

ranged for the students, who will then analyze the results from telemetry records.

**FELLOWSHIP PROGRAMS**—Dr. C. K. Jen, Vice-Chairman of the APL Research Center, was invited to be the first recipient of the William S. Parsons Visiting Professorship at the University and Dr. W. G. Spohn was awarded the William S. Parsons Fellowship. Both appointments are for the 1966-67 academic year.

Three graduate students in the Department of Electrical Engineering of the University are working toward the Ph. D. degree on APL Fellowships. Two additional graduate students have been awarded Fellowships to start in September.

### Administrative Operations

**ORGANIZATIONAL CHANGES** — A number of changes in the adminis-

trative organization of the Laboratory were made following the untimely death of Mr. J. A. Slingluff, Administrative Manager of the Laboratory since 1950 and a valued member of the staff since 1947. The Purchasing Group was incorporated into a new Procurement Branch which now includes both the Contracts and Purchasing Groups under the supervision of Mr. C. J. Smith. Functions of a personnel nature formerly performed by the Administrative Manager were transferred to Dr. H. C. Anderson, Supervisor of the Personnel and Education Group, and Dr. Anderson was designated Director of Personnel and Education for the Laboratory. An Administrative Services Division was established under Mr. D. R. Marzetta who was appointed Manager of the Division. This Division includes the Plant Engineering, Office Services, and Secu-

rity Groups and the Laboratory's Safety, Fire, Medical, and Civil Defense programs as well as a number of other service functions.

**BUILDING PROGRAM**—As a result of an increasingly critical need for additional laboratory and office space, the University Trustees have authorized the Laboratory to construct an additional building at the Howard County location of some 100,000 gross square feet and generally similar in design to the major laboratory and office building completed in 1963. This building will permit the Laboratory to give up rented space in Silver Spring, remove people from marginal space now being utilized at Howard County, and relieve current overcrowding in a number of areas.

R. E. GIBSON  
Director

## ADDRESSES

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

- F. F. Hiltz, "An Analog Device for the Detection of Intracellular Neuronal Events," *20th Annual Conference on Engineering in Medicine and Biology*, San Francisco, Calif., Nov. 13-16, 1966.
- F. F. Hiltz (APL) and R. E. Burke (NIH), "Statistical Properties of Miniature Synoptic Potentials During Muscle Stretch," *20th Annual Conference on Engineering in Medicine and Biology*, San Francisco, Calif., Nov. 13-16, 1966.
- R. A. Dickmann, "A 1966 Survey of Test Use in Computer Personnel Selection and Its Implications," *Diebold Research Program—Europe*, Amsterdam, Netherlands, Nov. 22-24, 1966.
- I. Katz, "Probing the Clear Atmosphere with Radar," *Electrical Engineering Department Seminar, The Johns Hopkins University*, Baltimore, Md., Jan. 10, 1967.
- T. G. Konrad, "Probing the Clear Atmosphere with Radar," *Electrical Engineering Department Seminars, University of Colorado*, Boulder, Colo., Jan. 12, 1967, and *University of Wyoming*, Laramie, Wyo., Jan. 13, 1967.
- R. C. Orth and J. A. Funk, "An Experimental and Comparative Study of Jet Penetration in Supersonic Flow," *AIAA Fifth Aerospace Sciences Meeting*, New York, N.Y., Jan. 23-25, 1967.
- R. M. Fristrom, "Molecular Beams—A Tool for Chemical Studies," *Aerospace Corporation Seminar*, El Segundo, Calif., Jan. 26, 1967.
- L. E. Bowen, "Satellite Geodesy," *Ancient Order of Hibernians, Emerald Isle Division*, Washington, D.C., Jan. 27, 1967.
- R. M. Fristrom, "The Structure and Chemistry of Flames," *Department of Mechanics Seminar, University of California*, Berkeley, Calif., Jan. 31, 1967.
- C. F. Noyes, "Packaging the Navy's Navigational Satellite Memory," *National Electronic Packaging and Production Conference*, Long Beach, Calif., Jan. 31-Feb. 2, 1967.
- D. W. Fox, "Error Bounds for Approximations to Expectation Values of Unbounded Operators," *Mathematics Colloquium, Georgetown University*, Washington, D.C., Feb. 3, 1967.
- A. I. Mahan, "A Macroscopic Approach to Stimulated Emission," *Engineering Department, Catholic University*, Washington, D.C., Feb. 7, 1967.
- C. K. Jen, L. C. Aamodt, and A. H. Piksis, "Changes Induced in the Phosphorescent Radiation of Aromatic Molecules by Paramagnetic Resonance in their Metastable Triplet States," *International Symposium on the Triplet State*, Beirut, Lebanon, Feb. 15, 1967.
- J. J. Hicks, "Clear Air Turbulence," *Department of Space Science and Applied Physics, Catholic University*, Washington, D.C., Feb. 16, 1967.
- H. D. Black, "The Attitude of a Satellite," *Heat Transfer Division Meeting, ASME*, Washington, D.C., Feb. 23, 1967.

## PUBLICATIONS

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

- T. O. Poehler and D. Abraham, "Electroabsorption in CdSe Films," *Phys. Letters*, **23**, No. 9, Nov. 28, 1966, 523-524.
- W. H. Guier, "Satellite Navigation Using Integral Doppler Data—The AN/SRN-9 Equipment," *J. Geophys. Research*, **71**, No. 24, Dec. 15, 1966, 5903-5910.
- D. K. Anand (APL) and L. DePian (George Washington University), "Scattering Matrix Parameters for Thermal Transducers," *Proc. IEEE*, **54**, No. 12, Dec. 1966, 1999-2000.
- R. W. Hart, R. A. Farrell, and R. H. Cantrell, "Theoretical Study of a Solid Propellant Having a Heterogeneous Surface Reaction I—Acoustic Response, Low and Intermediate Frequencies," *Combustion and Flame*, **10**, No. 4, Dec. 1966, 367-380.
- E. A. Bunt, R. T. Cusick, L. W. Bennett, and H. L. Olsen, "Design and Operation of the Battery Power Supply of a Hypersonic-Propulsion Facility," *Proc. IEEE*, **113**, No. 12, Dec. 1966, 2107-2113.
- R. M. Fristrom and A. A. Westenberg, "Molecular Transport Properties for Flame Studies," *Fire Research Abstracts and Reviews*, **8**, No. 3, 1966, 155-183.
- A. A. Westenberg and N. deHaas, "Atom-Molecule Kinetics at High Temperature Using ESR Detection—Technique and Results for O + H<sub>2</sub>, O + CH<sub>4</sub>, and O + C<sub>2</sub>H<sub>6</sub>," *J. Chem. Phys.*, **46**, No. 2, Jan. 15, 1967, 490-501.
- B. W. Kuvshinoff, "A Graphic Graphics Card Catalog and Computer Index," *American Documentation*, **18**, No. 1, Jan. 1967, 3-9.
- J. C. Murphy and J. Bohandy, "Electron Spin Resonance of Cu<sup>2+</sup> in Strontium Tartrate," *J. Chem. Phys.*, **46**, No. 3, Feb. 1, 1967, 1215-1216.
- A. J. Zmuda, F. T. Heuring, and J. H. Martin, "Dayside Magnetic Disturbances at 1100 km in the Auroral Oval," *J. Geophys. Research*, **72**, No. 3, Feb. 1, 1967, 1115-1117.

## AWARDS AND APPOINTMENTS

M. L. Hill, Project Supervisor in the Bumblebee Flight Research Group, received international honors for his contributions to aeromodeling. He is one of three recipients this year to receive the Paul Tissandier Diploma awarded by the Federation Aeronautique Internationale in Paris. Next to the FAI gold medals for air and space achievement, this is the FAI's highest individual award, and the first Diploma awarded to an American since 1961.

R. R. Newton, Supervisor of the Space Research and Analysis Branch, was appointed a member of the Astrodynamics Committee on Orbital Constants and Definitions of the American Institute of Aeronautics and Astronautics.

L. L. Cronvich, Supervisor of the Bumblebee Aerodynamics Group, was appointed a member of the American Institute of Aeronautics and Astronautics Committee on Atmospheric Flight Mechanics for 1967.

A. A. Westenberg, Supervisor of the Chemical Physics Group in the Research Center, and R. M. Fristrom, a member of that group, were awarded the Hillebrand Award for 1966 by the Chemical Society of Washington. Their citation read in part ". . . for brilliant experimental investigations and interpretations of high temperature processes that have given new insights into elementary reactions and the chemistry and physics of flames."

R. A. Dickmann, Project Supervisor in the Personnel and Education Group, was elected Chairman of the Special Interest Group for Computer Personnel Research of the Association for Computer Machinery.

## COLLOQUIA

Jan. 13—"Factors in the Performance of R & D Projects," by I. M.

Rubin, Massachusetts Institute of Technology.

Jan. 20—"Effects of Electric Shock on the Human Body," by W. B. Kouwenhoven, The Johns Hopkins University.

Feb. 24—"Government Patent Policy—Yesterday, Today, and Tomorrow," by H. I. Forman, Rohm & Haas Company.

## PATENTS

I. H. Schroader, M. E. Hosea, and I. R. Hunter—*Launcher and Capture Computer*, Patent No. 3,295,794.

J. F. Smola and D. I. Moss—*Torsion Spring Hinge Mechanism*, Patent No. 3,295,809.

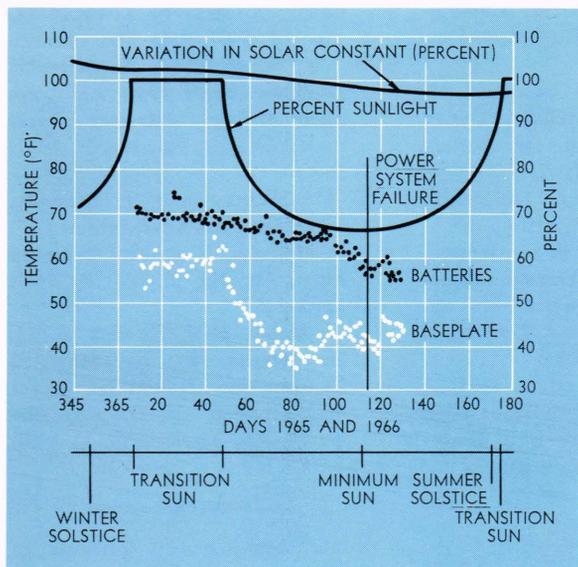
J. A. Perschy—*Bi-Directional Current Steering Switch*, Patent No. 3,296,604.

R. H. Lapp—*Torsionally Decoupled Antenna Support*, Patent No. 3,296,621.

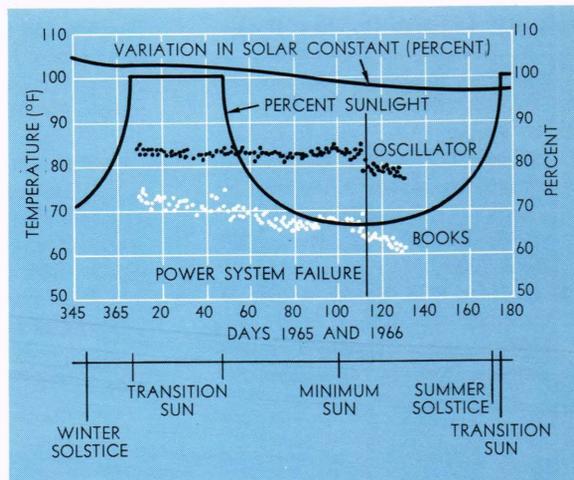
K. F. Read, J. B. Oakes, P. E. P. White, and T. Wyatt—*Oscillator Oven*, Patent No. 3,299,300.

## CORRECTION

Because a printing error occurred in Figs. 6 and 7 of the article on "Thermal Design of Current Navigational Satellites" by S. E. Willis, Jr. on page 25 of the November-December 1966 issue (Vol. 6 No. 2), we are reprinting these two illustrations in their corrected form.



**Fig. 6—Orbital temperatures for baseplate and batteries.**



**Fig. 7—Orbital temperatures for oscillator and books.**

## WITH THE AUTHORS

*R. A. Makofski*, co-author of "Considerations in the Design and Performance of Hypersonic Gun Tunnels," is an earlier contributor to the *Digest*, having authored "The Helium Hypersonic Wind Tunnel" in the May-June 1963 issue. A native of Newport Township, Pennsylvania, he received a B.S. degree in aeronautical engineering from Pennsylvania State University in 1952 and an M.S. degree in the same field from the University of Virginia in 1956. Mr. Makofski is continuing his studies leading to a Ph.D. degree at The Johns Hopkins University. Mr. Makofski joined the Laboratory in 1957 as a specialist in internal fluid mechanics, viscous fluids, rarefied gas dynamics, and hypersonic flow. He is a Project Supervisor in the Fluid Mechanics



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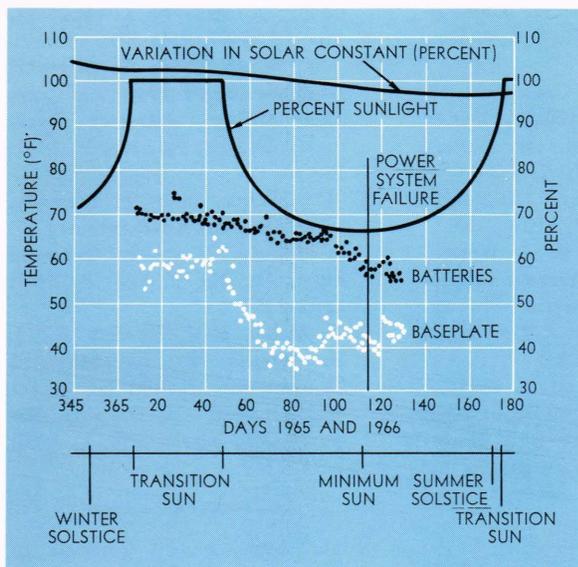
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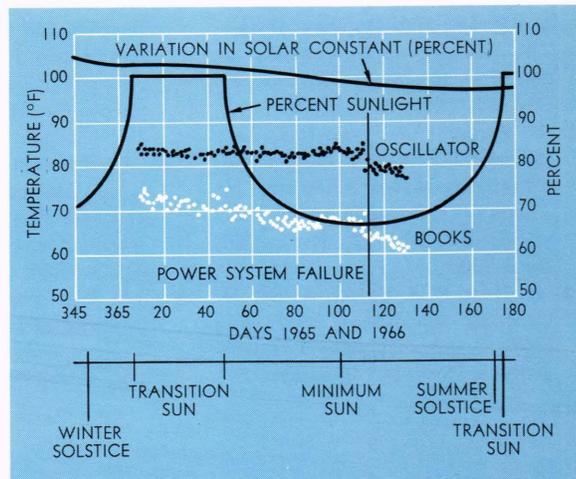
*R. W. Henderson*, co-author of "Considerations in the Design and Performance of Hypersonic Gun Tunnels," was born in Elizabeth, New Jersey. He attended the University of Maine where he earned a B.S. degree in engineering and physics in 1948. Prior to his association with APL in 1959, Mr. Henderson was an engineer on the Materials Advisory Board of the National Academy of Sciences in Washington, D.C. As a member of the Technical Facilities

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## WITH THE AUTHORS *(continued)*



Group at the Laboratory he was engaged in planning for test and evaluation facilities and the coordination of design, construction, and modification of such facilities. Mr. Henderson is presently a member of the

Fluid Mechanics Group of the Aeronautics Division and is conducting gun tunnel investigations of hypersonic ramjet inlet performance.



*R. C. Moore*, author of "Computer-Aided Layout of Ministick Artwork," was born in Lancaster, Pennsylvania, and received a B.S. degree in electrical engineering in 1965 from Lafayette College. Mr. Moore is presently working toward an M.S. degree at The Johns Hopkins University. A specialist in electronic circuit design and packaging for satellite memory systems, Mr. Moore is currently assigned to the Space Digital Systems Group where he is engaged in the computer analysis of reliability of large core memories. Other assignments at the Laboratory



have included work on a core memory for a back-pack translocation receiver, and computer analysis of reliability and mean time to failure of active redundant electronic systems.