THE TELE-PHONE POLE THAT FLEW

By RAY DARBY

The unorthodox launching of this modern sea serpent could revolutionize our space program—and save tax dollars, too

IN THIS AGE when missiles can span oceans and space vehicles can probe the solar system, distance is not the only astronomical figure involved.

Our grandparents would have leaped clear out of their high-button shoes at the cost of just one of the many concrete launch pads and towering steel gantries required to fire modern rockets. For example, the pad for the Saturn space booster, with its million-and-a-half pounds of thrust, is costing some 30 million dollars. Lesser installations come but little cheaper.

This cost factor is one of the chief reasons why so much interest was centered around a busy acre of the sea off the Pacific Missile Range headquarters at Point Mugu, Calif., on a sunny day in June, 1960. Out there, Navy craft were maneuvering one of the strangest missiles ever conceived. It rolled sluggishly in the lazy swells, looking more like a petrified sea serpent than what it actually was—a telephone pole 102 feet long, equipped with a small rocket engine. Small, that is, in comparison with the enormous boosters that send today's satellites into orbit. And its story is as fantastic as Cinderella's.

Two Naval officers stationed at Point Mugu, Cmdr. John E. Draim and Lieut. Chuck E. Stalzer, had observed that buoyant objects would float upright when weighted at the bottom.

If small objects would float upright, they reasoned, why not large objects, too? Large rockets, for instance. And since the vertical position is the customary one for launching rockets, would it not be possible to fire the "bird" from the water? Instead of steel girders, the rocket would be gripped and held by the millions of tiny pressure fingers of the sea, thus saving enormous construction costs.

There was another important consideration. Nature had furnished an almost limitless supply of liquid launch pads—provided they actually were usable. The advantages this offered were obvious.

Having tentatively dubbed their scheme Project Hydra, after the nine-headed sea monster of Greek mythology, the two officers went to Capt. W. E. Sweeney, commander of the Naval Missile Center at Point Mugu.

As Captain Sweeney tells it, "John and Chuck came into my office one day in January. They were carrying an old ammo can filled with water. In that can they dropped a small missile model which immediately floated vertically, with the nose out of the water. They started talking about the idea they had for applying this same principle to a new method of launching missiles. They simulated waves by stirring the water, illustrating how stable the missile would be in a rough sea. It sounded perfect, and soon the Admiral gave his approval."

Now Draim and Stalzer had to prove the feasibility of their audacious plan. A team of experts was organized and put to work on a do-it-yourself basis. By means of tests made with small, makeshift rockets designated Hydra I and Hydra II, they first established the fact that a solid-propelled engine could be successfully ignited under water. Other tests demonstrated that a properly designed rocket would float in an upright position with most of its length beneath the surface. The larger it was the less it would be affected by wind or wave.

THEN THE PROJECT ran into what appeared to be an insurmountable dilemma: lack of funds. There was little or no hope of getting sufficient money to build a test rocket in the class of such behemoths as, say, the Titan or the Atlas.

But here a typical Yankee device known as ingenuity stepped in. Someone realized that an ordinary telephone pole might conceivably be used as a substitute. Someone else found an extra-long one. Technicians weighted the butt of the pole with lead plates, added a simple, corkscrew-type fin as a stabilizer, and fastened a Genie rocket engine to the base of it. The Genie, with its comparatively small 33,600 pounds of thrust,would only be powerful enough to boost the pole out of the water and into the air, but it would suffice for test purposes.

THE RESULT was a pretty fair imitation of one of our large space boosters. It weighed almost 6 tons and was 105 feet in over-all length, including the engine.

Anyone in the vicinity of Point Mugu on that June day would have rubbed his eyes in disbelief as the monster telephone pole shot out of the water in a perfect lift-off and rose majestically to a height of 380 feet; there it hovered briefly against the blue sky before plunging back into the sea. It certainly wasn't the highest shot ever made, but this "rocket" was never intended to orbit Mars. It was simply meant to prove a point—and it did.

The Hydra program is continuing, and at a stepped-up rate consistent with recent developments in the conquest of space. John Glenn's orbital flight has renewed the faith of the world in U. S. scientific ingenuity, and Hydra is a good example of our willingness to experiment.

Today, a technician presses a button on a console in the operation center at Point Mugu and, miles away, a stable rocket rises from its free-floating position in the sea. Tomorrow, it could be a moon ship that takes us, smooth and straight, from an ocean launch pad.

These exclusive photos, the only ones released by the Navy, show the first test of the ocean-launch idea. Above: the telephone-pole rocket pierces the water's surface and soars skyward in an enlargement of a 16-mm. film frame. Below: technicians check Genie rocket engine attached to base of 102-foot pole used in test.