

for the rocket and the space vehicle is still in the study stage. The next step: the planets.

Space research is pursued by scientists not for control of earth or space, or even for defense. Man has always been breaking new frontiers, always tried to overcome his environment and conquer the unknown, or pioneered out of curiosity "to see what he could see."

One of the earliest records left today that express man's desire to fly and leave the earth is the story from Greek mythology of Daedalus, an ingenious Athenian artist who made wings with feathers and wax for himself and his son Icarus to escape from Crete where he was held prisoner.

Man has always wanted to fly and often in tale and poetry envied the flight of the bird that has become symbolic for freedom. Many attempts at flying were made in man's early history, and in the 15th century Leonardo da Vinci, the Renaissance genius, even designed flying models and invented the propeller.

The first man-carrying free balloon ascen-

sion took place in 1783. This was followed by the first successful parachute jump in 1797. In 1810 came the first successful man-carrying glider. Steam-powered experimental planes and airships with internal combustion engine power, glider flights and analysis of the principles of flight were made during the rest of the 19th century.

Between 1898 and 1910 Alberto Santos Dumont built successful airships and airplanes which he flew himself. On Dec. 17, 1903, the famous flight was made by the Wright brothers, Wilbur and Orville, in their internal combustion engine biplane. This flight is generally accepted as the first successful flight of a powered aircraft.

Now, less than six decades later, two men within a month of each other have flown into outer space. On April 12, the Russian Yuri Gagarin circled the earth in 89.1 minutes, the USSR reported. On May 5, the first U.S. astronaut flew 115 miles into space on a down-range trip from Cape Canaveral to a spot near the Great Bahama Island.

• Science News Letter, 79:362 June 10, 1961

SPACE

Russians' Space Schedule

► RUSSIA'S SPACE SCHEDULE in 1961 calls for at least two more manned space flights—one to circle the earth, the other, perhaps, to the moon.

In 1962, the Soviets are planning to set up on the moon one or two automatic stations that will send back information on temperature, landing and other conditions. If both the manned observation flight and the instrumented station landings are successful, the USSR will then try to place a man on the moon.

The predictions come from Dr. Grigori Aleksandrovich Tokaty, former chief scientist and deputy head of the USSR Long Range Rocket Group, who was responsible for much of the early Soviet rocket development before leaving the USSR in 1949 for ideological reasons.

Dr. Tokaty has been in this country for the past month as visiting lecturer in engineering at the University of California, Los Angeles, and consultant on American space problems. He is now a British citizen and heads the department of aero space engineering at Northampton College of Advanced Technology, London.

The current space race between the Soviet Union and the United States is only a warm-up for the real competition, which will start in five to seven years when both countries will try to place permanent space stations in orbit, Dr. Tokaty predicts.

Soviet engineers and scientists have been working intensively on this project for the last few years. Their plans, Dr. Tokaty reports, call for the orbiting of a 10- to 12-ton instrumented satellite, which will be joined by a second, manned vehicle. Rockets will send up additional instruments and materials, allowing the 10- to 15-man crew to construct an elaborate and practically permanent space station.

Dr. Tokaty attributes the success of the Soviets' space effort to complete centralization of all programs under one ministry, thorough theoretical proof for all projects before any experiments are started, and Russia's traditional excellence in mathematics and long history of rocket studies.

• Science News Letter, 79:363 June 10, 1961

SPACE

USSR Sent Cloud Pictures From U. S. Tiros Satellite

► CLOUD PICTURES over the Soviet Union taken by the United States weather satellite Tiros have been sent to the Russians by the National Aeronautics and Space Administration. A polite note of thanks was received in return.

Future U. S. space efforts will include an ionosphere satellite launched jointly with the United Kingdom and an extensive program of scientific sounding rockets with more than a dozen Western allies.

The sounding rockets explore an area from 20 to 100 miles above the earth. NASA scientists have found for the first time evidence that heavy nuclei occur in the nitrogen region high in the earth's atmosphere. These heavy nuclei are believed to be released by the sun.

Another recent probe showed a distribution of energy in the Van Allen belts different than had been expected. The significance of this discovery is tied to the origin of the Van Allen belts.

NASA scientists at Greenbelt, Md., hope to extend the sounding rocket program to a global scale. But officials would not say whether they expect USSR participation in this program in the near future.

• Science News Letter, 79:363 June 10, 1961

SMALL MAGNET PULLS 150 LBS.

This amazing "Alnico V" radar Magnetron supplies lifetime, non-electric power for many uses by industry, craftsmen, experimenters, boatmen, fishermen, hobbyists. Retrieves valuable tackle, tools, guns, motors, etc. from salt or fresh water, deep tanks, shafts, drains. (3 x 3/4 x 4 in./wt. 6 lbs.) Pulls 150 lbs. on steel block. Cost gov. \$65. Only \$12.75 ppd.

"R SERIES" ALNICO V RETRIEVER ASSEMBLY
 R50 Pulls 50 lbs. (3 x 3 x 2 1/2 in./wt. 38 oz.).....\$3.95
 R75 Pulls 75 lbs. (3 x 3 x 1 1/2 in./wt. 42 oz.).....\$4.95
 R125 Pulls 125 lbs. (3 x 3 x 2 1/2 in./wt. 48 oz.).....\$7.95

SPECIALS
 H20 Hobbyist Assortment 12 valuable "odds & ends" small magnets.....\$2.00
 W35 Welder's Magnetic Positioner Block (2 x 2 1/2 x 2 1/2 in./wt. 2 1/2 lbs.).....\$3.75
 S10 Ring Magnet (2" OD, 1" ID, 1 1/2" L./wt. 1 1/2 lbs.).....\$4.95
 M30 Hot Pad, Bulletin Board, Multi-Purpose (3/4 x 3/4 x 3/4 in.).....10 for \$1.00
 C40 Self-Adjusting Magnetic Cabinet Door Latch.....3 for \$1.00
 P50 Pen-type, Handy Magnetic Pickup Tool.....3 for \$1.00

Money Back Guarantee. We pay postage.
MAGNA MAGNETICS, 7777 Sunset Strip, Los Angeles 46, Calif., Dept. S

SELF DEFENCE BY JUDO

by M. G. Harvey. An expert in the art of self-defence by the Japanese judo system of fast hand, arm, and foot maneuvers, illustrates and explains these techniques. Various holds, locks, and moves. 120 black and white drawings.

Self-teaching • Copiously illustrated
 \$2.50 Postfree • 10-day money-back guarantee

EMERSON BOOKS, Inc., Dept. 270-M
 251 West 19 Street, New York 11

RADIOMETER

American made. Balanced four arm vane, in a 3" diameter evacuated glass globe, turns upon exposure to light, any light, even a lighted match. Highly decorative, interesting, educational, instructive. A conversation piece. We guarantee yours to operate.

\$3.00 p.p. 2 for \$5.00 p.p.
HARRY ROSS Scientific & Lab Apparatus
 61-L Reade St., N.Y. 7, N.Y.

FREE

50

PAGE

OBSERVER'S

GUIDE



UNITRON

ASTRONOMICAL TELESCOPES

OBSERVER'S GUIDE

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 • Astrophotography

UNITRON

INSTRUMENT COMPANY • TELESCOPE SALES DIV.
 66 NEEDHAM ST. NEWTON HIGHLANDS 5, MASS.

Please rush to me, FREE of charge,
 UNITRON'S OBSERVER'S GUIDE and TELESCOPE
 CATALOG # 5-Q-2

Name _____

Street _____

City _____ State _____

