

ROCKETS AND MISSILES

Vanguard Studies Show "Mumetal" for Satellites

SPECIAL magnetic-shielding metals have been suggested as rudders to help guide man-made satellites in their flights through space.

Studies of the flight of Vanguard II, launched almost a year ago on Feb. 17, 1959, showed that its rotation was being slowed down at an extremely rapid rate, Dr. Raymond H. Wilson Jr. of the National Aeronautics and Space Administration reported in Washington, D. C.

An explanation for this is seen in the fact that the permanent magnets in this satellite were each surrounded in all except one direction by magnetic shielding of "mumetal" or other high-permeability material. This material would ordinarily experience an extremely high binding force or couple with respect to a rotating magnetic field such as the earth's, Dr. Wilson explained.

In fact, he said, if the mumetal had not been well-saturated by the magnets inside Vanguard, the satellite's rotational motion would have been completely left to the "local vagaries of the earth's magnetic and gravitational fields" after about one day.

This remarkable sensitivity of highly permeable magnetic material to its surrounding field suggests its possible use for controlling the orientation of satellites, Dr. Wilson concluded. The Vanguard results show that if the satellite's outer shell had been of mumetal, it would have become directionally "locked" in the earth's field within one second.

The NASA scientist suggests that properly designed and placed rings of mumetal could be used as rudders in addition to the more complicated gyroscope devices for controlling the direction of space observatories.

Details of the study appear in *Science* (131, 223, Jan. 22, 1960).

Science News Letter, February 13, 1960

PUBLIC SAFETY

AEC Recovers 569 Radioactive Watches

A TOTAL of 569 of those wrist watches suspected to be radioactive have been discovered and returned to the American distributor in New York City.

Last Dec. 17, the Atomic Energy Commission announced it and the American Rolex Watch Corporation were taking steps to recover 600 Rolex GMT-Master wrist watches imported from Switzerland and sold in this country between October, 1956, and November, 1959. A number of these watches were purchased abroad by United States citizens and brought back to this country.

Of the 569 now returned, 432 were found to contain radioactive strontium-90 in markings and numerals. The company is replacing all such bearing parts and returning the watches without charge to the owners, a statement from the Atomic Energy Commission revealed.

Two hundred thirty of the 569 recovered watches were originally sold in the U. S.

Science News Letter, February 13, 1960

R.F.C.


has something new of vital importance to all research men in the semi-conductor field.

It concerns the only known method of float zone refining Gallium Phosphide; fabulous new semi-conductor which will withstand 1500 F.

If you have a friend in the semi-conductor field, call this advertisement to his attention. He will appreciate knowing about our exclusive, simple, low priced equipment for doing this job.

P.S. Also ask for Brochure "6300F Furnace."

RADIO FREQUENCY CO., INC.
Medfield 22, Massachusetts
Phone: Boston-Norwood 7-4900



Buy ALL Your Books This Convenient Way!

Science Service will fill your order for any U. S. book in print at regular retail prices. Postage prepaid. Send orders and remittances to Book Department

SCIENCE SERVICE
1719 N Street, N.W.
Washington 6, D. C.

THE INSIDE STORY!

Don't be deceived any longer! Special library reveals fads, frauds, claptrap. "Fads & Fallacies in Name of Science," Gardner, 325pp. \$1.50/ "Hoaxes," MacDougall, 350pp. \$1.75/ "Illusions and Delusions of Supernatural & Occult," Rawcliffe, 250pp. \$2.00/ Send money, 10¢ postage per book. Dept. SNL, Dover Pbltns, 180 Varick, N.Y. 14. Moneyback guarantee.

PRISMS \$1.50

WT. 3/4 LB.



Made for U. S. govt. for tank periscopes. Fine optically ground, big precision prisms with silvered base. Terrific for all types of spectrographic work, in homemade telescopes & other optical systems for bending rays. Makes unusual paper weight (paint your name on it) or conversation piece for mantel. You'll find many other uses. NEW PERFECT! Cost U. S. govt. \$25 ea. NOW—\$1.50 ea. ppd. or 4 for \$5.00. Same as above—1" long (no silver backing) \$1. ea. 5 for \$4. Postage paid on prepaid orders. Calif. res. add sales tax.

Volume Sales Co., War Assets Div., Dept. L213
3930 Sunset Blvd. Los Angeles 29, Calif.

How Life Is Handed On

THE STORY OF REPRODUCTION

By CYRIL BIBBY • 63 Illustrations

"A book that you as a parent can turn to for answers to a child's questions and can hand over to the young person for his own reading and enjoyment. . . . I recommend this book without hesitation as an intelligent, practical, sound discussion of sex education and an invaluable guide for parents, teachers and youth."—Parents' Magazine.

"The entire process of reproduction, together with the attitudes inculcated by tradition, education, and social standards, is described clearly for children and younger adolescents."—Science News Letter.

Includes chapters on—

1. What Is Life?
2. Babies at Birth.
3. How Many at a Time?
4. The Mother's Part.
5. From Egg to Baby.
6. What's the Use of a Father?
7. Coming Together.
8. Courtship.
9. Family Life.
10. Learning to Live.
11. Growing Up; and other vital subjects.

Also, Things to Do . . . Other Books to Read . . . Some Films to See . . . Meanings of Uncommon Words.

\$2.75 Postfree • 10-Day Money-Back Guarantee
EMERSON BOOKS, Inc., Dept. 913-L
251 West 19th Street, New York 11



NEW STUDENT-SIZE STEREO MAPS \$9.95 IN 3-D RELIEF... FULL COLOR

Add a new dimension to the study of geography—actually see and feel the mountains, rivers, valleys that determine boundaries, weather and social groups. These 3-D plastic relief maps incorporate all the beauty and accuracy of our famous institutional size relief maps that you see in schools, libraries and business offices throuth the country. Increasing demand, coupled with scientific advances in aerial photography, cartography and plastic molding, makes this down-to-earth price possible. Check these exclusive features: a full 18 1/2" x 28 1/2"; printed in 8 colors on lifetime vinyl plastic (marks wipe off at a touch); self-framed; 2,500 place names; mountains stand up nearly 1 inch; Slide-O handy map index. Produced by Aero Service, leading world mapping company, they are completely accurate and authoritative. World Relief Map \$9.95. Matching U. S. 50-State Relief Map \$9.95.

We pay postage in U. S. Satisfaction guaranteed or money refunded.

Panda Products 1200 Niagara R238 Buffalo 13, N. Y.

Pocket tripod 9 section Elevator & case	\$9.97
Airequipt magazines (6)	1.46
Norelco Cont. 4 Track	284.60
Wollensak T1515 Stereo	159.40
Minox "B" camera	118.75
Retina Reflex S F 2.8 & case	144.50
Grundig Dictating complete	164.50
Minox specialists	Minox developing. Send for free photographic, confidential price bulletin.

WARBUCKS PHOTO SUPPLY, INC.
799 Broadway, New York 3, N. Y.

Get UNITRON's FREE Observer's Guide and Catalog on ASTRONOMICAL TELESCOPES

This valuable 38-page book is yours for the asking!

With artificial satellites already launched and space travel almost a reality, astronomy has become today's fastest growing hobby. Exploring the skies with a telescope is a relaxing diversion for father and son alike. UNITRON's handbook contains full-page illustrated articles on astronomy, observing, telescopes and accessories. It is of interest to both beginners and advanced amateurs.

Contents include—

- Observing the sun, moon, planets and wonders of the sky
- Constellation map
- Hints for observers
- Glossary of telescope terms
- How to choose a telescope
- Amateur clubs and research programs



UNITRON

INSTRUMENT DIVISION OF UNITED SCIENTIFIC CO.
204-206 MILK STREET • BOSTON 9, MASS.

Please rush to me, free of charge, UNITRON's new Observer Guide & Telescope Catalog 5Z-2

Name
Street
City State