, after its retrieval (above); the Johnson-Sea-Link before the fatal accident (below).



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