derived knowledge—from simpler experimental models being used as stepping stones to the more sophisticated. The continuing scrutiny of technical objectives in the light of real, rather than imagined, operational requirements by the user has been an important feature of the user-developer partnership in making realistic the policy of progressive improvements.

By synthesizing these unwritten practices and policies which run like dominant threads through the tapestry of APL's history, we can catch a glimpse of the philosophy that has guided its growth. Perhaps the term "Pragmatic Humanism" best epitomizes what APL is all about.

PUBLICATIONS

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

R. J. Bartlett (The Johns Hopkins Univ.) and D. M. Silver (APL), "Many-Body Perturbation Theory Applied to Electron Pair Correlation Energies. II. Closed-Shell Second-Row Diatomic Hydrides," *J. Chem. Phys.* **64**, No. 11, June 1976, 4578.

R. A. Farrell and R. L. McCally, "On Corneal Transparency and Its Loss with Swelling," *J. Opt. Soc. Am.* **66**, No. 4, Apr. 1976, 342.

M. H. Friedman, "Self-Consistent Analysis of Arterial Uptake of Cholesterol from Perfusing Serum," *Circulation Res.* **38**, No. 3, Mar. 1976, 215.

S. K. Ghatak (CNRS, Grenoble) and K. Moorjani (APL), "Spin Glasses: Beyond the Molecular Field Approximation," *J. Phys. C: Solid State Physics* **9**, June 1976, L293.

E. J. Hoffman, R. C. Moore, and T. L. McGovern, "Designing a Magnetic Bubble Data Recorder. Part 2—The System Level," *Computer Design*, Mar./Apr. 1976, 99.

T. Iijima and T. A. Potemra, "The Amplitude Distribution of Field-Aligned Currents at Northern High Latitudes Observed by Triad: *J. Geophys. Res.* **81**, No. 13, May 1976, 2165.

E. P. Keath, E. C. Roelof, C. O. Bostrom (APL) and D. J. Williams (NOAA, Boulder), "Fluxes of $\geq$ 50 keV Protons and $\geq$ 30 keV Electrons at $\sim$ 35 R_e. 2. Morphology and Flow Patterns in the Magnetotail," *J. Geophys. Res.* **81**, No. 13, May 1976, 2315.

K. Moorjani (APL) and S. K. Ghatak (CNRS, Grenoble), "Bethe-Peierls-Weiss Approximation in Disordered Ferromagnets," *AIP Conf. Proc.* **29**, May 1976, 152.

V. O'Brien, L. W. Ehrlich, and M. H. Friedman, "Unsteady Flow in a Branch," *Fluid Mechanics* **75**, Part 2, May 1976, 315.

J. G. Parker, "Laser Radiation Reduces Coliform Counts in Water," *Water & Sewage Works* **123**, No. 5, May 1976, 52.

J. D. Randall, "Finite Difference Solution of the Inverse Heat Conduction Problem and Ablation," *Proceedings of the 1976 Heat Transfer & Fluid Mechanics Institute*, Stanford University Press, 1976.

E. C. Roelof, E. P. Keath, and C. O. Bostrom (APL) and D. J. Williams (NOAA, Boulder), "Fluxes of $\geq$ 50 keV Protons and $\geq$ 30 keV Electrons at $\sim$ 35 R_e. 1. Velocity Anisotropies and Plasma Flow in the Magnetotail," *J. Geophys. Res.* **81**, No. 13, May 1976, 2304.

J. R. Rowland, "Clean Air Convective Behavior Revealed by Radar Chaff," *J. Appl. Meteorol.* **15**, No. 5, May 1976, 521.

E. T. Sarris and S. M. Krimigis (APL) and T. P. Armstrong (Univ. of Kansas), "Observations of Magnetospheric Bursts of High Energy Protons and Electrons at $\sim$ 35 R_e with IMP-7," *J. Geophys. Res.* **81**, No. 13, May 1976, 2341.

V. G. Sigillito, "A Priori Inequalities and the Dirichlet Problem for a Pseudo-Paraboloid Equation," *SIAM J. Math. Anal.* **7**, No. 2, Apr. 1976, 222.

V. G. Sigillito, "A Priori Inequalities and Approximate Solution of the First Boundary Value Problem for $\Delta^2 u = f$," *SIAM J. Num. Anal.* **13**, No. 2, Apr. 1976, 251.

M. Sugiura (Goddard Space Flight Center) and T. A. Potemra (APL), "Net Field-Aligned Currents Observed by TRIAD," *J. Geophys. Res.* **81**, No. 13, May 1976, 2155.

PATENTS

J. L. Abita, J. G. Bebee—*Method for Resist Coating of a Glass Substrate*, No. 3,951,659

C. T. Pardoe—*Telemetry Synchronizer*, No. 3,953,674

D. W. Rabenhorst—*Multi-Ring Filament Rotor*, No. 3,964,341

HONORS AND AWARDS

Dr. Vivian O'Brien, a Research Center physicist, has been elected a Fellow of the American Physical Society.

Russell A. Rollin, senior staff engineer in F4D group, was the general chairman of the 14th Symposium on Infrared Countermeasures held at the Naval Surface Weapons Center White Oak Laboratory on May 26–27, 1976.

Mary Schaefer, Space Department Senior Editor, has been named a Fellow of the Society for Technical Communications, of which she is a past president.

ADDRESSES

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

F. J. Adrian, "Chemically Induced Magnetic Polarization: A Record of a Rapid Free Radical Reaction," *Brown University Chemistry Seminar*, Providence, May 7, 1976.

L. Monchick, Ion Swarm Symposium Panel Discussion, *Annual Meeting of the American Physical Society*, Washington, DC, April 18, 1976.

D. W. Stowe, "A Technique for Signal Generation and Electronic Beamsteering of a Parametric Sonar," *91st Meeting of the Acoustical Society of America*, Washington, DC, April 5–9, 1976.

The following papers were presented at the *Spring Meeting of the American Geophysical Union*, Washington, DC, April 21–26, 1976:

J. P. Doering and W. K. Peterson (The Johns Hopkins Univ.) and C. O. Bostrom and T. A. Potemra (APL), "New High Energy Resolution Measurements of the Daytime Photoelectron Energy Spectrum from Atmosphere Explorer-E;"

R. E. Gold, S. M. Krimigis, and E. C. Roelof, "The Predominance of Spatial Structure in Low Energy Particle Events 1972–1974;"

T. Iijima and T. A. Potemra, "Large Scale Characteristics of Field-Aligned Currents Associated with Substorms;"

E. P. Keath, T. Iijima, and E. C. Roelof, "Association of High Intensity Bursts of ~ 50 keV Protons and Electrons in the Dusk Plasmasheet Near 35 R_e with Substorm Intensification of the Westward Auroral Electrojet;"

J. W. Kohl and S. M. Krimigis (APL), T. P. Armstrong (Univ. of Kansas), and R. Lepping (Goddard Space Flight Center), "A Magnetosheath Burst of Predominantly Medium Nuclei Observed with Explorer 50;"

S. M. Krimigis, "Solar Energetic Particle Composition and Solar Abundances: What is the Connection?;"

V. L. Patel, R. J. Greaves, and S. A. Wahab (Univ. of Denver) and T. A. Potemra (APL), "Correlated Micropulsation Events in the Magnetosphere and Surface Observations;"

W. K. Peterson (The Johns Hopkins Univ.), and J. P. Doering, T. A. Potemra, and C. O. Bostrom (APL), "Observations of Low Energy (0–500 eV) Electrons in the Polar Region from AE-D;"

T. A. Potemra and C. O. Bostrom (APL), and J. P. Doering and W. K. Peterson (The Johns Hopkins Univ.), "Weak Acceleration Processes in the Auroral Ionosphere Inferred from AE-C Low Energy (0–500 eV) Electron Observations;"

E. C. Roelof, R. E. Gold, and S. M. Krimigis (APL) and P. S. McIntosh (NOAA, Boulder), "Association of a Nearly Identical Recurrent Event of ~ 1 MeV He Nuclei with Coronal Magnetic Structure Over 5 Solar Rotations;"

E. T. Sarris and C. O. Bostrom (APL) and T. Aggson (Goddard Space Flight Center), "Evidence on the Acceleration of Energetic Protons by Sporadic DC Electric Fields in the Plasma Sheet;"

M. Sugiura (Goddard Space Flight Center), and T. Iijima and T. A. Potemra (APL), "Characteristics of Field-Aligned Currents as Determined from the TRIAD Magnetometer Observations."

The following papers were presented at the *International Symposium on Solar-Terrestrial Physics*, Boulder, CO, June 7–18, 1976:

R. E. Gold, B. L. Gotwols, S. M. Krimigis, and E. C. Roelof, "Relationship Between Jovian Electron Events and Solar Wind Streams at 1.0 and 4.5 AU;"

R. E. Gold, S. M. Krimigis, and E. C. Roelof, "Energy Rigidity and Charge Independent Solar Particle Events 1972–1974;"

B. L. Gotwols, R. E. Gold, D. G. Mitchell, and E. C. Roelof (APL), and W. M. Cronyn, F. T. Erskine, and S. D. Shawhan (Univ. of Iowa), "Interplanetary Radio Scintillation Spectra Observed at 34.3 MHz and Turbulence in the Solar Wind;"

S. M. Krimigis and E. T. Sarris (APL), and T. P. Armstrong (Univ. of Kansas), "Evidence for Closed Magnetic Loop Structures in the Interplanetary Medium;"

W. K. Peterson and J. P. Doering (The Johns Hopkins Univ.), and T. A. Potemra and C. O. Bostrom (APL), "Observation of Low Energy (0–500 eV) Electrons in the Polar Region from AE-C and AE-D: Identification of the Dayside Cusp;"

T. A. Potemra and T. Iijima, "Characteristics of Large Scale Field-Aligned Currents: Possible Source Mechanisms;"

E. T. Sarris, S. M. Krimigis, T. Iijima, and C. O. Bostrom (APL), and T. P. Armstrong (Univ. of Kansas), "Location and Characteristics of Magnetospheric Energetic Particle Bursts in the Vicinity of the Neutral Sheet by Multispacecraft Observations."

APL COLLOQUIA

Apr. 2—"Cutting with High-Speed Water Jets," by John H. Olsen, Flow Research, Inc.

Apr. 9—"Linguistic Models in Second Language Instruction," by Paul F. Bosco, Georgetown Univ.

Apr. 16—"Applications of Raman Scattering to Remote Sensing," by John Cooney, Drexel Univ.

Apr. 25—"Energy Conservation in the Home," by David T. Harrje, Princeton Univ.

Apr. 30—"Nuclear Proliferation Problems from the Political Point of View," by Paul L. Leventhal, Senate Government Operations Committee

May 7—"New Particles," by Leon Madansky, The Johns Hopkins Univ.

May 14—"Black Holes and Spacetime Curvature," by Charles W. Misner, Univ. of Maryland