documented the convective development with Range Height Indicator and Plan Position Indicator photographs. These data are then correlated and compared with the meteorological measurements.

Conclusions

The feasibility and usefulness of a small, radio-controlled aircraft as a platform for meteorological sensing equipment has been demonstrated. The system is simple and relatively inexpensive, using commercially available radio-control components. Being controllable and recoverable, it can make repeated fine-time-scale soundings or sample the atmospheric properties at constant altitude in selected, remote locations, for extended periods of time. The platform is quite versatile and should be useful in a wide variety of meteorological studies where current platforms are limited or inappropriate.

The operating volume is limited by winds and optical problems more than by performance of the aircraft and control systems. Experience with the system has shown that the aircraft can be controlled using the unaided eye up to about 4000 feet. Above this altitude some simple optical assistance is necessary. Although the present aircraft has been successfully launched and flown in high winds, control of the aircraft under these conditions is difficult and should be avoided. The system described was developed for a fairly specific meteorological application but increased payload, altitude capability, and speed are certainly possible with a modest increase in system complexity and cost.

Acknowledgment

The authors wish to thank R. B. Givens, C. A. Keller and S. R. King for their many suggestions and technical support and J. Howard and the staff of the JAFNA radar facility for their continuing cooperation. This work was supported by Air Force Cambridge Research Laboratory and NASA, Wallops Station.

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I. Katz, "Utilization of a Radar Altimeter for Determination of Ocean Roughness," *IEEE Trans. Aerospace and Electronic Systems—EASCON '70 Convention Record,* 1970, 266-269.

APL COLLOQUIA

Nov. 13 - "Application of Ultrasonic Surface Waves to Signal Processing," by L. T. Claiborne, Texas Instruments Company.

Nov. 20 - "The Evolution of a Room-Temperature CW Junction Laser," by M. B. Panish, Bell Telephone Laboratories.

Nov. 27 - "The Soviet Scientist and Dissent," by J. Schiebel, Georgetown University.

Dec. 4 - "Some Advanced Transportation Programs," by R. H. Cannon, Department of Transportation.

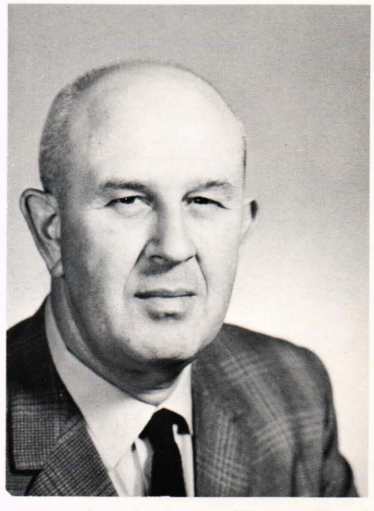
Dec. 11 - "SST Program Rationale and Status," by C. A. Blake, Federal Aviation Administration.

Dec. 18 - "Environmental Survival: A New Challenge for Engineers and Scientists," by Chung-ming Wong, Department of Interior.

WITH THE AUTHORS

W. A. Good, co-author of "How High Does the Whistling Swan Fly?," was previously represented in the *Digest* as author of the paper titled "A Scientist and His Hobby" that appeared in the January-February 1963 issue. A native of Michigan, Dr. Good received the A. B. degree from Kalamazoo College and the M. S. and Ph. D. degrees in physics from the University of Iowa. During the year 1941–42 he was employed as a physicist in the Department of Terrestrial Magnetism of the Carnegie Institution in Washington. He joined APL in 1942 as a physicist and originally worked on the proximity fuse, the design of oscillators, and ruggedized vacuum tubes. He then worked on the fire control, gyro, and computer sections of the Navy Mk 57 Gun Fire Control System and designed a precision electromagnetic gyro pickoff. A specialist in missile control systems, in 1950 Dr. Good was named Supervisor of the Control Systems Group in which control systems were development for such missiles as Terrier and Talos, as well as for the Polaris Submarine Hovering System. Since 1966, he has been Assistant Division Supervisor of the Missile Systems Division.

In addition to his professional activities, Dr. Good has been a model airplane enthusiast since the mid 1930's. He is a Fellow and Life Member of the Academy of Model Aeronautics and received the Fédération Internationale Aéronautique-Tissandier Award in 1960. From 1965 to 1966 he was President of the Committee for International Aeromodels and was elected to the Model Aviation Hall of Fame in 1969. Dr. Good is a member of the American Physical Society and since 1968 has been a member of the Editorial Board of the *APL Technical Digest.*



J. W. Hamblen, co-author of "How High Does the Whistling Swan Fly?," is a native of Illinois. He received the B. S. degree in electrical engineering from the University of Maryland in 1958. A specialist in VHF and UHF communication systems as related to telemetering, Mr. Hamblen was employed by APL in 1948 as an engineer in the telemetering and instrumentation groups. In 1958 he transferred to the Space Development Department. Since 1964 he has been supervisor of the Space Telecommunications Group of the Space Data and Control Branch. In this capacity he is responsible for the design of telemetry and command systems in support of the Space Department's satellite programs, spacecraft antenna design, and ground support system development.

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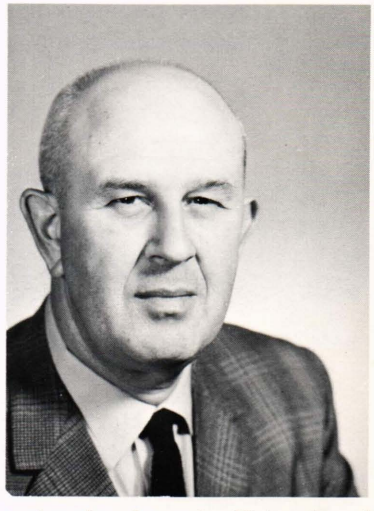

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The authors of the paper on "A Small, Radio-Controlled Aircraft as a Platform for Meteorological Sensors," shown above discussing their project, are (left to right): J. R. Rowland, T. G. Konrad, J. H. Meyer, and M. L. Hill. A biography of each follows.

J. R. Rowland was born in Rockford, Illinois. He received his B. S. degree in electrical engineering from Kansas State University in 1968. He joined APL in 1968 as a member of the Clear Air Turbulence Project of the Preliminary Design Group where he is involved in meteorological instrumentation and data analysis. Mr. Rowland is a member of the Institute of Electrical and Electronics Engineers.

T. G. Konrad, a native of Illinois, received the B. S. degree in aeronautical engineering from the University of Illinois. He came to APL in 1957 from the Allison Division of General Motors. A specialist in internal aerodynamics and systems engineering, Mr. Konrad originally worked on missile composite design. Specifically he designed and carried out experimental research programs concerning the development of supersonic and hypersonic, isentropic spike inlets. He later was assigned to general weapons system design and feasibility studies and system and component analysis of sonar systems. In 1965 he began experimental research in the use of advanced radar techniques for detection of clear air turbulence and has been Supervisor of that Project since 1967. Mr. Konrad was recently elected a member of the International Union of Radio Scientists (URSI) and is serving as a member of the Commission on Radio and Non-ionized Media.

J. H. Meyer is a native of Pennsylvania and received the B. S. and M. S. degrees in meteorology from Pennsylvania State University. He came to APL in 1967 from the Electromagnetic Research Corporation, College Park, Maryland, where he was Project Manager for that organization's field office and laboratory at Cocoa Beach and Patrick Air Force Base, Florida. He is a specialist in radar propagation and physics of the atmosphere. At APL Mr. Meyer has been responsible for the modification and instrumentation of aircraft for atmospheric research; reduction, analysis, and interpretation of surface and upper air meteorological data; and has acted as meteorologist for the Maritime Ducting Radar Investigation. At present he is investigating and correlating clear air radar echoes with meteorological phenomena. Mr. Meyer is a member of the American Geophysical Union, the American Geological Institute, and the American Meteorological Society.

M. L. Hill has contributed several papers to the *Digest,* the most recent of which was titled "Old Faithful, World Endurance Record Radioplane," which appeared in the May-June 1965 issue. Mr. Hill received the B. S. and M. S. degrees in metallurgy from Pennsylvania State University and came to APL from the Westinghouse Corporation in 1960. He has specialized in the studies of gases in metals and the effect of trace impurities on the mechanical and physical properties of metals. Since 1963 he has been Supervisor of the Flight Research, High Temperature Materials Project. A member of several professional societies, Mr. Hill also has been active in work with model airplanes. He was President of the U. S. Academy of Model Aeronautics for 1964 and was awarded the Fédération Internationale Aéronautique-Tissandier Award in 1967. Mr. Hill also holds several world records for radio-controlled model airplanes, including the altitude record of 27,200 feet for power models.