

Steerable propellers give research submarine a 70-mile range at 600 feet.

SURV to tackle the North Sea

Britain plans to produce research subs like automobiles—standard model with options

More than five and a half years ago, Britain joined the space club with a small ionosphere-measuring satellite named Ariel 1. Now that country has joined what is coming to be known as the "hydrospace club," with the development of its first underwater research vessel.

Called SURV, for Standard Underwater Research Vessel, the two-man craft was designed and built by Lintott Engineering Ltd. of Horsham, England, to aid seabed studies by geologists, marine biologists and fishery experts. It is also intended as a search-and-recovery vehicle.

SURV is reportedly capable of taking its crew down to the limits of the continental shelf. In sea trials run by the Royal Navy it reached a depth of 600 feet, the maximum possible in the Portland Harbor test site. The hull is stressed to withstand pressures down to 6,000 feet below sea level.

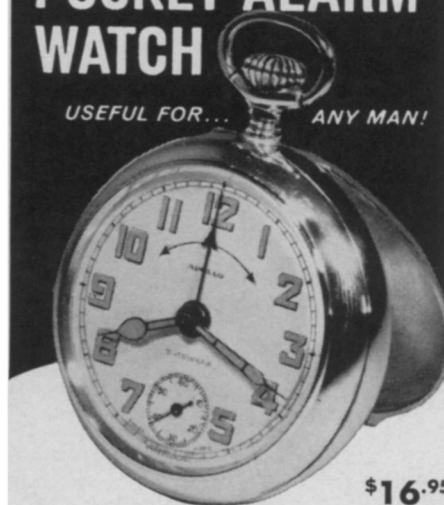
A pair of electrically driven propellers can be rotated through 100 degrees, to drive the craft in any direction at a speed of up to 2.5 knots. This means that in a 24-hour submersion, for which SURV has already been tested, it has a range of almost 70 miles.

The company-funded vessel cost about \$50,000, paid for out of profits on Lintott's British and West German atomic energy work. Operating costs are estimated at about \$120 an hour.

The six-ton vessel is roomy, as such craft go. Both crew members can walk around inside to look out of any of the ten 2.5-inch-thick portholes. Manipulating arms, seabed corers and sampling devices can be operated through the hull. Still and movie cameras can be carried inside the hull and operated normally by the observers, or outside frames can be fitted for mounting external television lights or additional cameras. Communication with

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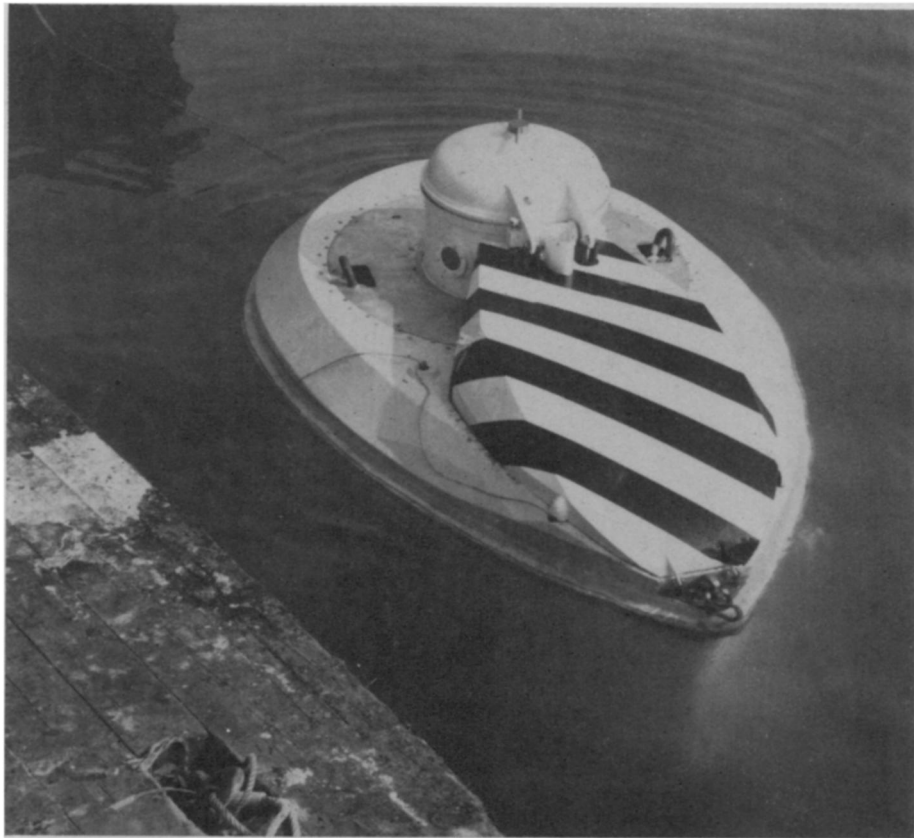
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At its dock in Portland, SURV is readied for trials in the English Channel.

the surface is by connecting telephone line, while an acoustic system provides underwater communication with divers up to a quarter-mile away.

The pressure hull is faired into a glass fiber shell which has been made to withstand as much punishment on the surface as a work boat. The forward part of the shell surrounds the top portion of the pressure hull and contains the surface buoyancy tanks. The streamlined after section is compartmented for batteries and air bottles for buoyancy control. The batteries are kept at normal atmospheric pressure in five neutrally buoyant pods designed for easy changing, and, in the future, for recharging at sea.

The first customers for SURV are likely to be the British Gas Council, for inspection of natural gas pipelines on the floor of the North Sea, and the various American and British oil companies who are drilling in that area. The Ministry of Defense has also expressed keen interest.

"If it had been ready in time we would gladly have lent SURV to the Government at the time of the Torrey Canyon disaster," G. E. Gladwell, director of Lintott, said. "It could have found out in a day what was causing the vast outpouring of oil from the giant tanker. Instead, the full truth is still not known. If there is a similar disaster in the future, we expect to have a reserve fleet standing by to

carry out an immediate investigation."

There is no planned production figure for SURVs as yet, but Gladwell says that production models will be from five to eight times less costly than their U.S. counterparts. "We are planning to make SURVs on much the same lines as automakers turn out their cars," he says. "A basic model with a variety of optional extras."

The British Government is naturally enthusiastic about getting into undersea research with British vehicles. In fact, although SURV is the only such craft the country yet has, the National Environmental Research Council is already considering the development of a multi-sub "tender," to act as mother ship to a flotilla of small submersibles. The proposed design would cost more than \$2.5 million, however, which could be quite an obstacle for the one-sub country, in view of its newly shrunk pound.

"We would like it to be capable of conversion into an ordinary research ship which could go on long voyages," says Council secretary R. J. H. Beverton. "But at the start it would be confined to home waters where we have an extended plan, now that a really serviceable undersea research vehicle is available, to pay more attention to coastal erosion and preservation of wild life, exploitation of mineral wealth, and the effects of pollution of freshwater systems."