PUBLICATIONS

Compilation of principal recently published books and technical articles written by APL staff members.

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ADDRESSES

Principal recent addresses made by APL staff members to groups and organizations outside the Laboratory.

G. R. Seylar, "A VHF Receiver Designed for Fabrication as Hybrid Microcircuits," *Government Microcircuit Applications Conference,* Boulder, Colorado, June 1974.

N. A. Blum, "Mossbauer Investigation of Amorphous and Polycrystalline Tellurium," *International Conference on the Applications of the Mossbauer Effect,* Bendor, France, September 2–6, 1974.

The two following addresses were presented at the *5th International Conference on Atmospheric Electricity,* Garmisch-Partenkirchen, West Germany, September 2–7, 1974:

R. O. Weiss, R. K. Frazer, and M. L. Hill, "Effect of Convection within the Austach Layer on the Electrical Potential Gradient in the Atmosphere;"

M. L. Hill and W. A. Hoppel, "Effects of Velocity and Other Physical Variables on the Currents and Potentials Generated by Radioactive Collectors in Electric Field Measurements."

L. L. Warnke, "An Experimental Obstacle Detection System for Surface Effects Vehicles," *8th Canadian Symposium on Air Cushion Technology,* Toronto, September 9–11, 1974.

P. P. Pandolfini, "Overview of Design and Performance Calculations," *11th JANNAF Combustion Meeting,* Pasadena, California, September 9–13, 1974.

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Mary M. Schaefer, "Report on

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W. J. Wright, "Decisions: Let's Look at Some Fundamentals," *American Management Association Course for Presidents,* Hamilton, New York, September 19, 1974.

The two following addresses were presented at the *Specialists Meeting on Fluid Dynamic Aspects of Arterial Disease,* Columbus, Ohio, September 19–20, 1974:

M. H. Friedman, "Shear Profiles and Diffusion in Idealized Flows through a Y-Branch;"

V. O'Brien, "Wall Shear in Unsteady Branching Flow."

R. E. Fischell, "A Long-Lived Reliable, Rechargeable Cardiac Pacemaker," *International Symposium on Advances in Pacemaker Technology,* Erlangen-Nürnberg, West Germany, September 26, 1974.

D. D. Zimmerman, "Standard Specifications for Hybrid Microelectronics," *ISHM N.W. Chapter Seminar,* Seattle, September 26–27, 1974.

T. R. Foard, "LAMPS," *Naval Reserve Group,* U. S. Naval Academy, Annapolis, Maryland, September 30, 1974.

D. W. Rabenhorst, "The Use of the Flywheel for Energy Storage," *American Chemical Society,* Atlantic City, September 1974.

J. A. Perschy and R. R. Smith, "Progress Report on the Group/Phase Test," *3rd Annual Convention of the Wild Goose Association,* Boston, October 24, 1974.

The two following addresses were presented at the *27th Annual Conference on Engineering in Medicine and Biology,* Philadelphia, October 6–10, 1974:

W. H. Guier, "Vascular Parameters for Monitoring the Patient Undergoing Rapid Hemodynamic Changes;"

V. O'Brien, "Unsteady Blood Flow through a Branch."

L. J. Rueger and A. G. Bates, "Frequency Synthesizer for Normalizing the Frequency and Time Scales of Crystal Clocks on Orbiting Satellites," *EASCON '74 Meeting,* Washington, D. C., October 8, 1974.

W. Seamone, "Prosthetic/Orthotic Research Program at APL," *1st World Congress of the International Society for Prosthetics and Orthotics,* Montreaux, Switzerland, October 8–12, 1974.

The two following addresses were presented at the *International Union of Radio Science/IEEE Meeting,* Boulder, Colorado, October 14–17, 1974:

R. J. Taylor, "Navy Navigation Satellite System;"

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H. E. Reichenberg, "A Program Overview for Management on the GIDEP Meteorology Data Bank," *12th Annual Government-Industry Data Exchange Program (GIDEP) Workshop,* San Jose, California, October 16, 1974.

M. J. Gralia (APL) and R. A. Dammkoehler (Washington University), "Optimization of Cyclic Structures for Pipelines," *2nd Langley Conference on Scientific Computing,* Virginia Beach, October 21–22, 1974.

The three following addresses were presented at the *4th Conference on Chemical and Molecular Lasers,* St. Louis, October 21–23, 1974:

R. C. Benson, C. B. Bargeron, and R. E. Walker, "Parametric Investigation of the $Na\text{-}N_2O + CO$ Chemical Laser;"

R. C. Benson, "Vibrational Relaxation of N_2 and CO_2 (001) by Alkali Metal Ions;"

T. O. Poehler, "Electrically Initiated Pulse Chemical $DF\text{-}CO_2$ and DF Lasers."

R. C. Orth and J. M. Cameron, "Flow Immediately Behind a Step in a Supersonic Combustor," *AIAA/SAE 10th Propulsion Conference,* San Diego, October 21–24, 1974.

R. A. Makofski, "Personal Rapid Transit Systems," *Instrument Society of America, Instrumentation-Automation Conference,* Washington, D. C., October 1974.

S. W. Kahng, "Aids to Structured Programming with MACRO-11 Assembly Language for PDP-11 Computer," *1974 Fall Symposium of Digital Equipment Computer User Society,* San Diego, November 4, 1974.

R. G. King, "Future of Computer Technology in a Real Time Environment," *4th Annual Conference, Association of Computer Programmers and Analysts,* Washington, D. C., November 20–22, 1974.

V. O'Brien, "Unsteady Blood Flow in Branches," *Division of Fluid Dynamics, American Physical Society,* Pasadena, California, November 25–27, 1974.

L. W. Ehrlich and M. H. Friedman, "Steady Convective Diffusion in a Bifurcation," *67th Annual Meeting of the American Institute of Chemical Engineers,* Washington, D. C., December 2, 1974.

T. A. Vyrostek et al, "Electrical Resistivity and Magneto Resistivity of Very Dilute Cu-Cr Alloys," *20th Annual Conference on Magnetism and Magnetic Fields,* San Francisco, December 3–6, 1974.

C. J. O'Brien, "Editing, Writing, and News Gathering for Washington News Letters," *International News Letter Conference,* Washington, D. C., December 9, 1974.

R. W. McEntire, "Trapped Alpha Particle Fluxes," *American Geophysical Union,* San Francisco, December 1974.

D. D. Zimmerman, "Hybrid Microelectronic Standards and Specifications," *Metropolitan New York Chapter, International Society for Hybrid Microelectronics,* New York, January 21, 1975.

M. M. Feen, V. L. Pisacane, and M. Sturmanis, "Prediction Techniques for the Effect of the Ionosphere on Ranging from Satellites," *1975 Symposium on the Effect of the Ionosphere on Space Systems and Communications,* Arlington, Virginia, January 20–22, 1975.

ADDRESSES *(continued)*

R. W. Flower, "A System for In Vivo Measurement of Oxygen in Intraocular Tissue," *International Symposium on Oxygen Transport,* Mainz, West Germany, March 1975.

L. Monchick, "Validity of Central Field Scattering of Approximations: Helium CO Collisions," *Washington / Baltimore Colloquium on Molecular Collisions,* Applied Physics Laboratory, Howard County, Maryland, March 24, 1975.

R. A. Farrell and R. L. McCally, "On the Interpretation of Measurements of the Depth Dependence of Angular Light Scattering in the Normal Rabbit Cornea," *American Physical Society,* Denver, March 31, 1975.

PATENTS

R. D. Burson—*Variable Speed Handrail,* Patent No. 3,842,961.

W. H. Avery—*Mechanically Linked Personal Rapid Transit System,* Patent No. 3,853,068.

R. G. Roll, C. R. Edwards, R. C. Moore, G. D. Wagner, R. K. Burek—*Loran Assist Device,* Patent No. 3,858,217.

T. Wyatt, C. J. Swet—*Combined Fluid Flywheel and Propulsion System for Spacecraft,* Patent No. 3,862,732.

S. Kongelbeck—*Launcher Mount,* Patent No. 3,865,009.

S. A. Taylor—*Synchro-to-Digital Converter,* Patent No. 3,866,214.

W. Seamone, G. Schmeisser—*Shoulder Disarticulation Prosthetic System,* Patent No. 3,866,246.

M. L. Hill—*Method and Apparatus for Defining an Equipotential Plane in the Electrostatic Field in the Atmosphere Utilizing Rotating Potential Sensing Probes,* Patent No. 3,866,859.

R. E. Fischell—*Fixed Rate Rechargeable Cardiac Pacemaker,* Patent No. 3,867,950.

M. L. Hill—*Method and Apparatus for Attitude Detection and Stabilization of an Airborne Vehicle Using the Electrostatic Field in the Earth's Atmosphere,* Patent No. 3,868,074.

S. Kongelbeck—*Actuator,* Patent No. 3,872,776.

M. L. Hill—*Attitude Sensing Method and Apparatus,* Patent No. 3,873,050.

HONORS AND AWARDS

F. J. Adrian, Supervisor of the Microwave Physics Group in the APL Research Center, has been appointed an Associate Editor of the *Journal of Chemical Physics.*

H. B. Riblet has been elected a Fellow of the Institute of Electrical and Electronics Engineers. A member of the APL Staff for more than twenty years, Mr. Riblet is Supervisor of the Space Data and Control Branch of the Space Development Department.

S. M. Krimigis, Supervisor of the Space Physics and Instrumentation Group in the Space Development Department, has been named an Associate Editor of the *Journal of Geophysical Research.*

The President of the Baltimore City Council presented the Laboratory a citation for its "Future Transit Modes" display at the Baltimore Fair in September 1974.

APL COLLOQUIA

Oct. 4, 1974—"Resonances, Partons, and Scaling: A Theorist Reviews Some Recent Experiments," by Gabor Domokos, The Johns Hopkins University.

Oct. 11—"A Chemical Origin of Life," by C. A. Ponnamperuma, University of Maryland.

Oct. 18—"Reducing Automobile Emission Through Enrichment of Gasoline," by J. F. Stocky, Jet Propulsion Laboratory.

Oct. 31—"Results from the Experimental Solar House (Solar I)," by K. W. Boer, University of Delaware.

Nov. 8—"Some Problems with Mass Transit," by B. R. Stokes, American Public Transit Association.

Nov. 15—"Heat Pipe Ovens and Applications to High Energy Lasers," by Merrill Hessel, National Bureau of Standards, Boulder, Colorado.

Nov. 22—"Special Problems Associated with National Economic Instability," by H. M. Brenner, The Johns Hopkins University.

Dec. 6—"Research on National Parks and the Serengeti," by Derek Bryceson, Director, Tanzania National Parks.

Dec. 13—"The Physics of Magnetic Bubbles," by H. B. Callen, University of Pennsylvania.

Dec. 20—"How Does an Ion Get Through a Membrane?" by H. E. Stanley, Massachusetts Institute of Technology.

Jan. 3, 1975—"Nuclear Reactor Safety," by N. C. Rasmussen, Massachusetts Institute of Technology.

Jan. 10—"Occupational Health and Safety," by Frank Wallach, United Automobile Workers of America.

Jan. 17—"APL for APL," by K. E. Iverson, IBM.

Jan. 31—"Mariner 10 Encounters Venus and Mercury," by V. E. Suomi, University of Wisconsin.

Feb. 7—"How to Create or Control Inflation," by C. F. Christ, The Johns Hopkins University.

Feb. 14—"Communications Satellites—Space Science Turns to the Needs of Man," by Wernher von Braun, Fairchild Industries.

Feb. 21—"The Colonization of Space," by G. K. O'Neill, Princeton University.

Mar. 7—"Phase Transitions in Social Systems," by E. R. Callen, American University.

Mar. 14—"Problems of Intense Magnetic Fields in Astrophysics," by H. Y. Chiu, Goddard Institute for Space Studies.

Mar. 21—"Laser Driven Compression Experiments and Their Implications for Laser Pellet Fusion," by R. R. Johnson, KMS Fusion, Inc.

Mar. 28—"Holography Using Anisotropic Centers in Alkali Halides," by Irwin Schneider, Naval Research Laboratory.

J. H. HARTLE
1924 – 1974

J. H. Hartle, Staff Artist for the *Digest* and an artist-illustrator in the APL Technical Publications Group, died on November 29, 1974, at the age of 50, in the Howard County General Hospital following a heart attack suffered while at work.

A native of Takoma Park, Maryland, Mr. Hartle attended high school in Hagerstown, Maryland, and the Hagerstown Junior College. He served in the U. S. Navy for two years during World War II. Prior to coming to APL from TAAG Designs, Inc. in 1966, Mr. Hartle had been a technical illustrator with the Allegany Ballistics Laboratory, the Westinghouse Astronuclear Laboratory, and the Fairchild Aircraft Corporation.

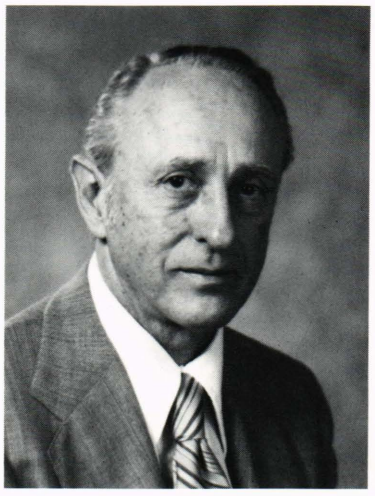
Mr. Hartle received recognition for his *Digest* illustrations and design, having won an Award of Distinction from the Washington Chapter of the Society of Technical Writers and Publishers in 1971 and a Certificate of Achievement from the Society for Technical Communications at its 19th International Publications Awards program in Boston in 1972.

Mr. Hartle is survived by his wife, Margaret, a son, Steven, who is a Lieutenant in the U.S. Navy, a granddaughter, and five brothers and three sisters.

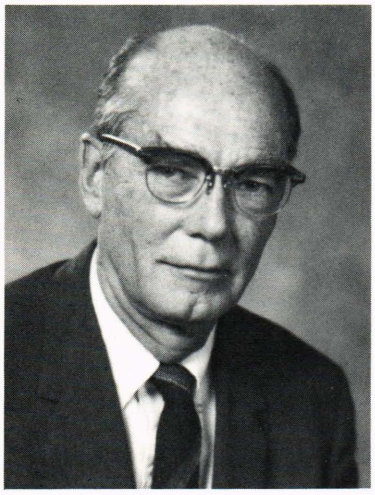
WITH THE AUTHORS

G. L. Dugger was co-author of a previous *Digest* article titled "External Burning in Supersonic Streams," which was published in the November–December 1968 issue. Dr. Dugger received the Ph.D. degree in chemical engineering from Case Institute of Technology in 1953. Prior to joining APL in 1957, he was an instructor at the University of Florida, a research scientist at the NACA Lewis Laboratory, and supervisor of chemical process development at International Minerals and Chemical Corporation. A specialist in advanced airbreathing engine and missile analysis, combustor research and development, heat transfer, and fluid mechanics, Dr. Dugger has supervised advanced ramjet, air-augmented rocket, and scramjet research and development. From 1963 to 1973 he was Supervisor of the Hypersonic Propulsion Group. Since 1973, he has been Assistant Division Supervisor of the Aeronautics Division. Dr. Dugger is a Fellow of the American Institute of Aeronautics and Astronautics and the American Association for the Advancement of Science, and a member of the Combustion Institute. In 1964 he received the Award in Engineering Sciences from the Washington Academy of Sciences.

H. L. Olsen was a co-author of "APL Propulsion Research Laboratory," which appeared in the very first issue of the *Digest,* for September–October 1961. Dr. Olsen received the Ph.D. degree in physics from the University of Wisconsin in 1949. After



serving as a research scientist with NACA and as a research instructor at Wisconsin, he joined APL as a physicist in the Propulsion Group in 1949. A specialist in combustion research, airbreathing propulsion systems, and testing facilities, he was Group Supervisor of BPF and had overall supervision of the Propulsion Research Laboratory from 1961 to 1973. During this period, he was responsible for the design and construction of the Howard County PRL which replaced the one originally installed in Silver Spring, Md. Since 1973, Dr. Olsen has been assigned to the Aeronautics Division Office where he is Principal Investigator of the APL project on two-phase flow heat exchangers for ocean thermal plants for the ERDA Division of Solar Energy. Dr. Olsen is a member of the American Institute of Aeronautics and Astronautics.



W. B. Shippen, a native of Baltimore, received the B.S. degree in mechanical engineering from the University of Virginia in 1940. After serving as an engineer from 1940 to 1948 with the Martin Co. in Baltimore, he joined APL in 1948. A specialist in ramjet engine design, internal aerodynamics, combustion chamber design, and fuel system design, he was employed as an engineer in the APL Launching and Propulsion Group. Mr. Shippen supervised development of the ramjet engine for the Navy's Talos and Typhon LR missiles and since 1974 has been Group Supervisor of Bumblebee Propulsion, including the Propulsion Research Laboratory. Mr. Shippen is an Associate Fellow of the American Institute of Aeronautics and Astronautics.

E. J. Francis, a native of Kansas, received a B.S. in business administration from the University of Kansas in 1950 and the M.B.A. from George Washington University in 1961. In the Navy Supply Corps from 1950 to 1970, he advanced from Ensign to Commander working in comptroller, logistics research, and computer management. A specialist in economics, budget and accounting, computer applications, and business administration, he was appointed to the APL post of Executive Assistant in the Computing Center in 1970. Since early 1975 he has been assigned as Executive Assistant to the Assistant Director for Exploratory Development and the Aeronautics Division Office. He is Principal Investigator for the APL study of maritime aspects of ocean thermal plant-ships for the U.S. Maritime Administration.

W. H. Avery has been represented three times previously in the *Digest.* His most recent previous *Digest* paper was as co-author of "Urban Transportation," which was published in the March–April 1969 issue. Dr. Avery received the Ph.D. degree in physical chemistry from Harvard University in 1937 and joined APL in 1947 after spending five years as a research chemist with Shell Oil Co. and five years as Head of the Propulsion Division at Allegany Ballistics Laboratory. In 1950 he was named Supervisor of the APL Launching and Propulsion Group. He served in that capacity until 1961 when he was appointed Supervisor of the Aeronautics Division, a position he still holds. In addition, in 1973 he was appointed Assistant Director of the Laboratory for Exploratory Development. Dr. Avery 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. During the past several years he has become especially interested in urban transportation technology and ocean thermal energy and has published several papers in these fields. He is a member of the American Chemical Society, a Fellow of the American Institute of Aeronautics and Astronautics, and a member of the Board of Directors of the Combustion Institute. He was also awarded the Sir Alfred C. Egerton Gold Medal of the Combustion Institute for distinguished contributions to the field of combustion.