

ADDRESSES

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

C. J. Swet, "Curbside Service Subways," *Office of the Secretary of Transportation*, Washington, D.C., March 16, 1971.

The following five addresses were presented at the *Eastern Simulation Council Meeting*, Applied Physics Laboratory, Howard County, Maryland, on March 25, 1971:

P. F. Bohn, "Interactive Simulation Terminals to the IBM 360/91 Computer";

N. K. Brown, "Software Considerations for Simulation Hardware in the Supercomputer Environment";

R. B. McDowell, "The APL Technical Approach to Real-Time, Interactive, Multiple-Computer Simulation Systems";

D. M. White, "A Real-Time Radar Simulation Using the APL Digital Computer Links";

A. G. Witte, "Hardware Implementation of Computer Data Links to the IBM 360/91."

R. L. McCally and M. H. Friedman, "Irreversible Thermodynamics and Convective Diffusion in Open Membranes," *161st Annual Meeting, American Chemical Society*, Los Angeles, March 29-April 2, 1971.

K. Moorjani, "Disordered Semiconductors: Experiments and Theoretical Models," *Laboratoire des Hautes Pressions, CNRS*, Bellevue, France, March 30, 1971.

K. Moorjani, "Pair Approximation in the Coherent Potential Theory of Disordered Solids," *Laboratoire d'Electrostatique et de Physique du M \acute{e} tal, CNRS*, Grenoble, France, April 2, 1971.

A. I. Mahan, C. V. Bitterli, and H. J. Unger, "Reflection and Transmission Properties of Cylindrically Guided Electromagnetic Waves," *Spring Meeting, Optical Society of America*, Tucson, Arizona, April 5-8, 1971.

K. Moorjani, "Pair Approximation in the Coherent Potential Theory of Disordered Solids," *International Conference on Conduction*

in Low Mobility Materials, Eilat, Israel, April 5-9, 1971.

R. W. Flower, "Ocular Effects of Hyperoxygenation," *University of Maryland School of Dentistry, Department of Physiology*, Baltimore, April 6, 1971.

T. A. Potemra, "The Empirical Relation of Riometer Absorption to Solar Protons During PCA Events," *Spring Meeting, International Union of Radio Science (URSI)*, Washington, D.C., April 8-10, 1971.

R. B. Kershner, Keynote Address, *National Telemetry Conference and Exposition*, Washington, D.C., April 12-15, 1971.

F. S. Billig, "Flow Processes in Supersonic Combustors," *Cornell University Colloquium*, Ithaca, New York, April 13, 1971.

L. F. Fehlner and T. W. Jerardi, "Interaction of Navigation and Surveillance in Air Traffic Control," *National Air Meeting, Institute of Navigation*, Saddle Brook, New Jersey, April 14-16, 1971.

R. M. Hanes, "Annual Report to the Inter-Society Color Council," New York, April 20, 1971.

S. Haberman, "The Use of Multiple Regression Equations in the Campaign Execution Model," *1971 Army Numerical Analysis Conference*, Department of Defense Computer Institute, Washington, D. C., April 22, 1971.

A. I. Mahan, "Optical Properties of Cylinders," *The Johns Hopkins University, Electrical Engineering Colloquium*, Baltimore, April 22, 1971.

G. L. Dugger, "Hypersonic Ramjet Propulsion," *Airline Traffic Association*, Washington, D.C., April 26, 1971.

W. M. Waters, "A Measurement of Nonreciprocal Propagation Through the Ionosphere," *1971 IEEE Region III Convention*, Charlottesville, Virginia, April 26-28, 1971.

L. J. Rueger, "One-Way Time Dissemination from Low Altitude

Satellites," *25th Annual Frequency Control Symposium*, U. S. Army Electronics Command, Fort Monmouth, New Jersey, April 27, 1971.

The following two addresses were presented at the *Spring Meeting, Association for Research in Vision and Ophthalmology*, Sarasota, Florida, April 27-28, 1971:

R. W. Flower, "The Effect of Hyperbaric Oxygenation on Retinal Ischemia";

M. H. Friedman (APL) and K. Green (The Johns Hopkins Medical Institutions), "Ion Binding and Donnan Equilibria in Rabbit Corneal Stroma."

L. Monchick, "Error Bounds for Dilute Gas Transport Problems," *Joint Session, National Bureau of Standards—Maryland Session in Statistical Mechanics*, University of Maryland, College Park, May 6, 1971.

R. R. Newton, "Historic Variations In The Rotation of the Earth," *Symposium Number 48 of the International Astronomical Union*, Morioka, Japan, May 9-15, 1971.

R. T. Cusick, J. A. Funk, and G. A. Smoot, "A Parallel Pressure Multiplexer and Encoder for Use in Aerodynamic Testing," *17th National ISA Aerospace Instrumentation Symposium*, Las Vegas, May 10-12, 1971.

R. M. Fristrom, "Flame Inhibition Chemistry," *37th Propulsion and Energetics Panel Meeting, Aircraft Fuels, Lubricants, and Fire Safety*, The Hague, Netherlands, May 10-14, 1971.

V. O'Brien, "Porous Flow Model for Orthotropic Media," *Symposium on Flow—Its Measurement and Control in Science and Industry*, Pittsburgh, May 10-14, 1971.

J. Dassoulas, "APL Space Programs," *Robert E. Peary High School Seminar*, Rockville, Maryland, May 18, 1971.

T. Konrad, "The Study of Turbulent Atmospheric Processes in the

ADDRESSES *(continued)*

- Clear Air Using High Power Radar," *AIAA Spring Meeting (National Capital and Baltimore Sections)*, Applied Physics Laboratory, Howard County, Maryland, May 1971.
- The following two addresses were presented at the *IEEE 1971 Electrical and Electronic Measurement and Test Instrument Conference*, Ottawa, Canada, June 1-3, 1971:
- A. M. Chwastyk, "A Fast Digital Spectral Analyzer";
- D. G. Mullens, "Automated Testing of the SAS-A Experiment."
- D. G. Grant, R. A. Meyer, and D. N. Qualkinbush, "Optical Phased Array Correlation Techniques," *1971 IEEE/O&SA Conference on Laser Engineering and Applications*, Washington, D.C., June 2-4, 1971.
- I. Katz, "The Use of Ultrasensitive Radar in Remote Atmospheric Probing," *BOMAP Group of NOAA*, Rockville, Maryland, June 11, 1971.
- The following two addresses were presented at the *Sixth Annual Corneal Research Conference*, New York, June 11-12, 1971:
- M. H. Friedman, "A Quantitative Description of Equilibrium and Homeostatic Thickness Regulation in the In Vivo Cornea";
- R. W. Hart and R. A. Farrell, "Light Scattering in Normal Rabbit Stroma."
- C. L. Yates, "Liquid Injection Into Supersonic Airstream," *AIAA 7th Propulsion Joint Specialist Conference*, Salt Lake City, Utah, June 14-18, 1971.
- T. A. Potemra, A. J. Zmuda, and C. R. Haave, "The Connection of Solar Proton Fluxes to VLF Transmissions in the South and North Polar Caps During the PCA Event of November 2, 1969," *International COSPAR Symposium on the November 1969 Solar Particle Event*, Boston College, Chestnut Hill, Massachusetts, June 16-18, 1971.
- F. J. Adrian, "Role of Diffusion-Controlled Reaction in Chemically Induced Nuclear-Spin Polarization II. General Theory and Comparison with Experiment," Gordon Conference on Magnetic Resonance, New Hampton, New Hampshire, June 17, 1971.
- R. M. Fristrom, "The Chemistry of Polymer Flames — Propagation and Suppression," *University of Utah*, Ogden, June 21, 1971.
- J. T. Massey, "Bioengineer—Definition, Role, and Performance in the Delivery of Health Care," *Annual Conference of the American Society of Engineering Education*, Annapolis, Maryland, June 23, 1971.
- H. S. Hopfield, "Tropospheric Range Error at the Zenith," *COSPAR Meeting*, Seattle, June 1971.

PUBLICATIONS

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

- K. Moorjani, C. Feldman, "Optical Constants of Amorphous Boron," in *Boron (Vol. 3), Preparation and Properties* (Proceedings of the International Symposium on Boron, Warsaw, 1968), 265-268, Warsaw, Poland: Polish Scientific Publishers, 1970.
- J. R. Kuttler, "Upper and Lower Bounds for Eigenvalues by Finite Differences," *Pacific J. Math.* **35**, No. 2, Nov. 1970, 429-440.
- W. H. Avery, R. A. Makofski, and R. C. Rand, "Advanced Urban Transportation Systems: An Overview," *Proceedings of the Carnegie-Mellon Conf. on Advanced-Urban Transportation Systems* May 25-27, 1970, Carnegie-Mellon University, Transportation Research Institute Research Report No. 5, 1971.
- W. H. Avery, R. A. Makofski, and R. C. Rand, "Advanced Urban Transportation Systems: An Overview," (condensation) *Urban and Social Change Rev.* **4**, No. 2, Spring 1971.
- R. W. Hart and R. A. Farrell, "Structural Theory of the Swelling Pressure of Corneal Stroma in Saline," *Bull. Math. Biophys.* **33**, No. 2, 1971, 165-186.
- C. Burton (JHU School of Medicine), M. Hill, and A. E. Walker (JHU School of Medicine), "The RF Thermoseed—A Thermally Self-Regulating Implant for the Production of Brain Lesions," *IEEE Trans. on Biomed. Engineering* **BME-18**, No. 2, Mar. 1971, 104-109.
- H. S. Hopfield, "Tropospheric Effect on Electromagnetically Measured Range: Prediction from Surface Weather Data," *Radio Sci.* **6**, No. 3, Mar. 1971, 357-367.
- R. E. Jenkins, "A Significant Satellite Relativity Experiment without an Atomic Oscillator," *Astronautica Acta* **16**, No. 3, Mar. 1971, 137-142.
- H. S. Pilloff, J. C. Kershenstein, W. J. Graham (Naval Res. Lab.), R. E. Walker (APL), "On the Effect of Molecular Chlorine on the CO₂ Laser," *IEEE J. Quantum Electronics* **QE-7**, No. 3, Mar. 1971, 134-135.
- Jeanne V. Von Schulz and R. R. Kepple, "Library Staff Newsletter: An Experiment in Communication," *Special Libraries* **62**, No. 3, Mar. 1971, 151-152.
- L. J. Gleeson (Monash Univ., Australia), S. M. Krimigis (APL), W. I. Axford (Univ. of Calif., San Diego), "Low-Energy Cosmic Rays Near Earth," *J. Geophys. Res.* **76**, No. 10, Apr. 1, 1971, 2228-2235.

PUBLICATIONS (continued)

- J. R. Kuttler, "A Fourth-Order Finite-Difference Approximation for the Fixed Membrane Eigenproblem," *Math. of Computation* **25**, No. 114, Apr. 1971, 237-256.
- E. P. Cunningham, "The Absolute Maximum Payoff in Differential Games and Optimal Control," *J. Optimization Theory and Applications* **7**, No. 4, Apr. 1971, 258-286.
- F. J. Adrian, "Role of Diffusion-Controlled Reaction in Chemically Induced Nuclear-Spin Polarization. II. General Theory and Comparison with Experiment," *J. Chem. Phys.* **54**, No. 9, May 1, 1971, 3912-3917.
- F. J. Adrian, "Theory of Anomalous Electron Spin Resonance Spectra of Free Radicals in Solution. Role of Diffusion-Controlled Separation and Reencounter of Radical Pairs," *J. Chem. Phys.* **54**, No. 9, May 1, 1971, 3918-3923.
- J. F. Walter and E. Marx (Drexel Univ.), "Relativistic Bound States and Cross-Sections," *Il Nuovo Cimento* **3B**, No. 1, May 11, 1971, 119-133.
- A. I. Mahan, C. V. Bitterli, and H. J. Unger, "Some Macroscopic Properties of Dielectric, Absorbing, and Active Cylinders," *J. Opt. Soc. Am.* **61**, No. 5, May 1971, 577-585.
- N. C. Nicholas, "Perturbation Calculations of Propagation Loss in the Deep Ocean," *J. Acoustical Soc. Am.* **49**, No. 5 (Part 2), May 1971, 1621-1628.
- M. L. Dworkin, A. J. Zmuda, and W. E. Radford, "Hydromagnetic Waves at 6.25 Earth Radii with Periods between 3 and 240 Seconds," *J. Geophys. Res.* **76**, No. 16, June 1, 1971, 3668-3674.
- R. W. Flower, "A Technique for Fixation of Chronically Implanted Catheters in Cats and Dogs," *J. Appl. Physiology* **30**, No. 6, June 1971, 912-913.
- F. S. Billig, R. C. Orth, and M. Lasky, "A Unified Analysis of Gaseous Jet Penetration," *AIAA J.* **9**, No. 6, June 1971, 1048-1058.

BOOKS

- R. R. Newton, *Ancient Astronomical Observations and the Accelerations of the Earth and Moon*, The Johns Hopkins Press, Baltimore, Maryland, 1970.
- R. A. Dickmann, *Personnel Implications for Business Data Processing*, John Wiley and Sons, Inc., New York, 1971.

HONORS AND AWARDS

T. J. Keen, Assistant to the Director of the Applied Physics Laboratory has been named to serve on the Editorial Advisory Board of *The Johns Hopkins Magazine*.

T. Wyatt, a Project Engineer in the Space Development Department, has been presented the Navy Commendation Medal by the Secretary of the Navy for meritorious service as Commanding Officer, Staff Group (Aviation)-27, Fourth Marine Aircraft Wing, Marine Air Reserve Training Command, from October 1967 to October 1970.

A. I. Mahan, a member of the staff of the Research Center and Treasurer of the Optical Society of America, has been named a member of the Executive Committee of The American Institute of Physics.

- In a recent contest held by the Washington, D.C., Chapter of the Society of Technical Writers and Publishers, APL publications won awards in four of six categories. The entries, which were submitted by government agencies and independent organizations throughout the Washington area, were judged on the basis of (a) writing quality, (b) content, (c) editing, (d) graphics, and (e) effective integration of all elements. Awards were presented at a dinner on June 15, 1971.

An Award of Distinction, for House Organs, was presented for the January-February 1970, *APL Technical Digest* (S. N. Foner, Chairman of the Editorial Board; P. E. Clark, Managing Editor; J. H. Hartle, Illustrator). A second Award of Distinction, for Technical Journal Articles, was presented for "An

Integrated Urban-Interurban Transportation Concept" by W. H. Avery; editor, Gertrude McMurray. An Award of Merit, in the Technical Brochure category, was presented for "Data Processing Laboratory," authored by E. R. Bernheisel and designed by W. C. Lucinski. In the Technical Reports division, "Parallel Shear Flows Over Cavities" by Vivian O'Brien and edited by A. Brogdon, received an Honorable Mention.

C. E. Wilson has been named to the Technical Advisory Committee of the Air Force Defense Suppression Program. The purpose of the committee is to provide high-level technical advice on guidance sensor technology to the Air Force Armament Laboratory.

COLLOQUIA ON FIRE PROBLEMS

Fourteen Colloquia on Fire Problems, supported by the National Science Foundation, were held at APL during the Fall and Winter of 1970 and the Spring of 1971. The objectives of the Colloquia were: (a) to acquaint the APL Fire Problems Group with recent important developments in the fire sciences, (b) to bring together a mixed fire scientist—fire practitioner audience to provide a forum for discussion of specific problems, and (c) to make these discussions available, by means of audio and video tapes, to a larger audience than could attend in person. Following is a list of the Fire Colloquia topics and speakers.

- "Formation of Carbon and Soot in Flames," by H. Homann (Göttingen University).
- "Fire Behavior of Polymers," by C. P. Fenimore (General Electric Research and Development Center).
- "Studies of the Operations of the New York City Fire Department," by E. H. Blum (The New York City Rand Institute).
- "Fire-Related Medical Problems," by C. W. Walter (Peter Bent Brigham Hospital—Harvard University).
- "Scaling and Modeling of Fires for Practical Applications," by R. Friedman (Factory Mutual Research Corporation).
- "A Problem in Fire Safety: Flame Spreading Across Liquid Fuels," by I. Glassman (Princeton University).
- "Fire Hazards of Natural Gas Spillage in Marine Transportation," by D. Burgess (U.S. Bureau of Mines).
- "Federal Responsibilities in Flammable Fabrics—Research and Standards," by J. E. Clark (U.S. National Bureau of Standards).
- "Philosophy and Principles of Fire Detection," by R. Wilson (Firepro, Incorporated).
- "Recent Developments in Fire Research in the United Kingdom," by D. Lawson (Fire Research Station, Boreham Wood, England).
- "The Smoke Inhalation Problem," by D. M. Thomas (Louisville General Hospital).
- "The Future of Automatic Fire Protection," by G. J. Grabowski (Fenwal, Incorporated).
1. "Fire-Prone Building Designs," and
 2. "Fire Science Education Programs," by F. L. Brannigan (Montgomery College).
- "A Systems Analysis of the Energy Environment in Buildings," by H. E. Nelson (General Services Administration).

Audio tapes are available for all of the lectures and video tapes are available for about half of them. Both kinds of tape will be furnished without charge to those interested provided that *blank* tapes are supplied by the user for transcription purposes. Requests for tapes or more information should be addressed to:

Dr. W. G. Berl
Applied Physics Laboratory
The Johns Hopkins University
8621 Georgia Ave.
Silver Spring, Maryland 20910

PATENTS

- C. F. Andren—*Step Width Regulated DC/DC Converter*, Patent No. 3,571,692.
- T. Thompson—*Automatic Exposure Control for a Slow Scan Vidicon*, Patent No. 3,576,393.

- E. J. Hoffman—*Low Standby Power Monostable Multivibrator Having Non-Critical Cutoff*, Patent No. 3,577,013.
- R. T. Cusick, E. A. Bunt—*Inductive Energizing Circuit for Arc Plasma Generator*, Patent No. 3,577,030.
- E. J. Hoffman—*Zener Diode Reference Circuit Independent of Input Voltage Changes*, Patent No. 3,577,062.
- V. L. Pisacane—*Rotor for Satellite Stabilization*, Patent No. 3,582,019.
- E. F. Prozeller—*Latching Threshold Detector*, Patent No. 3,582,665.

APL COLLOQUIA

- March 12—"Drug Abuse Policy," by M. Singer, Hudson Institute.
- March 22—"A Survey of Soviet Spacecraft," by A. M. Letov, Institute for Control Problems, U.S.S.R.
- March 26—"Elementary Particles: Speculation and Fantasy," by L. M. Lederman, Columbia University.
- April 2—"Acute Leukemia: Investigative Challenges," by A. H. Owens, Jr., The Johns Hopkins Medical School.
- April 9—"Toward a Steady World," by A. F. Spilhaus, American Association for the Advancement of Science and Smithsonian Institution.
- April 16—"X-Ray Astronomical Observations from SAS-A," by H. Gursky, American Science and Engineering, Inc.
- April 30—"Priorities for Space Research in the 1970's," by G. F. Pieper, Goddard Space Flight Center.
- May 7—"Social Physics of Experimental Animal Populations," by J. B. Calhoun and L. Olson, National Institute of Mental Health.
- May 14—"The Superflywheel," by D. W. Rabenhorst, Applied Physics Laboratory.
- May 21—"Why We Talk to Ourselves When We Read," by R. Conrad, Medical Research Council (Great Britain).

WITH THE AUTHORS



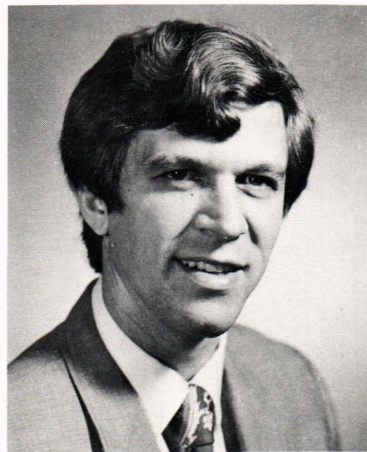
H. B. Riblet, the author of "The Small Astronomy Satellite Program—An Overview," is an earlier contributor to the *Digest*, having been the author of "Orchids and Photography," in the May-June 1968 issue. A native of New Mexico, Mr. Riblet received the B. A. degree in physics from Friends University in Kansas and has done graduate work at The Johns Hopkins University. Prior to joining APL in 1949, he was a radio broadcasting engineer, a radio engineering consultant to Glenn D. Gillette and Associates, and an electronic engineer with Columbia University O.S.R.D. Laboratories. Soon after joining APL, Mr. Riblet was appointed Supervisor of the Telemetering and Instrumentation Group and was in charge of telemetering systems used in the development of the Terrier and Talos missiles. In 1958 this Group became directly involved in space development and designed antennas and telemetering systems for the early Transit and Navigation Satellites. Since 1964 Mr. Riblet has been Supervisor of the Space Data and Control Branch of the Space Development Department, and is the Project Engineer for the Small Astronomy Satellite Program. He is a member of the Institute of Electrical and Electronics Engineers.

M. R. Peterson, co-author of "The SAS-A Telemetry System," is a native of Kansas and holds both the B.S. and M.S. degrees in electrical

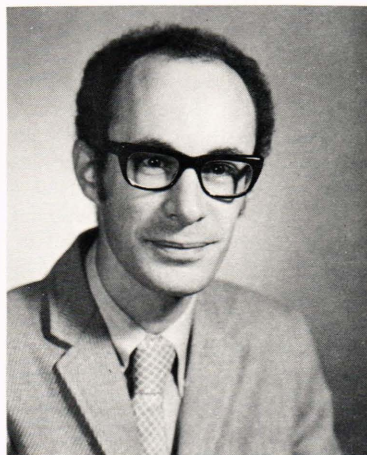


engineering; the former was received from Kansas State University, and the latter was granted by The Johns Hopkins University. Mr. Peterson joined APL in 1961 to work in the Polaris Program, but left in 1962 to accept employment with the Texas Instruments Co. in Dallas. He returned to APL in 1964 as an engineer in the Space Telecommunications Group of the Space Development Department, where he has been involved with telemetry data instrumentation and overall telemetry system design for near-earth satellites. A specialist in digital logic design, digital and analog circuit design, and PCM and analog telemetry circuit design, Mr. Peterson has been Project Supervisor of the Data System Design Project of the Space Telecommunications Group since 1969.

D. L. Zitterkopf, co-author of the article "The SAS-A Telemetry System," was born in Kansas and received the B. S. degree in electrical engineering from Kansas State University. He also received the M.S.E.E. degree from The Johns Hopkins University. A specialist in field operations, systems engineering, telecommunications systems, and circuit design, Mr. Zitterkopf was employed by APL in 1962 in the Space Division. Since 1966 he has been a member of the staff of the Space Telecommunications Group. From 1967 to 1970 he was Assistant



Project Engineer for the Small Astronomy Satellite. Since 1970 he has been on special staff assignments for the Group including assignment as electronic engineer for the Skylab Experiment M131 (Rotating Litter Chair) being developed by APL for the NASA Manned Spacecraft Center.



E. J. Hoffman, co-author of the article "A Fully Redundant Command System for the SAS-A Satellite," is a native of Baltimore. He received the B.S. and M.S. degrees in electrical engineering, the former from the Massachusetts Institute of Technology, and the latter from Rice University. He was employed by APL in 1964 where he is a specialist in space communication and command, circuit design, digital communications, and computer-aided design. Mr. Hoffman is Project Supervisor of the Communications Systems Analysis Project of the

WITH THE AUTHORS *(continued)*

Space Telecommunications Group and is a member of the Institute of Electrical and Electronics Engineers.



A. L. Lew, co-author of the article titled "A Fully Redundant Command System for the SAS-A Satellite," was born in Canton, China. He received the B.S.E.E. degree from Case Institute of Technology and the M.S.E. degree from The Johns Hopkins University. Mr. Lew was employed in 1963 in the APL Space Telecommunications Group. A specialist in digital electronics and spacecraft command systems, he has worked on the design and checkout of DME-A and GEOS-A hardware; design and checkout of GEOS-B hardware and SAS-A command logic; design of an Integrated Circuit Command System for second generation Navigation Satellites; and design of the TRIAD command system.

F. F. Mobley, co-author of "The Attitude Control and Determination Systems of the SAS-A Satellite," was born in Atlanta, Georgia. He received the B.S. and M.S. degrees in aeronautical engineering, the former from the University of Illinois, and the latter from the Massachusetts Institute of Technology. A specialist in aerodynamics, aeroelasticity, configuration design, and wind-tunnel testing and data analysis, Mr. Mobley was employed by APL in 1955. For several years he worked in the Preliminary Design Group on such

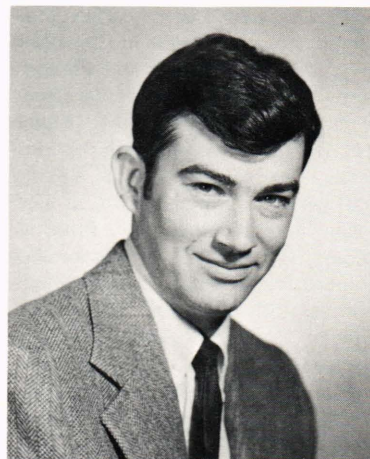


tasks as the aerodynamic development of long-range missile boost configurations, anti-ICBM studies, and the use of infrared and acoustic techniques for submarine air defense. In 1962 he transferred to the Space Development Department where he worked on gravity and magnetic stabilization of satellites. Since 1967 he has been Supervisor of the Attitude Control and Detection Project of the Space Power and Attitude Control Systems Group. Mr. Mobley is a member of the Institute of Electrical and Electronics Engineers.



B. E. Tossman, co-author of "The Attitude Control and Determination Systems of the SAS-A Satellite," is an earlier contributor to the *Digest*, having been the author of "Resonance Technique for Measuring Satel-

lite Dipole Moment," in the September-October 1967 issue. A native of Baltimore, Mr. Tossman holds B. S. and M. S. degrees in mechanical engineering from the University of Maryland. A specialist in spacecraft attitude control systems, Mr. Tossman joined the Laboratory in 1961. His first assignments, in the Satellite Systems Engineering Group, involved structural vibration and stress analysis, design of shock mounts for spacecraft components, and despin and separation dynamic analysis. He was instrumental in implementing the analysis of satellite stabilization with hysteresis damping by using hybrid computer simulation. Mr. Tossman is currently concerned with design and analysis of attitude control systems of APL spacecraft including gravity-gradient and closed-loop control systems.



G. H. Fountain, co-author of "The Attitude Control and Determination Systems of the SAS-A Satellite," is a native of Kansas, and received both the B.S.E.E. and M.S.E.E. degrees from Kansas State University. He joined APL in June 1966 and worked briefly on digital simulation of control systems in the Missile Control Systems Group. Since December 1966 he has been a member of the Space Power and Attitude Control Systems Group. A specialist in spacecraft electronics, Mr. Fountain has recently been working on various facets of spacecraft attitude control and detection problems, including the development of the momentum wheel for SAS-A.