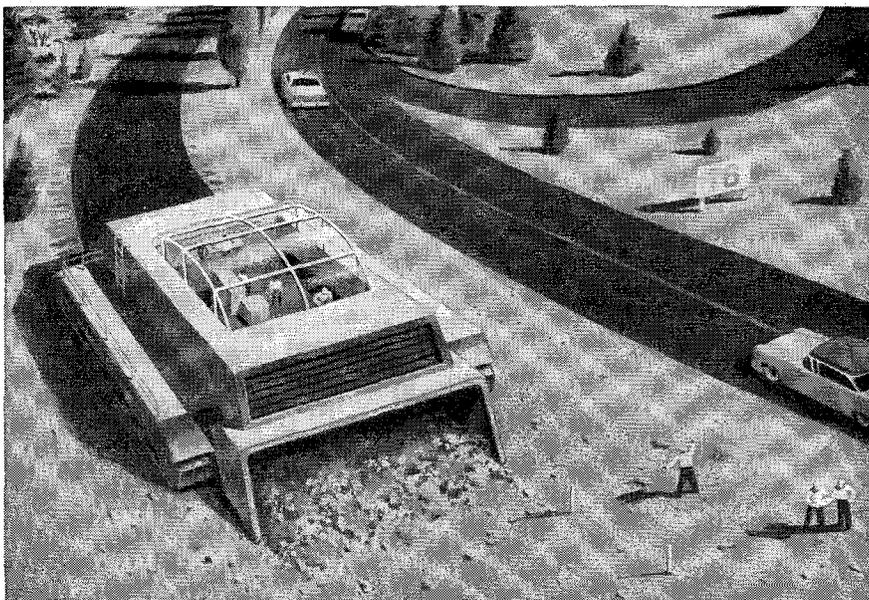


.....
MARS outstanding design SERIES



roll your own!

Speeding up our national road-building program is the goal of this design by Russ Henke of Elm Grove, Wisconsin. His behemoth of a machine literally chews up unmapped earth, compacts it with asphalt or macadam, stabilizes it, and lays a ribbon of paved road behind as it rumbles along! Crew and engineers ride in an air-conditioned cabin, and monitor the whole process by control instrumentation.

Tomorrow's roads may be squeezed out like toothpaste, but outstanding ideas for tomorrow are still produced in the old-fashioned, painstaking, human way. And only professionals know how the best in drafting tools can smooth the way from dream to practical project.

In pencils, of course, that means Mars, long the standard of professionals. Some outstanding new products have recently been added to the famous line of Mars-Technico push-button holders and leads, Lumograph pencils, and Tradition-Aquarell painting pencils. These include the Mars Pocket-Technico for field use; the efficient Mars lead sharpener and "Draftsman" pencil sharpener with the adjustable point-length feature; Mars Lumochrom, the color-drafting pencils and leads that make color-coding possible; the new Mars Non-Print pencils and leads that "drop out" your notes and sketches when drawings are reproduced.

The 2886 Mars-Lumograph drawing pencil, 19 degrees, EXEXB to 9H. The 1001 Mars-Technico push-button lead holder. 1904 Mars-Lumograph imported leads, 18 degrees, EXB to 9H. Mars-Lumochrom color-drafting pencil, 24 colors.



J.S. STAEDTLER, INC.
 HACKENSACK, NEW JERSEY

at all good engineering and drawing material suppliers



Personals

1929

Lee R. Brantley, MS, PhD '30, chairman of the department of chemistry at Occidental College, was a guest lecturer in the Lebanon Valley (Pennsylvania) College department of chemistry last month. He gave two lectures — "The Extracurricular Training of a Chemist" and "Surface Chemistry" — and conducted a research conference.

1932

John L. Cox, associate head of the engineering department at the Naval Ordnance Test Station in China Lake, has a new daughter, Margaret Elizabeth, born last October 27. John's two older children live in Pasadena and the girl, now 18 years old, expects to be married sometime this spring. John also reports that he has been chairman of the China Lake Chapter of the American Ordnance Association for the past two years.

Euclid V. Watts has been appointed manager of producing for Socony Mobil in New York. He has been with the company since 1936. The Watts', who live in Darien, Conn., have three children — Joanna, Robert and Charlotte.

Paul G. Burman writes that he is now in his twentieth year with the American Bosch Arma Corporation in Springfield, Mass. "My present position is consulting mechanical engineer in the advanced engineering section. In addition to advisory service on diesel fuel injection, I am involved in projects on gas turbine injection, liquid propellants, hydraulic controls, and missile components.

"My son, Bruce, is now a junior in electronics at Lowell Tech, and my daughter is a senior in high school. My spare time is spent skiing and sailing."

Karl Hegardt is now outside plant engineer and personnel supervisor in the chief engineer's department of the Pacific Telephone Company in Los Angeles. He is serving this year as director of the Pacific Telephone's Executive Conference in Palo Alto. The Hegardts' second son, William, was born last October.

1933

Philip C. Efromson, formerly a partner of the Calidyne Company in Winchester, Mass., is now treasurer. The company has become a subsidiary of Ling Electronics in Culver City, Calif. With the addition of another boy last October, the Efromson family now consists of three sons.

Lee Carleton writes: "I'm still doing scientific work at the Aerojet General

Corporation in Azusa, in an interesting field covering rocketry and high-energy radiation. I was remarried last year, thereby adding two fine teen-agers (boy and girl) to my original one son. We recently returned from a delayed honeymoon at the Mardi Gras in Mazatlan."

1938

Harper Q. North writes that, since 1954, he has been president and chairman of the board of Pacific Semiconductors, Inc., in Los Angeles, a subsidiary of Thompson-Ramo Wooldridge. He has also been made a fellow of both the American Physical Society and the Institute of Radio Engineers.

1939

Paul L. Smith has been with Douglas Aircraft for 20 years now and is, at present, "chief cook and bottle washer of the new office in St. Louis." He writes: "Our daughter, Susan, was married last summer and is now living at Cape Canaveral; our son, Stephen, is a junior in high school; and Chuck is in the 7th grade.

1940

Victor Wouk, vice president of research and development at Sorensen & Company in South Norwalk, Conn., brings us up to date with: "In July 1956 I sold Beta Electric Corporation to Sorensen & Co., Inc., and at the time of sale it had grown from a two-man operation in 1946 to the world's largest exclusive manufacturer of high voltage power supplies. For this I bow very deeply in the direction of the high voltage labs of Caltech and the leadership of Professor Royal W. Sorensen.

"The relief from many administrative details at Beta has allowed me to be more active in community activities such as: Board of Directors of the 92nd Street Y (the largest in the country), chairman of the New York Commission on Hebrew Religious School Education, and interviewing Caltech applicants, one of the most enjoyable extracurricular activities in which I have ever engaged."

1941

Paul Lieber, MS, PhD '51, was appointed professor of engineering science at the University of California in 1956, and in 1957 was awarded a Fulbright lectureship at the Israel Institute of Technology at Haifa, to conduct research in field theory and advise on programs of studies in engineering.

"We found Israel a very interesting country," Paul writes. "The internal and external problems facing her are formidable and are being met with unflinching courage by some of her people. From a practical standpoint, however, these problems can be realistically met only with the support of a superior technology. To this end Israel must provide maximum opportunity and facilities for train-

ing and employing her outstanding talent in technology.

"As for our family, we have five children — Michael, 16; Leonardo, 11; Joseph, 9; Victoria, 7; and Jonathan, 4."

1942

Charles Rutherford writes that "with the exception of a three year period in Washington, D.C., from 1944-47, we've been in the local area. In 1950 I founded my own company in Culver City, and after a short discussion at the board of directors meeting (I'm chairman of the board and my wife and mother are the other members) the company was named the Rutherford Electronics Company. I was also elected president of the company — by a coincidence. After 8 years, we're making a living at it with the help of about 50 employees. I've also got four children to help spend the paycheck."

1944

Philip B. Smith writes that he's settled for a while in Utrecht, Holland, as vice group leader of the nuclear physics section at the University. "For the past year and a half," writes Philip, "I've been catching up on my field of work after six years of complete isolation from physics in Brazil."

Joseph M. Phelps, MS '47, has recently gone into partnership with William Rucker as Associated Business Consultants. Located in Pasadena, the new outfit designs and writes technical books, produces industrial films and filmstrips, and takes aerial and industrial photographs. For a hobby, Joe has a boat and he and his family (wife, daughter, and two sons) are all interested in water skiing.

1946

Harold Lambertus, MS, is now general manager of the newly created nuclear fuels department of the Spencer Chemical Company in Kansas City, Mo. He was formerly vice president of the American Bearing Corporation, a division of the National Lead Company. The Lambertus and their two children will now be living in Kansas City.

1947

William T. Russell, MS, PhD '50, director of the electromechanical laboratory at Space Technology Laboratories, Inc., is now a member of the committee on control, guidance, and navigation for the National Aeronautical and Space Administration.

Jerry Donohue, PhD, professor of chemistry at the University of Southern California, has received a \$57,200 three-year grant by the National Science Foundation. He will spend his first year at the Swiss Federal Institute of Technology in Zurich, as a senior postdoctoral research fellow. His research proj-

continued on page 40

ENGINEERS and SCIENTISTS

at Convair-Astronautics pursue space projects at a most advanced state of the art, requiring the highest degree of professional skill. Keystone of these many programs is the mighty

ATLAS ICBM

In this young missile age, Atlas already lists many unique achievements. A proven weapon, it is our only large, tested booster and the only known vehicle to steer itself into orbit. It will lift the first manned capsule into space, and most exploration programs of the future include Atlas in their planning.

PROJECT CENTAUR

... design, construction and testing of a high energy, upper stage rocket ... is the newest Convair-Astronautics program released. Boosted by Atlas, Centaur will be able to place in orbit a satellite weighing several thousand pounds.

Positions are available now in design (electrical, electronic, mechanical, structural), systems design & analysis, propulsion, test laboratories, field test, engineering writing, computer programming, research engineering, and other specialties.

INTERVIEWS

are regularly conducted throughout the U.S. by our engineering representatives. So that advance interview arrangements may be made, please send your resume at once to Mr. G. N. McMillan, Engineering Personnel Administrator, Dept. 130-90

CONVAIR ASTRONAUTICS

Convair Division of

GENERAL DYNAMICS

5548 Kearny Villa Road,
San Diego, California

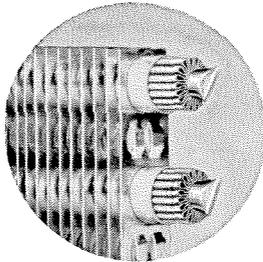


DUNHAM-BUSH

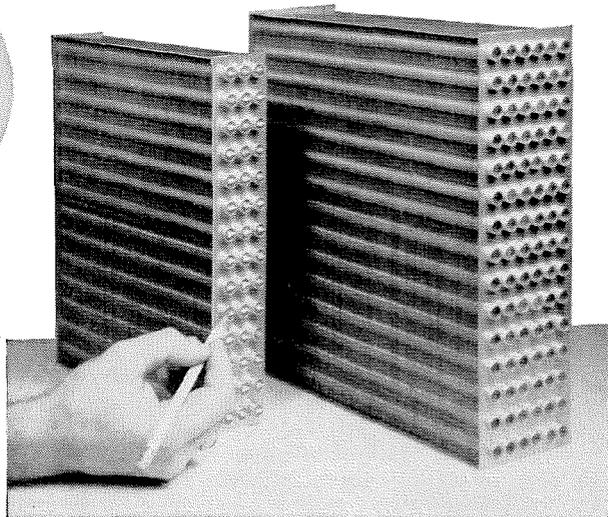
Engineered

INNER FIN*

AIR CONDITIONING, REFRIGERATION, HEATING and HEAT TRANSFER PRODUCTS



*Inner-fin tube has an "R" factor (internal coefficient) of 5.05. This spirally wound surface is an excellent turbulence promoter. It positively prevents channeling and has the highest value of overall heat transfer coefficient of all types of heat transfer coils.



Inner fin is the patented Dunham-Bush development which has revolutionized the design of heat transfer equipment. It has introduced a basic new concept of heat transfer engineering, permitting units of smaller, lighter construction.

Engineering developments such as inner-fin tubing are commonplace at Dunham-Bush . . . where progress in heating, air conditioning, refrigeration and specialized heat transfer products is an everyday occurrence.

DUNHAM-BUSH

- AIR CONDITIONING
- HEATING
- REFRIGERATION
- HEAT TRANSFER

Dunham-Bush, Inc.

WEST HARTFORD 10, • CONNECTICUT, • U. S. A.

SALES OFFICES LOCATED IN PRINCIPAL CITIES

ect is on structural chemistry, determining how atoms are arranged in certain crystalline substances. He is also working on a one-year \$11,000 contract from the Office of Ordnance Research to determine interatomic distances of molecules in crystals. His wife, son (Terry, 12) and daughter (Nora, 10) will accompany him to Switzerland.

John R. Scull, assistant chief of the electro-mechanical development section at JPL, will take a temporary leave to act as scientist for guidance and control in the office of program planning and evaluation of the National Aeronautics and Space Administration in Washington, D.C. The Sculls and their three children will live in Washington.

1948

David B. Wilford, MS '51, is now supervisor of a newly-formed unit at Rock-etyne in Canoga Park. The new unit was created to direct analytical effort and handle all of the data reduction and processing activities of the combustion devices section of the engineering division.

1949

George M. Petzar has been transferred from L.A. to a new district office of the Portland Cement Association in Phoenix, Arizona. He will be district engineer in charge of the new office. George has been with the Association since 1954.

1950

J. Robert Holmes, MS, is now senior engineer in reliability evaluation at the Owego, N.Y., plant of IBM. The Holmeses and their three sons live in Vestal, N.Y.

Norman F. Jacobson, PhD, '56, has been made chief of the newly formed reliability section at JPL. He has been with JPL since 1956 and was responsible for payload reliability in connection with the building and launching of the Explorer satellites and the Sergeant weapons system. The Jacobsons and their three children live in Pasadena.

Robert L. Nelson, MS, PhD '52, writes that: "We have been in Oklahoma City for just about three months, after spending the last three years in Jackson, Miss. Our stay there was a real education in every sense of the word, but we were ready and willing to try a new spot. We now have had a taste of doodlebugging from Peace River in Alberta, Canada, to the Florida Panhandle, with most of our time prior to Mississippi spent in Bismark, Billings, and Casper. Our one winter in Canada produced some wonderful skiing and skating.

"I've taken over as division geophys-
continued on page 42

ENGINEERS PHYSICISTS MATHEMATICIANS

Investigate the outstanding promotion opportunities at Douglas.

It stands to reason that the biggest field for advancement lies where the biggest programs involving advanced technology are under way.

At Douglas, massive missile, space and transport projects in both military and commercial areas have created a continuous demand for engineers and scientists with backgrounds outside as well as in the avionics, aircraft and missile fields.

As these projects grow in scope, the multiplying supervisory and executive openings are filled by Douglas engineers from within the company. This promotion policy has made Douglas a prime organization for the engineer who wishes to advance in his profession.

For further information, write to Mr. C. C. LaVene, Douglas Aircraft Company, Inc., Santa Monica, California, Section B.



the most respected name in aircraft,
missile and space technology

Personals . . . continued

ical supervisor here in Oklahoma in one of the four domestic divisions of the Pan American Petroleum Corporation."

Kam L. Wong writes that he's been working at Hughes Aircraft Company for almost 8 years and is now heading a group working on the reliability of an advanced electronic fire control system. The Wongs live in Culver City with their two children — LeRoy and Elaine.

1951

David G. Elliott, MS '52, received his PhD in mechanical engineering from Purdue University last March and is now a senior research engineer in the propulsion research section at the Jet Propulsion Lab in Pasadena. The Elliotts have a 2½-year-old daughter, Sandra.

Edwin A. Matzner, BS '51 biology, BS '51 chemistry, writes that "since leaving the smoggy Southland, I far outstripped the run-of-the-mold Harvard products and obtained a PhD from Yale University in organic chemistry (minor in teenage cavemanship). Besides claiming spiritual paternity of the New Haven riots last winter, I am now working for the Monsanto Chemical Company in St. Louis, Mo., lengthening the frontiers of science with painful ardor."

1953

Major Levi A. Brown, MS, writes that he received his promotion to Major in 1958. After three years in Japan, from 1954-57, he was stationed in Detroit with the Detroit District, Corps of Engineers, U.S. Army. He became a registered professional civil engineer in the State of Michigan in 1958. The Browns now have three children — Pat, 6, Tim, 5 and Mike, 1.

James T. La Tourrette, graduate student at Harvard University, writes that he now has a son, John Emery, born on March 28. The family is sailing on May 20 to begin a long-awaited year at the Physikalisches Institut Der Universität Bonn in Germany on a National Science Foundation postdoctoral fellowship.

H. Robert Hunt, MS, writes that "since graduation I have been working for the California Company, except for a two-year stint with the Army at Aberdeen Proving Ground in Maryland. Military life proved uninspiring but provided opportunities for leaves to Bermuda and Europe. Although my experience in oil exploration has all been domestic thus far, I moved from offshore Louisiana to the Rocky Mountains, where I followed gravity crews — then to Mississippi, where I have been 'bird-dogging' a seismograph crew for the past two years."

1954

Franklin D. Dryden, MS '57, writes

that he will be married on June 7, in Stockton, to Marianna Tuttle, a speech therapist for the Azusa School District. They originally met at Asilomar in 1956 when they were elected as co-chairmen of the Regional Student YM-YWCA. Frank is a design engineer for the L.A. County Sanitation District.

Curt Johnson, MS '55, is now with the Hughes Research Laboratories in Culver City where he is working on low-noise parametric devices. Curt got his PhD from Stanford in 1958. The Johnsons and their two children are living in the Palos Verdes area.

1956

Samuel R. Phillips, MS '57, writes that "after graduating, I joined *Jim Koontz*, '56, and *Dan Chilton*, '56, in the training program of the Joy Manufacturing Company, makers of mining machinery with headquarters in Pittsburgh. After 7 months and 10,000 miles, I wound up as half of the two-man R&D department of the Baash-Ross oil tool division in Houston. Early this year I started working for *Cosmodyne Corporation* in Manhattan Beach, a six-month-old company which designs auxiliary power units for space vehicles. I see a good deal of *Ross Brown*, '56, and *Gil Beebower*, '55. Ross is one of the original hands at *Cosmodyne* and so is *Dan LeMay*, '51."

Ted Johnson has completed Harvard Business School and is now working as a sales engineer for the Digital Equipment Corporation, a new company in Maynard, Mass.

1957

Major S. H. Carpenter is now Marine Corps liaison officer at NOTS in China Lake. After getting his degree at Caltech, Stan and his family moved to Edenton, N.C., where he was variously exec of Headquarters Squadron and MAG-14 Aircraft Maintenance Officer. At China Lake, Stan relieved *Major William C. Benton*, USMC, AE '55. The whole family, including a boy, 11, and the girls, 7, 3½ and 2, agree that the desert beats the swamps of North Carolina for living conditions.

Lt. James H. Berrian, PhD, who is in the Navy Medical Service Corps, represented the Research Institute of the National Naval Medical Center at Bethesda, Md., at the International Colloquium on Biological Problems of Grafting, held in Liege, Belgium in March.

Richard J. Kerr, PhD, is now production manager of Urethane Intermediates in the new chemicals group of the Union Carbide Chemicals Company, a division of the Union Carbide Corporation. He was formerly a new chemicals technical representative.