

PUBLICATIONS (1980, Continued from Volume 1, Number 3)

- M. H. Acuna, "The Magsat Precision Vector Magnetometer," *Johns Hopkins APL Tech. Dig.* **1**, No. 3, pp. 210-213.
- W. E. Allen, "The Magsat Power System," *Johns Hopkins APL Tech. Dig.* **1**, No. 3, pp. 179-182.
- R. H. Andreo, "Variational Methods for Wave Scattering from Random Systems," *Lecture Notes in Physics — Mathematics, Methods, and Applications of Scattering Theory*, No. 130, Springer-Verlag, Berlin, pp. 92-94.
- R. H. Andreo and J. H. Krill, "Stochastic Variational Formulations of Electromagnetic Wave Scattering," in *Acoustic Electromagnetic and Elastic Wave Scattering — Focus on the T-Matrix* (V. K. and V. V. Varadan, eds.), Pergamon Press, N. Y., pp. 565-568.
- T. P. Armstrong (Univ. Kansas) and S. M. Krimigis (APL), "Reply" (to criticism by D. Hovestadt of their paper on unusual bursts observed with detectors aboard IMP-8), *J. Geophys. Res.* **85**, No. A7, pp. 3503-3504.
- C. W. Bauschlicher, Jr. (NASA), D. M. Silver (APL), and D. R. Yarkony (JHU), "An SCF and MCSCF Description of the Low-Lying States of MgO," *J. Chem. Phys.* **73**, No. 6, pp. 2867-2869.
- F. S. Billig, "China — As Viewed by an Aerospace Engineer," *Johns Hopkins APL Tech. Dig.* **1**, No. 3, pp. 233-239.
- D. E. Corman, "Estimation of J-Integral Uncertainty," *Fracture Mechanics: Proc. 12th Conf. STP 700*, American Society for Testing and Materials, pp. 237-250.
- W. H. Farthing, "The Magsat Scalar Magnetometer," *Johns Hopkins APL Tech. Dig.* **1**, No. 3, pp. 205-209.
- R. W. Flower, "Choroidal Fluorescent Dye Filling Patterns," *Int. Ophthalmol.* **2**, No. 3, pp. 143-149.
- G. H. Fountain, F. W. Schenkel, T. B. Coughlin, and C. A. Wingate, "The Magsat Attitude Determination System," *Johns Hopkins APL Tech. Dig.* **1**, No. 3, pp. 194-200.
- D. W. Fox and V. G. Sigillito, "Bounds for Frequencies of Rib Reinforced Plates," *J. Sound Vib.* **69**, No. 4, pp. 497-507.
- M. H. Friedman and C. B. Barger (APL), G. M. Hutchins (JHMI), and F. F. Mark and O. J. Peters (APL), "Hemodynamic Measurements in Human Arterial Casts and Their Correlation with Histology and Luminal Area," *J. Biomech. Eng.* **102**, No. 3, pp. 247-251.
- A. D. Goldfinger, "Refraction of Microwave Signals by Water Vapor," *J. Geophys. Res.* **85**, No. C9, pp. 4904-4912.
- B. W. Hamill, "Experimental Document Design: Guidebook Organization and Index Formats," *Proc. Human Factors Society, 24th Annual Meeting*, pp. 480-482.
- D. C. Hamilton and G. Gloeckler (Univ. Maryland), S. M. Krimigis and C. O. Bostrom (APL), T. P. Armstrong (Univ. Kansas), W. I. Axford (Max Planck Inst. Aeronomie), C. Y. Fan (Univ. Arizona), L. J. Lanzerotti (Bell Labs.), and D. M. Hunten (Univ. Arizona), "Detection of Energetic Hydrogen Molecules in Jupiter's Magnetosphere by Voyager 2: Evidence for an Ionospheric Plasma Source," *Geophys. Res. Lett.* **7**, No. 10, pp. 813-816.
- K. J. Heffernan, G. H. Fountain, B. E. Tossman, and F. F. Mobley, "The Magsat Attitude Control System," *Johns Hopkins APL Tech. Dig.* **1**, No. 3, pp. 188-193.
- R. A. Langel, "Magsat Scientific Investigations," *Johns Hopkins APL Tech. Dig.* **1**, No. 3, pp. 214-227.
- L. J. Lanzerotti and C. G. MacLennan (Bell Labs.), S. M. Krimigis (APL), T. P. Armstrong (Univ. Kansas), and K. Behannon and N. F. Ness (NASA), "Statics of the Nightside Jovian Plasma Sheet," *Geophys. Res. Lett.* **7** No. 10, pp. 817-820.
- A. L. Lew, R. C. Moore, J. R. Dozsa, and R. K. Burek, "The Magsat Telecommunications System," *Johns Hopkins APL Tech. Dig.* **1**, No. 3, pp. 183-187.
- D. G. Mitchell and E. C. Roelof, "Thermal Iron Ions in High Speed Solar Wind Streams: Detection by the IMP-7/8 Energetic Particle Experiments," *Geophys. Res. Lett.* **7** No. 9, pp. 661-664.
- F. F. Mobley, "Magsat Performance Highlights," *Johns Hopkins APL Tech. Dig.* **1**, No. 3, pp. 175-178.
- F. F. Mobley, L. D. Eckard, G. H. Fountain, and G. W. Ousley, "Magsat — A New Satellite to Survey the Earth's Magnetic Field," *IEEE Trans. Magnet. MAG-16*, No. 5, pp. 758-760.
- L. Monchick, "A Comment on the Inversion of Gas Transport Properties," *J. Chem. Phys.* **73**, No. 6, pp. 2929-2931.
- J. C. Murphy and L. C. Aamodt, "Photo-thermal Spectroscopy Using Optical Beam Probing: Mirage Effect," *J. Appl. Phys.* **51**, No. 9, pp. 4580-4588.
- W. B. Newman, "Managing a Report Collection for Zero Growth," *Spec. Libraries* **71**, No. 5/6 pp. 276-282.
- T. E. Phillips (APL), R. P. Scaringe (Eastman Kodak), and B. M. Hoffman and J. A. Ibers (Northwestern Univ.), "Conductive Molecular Crystals: Structural, Electrical, and Magnetic Properties of Partially Oxidized Octamethyltetrabenzoporphyrinatonicel (II)," *J. Am. Chem. Soc.* **102**, No. 10, pp. 3435-3444.
- G. W. Ousley, "Overview of the Magsat Program," *Johns Hopkins APL Tech. Dig.* **1**, No. 3, pp. 171-174.
- R. S. Potember and T. O. Poehler (APL) and D. O. Cowan and A. N. Bloch (JHU), "Electrical Switching and Memory Phenomena in Semiconducting Organic Charge-Transfer Complexes," in *The Physics and Chemistry of Low Dimensional Solids* (L. Alcacer, ed.), D. Reidel, Boston, pp. 419-428.
- R. S. Potember and T. O. Poehler (APL) and D. O. Cowan and A. N. Bloch (JHU), "Electrical Switching and Memory Phenomenon in Semiconducting Organic Thin Films," *Proc., Symp. on Polymer Materials for Electronic Applications* **43**, pp. 380-385.
- T. A. Potemra, "Studies of Auroral Field-Aligned Currents with Magsat," *Johns Hopkins APL Tech. Dig.* **1**, No. 3, pp. 228-232.
- T. A. Potemra, F. F. Mobley, and L. D. Eckard, "The Geomagnetic Field and Its Measurement: Introduction and Magnetic Field Satellite (Magsat) Glossary," *Johns Hopkins APL Tech. Dig.* **1**, No. 3, pp. 162-170.
- W. R. Powell, "Solar/Electric District Heating via CASES," *Proc. 15th Intersociety Energy Conversion Engineering Conf.*, pp. 904-909.
- J. F. Smola, "The Magsat Magnetometer Boom System," *Johns Hopkins APL Tech. Dig.* **1**, No. 3, pp. 201-204.
- H. M. South, "High Data-Rate Recordings and Processing Systems for Hydrophone Arrays," *Proc. Oceans '80 Conf.*
- M. A. Stanford, J. C. Swartz, T. E. Phillips, and B. M. Hoffman, "Electronic Control of Ferroporphyrin Ligand-Binding Kinetics," *J. Am. Chem. Soc.* **102**, No. 13, pp. 4492-4499.
- B. E. Tossman, F. F. Mobley, G. H. Fountain, K. J. Heffernan, J. C. Ray, and C. E. Williams, "Magsat Attitude Control System, Design and Performance," *AIAA Guidance and Control Conf.*, AIAA-80-1730-CP, CP-805.
- W. M. Walsh, F. Wudl, G. A. Thomas, D. Nolewajek, J. J. Hauser, and P. A. Lee (Bell Labs.) and T. O. Poehler (APL), "Restoration of Metallic Behavior in Organic Conductors by Small Electric Fields," *Phys. Rev. Lett.* **45**, No. 10, pp. 829-832.
- L. J. Zanetti and T. A. Potemra (APL), J. P. Doering and J. S. Lee (JHU), R. L. Arnoldy (Univ. New Hampshire), and R. A. Hoffman (NASA), "Coincident Particle Observations from AE-C and ATS-6 during the October 28, 1977, Geomagnetic Storm," *J. Geophys. Res.* **85**, No. A9, pp. 4563-4570.

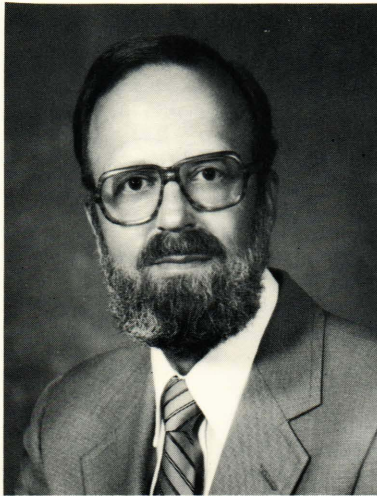
PRESENTATIONS (1980, Continued from Volume 1, Number 3)

- C. B. Bargeron, R. L. McCally, and R. A. Farrell, "CO₂-Laser Damage Thresholds in the Cornea: A Critical Temperature versus a Damage Integral Mechanism," 4th International Congress of Eye Research, New York, 30 Sep.
- N. A. Blum, K. Moorjani, F. Satkiewicz, and T. O. Poehler, "Mössbauer and SIMS Investigation of Amorphous Fe_xB_{1-x} Thin Films," American Physical Society, New York, 24 Mar.
- L. W. Ehrlich, "An *ad hoc* SOR Method," Conf. on Elliptic Problem Solvers, Santa Fe, 2 Jul.
- R. A. Farrell, R. H. Andreo, and R. L. McCally, "Cross Polarized Small-Angle Light Scattering Patterns in Cornea," Symp. on Principles and Applications of Light Scattering: ACS 2nd Chemical Congress of the North American Continent, Las Vegas, 26 Aug.
- R. A. Farrell, R. H. Andreo, and R. L. McCally, "Structural Implications of Polarized Light Scattering in Cornea," 4th International Congress for Eye Research, New York, 30 Sep.
- D. W. Fox, "Bounds for Eigenvalues of Reinforced Plates" and "Useful Technical Devices in Intermediate Problems," Conf. on the Numerical Treatment of Boundary and Eigenvalue Problems for Partial Differential Equations, Clausthal, FRG, 29-30 Sep.
- K. Moorjani, "Magnetic Phase Diagrams of Amorphous Metallic Alloys," 4th International Conf. on Liquid and Amorphous Metals, Grenoble, 7-11 Jul.
- T. O. Poehler, "Infrared Extinction in Conducting Organic Polymers and Compounds," 1980 CSL Scientific Conf. on Obscuration and Aerosol Research, Aberdeen, Md., 24 Jul.
- T. O. Poehler, "Switching and Memory Phenomena in Semiconducting Charge Transfer Complexes," Gordon Research Conf. on Electron-Donor-Acceptor Interaction, Wolfeboro, N. H., 13 Aug.
- T. O. Potember, "Switching and Memory Effects in Organic Charge Transfer Complexes," International Conf. on Low Dimensional Synthetic Metals, Copenhagen, 14 Aug.
- V. G. Sigillito, "A Software Package for Elliptic Partial Differential Equations," Conf. on Elliptic Problem Solvers, Santa Fe, 2 Jul.

APL COLLOQUIA

- Sep. 26, 1980—"Treatment of Diabetes and Other Endocrine Diseases with External Pumps," M. Genel, Yale Univ.
- Oct. 3—"Gravitational Waves and the Binary Pulsar," J. H. Taylor, Univ. of Massachusetts.
- Oct. 10—"Transportation in Atlantic City: The Casinos Give Better Odds," R. A. Makofski, APL.
- Oct. 17—"Mount St. Helens 1980," R. I. Tilling, U. S. Geological Survey.
- Oct. 24—"Maasai: The Land and the People," T. O. Saitoti.
- Oct. 31—"Psychological Aspects of the Nuclear Arms Race," J. D. Frank, The Johns Hopkins Univ.
- Nov. 7—"Is The Gravitational Constant Changing?," T. C. Van Flandern, U.S. Naval Observatory.
- Nov. 14—"The New World Order of the Radio Spectrum," D. M. Jansky, U.S. Dept. of Commerce.
- Nov. 21—"Evoked Magnetic Fields of the Human Brain," S. J. Williamson, New York Univ.

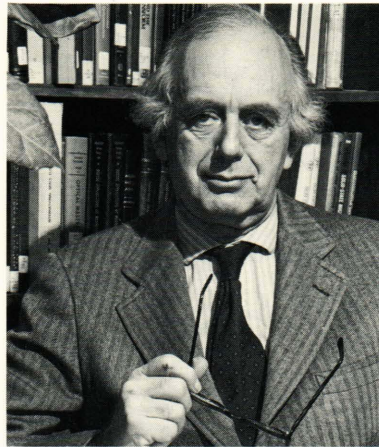
THE AUTHORS



CARL O. BOSTROM was born in Port Jefferson, N.Y. in 1932. He did his undergraduate work at Franklin and Marshall College and earned his M.S. and Ph.D. degrees in physics from Yale University in 1958 and 1962, respectively.

Dr. Bostrom joined the APL Space Department in 1960. A specialist in research on particle fluxes in space and related instrumentation, he served as Section Supervisor (1960-68) and Group Supervisor (1968-74) in the Space Physics and Instrumentation Group; Space Department Chief Scientist (1974-78); Associate Head and Chief Scientist (1978-79); Space Department Head and Assistant Director of APL for Space Systems (1979); and Deputy Director of APL and Space Department Head (1979-80). He was appointed Director of APL in 1980.

Dr. Bostrom has authored more than 57 technical papers.



WALTER G. BERL recently rejoined the Milton S. Eisenhower Research Center and currently chairs the Editorial Board of the *Johns Hopkins APL Technical Digest*. He was born in Vienna, Austria, in 1917. The European convulsions of the 1930's brought him to the Carnegie Institute of Technology in Pittsburgh, where he graduated as a chemical engineer in 1937. After graduate studies in physical chemistry at Harvard, he returned to Carnegie Tech for his Ph.D. work on the oxygen electrode. He came to APL in 1946 where he has been engaged in studies of combustion and propulsion, and in fire research. Most recently, as a member of the National Research Council Committee on Maritime Hazardous Materials, he was involved with a report on the safety aspects of liquefied natural gas.



PAUL B. EDWARDS was born in Ridge Spring, S.C. He studied chemistry at the University of Tampa (B.S., 1937), mathematics teaching at Harvard University (Ed.M., 1958), and higher education at The George Washington University (Ed.D., 1972). During World War II, he served four years on active duty in naval aviation. Subsequently, he owned and operated a wholesale and retail hobby supply business, taught mathematics, and was head of a high school mathematics department in Florida.

Since joining APL in 1963, Dr. Edwards has supervised the education and training of APL staff members and has directed the growth of the JHU Evening College Center at APL. During 1972-74, he was a member of the Advisory Board of The Johns Hopkins University Evening College. Since 1975, he has been a member of the Academic Council of the JHU Evening College and Summer Session. His hobbies are photography, swimming, and his grandchildren.



ROBERT E. FISCHELL has previously contributed several articles to the *APL Technical Digest*. Born in New York City, Mr. Fischell has a B.S. degree in mechanical engineering from Duke University and an M.S. in physics from the University of Maryland. He is a specialist in satellite system design and attitude control systems, magnetics and measurement and instrumentation, and biomedical engineering. Mr. Fischell was employed by APL in 1959 and was ap-

pointed Chief Engineer in 1972 and Assistant Space Department Head in 1978. He is a member of the Institute of Electrical and Electronic Engineers and the American Institute of Aeronautics and Astronautics, and has been Associate Editor of the *AIAA Journal of Spacecraft and Rockets*. In 1963, Mr. Fischell was selected by the Washington Academy of Sciences as the Outstanding Young Engineer in the Washington National Capital Area.



RALPH EDWARD GIBSON was born at King's Lynn, Norfolk, England. He received the B.Sc. (1922) and Ph.D. (1924) degrees in chemistry from the University of Edinburgh. He was a physical chemist at the Carnegie Institution of Washington (1924-41) and a faculty member of The George Washington University (1929-45). During 1944-46, he was the first Director of Research of the Allegany Ballistics Laboratory.

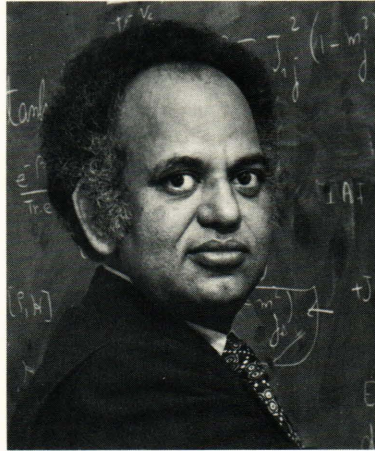
Dr. Gibson joined APL in 1946 as head of the Contracts Group. He became Acting Director in 1947 and Director in 1948. He has been Director Emeritus of APL and Professor of biomedical engineering of The Johns Hopkins University School of Medicine since his retirement in 1969.

He has published 90 papers in the fields of physical chemistry, solid propellants, missile systems R&D, space technology, and research administration.

Among his many honors are the Hillebrand Prize of the Chemical Society of Washington, the President's Certificate of Merit (World War II), appointment as Honorary Commander of the Most Excellent Order of the British Empire, the DoD Medal for Distinguished Public Service, and the M.D. (*Honoris Causa*) from The Johns Hopkins University (1972). Dr. Gibson has been President of the Chemical Society of Washington, the Philosophical Society and of the Washington Academy of Sciences, all of Washington, D.C., and of the Cosmos Club.

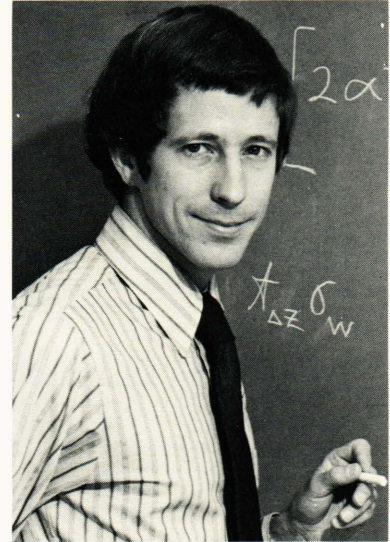


RICHARD B. KERSHNER was born in Crestline, Ohio. He received the Ph.D. degree in mathematics from The Johns Hopkins University in 1937. He joined APL in 1946 as a member of the Launching Group and was engaged in the development of booster rockets and the analysis of launching problems. Dr. Kershner later served as Supervisor of the Guidance and Control Group, Supervisor of the Terrier/Tartar Division, and Supervisor of the Polaris Division. He was appointed Supervisor of the Space Department in 1958, and became Assistant Director of the Laboratory in 1972. After his retirement in 1979, Dr. Kershner was appointed Principal Advisor for Space Systems. He holds the Presidential Certificate of Merit for service during World War II, and has received the Distinguished Public Service Award four times — three times from the Navy and once from the National Aeronautics and Space Administration. Dr. Kershner is a Fellow of the American Institute of Aeronautics and Astronautics.



KISHIN MOORJANI is a theoretical physicist in the Quantum Electronics Group of the Milton S. Eisenhower Research Center and is engaged in problems related to disorder in solids and the study of photoeffects at the semiconductor-electrolyte interface. Born in India in 1935, he studied at the University of Delhi and the University of Maryland before earning his Ph.D. degree in physics at The Catholic University of America in 1964.

In 1967, Dr. Moorjani joined APL where he has researched various aspects of problems in solid state physics and statistical mechanics. He has held visiting appointments for teaching and research at both the High Pressure Laboratory and the Phase Transitions Group of the National Research Council (France) and was a Parsons Professor of Physics at the Homewood Campus of The Johns Hopkins University during 1977-78.



JEFFREY H. SMART is an Associate Physicist in the Submarine Technology Division. Born in Detroit in 1953, he studied physics at Oakland University (B.S., 1975) under a National Merit Scholarship. He performed graduate work in atomic physics at Wayne State University (M.S., 1977) until he came to APL in 1978. After completing the Associate Staff Training Program, he joined the Submarine Technology Environment Group, where he has been actively involved in programs to study oceanographic temperature and velocity structures and their anomalies. He is presently the primary investigator at APL in the use of geomagnetic and acoustic Doppler velocimeter systems for mapping ocean current features.

A former captain of the U.S. Collegiate Table Tennis Team, Jeff enjoys tennis and running. He is also active in teaching Bible classes.