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S. M. Krimigis (APL), T. P. Armstrong (Univ. Kansas), W. I. Axford (Max-Planck Inst. Aeronomy), C. O. Bostrom (APL), G. Gloeckler (Univ. Maryland), E. P. Keath (APL), L. J. Lanzerotti (Bell Labs.), J. F. Carbary (APL), D. C. Hamilton (Univ. Maryland), and E. C. Roelof (APL), "Hot Plasma Torus in the Magnetosphere of Saturn," Conf. on the Physics of the Jovian and Saturnian Magnetospheres, APL (22-24 Oct).

H. A. Kues (APL) and L. W. Hirst and S. A. D'Anna (JHMI), "A Specular Microscopic Study of the Effects of Microwave Radiation on the Cornea," 40th Clinical Meeting, Wilmer Residents Assoc., Baltimore (6 May).

H. A. Kues (APL) and L. W. Hirst and S. A. D'Anna (JHMI), "An In Vivo Specular Microscopic Study of the Effects of Microwave Radiation on the Rabbit Corneal Endothelium," 3rd Annual Conf., Bioelectromagnetics Soc., Washington, D.C. (10 Aug).

R. Manley and J. Bluestein (Mitre Corp.) and E. J. Francis (APL), "An Estimate of OTEC Costs, Market Potential, and Proof-of-Concept Vessel Financing," AIAA 2nd Terrestrial Energy Systems Conf., Colorado Springs (1-3 Dec).

F. F. Mark, M. H. Friedman, C. B. Bargeron, and O. J. Deters, "Pulsatile Flow Velocity Measurements in a Cast of the Aortic Bifurcation," Joint ASME/ASCE Mechanics Conf., Univ. Colorado (22-24 Jun).

R. A. Meyer, "Peripheral Neural Coding of Pain Sensation," Biennial Meeting of the Johns Hopkins Medical and Surgical Assoc., Baltimore (Jun).

R. A. Meyer and M. H. Friedman, "Inequality of Membrane Reflection Coefficients for Solute and Volume Flow," 65th Annual Meeting, Federation of American Societies for Experimental Biology, Atlanta (12-17 Apr).

K. Moorjani, "Amorphous Solids," Saha Inst. Nuclear Sciences, Calcutta (18 Aug); also at Univ. Delhi (5 Aug).

K. Moorjani, "Magnetic Glasses," Centre National de la Recherche Scientifique, Grenoble (23 Jun); also at Indian Inst. Technology, Kharagpur, India (12 Aug).

K. Moorjani, "Spin Glasses," Centre National de la Recherche Scientifique, Grenoble (30 Jun).

V. O'Brien, "Blood Flow Dynamics," Advanced Biomechanics Seminar, The Johns Hopkins Univ., Baltimore (8 Dec).

V. O'Brien, "Pulsatile Blood Flow," Bioengineering Seminar, The Johns Hopkins Univ., Baltimore (19 Oct).

V. O'Brien, "Scattering from Random Systems," Physics Department Colloq., Catholic Univ., Washington, D.C. (29 Oct).

V. O'Brien, O. J. Deters, F. F. Mark, and L. W. Ehrlich (APL(and K. Sagawa and G. M. Hutchins (JHMI(, "Flow Fields near Arterial Ring Occlusions," Fluid Mechanics and Biomedical Engineering Seminar, The Johns Hopkins Univ., Baltimore (18 Sep).

T. E. Phillips, K. Moorjani, J. Murphy, and T. O. Poehler, "TiO_2-VO_2 Reduced Bandgap Effects in the Photoelectrolysis of H_2O," Electromechanical Soc. Meeting, Denver (14 Oct).

R. S. Potember and T. O. Poehler, "Reversible Field Induced Phase Transition in Semiconducting Films of Copper and Silver Metal-Organic Radical-Ion Salts," 3rd Conf. on Electrical and Related Properties of Organic Solids, Wdzydze, Poland (19 Jun).

M. W. Roth, "Internal Waves in the Upper Ocean," Workshop on Nonlinear Properties of Internal Waves, La Jolla Institute (27-29 Feb).

F. G. Satkiewicz, "Characterization of Polycrystalline, Thin-Film Silicon Solar Cells by Secondary Ion Mass Spectrometry," Gordon Research Conf. on Thin Films and Solid Surfaces, New London, N.H. (13-17 Jul).

F. G. Satkiewicz, "Thin Films and Solid Surfaces, Gordon Research Conf. on Thin Films and Solid Surfaces, New London, N.H. (12-17 Jul).

W. Seamone and W. Schneider, "JHU/APL Robotic Arm/Worktable," Robotics Conf., Stanford Univ. (27 Aug).

V. G. Sigillito, "Explicit A Priori Inequalities in Eigenvalue Estimation," Colloq., Dept. of Mathematics, Univ. Maryland, Catonsville (11 Dec).

W. I. Sternberger (APL), W. E. Woodward (NOAA), and P. A. Heinmiller (Univ. Rhode Island), "Remote Sonar Sensing of At-Sea Oil Layer Thicknesses," Oceans 81 Conf., Boston (16-18 Sep).

B. Walker, "Writing Audio-Visuals," Baltimore Writers' Alliance, Notre Dame College, Baltimore (14 Oct.)

P. J. Waltrup, F. S. Billig, and R. D. Stockbridge, "Engine Sizing and Integration Requirements for Hypersonic Airbreathing Missile Applications," 58th PEP (AGARD) Symp. on Ramjets and Ramrockets in Military Applications, London (26-29 Oct).

The following papers were presented at the 12th Navy Symp. on Aeroballistics, Carderock, Md., 12-14 May:

G. A. Barnes, "Comparison of the Lift and Controllability at High Supersonic Speeds of Two Tail-Control Missile Configurations Differing in Wing Planform;"

G. Dailey and R. C. Ballalieu, "Structural and Electrical Performance Considerations in the Design of Multiband Radomes;"

E. F. Lucero, "Approximate Method for Predicting Supersonic Normal Force Coefficient of Very-Low-Aspect Radio Lifting Surfaces;"

L. E. Tisserand, "Aerodynamics of a Rolling Airframe Missile."

The following papers were presented at the 47th Military Operations Research Soc., Fort McNair, Washington, D.C., 7-9 Jul:

D. K. Pace, "Data Link Support for Battle Group Antiair Warfare Coordination (BGAAWC);"

K. A. Plantz, "Battle Group Impact on Advanced Surface-to-Air Missile Design;"

B. Stuckey, "Hard Kill/Soft Kill Effectiveness Analysis."

The following papers were presented at the 4th Scientific Assembly of IAGA, Edinburg, 3-15 Aug:

R. Fujii, T. Iijima, and T. A. Potemra, "Seasonal Dependence of Large-Scale Birkeland Currents;"

R. A. Greenwald, A. D. M. Walker, and M. Candidi, "Use of Hydromagnetic

Waves to Map Geomagnetic Field Lines;"

T. Iijima, and T. A. Potemra, "On the Relationship Between Interplanetary Quantities and Birkeland Current Amplitudes;"

T. A. Potemra, "Fridtjof Nansen: Principal Investigator for the Fram Expedition — An Early IMS Program (1893-1896);"

A. D. M. Walker, R. A. Greenwald, A. Korth, G. Kremser, G. Haerendel, and M. Candidi, "GEOS 2 and STARE Observations of Pc5 Pulsations Associated With the Drift Mirror Instability;"

L. J. Zanetti, T. A. Potemra, and M. Sugiura, "Preliminary Evaluation of Distant Magnetic Field Disturbances from Birkeland Currents using MAGSAT Data;"

L. J. Zanetti, and T. A. Potemra, "Asymmetric Polar Cap Currents Following a Major Magnetic Storm;"

M. Zi, E. Nielsen, and T. A. Potemra, "Field Aligned Currents Near the Dayside Convection Reversal."

The following papers were presented at the International Conf. on Low-Dimensional Conductors, Boulder, 10-12 Aug:

W. A. Bryden, J. P. Stokes, and D. O. Cowan (JHU), T. O. Poehler (APL), and A. N. Bloch (Exxon Co.), "Mott Transition in the Solid Solutions HMTSF $(TCNQ)_x(TCNQF_4)_{1-x}$;

L. Y. Chiang and P. Shu (JHU), T. O. Poehler (APL), D. O. Cowan (JHU), and A. N. Bloch (Exxon Co.), "Synthesis of Novel Organic Donors;"

D. O. Cowan, L. Y. Chiang, P. Shu, K. Lerstrup, A. Kini, and M. Maxfield (JHU), T. O. Poehler (APL), and A. N. Bloch (Exxon Co.), "The Design, Synthesis and Characterization of the Molecular Components of Organic Conductors;"

D. U. Gubser and W. W. Fuller (NRL), T. O. Poehler (APL), D. O. Cowan, M. M. Lee, and J. P. Stokes (JHU), and A. N. Bloch (Exxon Co.), "Magnetic and Resistive Transitions of Superconducting $(TMTSF)_2ClO_4$;"

M. M. Lee and J. P. Stokes (JHU), T. O. Poehler (APL), D. O. Cowan (JHU), A. N. Bloch (Exxon Co.), and D. U. Gubser and W. W. Fuller (NRL), "Synthesis and Study of Electrochemically Grwon Salts of Organic π-Donors;"

R. S. Potember and T. O. Poehler (APL), A. N. Bloch (Exxon Co.), and P. Brant and F. L. Carter (NRL), "Spectroscopic Properties of Semiconducting Cu-TCNQ Films;"

S. E. Riblett and D. O. Cowan (JHU), T. O. Poehler (APL), and A. N. Bloch (Exxon Co.), "Photoconductivity and Related Studies on Organic Semiconductors;"

J. P. Stokes, W. A. Bryden, J. S. Chappell, T. J. Emge, and D. O. Cowan (JHU), T. O. Poehler (APL), T. J. Kristenmacher (JHU), and A. N. Bloch (Exxon Co.), "$(TMTSF)(2,5\text{-}TCNQBr_2)$: Structure and Physical Properties."

The following papers were presented at the Conf. on Hudson River Fishes, Hyde Park, N.Y., 1-2 Sep:

W. P. Dey (Ecological Analysts), R. I. Baybutt (Whitehall Labs.), R. J. Klauda (APL), and J. C. Schneider (Florida Bureau of Marine Science and Tech.), "Early Life History of Striped Bass in the Hudson River Estuary;"

T. B. Hoff and J. R. Young (Ecological Analysts) and R. J. Klauda (APL), "Distribution and Limited Morphometric Characteristics of Incidentally Caught Hudson River Shortnose Sturgeon;"

R. J. Klauda (APL) and P. H. Museeig (Ecological Analysts), "Fisheries Data Sets Compiled by Utility-Sponsored Research in the Hudson River Estuary;"

M. T. Mattson (Normandeau Assoc.), T. J. Chambers (Texas Instruments), R. M. Shapot (Normandeau Assoc.), and R. J. Klauda (APL), "Optimum Deployment of a 3.0 m Beam Trawl for Quantitative Fisheries Sampling in the Hudson River Estuary;"

J. B. McLaren (Ecological Analysts), R. J. Klauda (APL), and T. B. Hoff (Ecological Analysts), "Striped Bass Commercial Fishery of the Hundson River;"

R. E. Moos (CH2M Hill), R. J. Klauda (APL), and R. E. Schmidt (Hudsonia Ltd.), "Movements of Atlantic Tomcod in the Hudson River Estuary and Adjacent Waters;

R. E. Schmidt (Hudsonia Ltd.), R. J. Klauda (APL), and J. M. Bartels (Hudsonia Ltd.), "Distribution and Movements of the Early Life Stages of Three *Alosa* spp. in the Hudson River Estuary, with Comments on Mechanisms That Reduce Interspecific Competition," Conf. on Hudson River Fishes, Hyde Park, N.Y. (1-2 Sep).

APL COLLOQUIA

Oct 2, 1981 – "The History and Promise of Rapid Solidification," R. B. Pond, The Johns Hopkins Univ.

Oct 9 – "The Magnetosphere and Radiation Belts of Saturn: Results from the Voyager Encounters," S. Krimigis, APL.

Oct 16 – "Direct-Broadcasting Satellites in the United States," W. L. Pritchard, Satellite Systems Engineering, Inc.

Oct 30 – "The Electrochemistry of Polyacetylene, $(CH)_x$: 'Organic Batteries'," A. G. MacDiarmid, Univ. of Pennsylvania.

Nov 6 – "Spin Glasses," S. S. Kirkpatrick, IBM.

Nov 13 – "On Some Dynamical Models of Socio-Technical Systems'" E. Montroll, Univ. of Maryland.

Dec 4 – "Permanent Magnets: New Directions from Rapid Solidification," D. E. Polk, Office of Naval Research.

Dec 11 – "Capturing the Sun's Energy," M. Calvin, Univ. of California.

Dec 18 – "Exodus: History and Science," H. Goedicke, The Johns Hopkins Univ.

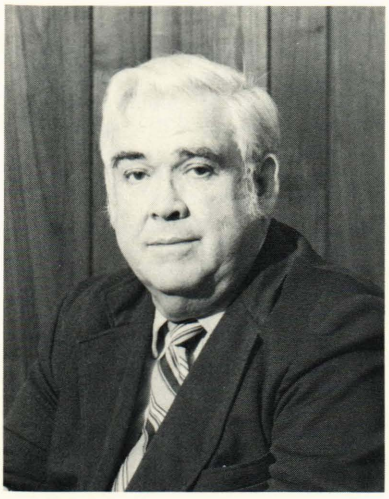
Jan 8, 1982 – "Geometric Risk Factors for Arteriosclerosis," M. H. Friedman, APL.

Jan 15 – "The DoD Very High Speed Integration (VHSIC) Program: Goals and Directions," L. W. Sumney, Department of Defense.

Jan 22 – "Sending Electronic Mail Over Computer Networks," J. M. McQuillan, Bolt, Beranek & Newman.

Jan 29 – "Some Uses of Monoclonal Antibodies," J. T. August, The Johns Hopkins Univ.

THE AUTHORS



BILLY D. DOBBINS was born in Lufkin, Tex., in 1922, attended John Tarleton College, and received the B.S.E.E degree (1948) from Southern Methodist University. During World War II, he served as an Army communications officer.

Employed at APL in 1948 as an electronics and guidance system engineer, Mr. Dobbins was supervisor for Homing and Guidance Development from 1950 to 1962. He was a member of the Bumblebee Guidance Panel (1959-61), became assistant supervisor of the Missile Systems Division (1962) and has been assistant supervisor for technical coordination, Fleet Systems Department, since 1973. Mr. Dobbins is a member of the Laboratory's IR&D Committee, the Development Fund Committee, and the Program Review Board. He has served on various Navy, Army, and Air Force committees.

GEORGE W. LUKE was born in Nashville, Ga. in 1921. He studied engineering at the University of Florida where he received the B.S.E. degree in 1950. He was a teaching assistant of microwave and antenna technology at Northwestern University and received the M.S.E. degree there in 1951. During World War II, he served as a Flying Fortress bomber pilot with the Eighth Air Force in Europe.

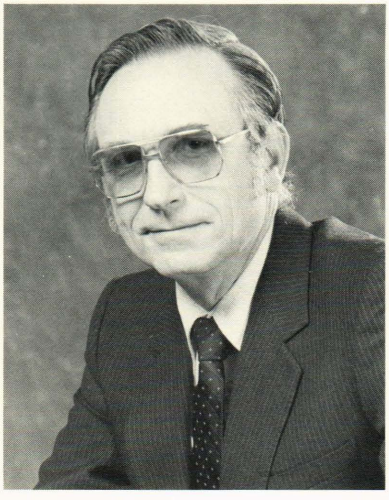
After joining APL in 1951, Mr. Luke became a leader in the development of the first RF guidance system for the TALOS Missile. He has since been project engineer for TERRIER Weapon Systems, assistant division supervisor for the TYPHON Weapon Control System, and manager of the Surface Combat Systems Program Office. As program manager of the Advanced Surface Missile System, he has been a leader in the development of the AEGIS Combat System. Mr. Luke is now assistant department supervisor for surface combat systems, Fleet Systems Department. He was lead technical member of the Advanced Surface Missile Systems Operational Review Group to Vietnam/Gulf of Tonkin in 1968 and has served as a member of numerous assessment and planning groups. He has been awarded a Navy Certificate of Achievement and has received the Navy Distinguished Public Service Award.

JAMES D. FLANAGAN, born in 1929, was raised in Mt. Rainier, Md. and served with the Army of Occupation Forces in Tokyo. He received a B.S.E.E. degree from the University of Maryland in 1952. In 1955, Mr. Flanagan joined APL, where he worked in the TERRIER Engineering and Development Group as a missile flight test conductor. He was the APL missile test conductor for the first Homing Test Vehicles, fired from USS NORTON SOUND in 1958 during the TARTAR Missile Development Program.

He was subsequently responsible in the TARTAR System Project Office for APL participation in the development and engineering of upgrades to the Mk 74 Fire Control System for TARTAR Destroyers and for the conversion of the Mk 68 Fire Control System to support AAW missile control.

In 1973, Mr. Flanagan was assigned to the Surface Combat Systems Program Office. He was subsequently appointed project engineer for the AEGIS Combat System, with responsibility for management and implementation of APL tasks associated with the upgrade of the AEGIS Combat System and TICONDEROGA (CG-47), which will be commissioned early in 1983.

WILLIAM N. SWEET was born in Jackson, Mich., in 1930. He received his B.S. degree in aeronautical engineering (1952) from the University of Michigan and has done graduate work at the University of Maryland. In 1952, he came to APL where he specialized in the aerodynamic design and performance of the TERRIER/TARTAR/TYPHON/STANDARD family of missiles. From 1954 to 1956, Mr. Sweet served in the U.S. Army on a Special Assignments staff at the White Sands Missile Range, N.M. Mr. Sweet has since been involved in the design and evaluation of Navy AAW weapon systems, principally in the development of AEGIS and related advanced concepts. At present, he is supervisor of the Advanced Weapon Systems Branch.



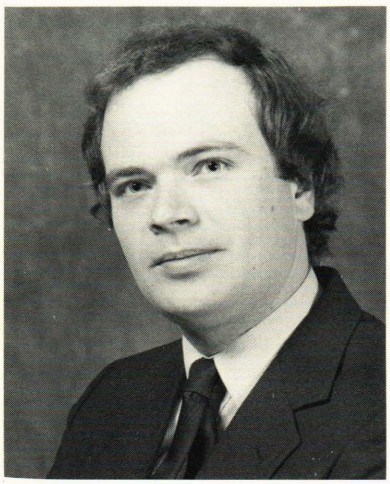
CHESTER C. PHILLIPS is program manager of the Battle Group AAW Coordination Program and has been responsible for its definition and development. Born in Pioneer, Tenn., in 1932, Mr. Phillips received a B.S.E.E. degree from the University of Tennessee in 1956 and did postgraduate work at the University of Maryland. He subsequently worked at Melpar as a principal engineer and at Smith Electronics as a project engineer. Mr. Phillips joined APL in 1961. He has served as project engineer for the Advanced Multi-Function Array Radar (1967-73), responsible for developing the advanced development model of the AEGIS AN/SPY-1A radar. He has been supervisor of the Advanced Radar Development Group (1971-73), the Combat System Integration Group (1973-75), and the Advanced Weapons Systems Branch (1977).

EDWARD P. IRZINSKI is a native of Hanover Township, Pa. He received the B.S.E.E. degree (1960) from the Pennsylvania State University, and the M.S.E.E. (1964) and Ph.D. (1971) degrees from the University of Pennsylvania. He worked in private industry on a variety of aperture and phased-array antenna research and advanced development programs for communication and radar systems.

In 1972, Dr. Irzinski joined APL, where he has been engaged primarily in the analysis and development of large radar array antenna systems. He has conducted theoretical investigations of array antennas at the radiating element, microwave component, and radar system level. Dr. Irzinski became associated with the AEGIS Program in 1973 and, more recently, has become involved in advanced antenna developments for the AEGIS Upgrade and the STANDARD Missile. He is currently assistant group supervisor in the Ship Radar Systems Group.

MARION E. OLIVER is the TERRIER/TARTAR/STANDARD Missile program manager in the Surface Combat Systems Program Office. Born in Iola, Kans., in 1929, he served in the United States Navy as an Aviation Electronics Technician and Combat Air crewman from 1947 to 1951, was employed as an acceptance test inspector for the Atomic Energy Commission, Bendix Aviation Corp., Kansas City, Mo. in 1952, received a B.S.E.E. degree from Kansas State University in 1956, and did graduate work at the University of Maryland.

Since joining APL in 1956, Mr. Oliver has been involved in missile system programs. In 1969, he became group supervisor and project engineer of the TERRIER Project Office, which was expanded in 1972 to include TALOS and TARTAR. He took over the STANDARD Missile Project Office in 1973, and he was appointed 3T/STANDARD Missile program manager in 1977. Mr. Oliver was presented the Navy Distinguished Public Service Award in 1981.

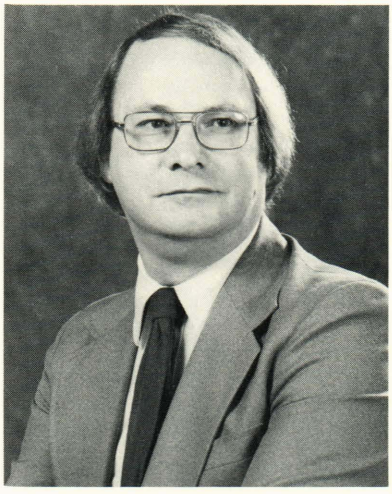


WILLIAM G. BATH is the supervisor of the Analysis Section in the Surveillance Systems Group. Born in Washington, DC, in 1952, he studied electrical engineering at The Johns Hopkins University (B.E.S. 1974) and received the Ph.D. degree in electrical engineering from Johns Hopkins in 1980.

Since joining APL in 1974, Dr. Bath has designed signal processing techniques and information processing algorithms for various Navy radars and for the AN/SYS-1 Integrated Automatic Detection and Tracking System and its derivatives. He has been an active participant in technical cooperation programs with U.S. allies in the area of military radar systems. His primary field of interest is application of detection, estimation, and control theories to real-world problems.

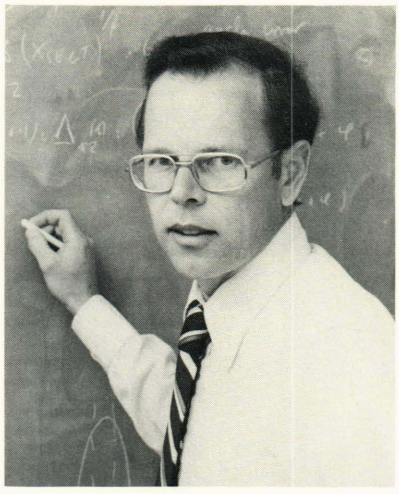
EUGENE A. FREKKO is supervisor of the System Engineering Section of the Surveillance Systems Group. Born in 1942 in New York City, he received the B.S. degree in electrical engineering (1964) from North Carolina State University and the M.S. degree in electrical engineering (1966) from Duke University.

In 1966, Mr. Frekko joined APL where he has worked on Navy radar and missile systems to provide improvement in the command and control area. During 1974-75, he was responsible for the development of a prototype low-cost shipboard command and control system for use aboard destroyers and auxiliaries. He was APL Test Coordinator during the testing of the AN/SYS-1 Integrated Automatic Detection and Tracking System aboard USS TOWERS (1977-78). Since 1979, he has been lead engineer for APL's Integrated Radar Automation programs.



TERRY R. BETZER is a member of the Surface Combat System Program Office. Born in Cedar Rapids in 1937, he received a B.S.E.E. degree (1959) from Iowa State University and an M.S.E.E. degree (1971) from The Johns Hopkins University.

Since joining APL in 1965, he has been involved with programs modernizing the TERRIER Fire Control System to increase performance and to provide compatibility with upgraded TERRIER and STANDARD Missiles. He developed AN/SPG-55B radar modifications and assisted in the test and evaluation of the changes designed to counter antiship missile threats under the Ship Antimissile Integrated Defense Program. Subsequently, he was active in the development and test of the Guided Missile Cruiser/STANDARD Missile-2 Combat System equipment and computer procedures. Currently, Mr. Betzer is project engineer for the New Threat Upgrade Program, responsible for coordination of APL and subcontractor design, development, and test efforts.

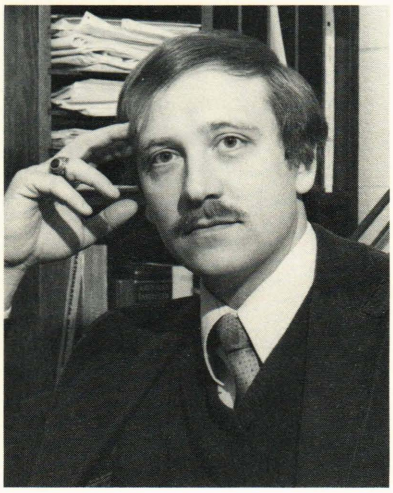


ROBERT W. WITTE is assistant supervisor of the Systems Performance Analysis Group, Fleet Systems Department. Born in 1935 and raised in Cranford, N.J., he attended the Massachusetts Institue of Technology where he earned the B.S.E.E. (1958), M.S.E.E. (1962), and E.E. (1964) degrees. From 1962 until 1964, he taught courses in circuit theory, electronics, and systems analysis.

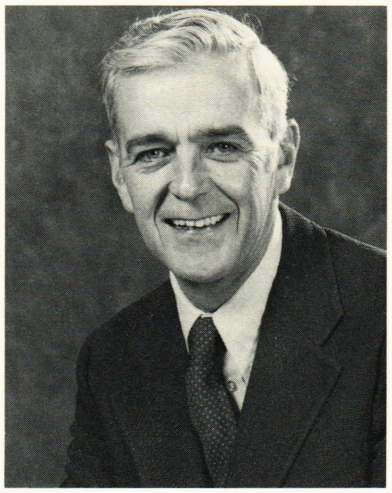
Since joining APL in 1964, he has been primarily involved in the design and evaluation of signal processing and guidance improvements applicable to STANDARD Missile. When a new monopulse receiver was developed during the period 1971 to 1975, Mr. Witte coordinated related APL activity, maintaining close liaison with the Navy's prime contractor (General Dynamics/Pomona).

From 1975 until 1979, he was responsible for the operation of the Guidance System Evaluation Laboratory. During that time, he helped define the requirements and prepared the initial proposal for upgrading the facility. Since 1977, he has coordinated guidance-related activities related to SM-2 Block II.

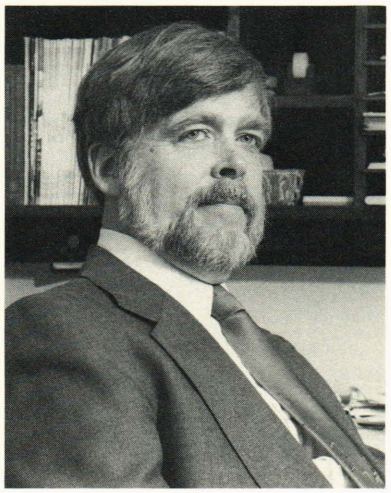
ROBERT L. McDONALD was born in Dallas in 1946. He studied electrical engineering at the University of Texas at Austin, receiving a B.S. degree in 1967. He joined APL in 1968, after earning an M.S. degree in electrical engineering the same year from the California Institute of Technology. At APL, Mr. McDonald has been associated almost exclusively with the STANDARD Missile Program. As a specialist in the fields of signal processing and computer simulation, he performed a variety of design studies contributing to the development of the SM-2 terminal guidance system and its subsequent adaptation for use in SM-1. His accomplishments in the system engineering aspects of the program include design and analysis efforts related to the missile/ship RF interfaces and data links. In recent years, he has become more closely involved with missile test and evaluation operations, directing various STANDARD Missile test activities in the Guidance System Evaluation Laboratory.



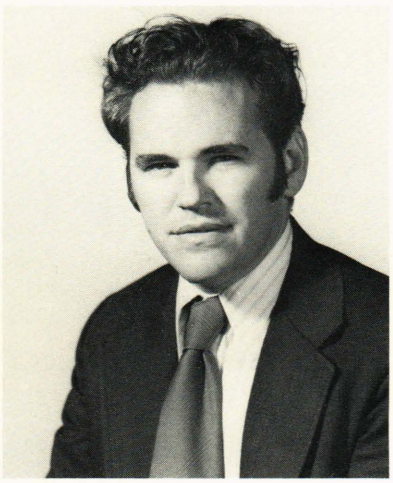
RONALD S. FARRIS was born in Indianapolis in 1948. He received a B.S. degree in physics from Purdue (1971) and an M.S. degree in physics from the University of Illinois (1973). He joined APL in 1973 and was assigned to the Operational Effectiveness Group. He performed an analysis of the test data from the FFG-7 Technical Evaluation at the Land-Based Test Site on Long Island. Mr. Farris transferred to the Fleet Systems Effectiveness Group in 1976, and assisted in the High Energy Laser Weapon System Weapon Mix Study. He is currently working on the FFG-7 Mid Life AAW Combat System Upgrade and is a member of the Force and Battle Group Operations Group of the Assessment Division.



RICHARD J. HUNT was born in Baltimore in 1930. He received a B.S. degree in mathematics from Loyola College in 1955. A specialist in operations research probability, statistics, and digital computer programming, he joined APL in 1956 as an associate mathematician. He conducted studies in the tactical analysis of guided missiles in fleet air defense and continental air defense from 1956 to 1960. From 1960 to 1963, Mr. Hunt developed doctrines for weapons assignment in fleet air defense and for the Naval Tactical Data System. He was section supervisor from 1963 to 1971 and was supervisor of the Fleet Systems Effectiveness Group from 1972 to 1981. He is currently supervisor of the Assessment Division.

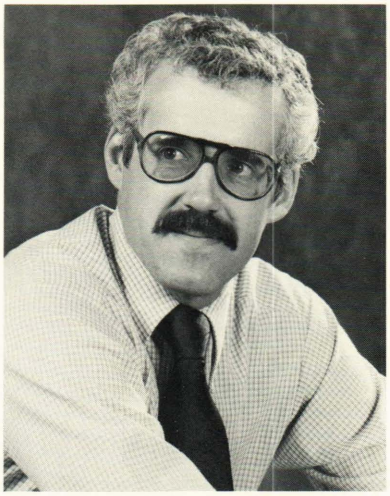


EDWARD C. PRETTYMAN was born in Olney, Md., in 1935. He received a B.S. degree in electrical engineering from the University of South Carolina in 1957. In 1960, after a period of commissioned active duty in the U.S. Navy, he joined APL, where he initially worked on the TYPHON Weapon System. He has been associated with the development of the AEGIS Weapon System since its inception in the early 1960's and has also been concerned with U.S. Navy standard computers and software management. Mr. Prettyman is supervisor of the Combat Systems Integration Group.



JAMES T. MILLER was born in Sunbury, Pa., in 1943. He received his B.S. (1965) and Ph.D. (1970) degrees in elementary particle physics from the Pennsylvania State University. After two years' service as an Army officer in Germany, he joined APL in 1972 as a Presidential Intern on the newly introduced FAA air traffic control project, working on such projects as weather and "angel" clutter analysis, terminal automation, multisensor integration, and displays. He was a section supervisor from 1973 to 1976. In 1976 he transferred to the Combat System Integration Group where he has worked on multisensor aspects of Task Force coordination, development of the Battle Group Display System, and various sensor integration issues. He currently is principal investigator in the design and development of APL's gridlock effort.

EUGENE W. G. DAVID is a senior systems engineer in the Combat Systems Integration Group. Born in Maywood, Ill., in 1946, he received his B.S. degree in general engineering in 1969 from the University of Illinois. He has earned M.S. degrees in numerical science (1971) and management science (1973) from The Johns Hopkins University. Mr. David joined APL in 1969. A specialist in combat system design and integration, he served as assistant section supervisor in the Information and Display Group (1975-77) and section supervisor in the Combat System Design Group (1977-80). He is now assistant group supervisor of the Combat Systems Integration Group, supervisor of the Systems Design Section, and lead engineer for the development of the Gridlock Demonstration System.



DENNIS P. SERPICO is supervisor of the Command Support Section of the Combat System Integration Group. He was born in Chicago in 1943. He received the B.S.E.E. degree (1968) from the University of Illinois and the M.S.E.E. degree (1972) from The Johns Hopkins University. Since joining APL in 1968, he has worked on radar processing techniques, AEGIS-related control processes, tactical environment analysis, and other command and control systems. In recent years, his efforts have focused on information management and display systems supporting Battle Group AAW Coordination activities.

AUTHOR INDEX

Johns Hopkins APL Technical Digest
Volume 2, 1981