

**Stretching from Cape Kennedy to Antigua,** a \$25 million underwater communication system is under the watchful eyes of Pan Am's 18-man submarine cable ship crew.

The GMRD seafarers, together with cable system engineers and technicians often ply the ocean for weeks at a time inspecting, repairing and maintaining the Air Force Eastern Test Range "life line." Consisting of 1,600 miles of cable through which pulse vital missile tracking data, this vital communication artery is a vulnerable target of hurricane and storm driven seas.

When the sea inflicts damage, disrupting transmission, operations are critically impaired not only for the Air Force and range users, but the Department of Defense's Tactical Communications System as well.

One such occurrence took place in January of this year about the time when the Gemini-Titan II was being groomed for launch. Approximately a half mile off shore from Ramey Air Force Base, Puerto Rico, the submerged cable broke as a result of the swaying action of the currents which chafed the armor-protected cable against razor-sharp coral rocks.

Summoned on an urgent call, the small, 158-foot vessel plowed through heavy seas rushing men and equipment to the scene. Emergency repairs were undertaken immediately upon arrival.

"Work was performed under extremely adverse sea conditions, and in a hazardous location just off the breakers," recalls "Biff" Hayes, Supervisor of the Submarine Cable Maintenance Unit. The damaged cable was replaced and transmission restored three days after the vessel reached the trouble area.

But the cable maintenance is not the only travail facing Pan Am's men of the sea in the course of their varied duties. For recovery of camera cassettes jettisoned by the Saturn I rocket last year, the ship and its crew received a commendation from NASA in recognition of a job well done.

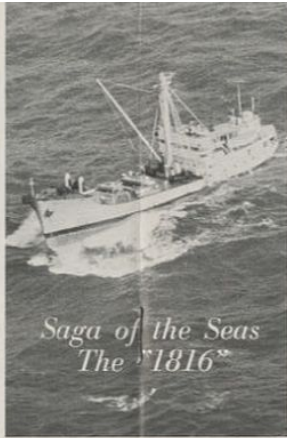
Other missions have been in support of camera recovery operations following Hubble, Titan and Atlas launches. In addition, the ship itself has served as a platform for photographic coverage of missile flights.

During the span of a year, the cable ship is responsible for three inspection trips lasting periods of between four or five weeks. The assignment is regarded as "routine maintenance," but often develops into more than routine work.

For instance, in May of last year, divers



Sub Cable Maintenance Supervisor Biff Hayes has been with Pan Am nine years. He goes out to sea on all major repair operations.



*Saga of the Seas  
The "1816"*



Chief Mate H. H. McNab stands by radar scope in steering room. He has traveled the cable route on many occasions aboard GMRD ship.



Master of the sub cable ship is Capt. Jack Fitzpatrick who has roamed the seas since he was 18 and visited a total of 56 nations.



Bill Hallauer, technician-diver, takes a breather after surfacing from deep water. He has located the break, but ponders way to repair it.

Crew lowers glass-well boat just offshore from Ramey Air Force Base, Puerto Rico. Inspection showed line broke as a result of chafing on sharp coral rocks.



Splicing broken ends of cable. Technicians machine-mold insulation using a heating process. The device on board vessel is called cable jointing machine.



discovered the cable near Long Island in the Bahamas was so badly corroded that it was literally hanging by a thread. It required replacing about a mile of cable. Two months later, a two-mile section near Eleuthera had to undergo "major surgery."

Besides preventive maintenance of submerged cable, the men of the sub cable team also work on the islands tending to the unmanned repeater facilities spaced about 70 miles apart along the cable route.

Plans soon call for the installation of a new multi-million dollar underwater repeater-cable between Cape Kennedy and Grand Turk. When completed, possibly in 1966, Pan Am would tackle the job of servicing the span.

Currently, there are two types of cable serving Cape Kennedy and the down range islands. Installed in 1954, the first cable containing 12 carrier channels extends from the Cape to Grand Turk. Repeater equipment, providing a boost to relay signals, are housed above the water on nine islands strung out along the cable route.

The newer cable system using improved underwater repeater equipment links Grand Turk, Puerto Rico and Antigua. It provides 60-voice frequency and data channels.

Humorously dubbed the "Hotel" as its radio call name, the cable ship actually has no official name, except the numbered designation C-50-1816. A converted freight service ship, the vessel was built through funds raised in a World War II loan drive conducted by the people of Door County, Wisconsin. For a while, it steamed the waters of the Great Lakes helping in the war effort.

The ship's master, Capt. J. B. Fitzpatrick, has skippered the "1816" for seven years and is an expert in navigating the maze of islands, cays and treacherous reefs along the cable route through the Bahamas and Caricos Islands. "I guess we have weathered many a storm," he mused.

Chief Mate H. H. McNab recalls a particularly difficult storm: "The roughest weather I think we have ever been in was about 200 miles northeast of San Salvador after we recovered those seven camera cassettes. We fought 20-foot waves and I thought they would turn the ship over for sure."

According to the calculations of the Chief Mate, the ship is 88 years old by industry standards. "We usually figure that a year of a ship's life is equal to four of a human's years," he said.

Age has crept up on the old "1816." ●