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"JOHN N. COBB" USES NEW RIG FOR SLOW-SPEED TROLLING

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A power take-off from an auxiliary engine to drive the vessel at slow speeds is a special feature of the John N. Cobb, exploratory fishing vessel of the U. S. Fish and Wildlife Service's North Pacific Exploratory Fishery Program.

In the various types of fishing encountered during exploratory work, such as, towing shrimp trawls and plankton nets, and trolling for fish other than tuna, it is necessary to operate at speeds from $\frac{1}{2}$ knot to 3 knots for extended periods of time. While it is possible to run the main engine at slow speed, it is not recommended practice for prolonged periods as it results in fouling.

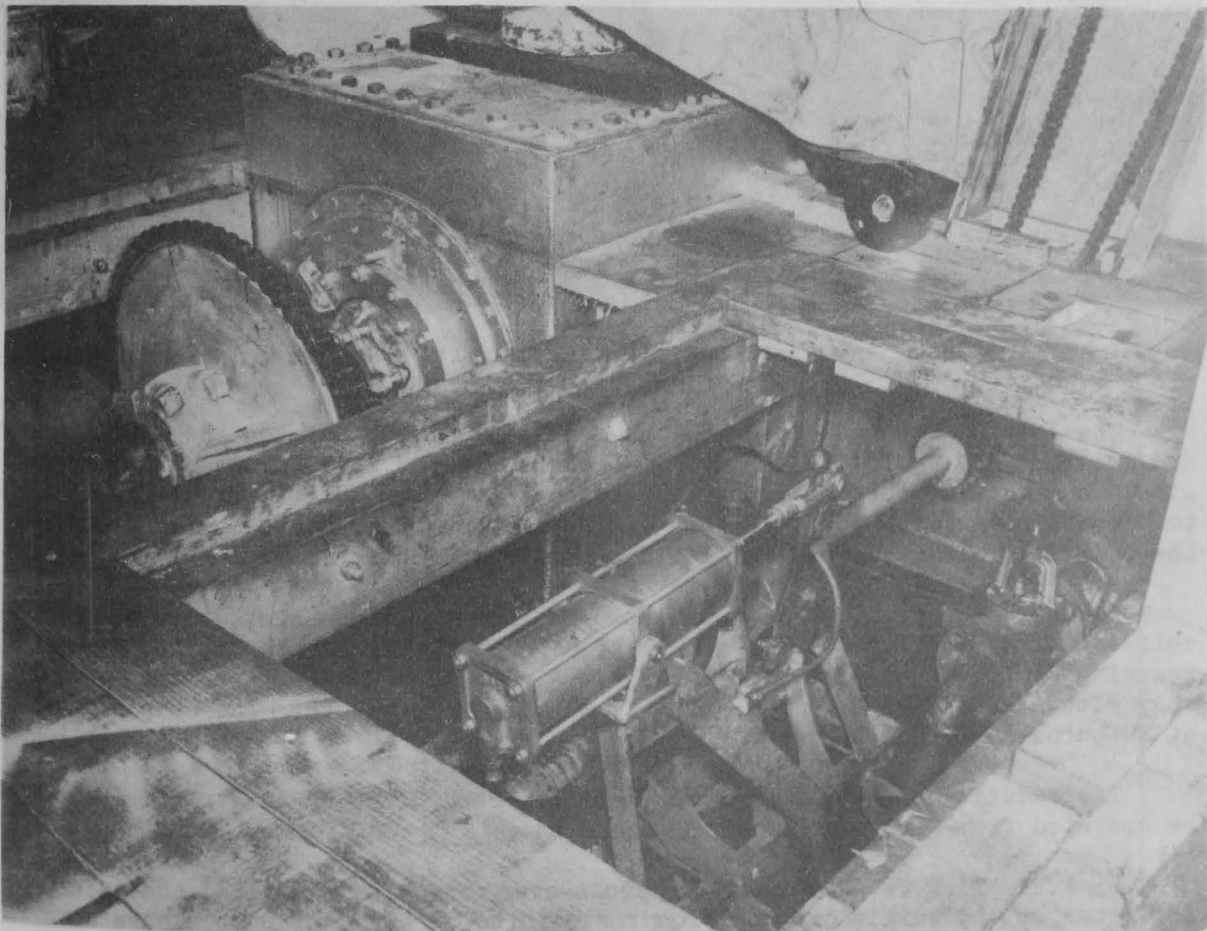


FIGURE 1 - THE JOHN N. COBB'S MAIN SHAFT AND SPROCKET AT LEFT. THE AIR RAM CONTROLLING THE CLUTCH ON THE REDUCING GEARS ON THE LOWER RIGHT. CHAIN DRIVE AND SHAFT FROM AUXILIARY ENGINE IN BACKGROUND.

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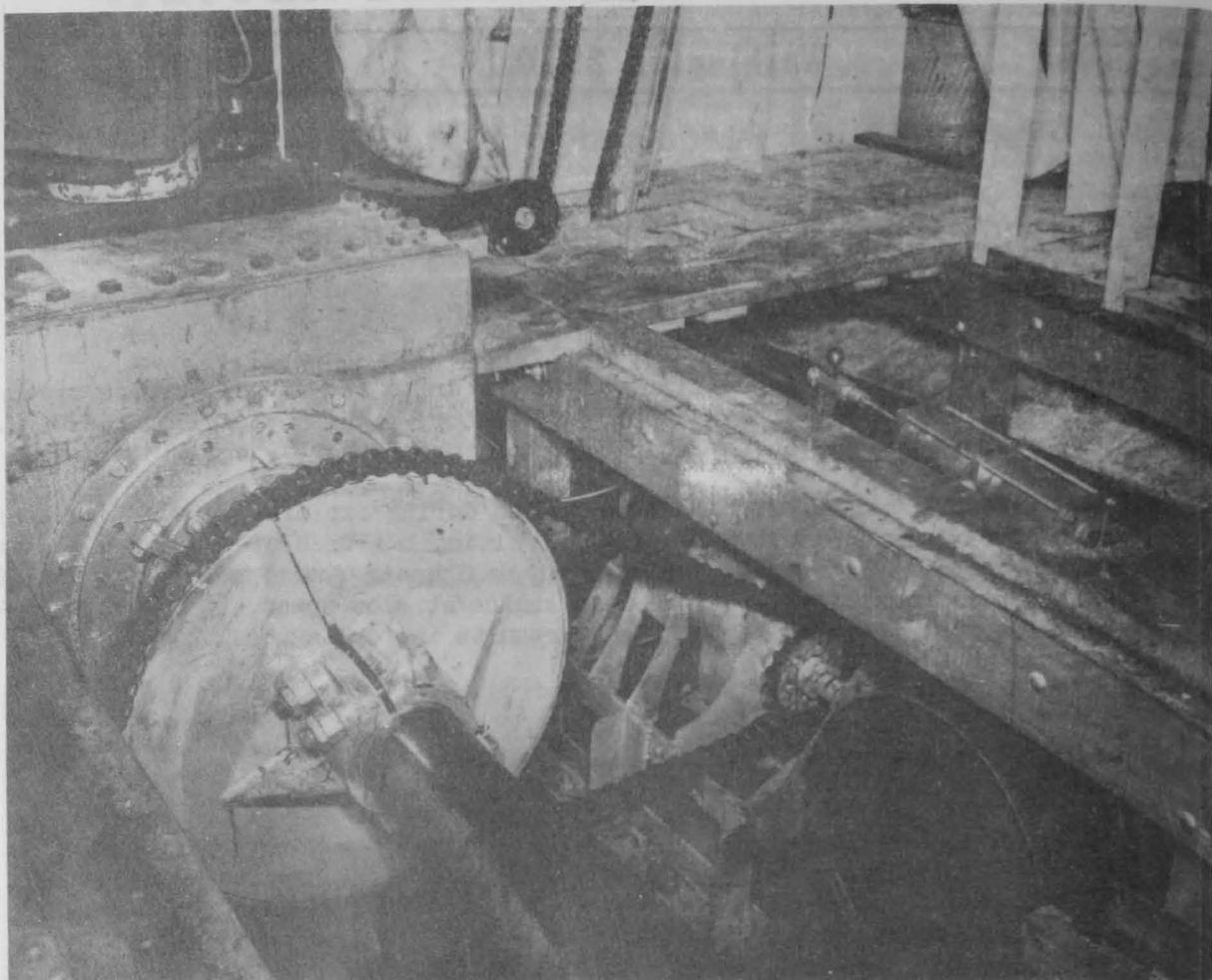


FIGURE 2 - INTERMEDIATE SHAFT AND 7 TO 1 REDUCING SPROCKETS CONNECTED WITH REDUCING GEARS AND CLUTCH. AIR RAM CONTROLLING THE REDUCING CLUTCH ON THE RIGHT.

The John N. Cobb is equipped with a sailing clutch between the main engine and intermediate shaft. The fishing winch is powered by a Diesel auxiliary engine, through a torque converter. Therefore, it was a relatively simple matter to tie the power from the auxiliary engine to the intermediate shaft, disengage the sailing clutch, and have a flexible slow-speed operation.

A chain and sprocket drive is employed from the winch shaft to a 3 to 1 self-contained reducing clutch and reverse gear. Power is transmitted from the reducing clutch to the intermediate shaft via chain and 7 to 1 reducing sprockets, with a shaft speed from 0 turns to 85 turns per minute. The ship's speed at 80 turns is 3 knots.

The reducing clutch and reverse gear are controlled by an air ram which may be operated from the pilothouse or engine room.

By installing two quick-change, cross-over valves in the line, the existing air lines to the sailing clutch from the pilothouse and engine room have been made to do double service.

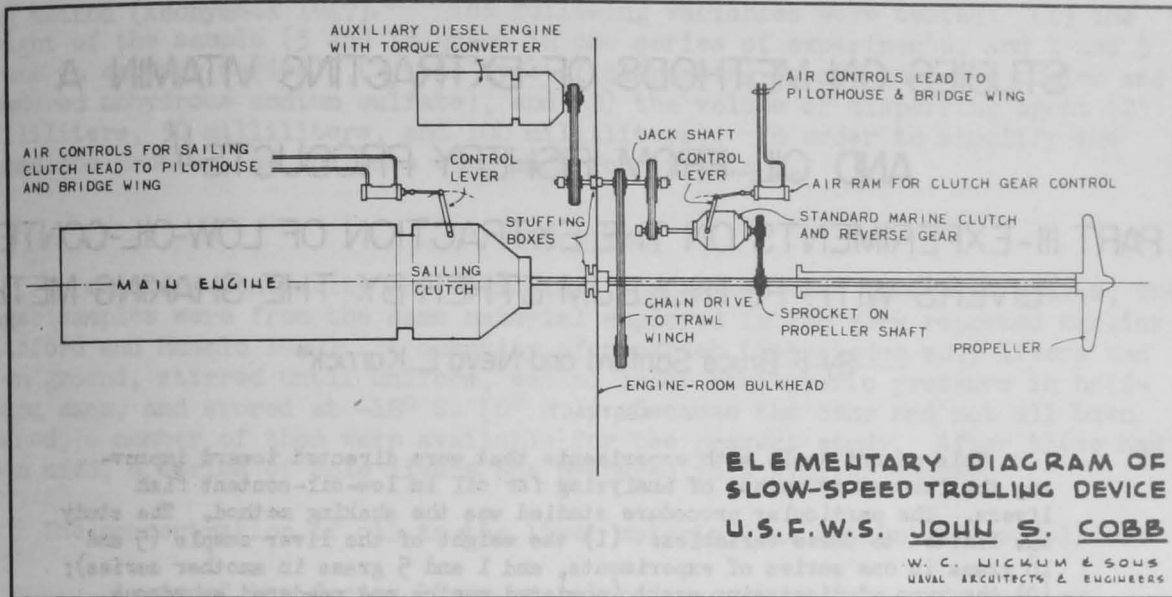


FIGURE 3 - ELEMENTARY DIAGRAM OF SLOW-SPEED TROLLING DEVICE.

The whole installation was kept simple with a minimum number of parts.

A further feature of the installation is that it could be used to furnish emergency motive power in the event of main-engine failure.



"S.S. PACIFIC EXPLORER"

Part IV—Personnel and the Movement of Materials

The improved techniques of the purse seiners and the use of larger vessels and nets are becoming increasingly effective for the capture of tuna. The success of the purse-seine method depends on the finding of sizable schools of tuna near the surface which are sufficiently quiescent to be captured. The purse-seine method of fishing is not dependent on supplies of bait and offers a definite promise for the development of a truly high seas tuna fishing and mother ship operation. Of the vessels fishing for the Pacific Explorer, the purse seiners, as a group and for their period of operation, were far more successful in catching tuna than the bait boats. While the purse seiners were quite successful during the spring, there may be other seasons of the year, however, when the tuna will be extremely difficult to capture by this method.

--Fishery Leaflet 326