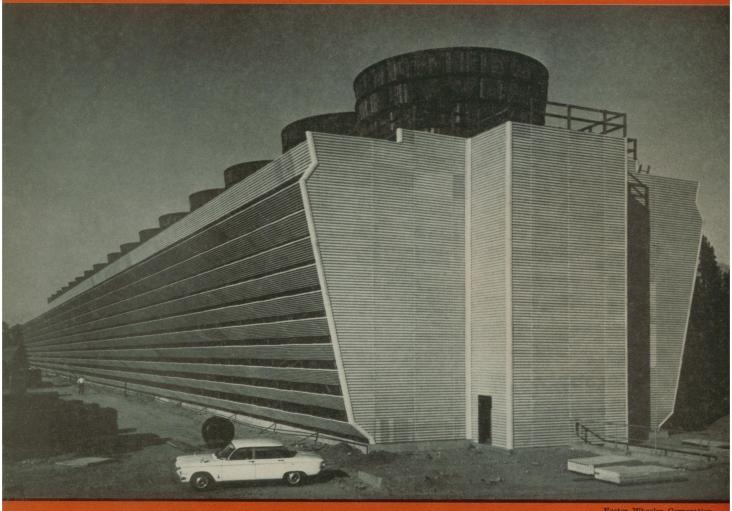
SCIENCE NEWS LETTER

WEEKLY SUMMARY OF CURRENT SCIENCE



Giant Water Cooler See Page 194

A SCIENCE SERVICE PUBLICATION



An indispensable guide for observational astronomers, beginners and specialists! What to look for . . . How to look for it . . . Where to find it

CELESTIAL OBJECTS FOR COMMON TELESCOPES

by Thomas W. Webb • Extensively revised by Margaret W. Mayall • Two volumes, only \$4.50

More than 100 years after its original publication, T. W. Webb's classic handbook has at last been revised and made once again available for the use and pleasure of everyone concerned with observational astronomy. An indispensable aid to the location and identification of thousands of celestial objects, it is a welcome addition to the working libraries of both serious hobbyists and professional astronomers without access to large-scale equipment.

Locates thousands of objects for you to observe!

Locates thousands of objects for you to observe! The handbook is perfect for introducing anyone to the fascinating hobby of astronomy and for guiding the observations of more experienced enthusiasts. Webb kept careful descriptive notes on the locations of stars, planets, comets, meteors, the sun, and the moon, noting exactly what he did during every observation. As a result, his handbook is really the next best thing to having an expert alongside, telling you what to look for, how to find it, and how to see it at its best advantage. There are clear, simple instructions on the operation and care of the telescope as well as vast quantities of data on thousands of celestial ob-

jects you can view through non-professional equipment. In short, this is virtually all you need to make observational astronomy not merely fun, but an instructive, systematic pastime.

The first volume, corrected and slightly revised from the sixth edition, covers the entire solar system, with the exception of Pluto and the asteroids. Following careful notes on astronomical observing, the operation of the telescope, camera, and spectroscope, there are chapters on the sun, Venus, the moon (over 90 pages1), Mars, Jupiter, Saturn, Neptune, Uranus, the comets, and the meteor swarms. Each chapter contains basic astronomical data, special features to watch for, and notes on atmosphere, phases, satellites, etc. There are extended geographical surveys, beginning at points you can find easily and moving to important areas on planets. The section on the moon is very full, with a crater-by-crater guided tour, lists of craters and observable features, and similar material The second volume, The Stars, has been carefully revised by Margaret W. Mayall, Director of the Amer. Ass'n. of Variable Star Observers. It contains the largest and finest collection of celestial objects that

can be studied with moderate-sized telescopes—over 4.000 in all. After an introduction explaining general processes of description and classification. Webb examines the heavens constellation by constellation. Within each, note is made of variables, double stars, nebulae, and other interesting features. Co-ordinates (Epoch 1920) in standard star cataloges are given for each object, as are relative position, magnitude, position angle, distance, color, and whatever else is required for fullness of coverage.

Mrs. Mayall has prepared a new Index for this edition, supplying location data for Epoch 2,000 for each of the thousands of objects. With the Index and the new Precession Table, you can readily locate any object in any given year. There is also a new selection of illustrations and a new chart of Mars, along with Goodacre's Index Map of the Moon, divided into quadrants.

1962 edition, revised by Margaret W. Mayall. 46 illus. 7 appendices (starless areas, constellation names, satellites, etc.). Index. Total of xxxix + 606 pp. 917-18 Two-vol. set. Paperbd. \$4.50

Other Dover Books.

579. SIR ISAAC NEWTON: A BIOGRAPHY. L. T. More. Definitive study of the life and work of the greatest scientist the world has produced, drawn from every known source. Fascinating chronicle, valuable discussions of far-reaching contributions to math, optics, light theory, chemistry, physics, xii + 675pp. Paperbd. \$2.50

299. SPECIFICITY OF SEROLOGICAL REAC-TIONS, Karl Landsteiner. Authoritative account of Nobel Prize winning author's experiments on antigens, serological reactions with simple compounds. Massive bibliography, plus definitive bibliography of author's own writings, xviii + 330pp. Paperbd. \$2.00

withings, xviii + 330pp. Paperbd. \$2.00

111. MATHEMATICAL TABLES & FORMULAS,
R. D. Carmichael & E. R. Smith. Carefully computed,
arranged tables and formulas for students, workers
requiring computations through calculus. Practical,
time-saving. 269pp.

Paperbd. \$1.00

time-saving. 269pp. Paperbd. \$1.00

LIFE HISTORIES OF NORTH AMERICAN BIRDS,
A. C. Bent. Hundreds of complete, detailed observations compiled under auspices of Smithsonian Institution. Every fact of plumage, voice, distribution, etc.
for all species 285-6 will of FOWL. Indexes, Biblicomplete the second of the second o

986. ERROR & ECCENTRICITY IN HUMAN BE-LIEF, J. Jastrow. Noted American psychologist den-onstrates the ineradicable gullibility of human race. Unmasks witchcraft, animal magnetism, dowsing, nu-merology, scores of frauds and their practitioners, 56 illus. xv + 394pp. Paperbd. \$1.85

1810s. xv + 394pp. Paperbd. \$1.85
152. STRING FIGURES & HOW TO MAKE
THEM, C. F. Jayne. The best work on an important,
entertaining folk art found in cultures the world over.
Cat's cradle, scores of related types diagrammed in
clear drawings, analyzed step-by-step, studied for folk
content, xxiii + 407pp. Paperbd. \$2.00

content, xxiii + 407pp. Paperbd. \$2.00

184. HYPOCRITICAL HELENA and 10 other verses, Wilhelm Busch. New collection of satirical classics by famous artist-versifier, complete with his original inimitable sketches. Human failings unfailingly castigated. New translations, plus original German texts. x + 205pp. Paperbd. \$1.00

121. PROBABILITIES & LIFE, Emile Borel, Easily followed introduction to probability, requiring no special knowledge of math. Covers accidents, disease, insurance, finance, games of chance, other everyday examples of probability. vi + 87pp. Paperbd. \$1.00

988. CONTEMPORARY GEOMETRY, Andre Delachet. Clear, mid-level picture of current research, with enough historical background to orient readers in terms of math already learned. 122pp. Paperbd. \$1.00

of math already learned. 122pp. Paperbd. \$1.00
987. THE MODERN THEORY OF MOLECULAR
STRUCTURE, B. Pullman. Only readable survey of
recent developments in atomic, molecular theory.
Wave functions; electronic structure of atoms; diatomic molecules; non-conjugated, conjugated molecules;
structure of complexes. 56 illus. 94pp. Paperbd. \$1.00

SPACE & TIME, Emile Borel. Non-technical introduction to relativity, unsurpassed for insight, clarity. Explains difficulties due to motion, gravity, inertia, geodesic lines, X-rays and crystal structure, other phenomena, concepts, theory. 15 figs. 278pp.

Paperbd. \$1.45

519. OUT OF THE SKY, H. H. NinInger. The how and why of meteorites and the science that studies their composition, origin, hundreds of other topics, More than 175 photos on 52 full-page plates, 22 figs. wiii + 336pp. Paperbd. \$1.85

viii + 336pp.

978. HEAT & ITS WORKINGS, M. Mott-Smith.
Covers theory, attributes, measurement, transmission
of heat, much more in one of the best introductions
to subject ever written. Simple, eminently readable.
50 illus. x + 165pp.

Paperbd, \$1.00

774. PANORAMA OF MAGIC, Milbourne Christopher. Amazing personalities of wizards through history come to life in fun-filled, fact-filled history of stage magic. Profusely illustrated with posters, ads, handbills from author's famous private collection. 295 illus., 4 color plates. viii + 216pp. 8 %x11½.

Paperbd. \$2.25

Paperbd. \$2.25

79. A HISTORY OF ASTRONOMY FROM THALES

TO KEPLER, J. L. E. Dreyer, Astronomical ideas
of ancient Egypt, Babylonia, Greece, Medieval Europe
and Islam; Copernicus, Brahe, Kepler, One of the
most complete, detailed accounts in English. "Standard reference," SKY & TELESCOPE. 23 diagrams.
448pp. Paperbd. \$1.98

448pp.

210. A SHORT HISTORY OF ASTRONOMY: From Earliest Times through 19th Century, A. Berry. More than 50 years of popularity attest to accuracy, readability of account of entire history of astronomy. For readers with no special knowledge of math, astronomy and for students. 104 illus. 471pp. Paperbd. \$2.00



287. SNOW CRYSTALS, W. A. Bentley & W. J. Humphreys. Only Bentley's brilliant micro-photos reveal all the detail of snow crystals. Over 2,000 of them, chosen for scientific and aesthetic qualities, plus related ice forms, introductory text make this unique work "most unusual and very readable," NATURE. 2,453 illus. 224pp. 8x10\(^4\). Paperbd. \$2.95

716, PIONEERS OF SCIENCE & DEVELOPMENT OF THEIR SCIENTIFIC THEORIES, Sir O. Lodge, Leading scientist unusually gifted with ability to explain even complex theory clearly describes early astronomy, work on light velocity, Lagrange and Laplace, tidal theories, etc. 120 illus. 419pp.

Paperbd. \$1.65

585. THREE COPERICAN TREATISES, E. Rosen. 585. THREE COPERICAN TREATISES. E. Rosen. Commentariolus, Narratio Prima, Letter Against Werner, three papers that first apprised the world of the coming Copernican revolution. "Both educational & enjoyable," ASTROPHYSICS JOURNAL. 877-tem bibliography. 19 illus. 293pp. Paperbd. \$1.75 537. ASTRONOMY OF STELLAR ENERGY & DECAY, M. Johnson. Non-technical Part I surveys fundamental observations made by physicists concerning stellar energy, decay. Part II offers more technical nsight into Saha theory, Wien's law, gamma theory. etc. 26 illus. 216pp. Paperbd. \$1.50 769. EINSTEIN'S THEORY OF RELATIVITY, Max BOPN. Newly revised, enlarged (1962) edition of analytical study of revolutionary theory. Nobel Lancate explains all on a mid-level for laymen, physics students, yii — 376pp.

ate explains all on a manufacture with 4 876pp.

Paperbd. \$2.00

756. AN ELEMENTARY SURVEY OF CELESTIAL MECHANIOS, Y. Ryabov. Lucid analyses of actual methods used in studying celestial phenomena. Ptolemaic system, principles of classical celestial mechanics, discovery of Neptune, etc. First U.S. printing, 165pp. Paperbd. \$1.25

Paperbd. \$1.25

322. THE PHYSICS OF MUSIC, A. Wood. A fine introduction to physical causes of sound: function of the ear, human voice and musical instruments, acoustics in halls, etc. Non-technical, absolutely reliable, thorough, 255pp.

335. MATHEMATICS, MAGIC & MYSTERY, M. Gardner. An expert on math magic writes of the laws that govern tricks with cards, dice, coins, geometrical vanishing effect, etc. 500 tricks you can do described, explained. 135 illus. 175pp.

Paperbd. \$1.00

703. SATELLITES & SCIENTIFIC RESEARCH.
D. King-Hole. Up-to-the-minute (*62) survey of every
aspect of satellite research. Russian and Western,
through Tiros III. Orbits, duration, equipment, discoveries, etc. Accurate, easily-followed, exciting. 61
illus. 228pp. Paperbd. \$2.00

Paperod. 52.00 Papero

Paperbd. \$1.85
627. THE SKY & ITS MYSTERIES, E. A. Beet.
Lively, absorbing laymen's introduction to major advances in astronomy, from Egypt to present, and the
problems that remain. "Eminently readable." LONDON TIMES. 60 illus. 238pp. Clothbd. \$3.50 DON TIMES. 60 illus. 23 spp. Clothdd, \$3.50 455. THE REALM OF THE NEBULAE, Dr. E. Hubble. No math beyond high school algebra required to follow exciting account of author's discoveries about "island universes" (extra-galactic nebulae). 55 illus. 226pp. Paperbd. \$1.50

226pp. Paperbd. \$1.50
119. MY BEST PUZZLES IN LOGIC & REASON-ING, H. Phillips ("Caliban"), England's best-known problemist collects 100 of his choicest for the mystification, enjoyment of Americans. All you need for solutions is an unclouded mind. Full solutions, worked out. x + 107pp. Paperbd. \$1.00

out. x + 107pp. Paperbd. \$1.00
713. PAPER-FOLDING FOR BEGINNERS, W. D. Murray & F. J. Rigney. Unusually full, clear text. plus 279 carefully labeled schematic diagrams make this the finest. "how-to" book for 43 amusing, delightful pieces of origami, useful objects, toys, etc. 95pp. Paperbd. \$1.00

ful pieces of origami, useful objects, toys, etc. 95pp. Paperbd. \$1.00

642. OPTICS & OPTICAL INSTRUMENTS: An Introduction with Special Reference to Applications, B. K. Johnson. Working models of telescope, microscope, photographic lenses, optical projection system, diagrammed, explained in full using only elementary math. For students, hobbyists, workers in field. 234 diagrams. 224pp. Paperbd. \$1.65

587. GREAT IDEAS OF MODERN MATHEMATICS, THEIR NATURE & USE. J. Singh. Differential equations, matrices, group theory, statistics, transformations, and the like explained for educated laymen by a remarkable teacher. Original publication. 65 illus. x + 312pp. Paperbd. \$1.65

277-8. MANUAL OF THE TREES OF NORTH AMERICA, C. S. Sargent. Incorporates the results of 44 years of research by America's greatest dendrologist, 185 genera, 717 species covered in most comprehensive book on the subject. 783 detailed drawings illustrate leaf, fruit, flower. 1 + 891pp. 2-volume set. Paperbd. \$4.00

Dept. 429. Dover Publications, Inc. 180 Variok Street, New York 14, New York Please send me the following books:							
I am enclosing \$ in full payment. Payment in full must accompany all orders except those from libraries and public institutions, who may be billed. Please add 10¢ per book to orders under \$5.00 to cover postage and handling.							
Please print							
Name							
Address							
City Zone State							
GUARANTEE: All Dover books unconditionally guaranteed. Returnable within 10 days for full refund. No questions asked							



Some of the fascinating people, inventions and places you'll visit in this spellbinding treasury: A HISTORY OF

ROCKETS AND SPACE • Besieged Chinese in 1232 A.D. hurl back Mongol hordes with the first incendiary rockets.

- The gigantic stainless steel missile which travels almost 30 times the speed of sound... around the world in an hour and a half!
- The Viennese astronomer who wanted to dig trenches in the Sahara Desert 20 miles long, fill them with flaming kerosene to signal to Martians!
- The Matador Pilotless Bomber— Takes off from "the smallest airport in the world!"
- © Cyrano de Bergerac's fanciful scheme for achieving space flight—evaporating bottles of dew toward the sun. The sun would draw the dew toward it—and the dew would carry along anything it was attached to!
- Is it true that a traveler in space moving near the speed of light will age only 3 years while men on earth age 21 years?

Includes Important Dates in Space Exploration . . Every Space Launching of Rockets, Missiles, Capsules . . . 115 Entries in All, from 150 B.C. to

rockets... a book thick with little-known and intriguing lore. This is a smattering of what you will encounter in "A History of Rockets and Space." You will never again be a mere "layman" when you read about a capsule launching, see a Telstar-relayed TV show, a planet probe. You'll see the new 2-man Gemini capsule as part of a chain that takes in Army bazookas and German Wasserfall missiles and English "whoopee" rockets... space stations whose forebears were dauntless early balloonists.

When this volume is published, we will send you a first-edition copy—for only 10¢. It is the first book in a new publishing project—complete in 12 volumes — called The New Illustrated Library of Science and Invention. It is so ambitious in scope that educators have praised it; so authentic that scientists have ordered the entire Library for their families; so filled with astonishing ideas and information that people have found whole new interests in science opening to them.

A prominent educator speaks of the importance of this series ...

"The New Illustrated Library of Science and Invention may be one of the most important contributions to the public's understanding of invention, and the highlights of the evolution of that particular invention. The non-scientist can read each volume without struggling for understanding, yet will gain comprehension of his subject. The books are as valuable for adults as they are for junior high school students and all readers in between."

C. V. NEWSOM

Former President of New York University, Former Associate Commissioner, Higher and Pro-fessional Education, State of New York

laboratory curiosity, the gasoline engine.

The volume on Weaponry describes everything from Neanderthal handaxes to medieval halberds and infra-red rifles.

Electricity takes you from Greeks worshipping "sacred fire" to Faraday's hair-raising experiments and modern, almost-thinking computers. Machines shows you primitive windlasses and hoists that led to pulse-jet motors and machines that reproduce themselves.

Flight takes you ballooning with

reproduce themselves.

Flight takes you ballooning with Montgolfier in 1783—the first man to leave the earth. Many pages and pictures later you dart through a near vacuum at 4,000 mph in the X-15. Medicine shows Egyptians treating illnesses with staghorn and charms. Waksmann stumbling on his astounding streptomycin mold. You see worlds born in Astronomy. Become caught up in absorbing

adventures in Physics, Communications, Chemistry, and Land Transportation

These are beautiful and well-made books

These are beautiful and well-made books Printed in Switzerland, these books are alive with rare, detailed illustrations, many in color — photographs, ancient maps, pictures from overlooked archives and libraries, paintings and drawings. Each volume is bound in hard linen covers. With "A History of Rockets and Space" for only 10¢ we will also send the second volume in the series, "A History of Ships and Seafaring." Here are Chinese floating department stores; Dutch jachts; English galleons; slave ships and ironclads; "autoboats" and hydrofoils and atomic submarines. You will be billed only \$4.95 for this volume, instead of the \$5.95 price—at which it will be sold in bookstores. If not pleased by these two volumes, return the entire shipment and you owe nothing.

No commitments to buy any set number of books

set number of books

One book a month will come to your home. You may instruct us to cancel your membership at any time. Then we will send no more books. For those you buy, you pay only the special subscription price of \$4.95 each, instead of the retail price of \$5.95—a saving of \$1.00 per book. Because this 10¢ offer of "A History of Rockets and Space" is so generous, we urge you to reserve your copy immediately. This opportunity may not be extended again. Send coupon now to: Hawthorn Books, Inc., Dept. SN-363, 70 Fifth Ave., New York 11, N.Y.

Yours-"A History of Rockets and Space" for 106-Send no money now
The New Illustrated Library of Science and Invention

Hawthorn Books, Inc., Dept. SN-36 70 Fifth Avenue, New York 11, N. Y.

Ship me-for only 10¢-the profuse-ly illustrated "A History of Rockets and Space." Also send me "A History of Ships & Seafaring" with a bill for only \$4.95 plus a small shipping charge (as against the \$5.95 single volume price). If not delighted with both volumes, I may return the entire shipment in 10.

Otherwise, once a month. I'll receive a new volume of The New Illustrated Library of Science and Invention – each at the specially reduced price of \$4.95, plus shipping, handling and insurance. I understand that I may cancel my subscription at any time, and no additional books will be sent to me.

days and owe nothing.	ın 10	tional	books	Will	be	sent	10	me.
Print Name								
Address								
City		Zo	one	Sta	ate.			C 1