

## global communications

To achieve two basic goals—longer range and greater reliability—the Hughes Communication Systems Laboratory has virtually every known propagation medium and technique under study. A complete spectrum of science and technology is being explored in an effort to extend—literally and figuratively—the horizons of communication. In the laboratory, “shooting for the moon” is an actual objective.

The immediate goal, however, is to surmount the natural barriers which have limited both the range and the dependability of radio communication. First is the line-of-sight characteristic of higher frequencies which once prevented propagation beyond the horizon. The second great barrier has been the complex of sunspots, auroras, and an ionosphere that periodically varies in altitude, all of which cause communication blackouts and signal fluctuations.

A less well-known obstacle is the multipath phenomenon—the tendency of radiations to reflect from different layers of the ionosphere into two or more signal paths. This condition, which under certain circumstances produces a confused signal, is being overcome at Hughes through the use of digital techniques. Frequency is made a controllable variable. Then, with a digital computer to determine the best frequencies to use at given times, a communication system can automatically and continuously select its most favorable frequency.

Many openings now exist in this area. Your inquiry is invited. Please send resumé to Mr. J. C. Bailey at:

*the West's leader in advanced electronics*

# HUGHES

Scientific and Engineering Staff  
RESEARCH & DEVELOPMENT  
LABORATORIES  
Culver City, California

# Personals

## 1924

*E. Dale Barcus*, head of the toll service transmission engineering organization of the Pacific Telephone Company, was appointed chairman of the Los Angeles section of the American Institute of Electrical Engineers this month. He has been with the telephone company for 34 years and has been concerned with such projects as the Los Angeles-San Francisco microwave relay system and the transcontinental coaxial cable used for television programs and telephone conversations. Dale lives in San Marino.

## 1926

*Robert W. Moodie* is now supervising structural engineer for the State Division of Architecture in the Los Angeles office of the design and planning section.

## 1927

*W. Layton Stanton*, PhD '31, has moved from Arcadia, California, to the Denver headquarters of the Union Oil Company, where he is now serving as general manager of the Rocky Mountain district.

*Robert B. Vaile*, PhD '36, is now chairman of the physics department in the division of physical sciences at the Stanford Research Institute in Menlo Park, California. He has been with S.R.I. since 1948. The Vailes have two children and live in Palo Alto.

*L. Sprague de Camp*, free lance writer and contact man for the Gray & Rogers advertising agency, has a new novel, *An Elephant for Aristotle*, published by Doubleday & Company.

*Nathan D. Whitman, Jr.*, MS, '32, who is in business for himself as a construction engineer in Pasadena, writes that he's keeping busy—last year as president of the L.A. Section of the American Society of Civil Engineers, and this year with the design of a test facility to load structural members with simulated atomic blasts.

## 1929

*Duane E. Roller*, PhD, professor of physics at the Harvey Mudd College in Claremont, is the editor of a book, *Foundations of Modern Physical Science*, just published by the Addison-Wesley Company. His son, Duane, of the University of Oklahoma, is co-author of the textbook.

*Maurice F. Hasler*, PhD '33, president of Applied Research Laboratories, Inc., in Glendale, received the 1958 Beckman Award in Chemical Instrumentation last month. The award is given for outstanding achievement in the development of new instruments for chemical analysis and in the application of analytical instruments for chemical process measurement and control. Selection of the winner is made

by the American Chemical Society.

Maurice plans to use the money from the Beckman Award to set up a series of annual awards, in the name of the Applied Research Laboratories, Inc., to be administered by the Southern California Science Fair, an annual exhibit of the scientific work of high school students.

## 1932

*Fred Foulon*, in charge of a group handling electronic research at the Douglas Aircraft Company in Los Angeles, is 1958-59 vice chairman of the American Institute of Electrical Engineers, Los Angeles Section. Fred, who took office this month, has been with the Douglas Aircraft Company for 15 years.

## 1933

*Moses B. Widess*, MS '34, PhD '36, is now Division Geophysical Technical Supervisor for the North Texas-New Mexico Division of Pan American Petroleum Corporation. He is living in Fort Worth, and has two children.

## 1935

*H. M. A. Rice*, PhD, writes from Ottawa, Ontario, Canada, that “shortly after getting my PhD, I joined the staff of the Geological Survey of Canada and am still with them. I hold the rank of senior geologist in charge of processing of maps and reports.”

“While in Pasadena I married a local girl, Lorna MacDonnell, and we have two boys. The elder is working at the map compilation division of the Topographic Survey of Canada—and the younger starts university in the fall. As for hobbies, mine are landscape painting, golf (handicap 100) and studying fossil insects.”

## 1938

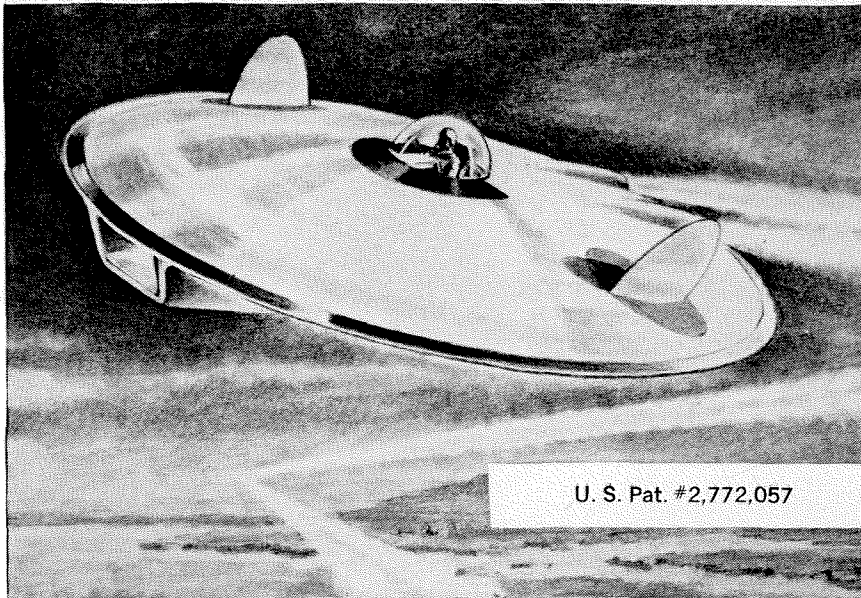
*Darrell W. Osborne*, PhD, senior chemist at the Argonne National Laboratory in Lemont, Ill., has received a 1958 Guggenheim Fellowship to conduct research at Oxford University on the properties of liquid and solid helium-3 at a very low temperature. He will be accompanied to England by his wife and daughter.

*Byron L. Havens*, MS, is now resident manager of the new IBM Research Laboratory in Yorktown, N.Y. For the past 12 years he has been a senior staff member of the IBM Watson Laboratory at Columbia University, where he has led a research team working on the technology of high speed electronic computing with particular emphasis on very large machines.

The Havens and their three daughters live in Closter, New Jersey.

## 1939

*Jack Goodell* writes that, “After graduation I spent approximately 8 years with the General Electric Company and 1 with



U. S. Pat. #2,772,057

## saucer secret?

Whose incredible design is the flying saucer?

These flying objects (unidentified, of course) maneuver at high speed, with human-crushing suddenness. Their unearthly behavior poses a perplexing problem to imaginative designers: how might man survive in them?

John C. Fischer, Jr. approached the problem with this circular aircraft and its unique control system, U. S. Pat. #2,772,057.

This "saucer's secret" is a rotatably adjustable shell (upper) and a pilot's compartment which *pre-rotates* toward the direction to be flown. The functional design "humanizes" saucers because the rotating provisions distribute *g-forces* laterally on the pilot, minimizing blackouts.

No one can be sure which of today's new ideas will become reality tomorrow. But it will be important then, as it is now, to use the best of tools when pencil and paper translate an idea into a project. And then, as now, there will be no finer tool than Mars—from sketch to working drawing.

Mars has long been the standard of professionals. To the famous line of Mars-Technico push-button holders and leads, Mars-Lumograph pencils, and Tradition-Aquarell painting pencils, have recently been added these new products: the Mars Pocket-Technico for field use; the efficient Mars lead sharpener and "Draftsman's" Pencil Sharpener with the adjustable point-length feature; and—last but not least—the Mars-Lumochrom, the new colored *drafting* pencil which offers revolutionary drafting advantages. The fact that it blueprints perfectly is just one of its many important features.

The 2886 Mars-lumograph drawing pencil, 19 degrees, EXEXB to 9H. The 1001 Mars-Technico push-button lead holder, 18 degrees, EXB to 9H. Mars-lumochrom colored *drafting* pencil, 24 colors.



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## Personals . . . continued

the Essex Wire Corporation. For the past 10 years, I have been with the Bechtel Corporation in Anaheim. I am now assistant manager of engineering in the power division. My most recent responsibility was the engineering of the Huntington Beach and Mandalay steam electric generating stations (each 400,000 kw) for the Southern California Edison Company. My family includes two boys—15 and 13—and a daughter 9."

*John J. Browne*, assistant to the superintendent of the General Petroleum Corporation's production department in Taft since 1952, has been transferred to the Los Angeles home office as a special assistant. He has been with the company since 1939.

1940

*Frederic M. Brose* writes from Monrovia, California, that "I am now employed by the Datex Corporation, a subsidiary of G. M. Giannini & Company, Inc. I am assistant operations manager and production engineer. Datex produces shaft position encoders and digital data handling equipment and systems. Familywise, I am specializing in girls (three daughters—aged 8, 6 and 1½)."

1941

*Donald F. J. McIntosh*, assistant superintendent of the General Petroleum Corporation's production department at Ventura, has been transferred to the San Joaquin division, with headquarters in Taft.

1942

*William T. Holser*, MS '46, assistant research geophysicist at UCLA, has taken a new job as research mineralogist at the California Research Corporation, a subsidiary of the Standard Oil Company of California in La Habra. The Holsers have two sons now—one 2 years old, and one 2 months.

*Comdr. Forest M. Clingan* has been transferred from the Naval Torpedo Station at Keyport, Washington, to Washington, D.C., where he is still in industrial control work.

*Peter L. Nichols, Jr.*, PhD, chief of the propellants division at JPL, was appointed a member of the National Advisory Committee for Aeronautics (NACA) Subcommittee on Rocket Engines last December. Recently he received another appointment—to serve on the Propulsion Subgroup of the Ad Hoc Polaris Panel, which is sponsored by the Department of Defense. Peter's division was responsible for the initial propellant development which led to the propulsion system for the Navy's "Polaris" missile.

To top it all off, Peter's also been appointed chairman of an Ad Hoc Panel on Propellant Performance Calculations and Thermodynamic Data sponsored by the

*Engineering and Science*

## Personals . . . continued

Joint Army, Navy, Air Force (JANAF).

1943

*John E. Cushing*, PhD, associate professor of bacteriology at UC in Santa Barbara, has received a Guggenheim fellowship for 1958. He plans to work at the University of Tokyo, where he will serve as a visiting lecturer and also continue his research—identifying blood groups of fish, whales and fur seals. Only three American and three Japanese scientists are engaged in this area of biological studies. Among the interesting applications of such findings is to distinguish the origin of salmon populations to provide information for establishing fishing treaties with Japan.

1944

*Albert T. Spaulding* has announced the formation of a new firm, the Eckels-Spaulding Company, engineering representatives, in San Francisco. They began operations on March 1st, representing the Fluor Products Company of Whittier in Northern California and the Pacific Northwest. The Spauldings live in Mountain View and have two children—Anne, 5, and Edward, 2.

1945

*Charles W. Hunt* and a partner have opened new offices in Calgary, Alberta, as

consultants in petroleum exploration. The Hunt family was increased by a third child, Mary Melinda, in May. The other two children are Lucile, 7, and Malcolm, 4.

1947

*James S. Smith* is now a project engineer (Minute Man ICBM) at the Space Technology Laboratories division of the Ramo Wooldridge Corporation in Los Angeles. The Smiths have three children—twins Susan and James, 2, and four-month-old Claire Ann. A two-year-old prize (?) boxer completes the family.

1949

*Stanley C. Pace*, MS, assistant manager of the newly-formed Tapco Group of Thompson Products, Inc., in Cleveland, has been elected assistant secretary of the board of directors of the company. The Tapco Group was formed in March to combine the company's specific work in the fields of astronautics, electronics, nuclear power and advanced weaponry into a separate unit. Stan, who was formerly manager of the Jet Division, has been with the company since 1954.

1950

*Jerome K. Delson*, MS, PhD '53, has received a post-doctoral Fulbright Fellowship which will enable him to work at the

Weizmann Institute of Science at Rehovoth in Israel. He writes: "I visited there in 1956 and was impressed with the many similarities to Caltech—the buildings and grounds are similar and there is a fine atmosphere for research."

1953

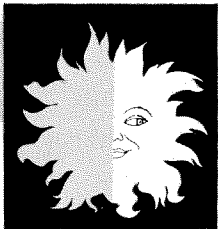
*Bruce Holloway*, PhD, writes from the department of bacteriology at the University of Melbourne in Victoria, Australia, that he will be visiting Caltech in August, on his way to the International Genetics Congress in Montreal.

1954

*Edward J. Gauss* is president of a newly-formed firm, the Gauss Development Company, with offices in Denver and Los Angeles, which will market a kit for making etched circuits, called the DRAW-N-ETCH kit—a simplified process for the making of prototypes.

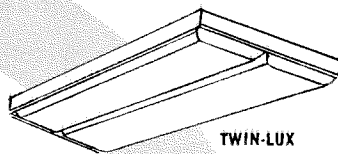
1955

*Robert S. Christian* writes that "since leaving Tech I have been with the Air Force and am presently stationed at March AFB in Riverside, California, where I expect to remain until my discharge in December. We now have a second daughter, Kelly Marie, born in April. Our first daughter, Tracy Lynn, is now 1½."

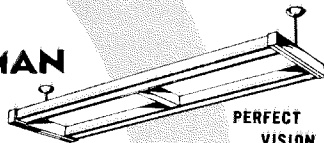


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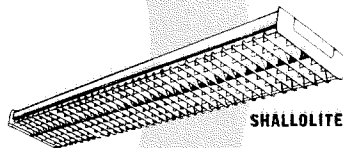
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lighting  
today"



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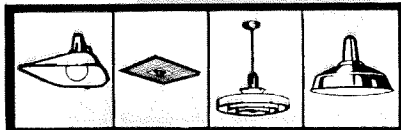
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