

ADDRESSES

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

- R. E. Fischell, "Gravity-Gradient Stabilization with the DODGE Satellite," *3rd IFAC Symposium on Automatic Control in Space*, Toulouse, France, March 2-6, 1970.
- S. E. Anderson and W. T. Pullin, Jr., "Computer Animation at APL," *SHARE Meeting*, Denver, March 5, 1970.
- R. B. Kershner, "Design of Satellite Navigation Systems," *American Astronautical Society, Goddard Memorial Symposium*, Washington, D. C., March 17, 1970.
- W. H. Avery, "Urban Transportation," *Maryland Academy of Sciences Junior Science Symposium*, Baltimore, March 21, 1970.
- A. A. Westenberg, "Radical Reactions in an ESR Cavity Homogeneous Reactor," *American Chemical Society, Mid-Atlantic Meeting, University of Delaware*, Newark, April 2, 1970.
- G. L. Dugger, "Recent Advances in Ramjets," *American Institute of Aeronautics and Astronautics, Pennsylvania State University*, University Park, April 10, 1970.
- L. J. Rueger, "System Design Features of the Navy Navigation Satellite System," *University of Maryland, Mechanical Engineers Seminar*, College Park, April 14, 1970.
- C. Feldman and K. Moorjani, "Amorphous Elemental Semiconductors," *NASA Research and Technology Advisory Subcommittee on Electrophysics*, NASA Lewis Research Center, Cleveland, April 14, 1970.
- T. A. Potemra and A. J. Zmuda, "Analysis of the D-Region from Coordinated Satellite and Ground-Based Data During PCA's," *International Union of Radio Science (URSI)*, Washington, D. C., April 16-19, 1970.
- T. G. Konrad, "Radar as a Tool for the Remote Sensing of the Clear Atmosphere," *Second Annual International Geoscience and Electronics Symposium, IEEE*, Washington, D. C., April 17, 1970.
- The following three addresses were presented at the *51st Annual Meeting of the American Geophysical Union*, Washington, D. C., April 20-24, 1970:
- H. S. Hopfield, "Tropospheric Effect on Electromagnetically Measured Range: Prediction from Surface Weather Data";
- S. Kowal, "The Evolution of GEOS-C and the Radar Altimeter for Geodetic Measurements";
- T. A. Potemra and A. J. Zmuda, "Energetic Electrons as a Source of Ionization in the Normal D-Region."
- T. O. Poehler, J. R. Apel, and C. R. Westgate, "Anomalies in the Cyclotron Resonance Line Widths for InSb at Far-Infrared Frequencies," *American Physical Society*, Washington, D. C., April 28, 1970.

PUBLICATIONS

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

- B. W. Kuvshinoff, "An Experimental Application of a Computer-Assisted Indexing Technique to Fire Research Abstracts and Reviews," *Fire Res. Abstracts and Rev.* **11**, No. 3, 1969, 179-190.
- N. Rubinstein, V. G. Sigillito, J. T. Stadter, "Upper and Lower Bounds to Torsional Frequencies of Nonuniform Shafts and Applications to Missiles," *Shock and Vibration Bull.*, **40**, Part 4, Dec. 1969, 163-170.
- M. H. Friedman, "A General Thermal Explosion Criterion Application to Initiation by Imbedded Wires," *Combustion and Flame* **13**, No. 6, Dec. 1969, 567-576.
- C. Feldman and K. Moorjani, "Observation of Filament Formation in Amorphous Films during Switching," *Thin Solid Films* **5**, No. 1, Jan. 1970, R1-R4.
- C. Feldman and K. Moorjani, "Switching in Elemental Amorphous Semiconductors," *J. Non-Cryst. Solids* **2**, Jan. 1970, 82-90.
- L. J. Viernstein and Y. Kitazawa (JHU School of Medicine), "Measurements of Factors Affecting the Precision of Tonometry and Tonography," *Exptl. Eye Res.* **9**, No. 1, Jan. 1970, 91-97.
- R. O. Weiss, "A Comparison of Approximate Analytical Techniques in Heat Conduction," *J. Spacecraft and Rockets* **7**, No. 2, Feb. 1970, 212-214.
- C. O. Bostrom, D. S. Beall, and J. C. Armstrong, "Time History of the Inner Radiation Zone, October 1963 to December 1968," *J. Geophys. Res., Space Phys.* **75**, No. 7, Mar. 1, 1970, 1246-1256.
- J. Bohandy and J. C. Murphy, "Electron Spin Resonance Study of Transition Elements in Strontium Tartrate and Calcium Tartrate," *J. Chem. Phys.* **52**, No. 6, Mar. 15, 1970, 3301-3302.
- D. Ikenberry (Calif. State Coll.), A. N. Jette (APL), and T. P. Das (Univ. of Utah), "Theoretical Calculation Explaining Negative Transferred Hyperfine Constants

PUBLICATIONS (continued)

- of the V_K Center," *Phys. Rev.* (Third Series B), **1**, No. 6, Mar. 15, 1970, 2785-2789.
- R. W. Hart and M. E. Langham (JHU School of Medicine), "The Influence of Noninstantaneous Mixing on the Measurement of Fluxes of Solute and Water Across a Biological Membrane," *Bull. Math. Biophys.* **32**, No. 1, Mar. 1970, 1-24.
- P. F. Bohn and L. J. Kravetz (JHU School of Medicine), "Closed-Loop Simulation of Congenital Heart Defects," *Simulation* **14**, No. 3, Mar. 1970, 117-122.
- L. G. Knowles, L. C. Kohlenstein, W. A. Yates, "A Multi-Tone Display for Computer Processed Data," *Information Display* **7**, No. 3, Mar. 1970, 19-22.
- V. W. Pidgeon, "Frequency Dependence of Radar Ducting," *Radio Sci.* **5**, No. 3, Mar. 1970, 541-549.
- R. A. Farrell and R. W. Hart, "Imaging Distribution of Radioactivity within the Human Body. II. Collimator Point Response Function Effects in Optimum Data Processing," *Invest. Radiology* **5**, No. 2, Mar.-Apr. 1970, 103-110.
- T. O. Poehler and J. R. Apel, "Impurity Ionization in Germanium in Strong Magnetic Fields," *Phys. Rev.* (Third Series B), **1**, No. 8, Apr. 15, 1970, 3240-3244.
- A. N. Jette, J. Bohandy, J. C. Murphy and D. C. O'Shea, C. M. Wilson (Johns Hopkins Univ.), "Raman Spectrum of V_K Centers in $KCl:Ag$ Crystals," *Phys. Letters* **31A**, No. 8, Apr. 20, 1970, 449-450.
- V. G. Sigillito, "On the Uniqueness of Solutions of Certain Improperly Posed Problems," *Proc. Amer. Math. Soc.* **24**, No. 4, Apr. 1970, 828-831.
- R. Turner and T. O. Poehler, "Faraday Rotation of a Far-Infrared Laser Beam by a Small Theta-Pinch Plasma," *Phys. Fluids* **13**, No. 4, Apr. 1970, 1072-1079.
- T. O. Poehler and R. Turner, "Transmission of Polarized Far-Infrared Radiation through Metal Light Pipes," *Appl. Optics* **9**, No. 4, Apr. 1970, 971-973.
- K. Moorjani and C. Feldman, "Electrical Conduction in Amorphous Boron and Silicon," *J. Non-Cryst. Solids* **4**, Apr. 1970, 248-255.

HONORS AND AWARDS

V. M. Root, Supervisor of the Technical Reports Group, has been named the first President of the Council of Communication Societies. The Council was formed recently by seven professional societies to further public knowledge of the communication profession, to undertake joint projects that will benefit the profession, and to promote research into techniques for improving communication.

P. E. Clark, Assistant Supervisor of the Technical Reports Group and Managing Editor of the *Digest*, has been elected a Fellow of the American Institute of Chemists.

PATENTS

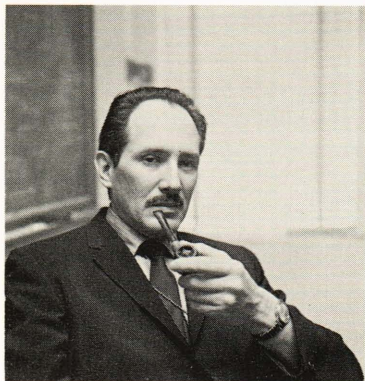
- J. A. Perschy—*Control System for a Current Steering Switch*, Patent No. 3,478,223.
- T. Wyatt—*Damping Coupler for Satellite Attitude Control*, Patent No. 3,480,232.
- A. S. Polk, Jr.—*Corner Inlet Blow-out Dome*, Patent No. 3,482,403.
- R. E. Fischell—*Controlled Heat Pipe*, Patent No. 3,489,203.
- R. T. Ellis, R. E. Fischell—*Satellite Spin Control System*, Patent No. 3,489,372.
- E. L. Nooker—*Continuous Rod Warhead*, Patent No. 3,490,374.
- W. A. Kagdis, J. J. Tanski, Sr.—*Furnace for Treating Material in a Gas Atmosphere*, Patent No. 3,493,436.
- W. R. Little—*Variable Gain Amplifier*, Patent No. 3,493,880.
- R. T. Cusick, W. J. Fleagle—*Pressure Commutator Mode Switch*, Patent No. 3,494,175.
- F. F. Hiltz, C. T. Pardoe—*Apparatus for Determining the Time Interval Correlation of the Occurrence of Pulses*, Patent No. 3,495,077.
- F. F. Mobley, B. E. Tossman—*Hysteresis Damper*, Patent No. 3,497,160.
- J. J. Lorditch, Jr.—*Monostable Multivibrator*, Patent No. 3,497,725.
- R. R. Newton—*Multipurpose Satellite System*, Patent No. 3,497,807.
- R. Turner—*Plasma Ejection System Including Breech and Muzzle*,

Theta-Pinch Coils, Patent No. 3,500,123.

APL COLLOQUIA

- Mar. 6—"Polywater," by R. R. Stromberg, National Bureau of Standards.
- Mar. 13—"The Chesapeake at Bay," by L. E. Cronin, University of Maryland.
- Mar. 20—"Maser Effects in the Interstellar Medium," by L. Goldberg, Harvard University.
- Mar. 26—"Mission to an Asteroid," by H. Alfvén, University of California, San Diego.
- Apr. 3—"How Green is the 'Green' Revolution?" by W. C. Paddock, Tropical Agricultural Development.
- Apr. 10—"Crime, Judicial Reform, and Urban Problems," by J. D. Tydings, U. S. Senate.
- Apr. 17—"Radar and Radar Tests of General Relativity," by I. I. Shapiro, Massachusetts Institute of Technology.
- Apr. 24—"Some Unusual Uses of Computers and Computing," by S. M. Ulam, University of Colorado.

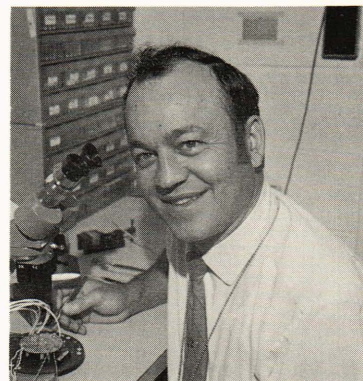
WITH THE AUTHORS



R. W. Hart, the author of "Theory of Nervous Regulation of Intraocular Pressure," has been represented in the *Digest* on two previous occasions. He was the author of "Combustion Instability in Solid Rockets" published in the July-August 1962 issue and was a co-author of "Theory of Corneal Structure" which was published in the January-February 1969 issue. Dr. Hart, originally from South Dakota, received his Ph.D. degree in physics

from the University of Pittsburgh in 1949. He came to APL in 1950 as a Physicist in the Research Center Task Study Group and is now Supervisor of the Theoretical Problems Group. Dr. Hart has contributed to the development of theories of ramjet engine optimum performance, of low-angle beam-rider missile guidance, statistical mechanics, scattering theory and microwave spectroscopy, and has directed research in other fields related to the APL missile programs. Currently he is engaged in theoretical work on the physics of the eye.

F. R. Muccino, author of "Simplified Method of Hybrid Microcircuit Fabrication," was born in Monessen, Penna. and has studied at Texas A & M, Drexel Institute of Technology, and Northwestern University. He had an early interest in radio and aircraft and served in World War II as an aviation electronics technician. Before he came to APL, Mr. Muccino was employed by Allied Radio Corp. and the



Hallicrafters Co. Since joining APL in 1952, he has worked in the Fuze Research Group, the Terrier Missile Program, and presently is a packaging engineer in the Electronics Design Group of the Missile Systems Division. Mr. Muccino was one of the pioneers in the development of the "welded cordwood" packaging technique for assembly of electronic circuits. He is an expert on miniaturization, microminiaturization and electronic packaging.