reasonably expected from the wingless, tail-controlled missile. A stepwise development was planned, therefore, so as to have in the production stage at any given time a missile capable of countering the potential threat for that period.

On the basis of this review, BuOrd early in 1955 redirected the Terrier II program along the lines summarized above, assigning technical direction to APL. Although the program of developing an improved-performance Terrier took on a somewhat different hue as a result of this redirection during early 1955, the test results obtained up to that time in three STV-4 firings contributed substantially to the STV-5 program. Much useful data were obtained. The third STV-4 test confirmed studies that a wingless missile would be both feasible and practical, thereby contributing in large measure to the decision to eliminate wings on all improved-performance Terriers.

Planning started at once on the Advanced Terrier program. A homing-guidance Terrier, to be designated HT-3, was made the ultimate objective of the program, but since development of homing guidance had not progressed as far as that of beam-riding guidance, some doubt existed that missiles employing a homer would be ready for production as early as 1960. It was decided, therefore, to develop the necessary aerodynamics, dynamics, control, and propulsion systems in a beam-riding (BT-3) that could be available by 1960, and then to utilize these developments in a homing missile design when a suitable system of this type was developed. By so doing, maximum use could be made of Terrier BW-1 developments in the areas of guidance, warheads, and fuzes, as well as of the STV-5 series of missiles. The firing of two launching test vehicles and four control test vehicles in this series contributed data that were to prove useful in the advanced program.

First Guided Missile Heavy Cruiser
The ultimate aim of the years of effort in Terrier development was brought a long step closer to realization on November 1, 1955, when the USS Boston, having successfully completed the required preliminary acceptance trials, was commissioned at the U.S. Naval Base, Philadelphia. Its name was unchanged but it bore a new Navy classification, CAG-1, signifying the first of a new class of ship in the U.S. Navy (and in world history)—“guided missile heavy cruiser.”

On January 30, 1956, after several weeks devoted to familiarization with the new weapon system, the Boston sailed for Guantanamo to undergo shakedown training. There, early in February, the prescribed training began, which, because of the revolutionary weapon system installed in the ship, was extended beyond the usual six weeks. Several important groups of visitors witnessed the missile firings, spanning a period in which 10 Terriers, in the jargon of Navy torpedomen, flew “hot, straight, and normal” to successful achievement of all objectives.

As of July 1, 1956, the development phase of Terrier I was considered to be complete. Terrier had gone to sea.

PUBLICATIONS
The following list is a compilation of recently published books and technical articles written by APL staff members.


The following five papers were published in Tenth Symposium (International) on Combustion, The Combustion Institute, Pittsburgh, Pa., 1965:

W. G. Berl (APL), P. Breisacher (Aerospace Corp.), D. Dembrow (NASA), F. Falk, T. O’Donovan, J. Rice, and V. Sigillito (APL),
PUBLICATIONS (continued)


BOOKS


ADDRESS

The listing below comprises the principal recent addresses made by APL staff members to groups and organizations outside the Laboratory.


G. J. Veth, “Microelectronics in Space”;

R. A. Freiberg, “Nuclear Transient Effects on Thin Films.”


W. Liben, V. Uzunoglu, and G. J. Veth, Lecture Series on Design, Application, and Fabrication of Thin Film and Semiconductor Microelectronic Circuits (8 lectures), Naval Ordnance Laboratory, Silver Spring, Md., Apr. 27-May 20, 1965.


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ADDRESSES (continued)


PATENTS


HONORS AND APPOINTMENTS

W. H. Avery, Supervisor of the Aeronautics Division, has been appointed to the Scramjet Panel, National Academy of Sciences, which is an Advisory Committee for the U.S. Air Force Systems Command.

F. T. McClure, Chairman of the Research Center, has been named to receive a John Scott Award for 1965. This award, given annually to "ingenious men and women who make inventions," will be presented to Dr. McClure for his invention of the satellite doppler navigation system.

V. M. Root, Supervisor of the Technical Reports Group, has recently been named a Fellow in the National Association of Technical Editors and Publishers.

WITH THE AUTHORS

W. H. Avery, author of "Status and Future Trends in High Speed Chemical Propulsion," was a co-author of "Thermal Insulation for Hypersonic Vehicles" in the July-Aug. 1962 Digest. Dr. Avery received his Ph.D. degree in physical chemistry from Harvard University in 1937 and came to APL in 1947 as a Group Supervisor in the field of guided missile launching rocket development. He was later named Supervisor of the Launching and Propulsion Group and served in that capacity until being appointed in 1961 as Supervisor of the Aeronautics Division. Dr. Avery is a member of the Applied Physics Laboratory's Executive Committee and Technical Policy Board, and has been Chairman of the Bumblebee Propulsion Panel since 1951. He has served on numerous special panels and advisory committees of the Department of Defense, the National Academy of Sciences, and the National Aeronautics and Space Administration. He is a member of the American Chemical Society and the American Physical Society, is a Fellow of the American Institute of Aeronautics and Astronautics, and is a Director of The Combustion Institute.

D. J. Williams, author of "Studies of the Earth's Outer Radiation Zone," was the author of "The Earth's Albedo Neutron Flux" in the Mar.–Apr. 1964 Digest. Dr. Williams, who received his Ph.D. degree in physics from Yale University in 1961, is a member of the staff of the Physics Project of the Space Physics and Instrumentation Group in the Space Development Division. He is serving on the Editorial Board of the APL Technical Digest and is a member of the American Physics Society and the American Geophysical Union.