

PATENTS

Listed below are U. S. Government patents recently issued to Laboratory staff members for inventions produced in support of APL objectives.

- A. G. Carlton, J. H. Tiedeman, J. H. Walker, and G. Worsley—*Guided Missile*, Patent No. Des. 196,823.
R. O. Robinson, Jr.—*Oscillator*, Patent No. 3,092,028.
L. J. Viernstein—*Use of Ultrasonic Bias in Magnetic Amplifiers*, Patent No. 3,098,196.
C. H. Popenoe—*Coiling Fin for Tube-Launched Missiles*, Patent No. 3,103,886.
A. B. Nepple—*Pre-Stressed Glass Fiber Attachment Ring*, Patent No. 3,103,887.
R. E. Fischell—*Energy Absorption Mechanism*, Patent No. 3,104,080.
R. B. Kershner and T. W. Sheppard—*Radar Antenna Positioning Device*, Patent No. 3,107,543.
F. H. Swaim and D. W. Rabenhorst—*Low Torque Rotary Seal*, Patent No. 3,109,661.
A. G. Carlton and J. W. Follin, Jr.—*Radar Tracking Loop*, Patent No. 3,110,896.
S. N. Samburoff and A. H. Miller—*Missile Electrical Plug Connector*, Patent No. 3,111,355.
S. Kongelbeck—*Turret Launcher*, Patent No. 3,113,486.
F. H. Swaim—*Elastic Fin Erector*, Patent No. 3,114,287.
G. E. Moul, Jr.—*Retractable Launching Shoes*, Patent No. 3,115,059.
R. S. Brashears—*Clamping Ring Release Mechanism*, Patent No. 3,115,836.

PUBLICATIONS

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

- Jane Olmer and R. P. Rich, "A Flexible Direct File Approach to Information Retrieval — Text Edit, Search or Select and Print on an IBM 1401," *Conference Proceedings, Fall Joint Computer Conference*, Vol. 24, Spartan Books, Inc., Baltimore, 1963, 173–182.
H. B. Riblet and J. P. Randolph, "Satellite Telemetry and Data Processing," *Proc. International Telemetry Conference*, Sept. 23–27, 1963, Vol. I, Institute of Electrical Engineers, London, 1963.
R. M. Fristrom (APL), and G. C. Frazier and J. F. Wehner (The Johns Hopkins University), "Microstructure of a Low-Pressure Hydrogen-Bromine Flame," *A.I. Ch. E. J.*, **9**, Sept. 1963, 689–693.
C. J. O'Brien, "The Newsletter—Powerful Voice of Industrial Communications," *Better Journalism for a Better Tomorrow*, University of Georgia Bulletin, **LXIV**, Oct. 9, 1963, 227–236.
E. P. Gray, "A Selective Survey of Books on Plasma Physics," *Physics Today*, **16**, Nov. 1963, 66–74.
S. D. Raezer, "Corrected Form for the Relationship Between Burning Velocity and Space Velocity in a Spherical Constant Volume Vessel," *Combustion and Flame*, **7**, Dec. 1963, 389–390.
S. H. Gordon, "A Miniature Monostrip Delay Line for Nanosecond Pulses," *Elec. Design News*, **8**, Dec. 1963, 32–39.
A. J. Zmuda, B. W. Shaw, and C. R. Haave, "VLF Disturbances Caused by Trapped Beta-Rays from the Decay of Neutrons Produced in High-Altitude Nuclear Explosions," *J. Research Nat. Bur. Standards*, **68D**, Jan. 1964, 119–126.
E. L. Cochran, F. J. Adrian, and V. A. Bowers, "ESR Study of Ethynyl and Vinyl Free Radicals," *J. Chem. Phys.*, **40**, Jan. 1, 1964, 213–220.
G. H. Mowbray and L. B. Durr, "Visual Masking," *Nature*, **201**, Jan. 18, 1964, 277–278.
S. N. Foner, "Free Radicals and Unstable Molecules," *Science*, **143**, Jan. 31, 1964, 441–450.
B. S. Walker, "The Navy and the Applied Physics Laboratory," *U. S. Naval Inst. Proc.*, **90**, Feb. 1964, 44–51.
D. J. Williams and C. O. Bostrom, "Albedo Neutrons in Space," *J. Geophys. Res.*, **69**, Feb. 1, 1964, 377–392.

HONORS AND APPOINTMENTS

G. L. Dugger, supervisor of the Hypersonic Propulsion Group, has received a Washington Academy of Sciences 1963 award for Achievement in Engineering Sciences. Dr. Dugger was cited for "major investigations and leadership in the field of hypersonic propulsion."

D. W. Fox is the recipient of a National Science Foundation travel grant for research at the Battelle Institute in Geneva, Switzerland. Dr. Fox, supervisor of the Aeroelasticity and Vibration Analysis Project of the Bumblebee Engineering Group, will do "research and collaboration on properties of wave functions of quantum mechanical systems."

R. M. Fristrom, a staff member of the Chemical Physics Group of the Research Center, has been named Editor of *Fire Research Abstracts and Reviews*, published by the National Academy of Sciences. Dr. Fristrom succeeds retiring editor Dr. W. G. Berl, supervisor of the Chemical Research Group of the Research Center.

F. T. McClure has been awarded a Department of Defense Certificate of Appreciation "for exceptional meritorious civilian service as scientific coordinator of the Department of Defense research program on combustion instability in solid propellant rocket motors." Dr. McClure is chairman of the Research Center.

Dec. 6—"Problems in Handling Large Volumes of Mail," by M. A. Butterfield, United States Post Office Department.

Dec. 13—"Application of the Gaseous Laser to Precision Measurements," by A. Javan, Massachusetts

Institute of Technology.

Jan. 3—"Weather Satellites," by L. F. Hubert, United States Weather Bureau.

Jan. 10—"Problems in Ballistic Missile Defense," by W. E. Danielson, Bell Telephone Laboratories.

Jan. 17—"The Physics of Violins—with Musical Illustrations," by Carleen M. Hutchins.

Jan. 31—"Experimental Application of Cultured Animal Cells," by H. C. Eagle, M.D., Albert Einstein Medical School.

ADDRESSES

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

Jane Olmer and R. P. Rich, "A Flexible Direct File Approach to Information Retrieval — Text Edit, Search or Select and Print on an IBM 1401," *Fall Joint Computer Conference*, Las Vegas, Nev., Nov. 12-14, 1963.

S. A. Elder and F. K. Hill, "Measurement of Heat Transfer at Nozzle Throat by Imbedded Pyrometer Method," *American Physical Society, Division of Fluid Dynamics*, Massachusetts Institute of Technology, Nov. 25-27, 1963.

Vivian O'Brien, "Disturbance Patterns in Flat Oscillating Couette Flows," *American Physical Society, Division of Fluid Dynamics*, Massachusetts Institute of Technology, Nov. 25-27, 1963.

G. L. Dugger, "Hypersonic Ramjets," *American Institute of Aeronautics and Astronautics*, University of Maryland Student Chapter, Dec. 4, 1963.

L. M. Spetner, "Natural Selection: An Information Transmission Mechanism for Evolution," *National Institute of Allergy and Infectious Diseases*, Bethesda, Md., Dec. 5, 1963.

I. Katz, "Analysis of Land Clutter at X-Band," *International Scientific Union*, Seattle, Dec. 9-12, 1963.

J. S. Kay, "Time Optimal Control," *I.E.E.E.—A.S.M.E. Joint Automatic Control Group of Baltimore*, Dec. 11, 1963.

W. G. Berl, "Introduction and Review," *A.I.A.A. Heterogeneous*

Combustion Conference, Session on Combustion of Metal-Containing Compounds, Palm Beach, Dec. 11-13, 1963.

Ione D. V. Faro, "Mathematics as a Profession for Women," *Immaculata High School*, Seminar, Washington, D. C., Dec. 17, 1963.

R. B. Kershner, *The Philosophical Society of Washington, Christmas Lectures*: "Artificial Satellites: What Makes Them Work?" and "Artificial Satellites: What Can They Do for Us?", Dec. 17 and 18, 1963.

J. O. Artman, "Microwave Spectroscopy," *Poolesville High School*, Poolesville, Md., Dec. 18, 1963.

S. A. Elder, "Traditional Christian Belief in a Scientific Age," *Resurrection Lutheran Church*, Wheaton, Md., Dec. 8; and *Walter Johnson High School*, Physics Club, Bethesda, Md., Dec. 19, 1963.

L. N. McClung, "Instrumentation for a Knowledge Generator," *Naval Ordnance Laboratory*, White Oak, Md., Jan. 6, 1964.

L. M. Spetner, "Natural Selection as an Information Channel for Evolution," *Howard University*, Department of Physics, Jan. 7, 1964.

S. A. Elder, "The Physics of Fipple Flutes," *Acoustical Society of America*, Washington, D. C., Jan. 21, 1964.

W. H. Avery, "Hypersonic Airbreathing Propulsion," *A.I.A.A. Solid*

Propellant Rocket Conference, Palo Alto, Calif., Jan. 29-31, 1964.

R. H. Cantrell, R. W. Hart, and F. T. McClure, "Linear Acoustic Gains and Losses in Solid-Propellant Rocket Motors," *A.I.A.A. Solid Propellant Rocket Conference*, Palo Alto, Jan. 29-31, 1964.

S. N. Foner, R. L. Hudson, and B. H. Nall, "Admittance Measurements of Solid Propellants by an Acoustic Oscillator Technique," *A.I.A.A. Solid Propellant Rocket Conference*, Palo Alto, Jan. 29-31, 1964.

R. W. Hart, R. H. Cantrell, J. F. Bird, and F. T. McClure, "Non-linear Effects in Instability of Solid-Propellant Rocket Motors," *A.I.A.A. Solid Propellant Rocket Conference*, Palo Alto, Jan. 29-31, 1964.

R. E. Walker and M. Shandor, "Influence of Injectant Properties for Fluid Injection Thrust Vector Control," *A.I.A.A. Solid Propellant Rocket Conference*, Palo Alto, Jan. 29-31, 1964.

R. M. Fristrom, "Chemistry in Flames," *The Johns Hopkins University*, Chemical Engineering Department Colloquium, Feb. 10, 1964.

R. M. Fristrom, "The Experimental Study of Flame Structure" and "The Chemistry of Combustion in Flames," *Phillips Petroleum Co. Research and Development Laboratory Seminar*, Bartlesville, Okla., Feb. 13 and 14, 1964.

WITH THE AUTHORS

B. F. Hochheimer, co-author of "Laser Modes," is a native of Rochester, New York. He received his B.S. degree in physics from Saint Bonaventure University, and, in 1953, his M.S. degree in optics from the University of Rochester. Mr. Hochheimer first came to APL in 1954 as



an associate physicist in spectroscopy, leaving to go to Hayes Aircraft Corporation from 1956-60 as a scientist in infrared physics. He returned to APL in 1960 as a physicist, and is now on the staff of the Excitation Mechanisms Project of the Research Center. He is a member of the Optical Society of America.

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J. T. Massey, a co-author of "Laser Modes," is a native of Raleigh, North Carolina. He received his B.S. degree

in electrical engineering from North Carolina State College and, in 1953, his Ph.D. degree in physics from The Johns Hopkins University. He taught electrical engineering at Clemson College and engineering mechanics at North Carolina State College, and was an engineer at the Westinghouse Electrical and Manufacturing Company. Dr. Massey came to APL in

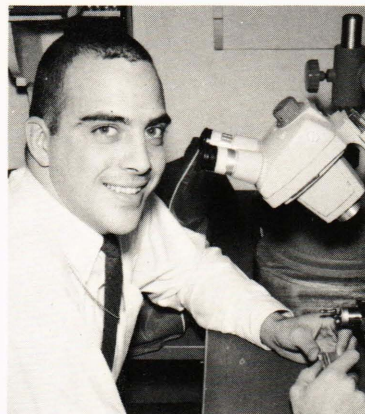


1946 as a specialist in missile systems electronics. Since 1949 he has been in the Research Center conducting basic studies in microwave physics, spectroscopy, and discharge plasmas. He is presently a supervisor of the Excitation Mechanisms Group and is engaged in basic research on lasers. He is a member of the American Physical Society, the Washington Academy of Sciences, the Institute of Electrical and Electronics Engineers,

and the Washington Philosophical Society.

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G. J. Veth, author of "Optical Soldering and Microelectronic Interconnections," is a native of Kearny, New Jersey. He received his B.S.E.E. degree from Rutgers University in 1959, and his M.S.E.E. degree from Stevens Institute of Technology in 1961. He was associated with North American Aviation, Inc., in 1959-60, as an engineer in control systems analysis. Coming to APL in 1961,



Mr. Veth was assigned to the staff of the Microelectronics Group as an associate engineer. He is primarily concerned with microelectronics systems design, packaging, and circuit design. Mr. Veth is a member of the Institute of Electrical and Electronics Engineers.