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SCIENCE NEWS LETTER

®

THE WEEKLY SUMMARY OF CURRENT SCIENCE



Sacred Stone Restored

See Page 358

A SCIENCE SERVICE PUBLICATION

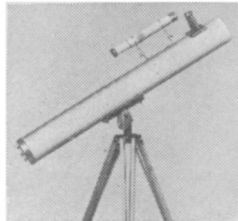
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 Stock No. 85,050-Q . . . \$29.95 Postpaid
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 UP TO 255 POWER

New Vibration-Free Metal Pedestal Mount



With this scope you can see everything described above, but with greater power. Also, it will split closer double stars. Mirror has twice the light-gathering power. Rack-and-pinion focusing, real equatorial mounting—only one motion needed to follow the stars! Aluminum tube. 6-power finder telescope. 2 standard-size eyepieces and mounted Barlow lens give you powers of 40x, 90x, 120x, and 255x. Low-cost accessory eyepiece available for higher powers. FREE with Scope: Valuable **STAR CHART** plus 272-page **"HANDBOOK OF THE HEAVENS"** plus the book **"HOW TO USE YOUR TELESCOPE"**. Shipping wt. 25 lbs.
 Stock #85,105-Q . . . \$79.50 f.o.b. Barrington, N. J.
 Same telescope as described above but equipped with Electric Clock Drive.
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Amazing Value—3 Achromatic Objective Lenses on Revolving Turret! Imported! The color-corrected, cemented achromatic lenses in the objectives give you far superior results to the single lenses found in the microscopes selling in this range. Results are worth the difference! Fine rack and pinion focusing.
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MOUNTED 500 POWER OBJECTIVE
 . . . Threaded for easy attachment on above microscope. Achromatic lenses for fine viewing. 3 mm. focal length.
 Stock No. 30,197-Q . . . \$5.00 Pstpd.



D-STIX CONSTRUCTION KITS
 Great Teaching Aid!

Newest, handiest visualizing and demonstration tool for teachers—elementary, high school or college. Colored wood sticks 1/8" thick and "easy-on" rubber joints approx. 3/16" diam. fit together quickly to form all kinds of simple or complex shapes, structures. Ideal for teaching mathematics, chemistry, physics, design, engineering, architecture, abstract art—or for developing children's interest in form and structure. Work out geometric figures, molecular structures, structural members, configurations and perspectives, models of many types. 3-dimensional visualization adds interest—speeds understanding. Used by professional planners, designers, architects. Money-back guarantee.

Stock No. 70,209-Q (220 pcs.) . . . \$3.00 Pstpd.
 Stock No. 70,210-Q (370 pcs.) . . . \$5.00 Pstpd.
 Stock No. 70,211-Q (452 pcs.) . . . \$7.00 Pstpd.

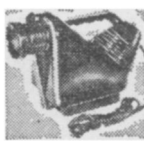
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Invaluable educational aid! Fascinating conversation piece! Skull is anatomically correct—made of natural bone color, bone hard, lifetime plastic. Parts snap together—take apart. Spring-action lower jaw. Removable skull cap for examination of skull cavity, nasal passages, etc. Ideal for scientists, doctors, dentists, teachers, students, artists. Stand and Instruction and Anatomy Chart included.

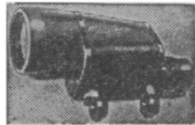
Stock No. 70,294-Q . . . \$4.95 Postpaid

Terrific Buy! American Model OPAQUE PROJECTOR



Projects illustrations up to 3" x 3 1/2" and enlarges them. No film or negatives needed. Projects charts, diagrams, pictures, photos, lettering in full color or black-and-white. Operates on 115 volt, A.C. current, 6-ft. extension cord and plug included. Operates on 60 watt bulb, not included. Size 12" x 8" x 4 1/2" wide. Weight 1 lb. 2 oz. Plastic case with built-in handle.

Stock No. 70,199-Q . . . \$7.95 Postpaid



Take Telephoto Shots Thru 7 x 50 MONOCULAR

This is fine quality, American made instrument—war surplus! Actually 1/2 of U.S. Govt. 7 x 50 Binocular.

Used for general observation both day and night, and to take fascinating telephoto shots with your camera. Brand new. Due to Japanese competition we close these out at a bargain price. Directions and mounting hints included.
 Stock No. 50,003-Q . . . \$15.00 Pstpd.

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CIRCULAR DIFFRACTION—GRATING JEWELRY



Shimmering rainbows of gemlike color in jewelry of exquisite beauty—made with CIRCULAR DIFFRACTION—GRATING REPLICAS. Just as a prism breaks up light into its full range of individual colors, so does the diffraction grating. Promises to become a rage in current fashion.

Stock #30,349-Q Earrings . . . \$2.75 Pstpd.
 Stock #30,350-Q Cuff Links . . . \$2.75 Pstpd.
 Stock #30,372-Q Pendant . . . \$2.75 Pstpd.
 Stock #30,390-Q Tie-Clasp . . . \$2.75 Pstpd.



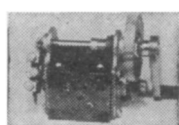
NEW! STATIC ELECTRICITY GENERATOR

Sturdy, Improved Model

See a thrilling spark display as you set off a miniature bolt of lightning. Absolutely safe and harmless. Sturdily made, 8" and 14" high. Turn the handle and two 9" plastic discs rotate in opposite directions. Metal collector brushes pick up the static electricity, store it in the Leyden jar type condenser until discharged by the jumping spark. Countless tricks and experiments. 24 page instruction booklet included.

Order Stock No. 70,070-Q . . . \$12.95 Postpaid

WAR SURPLUS ELECTRIC GENERATOR



Brand-new Signal Corps Generator for endless experiments, electrical uses, demonstrations. Generates up to 90 volts by turning crank. Use in high impedance relays. Ring bells. Or charge ground and bring up night crawlers for fishing bait. Has 2 Alnico Magnets.

Wt. 2 lbs. Cost to Government \$15.00.
 Stock No. 50,225-Q . . . \$4.95 Postpaid

BARGAIN VALUE! IMPORTED 10" SLIDE RULE



Made of rugged, non-warping bamboo, plastic coated. Contains scales K, A, B, C1, C, D and L on front, S, S' and T, and T on reverse, plus decimal equivalents, other important references. Top of ruler has an inch scale, bottom a centimeter scale. Glass cursor. Order now, compare for yourself against higher priced American or imported ones. If you are not completely satisfied, your money will be cheerfully refunded.

Stock No. 30,412-Q . . . \$4.75 Postpaid

1000 LB. CAPACITY ROPE HOIST



This extra-heavy duty hoist will have many, many uses around home, or farm, or industry. It uses a 2 1/2" long 3/4" rope, has steel swiveling hooks, roller bearings and a steel rope lock which holds in any position. It is reinforced at points of greatest strain. Takes 1000 lbs.
 Stock No. 70,316-Q . . . \$5.00 Postpaid

WOODEN SOLID PUZZLES



12 Different puzzles that will stimulate your ability to think and reason. Here is a fascinating assortment of wood puzzles that will provide hours of pleasure. Twelve different puzzles, animals and geometric forms to take apart and reassemble, give a chance for all the family, young or old, to test skill, patience, and best of all to stimulate ability to think and reason while having lots of fun. Order yours now.

Stock No. 70,205-Q . . . \$3.00 Postpaid

NEW! SCIENCE FAIR PROJECT KITS

What better way to say "Merry Christmas" to any science minded youngster than to give him one of these new Edmund Kits. They are carefully planned to give any boy or girl the fun and excitement of discovering science facts. Such carefully planned projects can lead the student to awards or scholarships. Adults too will find them an excellent introduction to the various fields of science.



For Junior High School and Beyond:

MOLECULE KIT—This low-priced kit can be used to make many molecular and crystal models. Consists of 50 sponge-rubber balls, 1 inch in diameter and 50 wooden sticks 6" x 1/4" that can be cut to any desired length. Balls can be painted, after assembly to standard molecular colors. With this one kit, molecules with up to 50 atoms can be made. Several kits can be used to make more complex models.
 Stock No. 30,413-Q . . . \$2.50 Postpaid

NUMBER SYSTEMS ABCS—Makes a dramatic exhibit demonstrating number systems other than the decimal system.
 Stock No. 70,334-Q . . . \$4.25 Postpaid

SOIL TESTING KIT—Basis for many fascinating experiments regarding growth of plants, etc.
 Stock No. 60,118-Q . . . \$2.00 Postpaid

TOPOLOGY—All the ingredients for a project on 4 color map problems, Moebius strips, etc.
 Stock No. 70,353-Q . . . \$6.00 Postpaid

CRYSTAL GROWING KIT—Grow breathtaking display of large crystals with this set.
 Stock No. 70,336-Q . . . \$9.50 Postpaid

For Ages 8 Thru Jr. High School:

MAGNETISM KIT—Based on magnetism demonstrations developed by UNESCO.
 Stock No. 70,325-Q . . . \$3.75 Postpaid

COLOR THROUGH POLARIZATION—Show the beautiful color effects produced by passing polarized light through transparent objects.
 Stock No. 70,350-Q . . . \$2.00 Postpaid

OPTICAL ILLUSION KIT—Diagrams, lenses, mirrors, etc. for producing many amazing optical illusions.
 Stock No. 70,352-Q . . . \$3.00 Postpaid

MATH TREASURE CHEST—Show your youngster that math can be loads of fun. Here are expertly selected collections of mathematical tools, games, gadgets, and other items that will give your boy or girl exciting fun for months to come and at the same time help him in school by enriching his understanding of mathematical principles and procedures.
 Stock #70,327-Q (Ages 8 to 11) . . . \$10.00 Pstpd.
 Stock #70,328-Q (Ages 8 to 12) . . . \$10.00 Pstpd.
 Stock #70,329-Q (Ages 12 up) . . . \$10.00 Pstpd.

ANALOG COMPUTER KIT

Ideal introduction to the increasingly important electronic computer field. For bright students, or anyone interested in this new science. Demonstrates basic analog computing principles—can be used for multiplication, division, powers, roots, log operations, trig problems, physics formulae, electricity and magnetism problems. Easily assembled with screwdriver and pliers. Operates on 2 flashlight batteries. Electric meter and 3 potentiometers are mounted on die-cut box. Answer is indicated on dial. Computer is 20" long, 9" wide, 2" deep.
 Stock No. 70,341-Q . . . \$14.95 Postpaid



MAGIC DESIGNER

For all geometric forms. This creative drawing toy doubles as a Math aid. More than a million different designs, including many important geometric figures, can be made. Appeals to serious student and child alike. The magic designer itself is 7 1/4" x 8 3/4" x 1 3/4". Comes complete with special die-cut paper discs of assorted colors, pencil and clear, easy to follow instructions.
 Stock No. 70,253-Q . . . \$4.95 Postpaid

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America's No. 1 source of supply for science experiments, hobbyists. Complete line of Astronomical Telescope parts and assembled Telescopes. Also huge selection of lenses, prisms, war surplus optical instruments, parts and accessories. . . Telescopes, microscopes, satellite scopes, binoculars, infra-red, sniper-scopes, . . . items for making "Science Fair" projects, math learning and teaching aids.
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EDMUND SCIENTIFIC CO., BARRINGTON, NEW JERSEY

How to extend Christmas THE WHOLE YEAR THROUGH

FOR THE MOST UNUSUAL PERSON
ON YOUR CHRISTMAS
LIST



Wouldn't he (or she) like a gift of twelve packages, one to arrive each month in 1961?

Twelve Surprises One each month for a year

IN EACH 1961 gift package, there will be several objects of science to be handled, looked at, experimented with, and owned by you. Included will be sheets of explanation which give the interesting details of discovery, of development, of manufacture; and tell how to perform unusual experiments with the contents of the package.

Since late in 1940, packages like these have been going forward to members of the THINGS of science group. Glance over this list, then decide whether a membership, which brings monthly packages on subjects as widely varied as these, isn't just the thing for that most unusual person on your Christmas Gift list.

- | | | |
|----------------------|--------------------|--------------------|
| Taste | Pesticides | Carbon Black |
| Food Packaging | Soils | Unusual Fabrics |
| Urea Chemical | Coffee By-Products | Lodestone |
| Fungicides | Iron Ore | Rayon |
| Sea Shell | Modern Cotton | Tin |
| Color Vision | Multi-Layer Wood | Casein |
| Nails | Fingerprint | Rubber Plant |
| Paper Chromatography | Mineral Hardness | Spices |
| Glass Properties | Kidskin | Papermaking |
| Petrology | Humidity | Steel |
| Fertilizer Chemicals | Polaroid | Coal By-Products |
| Titanium | Tea | Nylon |
| Computation | Motion Picture | Vinyl Resin Fibers |
| Lens | Highway Safety | Insecticides |
| Seed Germination | Modern Electronics | Horology |

You know the one who would thank you again and again for such a gift. And if you are not yourself a member, you could hint to someone that you'd like it as a gift yourself.

The 1961 THINGS of science will be unusual; every month's package will be a surprise. A Christmas Membership to THINGS of science will bring the 12 units of 1961. We will make out and mail a Christmas card with your name as donor, announcing your gift. Each membership is \$5 a year, postpaid. You will find a handy order coupon below.

Gift from

MY NAME.....

STREET ADDRESS.....

CITY & STATE.....

Mail this order to THINGS of science, 1719 N St. N.W., Washington 6, D. C., for the 12 units of 1961.

- I enclose \$5.00 for the following
 Please bill me after Christmas

Gift to

NAME.....

(Please Print)

STREET ADDRESS.....

CITY & STATE.....

MAKE OUT Christmas Card
TO READ from.....

Kodak reports on:

a camera for a progressive Christmas . . . polyester electrically upgraded . . . a book for the very fussy customer . . . new black-and-white film speed numbers

Inverse squares are square

Christmas is coming, a time when one can quit being obnoxiously logical about all things, a time of fun and acquisition for kin and self. Maybe the family needs a new camera. Cameras nowadays must be automatic. A non-automatic camera suggests lack of respect for progress.



The *Kodak Motomatic 35 Camera* is the most automatic of automatics. Energy for advancing the film and cocking the shutter for ten pictures is supplied from a spring wound in loading the camera. You can fire all ten in ten seconds, then re-wind the spring and fire off ten more. Not only is the *f*/number photoelectrically set for ASA Indices of 10 to 800 and shutter speeds from 1/40 to 1/250, but for flash the act of focusing adjusts the opening to the guide number. There is no

need to trouble the little woman with the law of inverse squares.

Less than \$110 at most Kodak dealers'. You can also get a generator flash holder for less than \$14.

New recipe

Polyester in sheeting means strength with thinness. Chemically it means a polymer condensed from alternating units of dibasic acid, usually terephthalic, and a glycol, usually ethylene glycol until we went to cyclohexane dimethanol in Kodel Polyester Fiber.

With the switch, some isophthalic acid added to the recipe, and six years of cleaning up details, there emerges a polyester resin that keeps its dielectric constant really constant up to 130° C, which could not be said of earlier polyester. Its dissipation factor is 0.3% at 100° C, where the old ran to 1.2%. Since it also better resists humidity, acid, and bases, it is excellent for insulation and frozen food wraps. As a capacitor film at 2000 v/mil, it outlasts the old 8 to 1.

Eastman Chemical Products, Inc., our subsidiary, sells the resin. Acme Backing Corporation, Canal and Ludlow Streets, Stamford, Conn., turns it to what others call film and we (for whom "film" has another meaning) call sheeting. Acme will gladly expatiate.

Color fancily repackaged

"You press the button, it does (or in an alternate version, "we do") the rest." It was one of the more successful slogans in advertising history. It made us

a great deal of money. Millions bought the philosophy, and millions still buy it. A few hundred thousand don't buy it. Them, too, we love, admire, and respect. We have just published a fancy new book for them. Fancy is the word.

This book contains more than just pages. Snuggled among them are an actual standard color negative and positive, two special slide-rule computers, and a big nomograph in color about color correction. One of the pages has windows fitted with six different color-print viewing filters. Under the title "Kodak Color Data-guide," it is sold by camera shops for \$4.95. (If you send a check to Eastman Kodak Company, Sales Service Division, Rochester 4, N. Y., we shall sigh at how people have forgotten how to walk these days and mail you a copy.)

Frightening as it looks, the book contains virtually no photographic theory. It is a repackaging of operating instructions for two basic categories of users (a better word in this case than "readers"):

1) *The professional, be he photographer, scientist, or something in between.*

Commercial color labs in many cities do slick work in making color prints or transparencies from exposed film. But when requirements are too specialized to convey to labs geared for production, the hard way may be the better way.

2) *The dedicated amateur who might be painting in oils or water-colors if only he had a better hand for it and who finds that serious color photography brings into play the exact combination of technology and a good eye that best unwinds him from workaday cares.*

In art, the best effects often come from a skillful violation of the rules. But the result is usually a mess unless one has first perfected himself in the rules.

Too conservative

Only conservatives sit on committees that formulate standards for specifying film speeds. They set their lips in thin lines when they overhear enthusiasts trying to top each other with speed numbers. In the '40s they fixed the enthusiasts for fair. They defined the index so as to result in 2½ times the least exposure that even a stern judge would already have to accept as producing negatives of the highest pictorial quality.

They now confess that they leaned over backward too far for minimum grain and maximum sharpness from modern black-and-white films, modern practices, and modern equipment. The following speed numbers are derived from the revised American Standard:

| KODAK PANCHROMATIC FILMS | |
|-----------------------------|------|
| Sheet Films | ASA |
| Panatomic-X | 64 |
| Portrait Panchromatic | 125 |
| Super-XX Panchromatic | 200 |
| Super Panchro-Press, Type B | 250 |
| Tri-X Panchromatic | 400 |
| Royal Pan | 400 |
| Royal-X Pan | 1250 |
| Roll Films | ASA |
| Panatomic-X | 40 |
| Verichrome Pan | 125 |
| Plus-X Pan Professional | 160 |
| Tri-X Pan | 400 |
| Royal-X Pan | 1250 |
| 35mm Films | ASA |
| Panatomic-X | 40 |
| Plus-X Pan | 160 |
| Plus-X Portrait | 160 |
| Tri-X Pan | 400 |

Note that only one figure is given for each film because most meter cells have about the same spectral response as panchromatic film. Two are needed for:

| Kodak Blue-Sensitive and Orthochromatic Sheet Films | ASA Daylight | Tungsten |
|---|--------------|----------|
| Commercial | 50 | 16 |
| Commercial Ortho | 80 | 25 |
| Super Speed Ortho | | |
| Portrait | 125 | 64 |
| Royal Ortho | 400 | 250 |

Prices subject to change without notice.

This is another advertisement where Eastman Kodak Company probes at random for mutual interests and occasionally a little revenue from those whose work has something to do with science

Kodak
TRADE MARK