

GUEST EDITOR'S INTRODUCTION

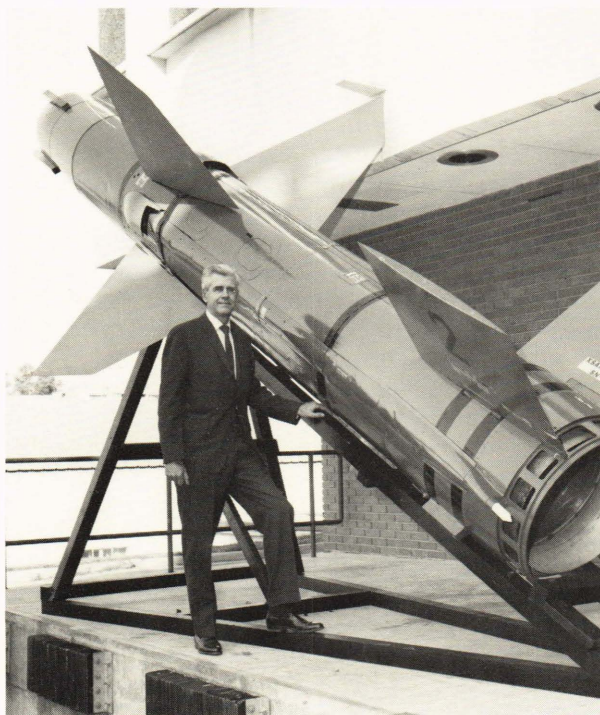
Secretary of Defense Caspar Weinberger said at the launching ceremony of the Aegis ship USS *Ticonderoga* (CG-47), "We are christening the most capable antiair warfare system ever put to sea." Similar words were spoken twenty years earlier at the christening of the Talos cruiser USS *Galveston* (CLG-3). In both instances the statements were true. Though Aegis reflects the technological advancements and refinements of the past decade, it was the broadly based research and development efforts of the Talos program that supplied the underlying technology that gave birth to the present generation of surface-to-air missiles.

The assignment of Task F to APL by the Chief of the Bureau of Ordnance on January 11, 1945, provided the official start of the Bumblebee program, which led to the development and production of the ship-launched Talos, a ramjet-propelled antiaircraft guided missile.

Guided missile technology was virtually nonexistent when the Bumblebee program was begun: supersonic ramjets were not known to have been successfully flown; rockets large enough for boosting a ramjet to flight speed had not been developed; knowledge of supersonic aerodynamics was limited to a few ballistic studies on shells; missile control was limited to airplane autopilot developments; guidance technology, at best, was confined to remote control schemes for low-speed vehicles; and an effective warhead had yet to be invented and developed.

Engineers and scientists were assembled into teams of specific expertise so that an energetic effort could be made on the many problems that such a task presented. Progress in all areas was rapid: test facilities were built and design data were collected; solid-fuel boosters and test vehicles for the 28-inch-diameter ramjet engine were designed, built, and flight tested; supersonic aerodynamics and control technologies were fully developed; beamriding control at supersonic speeds was demonstrated; and the interferometer homing system was invented. By 1951, sufficient information was in hand to formulate general specifications for the Talos prototype missile. In January 1955, the Talos missile was ready for production, and later that year the first missiles were delivered to the Navy.

The following articles describe the development of this first ramjet-powered guided missile, spanning the time from the early concepts to the deployment of a mature guided missile system. Since the Talos missile went through numerous design changes, the first two articles are devoted to the evolution of its devel-



Roy W. Larson

opment. Six subsequent articles discuss specific technical areas, followed by two sections that are concerned with shipboard placement. The last article summarizes operational lessons learned during the program. It is hoped that these contributions will instill in the reader the excitement felt by the participants in seeking solutions to problems that had not been faced previously.

Guidance and motivation for the preparation of these articles were provided by Mr. Roy Larson. His knowledge of all phases of the program was extensive, and his interest in it was enduring. Outlines and some first drafts had been submitted for his approval when we learned of his sudden death.

The authors were closely associated with Mr. Larson during the development of the Talos missile. It was their desire to proceed with the publication project, not only because they thought the story would be of interest, but to complete the plan initiated by their long-time colleague. It is our hope that this collection of articles is a fulfillment of what Roy had in mind.

FRANK A. DEAN