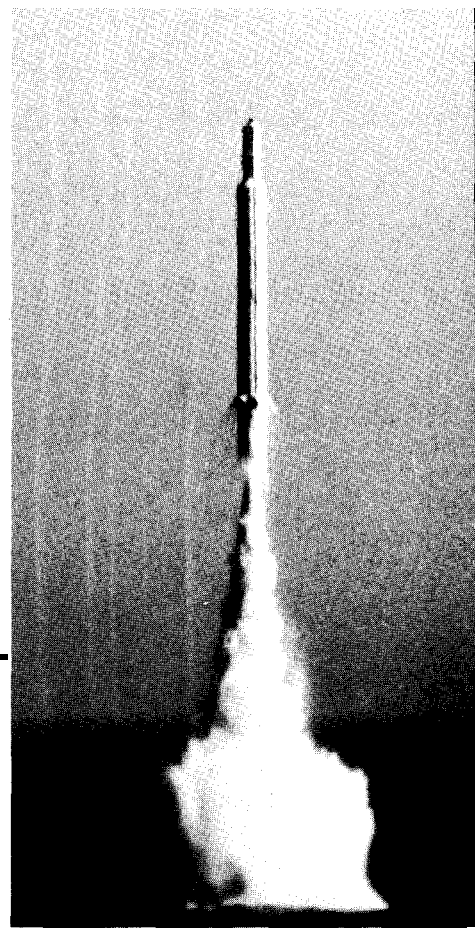


# New Directions



*A 40-foot Hydra vehicle is blasted out of the sea, demonstrating that a firing system can withstand a marine environment and that a water-launched rocket can be stabilized in the open sea.*

Bob Truax did not share in the belated success of *Vanguard I*. He had not agreed, in 1954, with the original configuration of the vehicle, namely, the combination of the *Viking* and *Aerobee* rockets and the addition of a solid third stage. "In the long run," he says, "practically everything was changed. The first stage engine was changed from the RMI to a General Electric. This required a change of propellants from lox and alcohol to lox and gasoline. The *Aerobee* was then found to be too small and had to be increased in size. As time went on, it became a program of changes. My only connection with the ultimate *Vanguard* was the second stage, which used the same general class of propellants as the old JATO units."

Truax had championed the United States experimental, scientific satellite program loud and clear. Once the cause had been picked up (largely because the Central Intelligence Agency had become aware of Russian progress in development of a satellite program), he had moved on to other fields. For example, when he received the Legion of Merit (in 1958, at the time of *Vanguard*), he was cited, somewhat belatedly, for his services in pioneering and advancing the Navy's efforts in the field of guided missiles and rockets. But, in addition, he was

further cited for his "performance of duty while assigned to the Bureau of Aeronautics from June 11, 1953, to June 21, 1955." During that time, Commander Truax independently made a study titled "A Means for Making the Guided Missile Submarine a Primary Naval Weapon."

Truax's study had contained most of the elements of the U.S. Navy's current fleet ballistic missile program — an interesting subject to be examined later in this treatment.

When, after two years of badgering by Truax, BuAer gave an apparently final "no" to his proposition for a submarine-launched ballistic missile, the impatient Commander offered his services to Trevor Gardner, the Air Force assistant secretary who was building up a ballistic missile team under General Schriever in Inglewood, California. Truax was received enthusiastically by the now famous Western Development Division and was immediately placed in charge of creating a new missile — subsequently known as the *Thor* IRBM.

Once this program was underway, Truax began to hear rumors that the Air Force space program, an outgrowth of the old RAND study, was going to be transferred to General Schriever's WDD. Though the study was still in the paper stage, Gen. Schriever had ruled that if the project

was ever to use any of his ICBM hardware, he was going to control the program.

Truax became Deputy Director, Weapons System 117L — the Advanced Reconnaissance System. This became the *Discoverer*, *Midas*, *Samos* program. "For a long time," says Truax, "it was the entire Air Force space program."

The concept of the satellite surveillance system had its origins in the 1946 RAND report. In the intervening years, it had barely escaped the obliteration suffered by many other programs. General Schriever had it transferred to the Ballistic Missile Division and, as Project 1115, it began to grow. As is now well known, it was a reconnaissance system — from space. *Samos*, for instance, was capable of taking pictures from a 300-mile orbit.

Truax originally had been loaned to the Air Force for a period of two

years. At the Air Force's request, this loan was extended an additional year. After that, since a transfer of some kind was apparently unavoidable, Gen. Schreiver arranged to have Truax (now a Captain) assigned to the newly formed Advanced Research Projects Agency, with the hearty concurrence of the latter.

In May 1958, he reported to ARPA as the project officer on the Advanced Reconnaissance System. Then, as his retirement approached, he returned to his old home, the Bureau of Aeronautics, for his final months on active duty. His boss there was Captain Thomas F. Connolly, who was heading up the Pacific Missile Range. "After I arrived back at the Bureau," Truax recalls, "Capt. Connolly said, 'Bob, I know you are about to retire, but before you go, I'd like you to do something more for us. I'd like you to do a paper on the Pacific Missile Range and what you think we should do with it; and I'd like you to do a study on the Navy in Space — what its potential is — and what you think the Navy's policy should be.'

"Well, he liked my report so well he had it duplicated. I think every admiral in the Navy got a copy."

On the basis of Captain Truax's report, the Connolly Committee on the Navy's use of space and the science of astronautics was formed in April

1959. The resultant classified study established the Navy's future directions and its role in the Space Age.

Bob Truax retired from active duty in June 1959, after a remarkable career of rocket pioneering, testing, development, and farsighted planning. Today, as he applies the same talents, and same singleness of purpose, to another infant field — research and development of Surface Effect Ships — some of the ideas he proposed over a

decade ago are still being "discovered."

A few days ago, he called us and said, "Hey, you know that old study on the externally stowed missile that I let you borrow? Well, they're kicking the idea around up there and I want to let them read my paper." We got the file over to his little white building within the hour.

Robert C. Truax will always be a Rocketeer.



JOC JAMES JOHNSTON