

science news

March 13, 1971 **25c**
vol. 99, no. 11, pp. 173-188

RIVERBANK VEGETATION

Should it be sacrificed
to save water?



Show science students how it works with

ANIMATED

TRANSPARENCY DEVICES FROM 3M

ready for use on any overhead projector

3M brings a new dimension to science instruction demonstration with animated moving part transparencies for overhead projection. Each transparency is more than a picture. It is a transparent working model of the real thing which you can actually operate while you project it in a size the whole class can see.

To order, simply indicate your quantity requirements below. Then mail the entire ad to 3M's Visual Products Division.

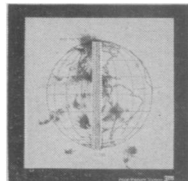
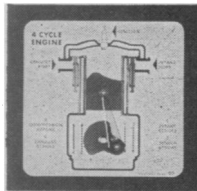
FOUR-CYCLE OR TWO-CYCLE ENGINE

Has intake, exhaust, working piston. 4-Cycle 15-1041-1 TE-4

Ship _____ (quan.)
\$23.00 each

2-Cycle 15-1040-3 TE-4

Ship _____ (quan.) \$23.00 each

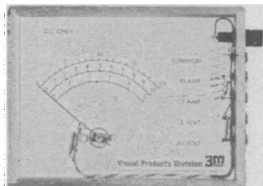


MAGNETISM KIT

Students actually see flux lines take shape. 15-1039-5 TE-4

Ship _____ (quan.)
\$18.00 each

D.C. VOLTMETER-AMMETER



With dual ranges (0-5, 0-20 volts, 0-1, 0-10 amps), banana jacks for easy connections. 15-1042-9 TE-4

Ship _____ (quan.) \$57.00 each

Visual Products Division **3M** COMPANY

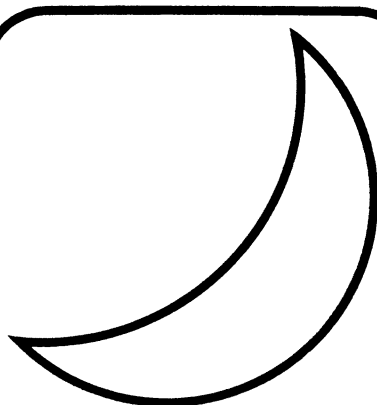
Visual Products Division Dept. TE4
3M Company, P.O. Box 3100
St. Paul, Minn. 55101

Gentlemen:
Please ship the science teaching devices checked above in quantities indicated to:

Name _____
Title _____
School _____
Address _____
City _____ State _____ Zip _____

BILL TO: Name _____
Title _____
School _____
Address _____
City _____ State _____ Zip _____

Check or M.O. enclosed Bill as indicated above
 Please send complete Visual Products Catalog (free).



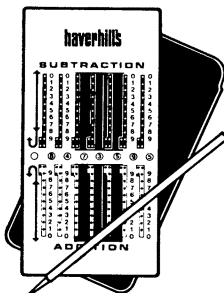
are you smart?

The very fact that you are a reader of **Science News** establishes you as a pretty smart cookie! But here is another test of your smartness. Try your hand at dissecting this Crescent Moon with five straight pencil lines—so as to get the greatest possible number of pieces.

How did you do? Send us your solution and we'll tell you how smart you really are. If your answer is 12 or more we'll send you a "Smartness Certificate" on genuine imitation sheepskin, suitable (if you insist) for framing. We'll also send you the "Official Solution" to this innocent problem which we think will surprise you!

That's not all: You'll also receive our **Super-Smart 1971 Catalog** that many have called "America's Greatest Wishbook." Just slice up the moon and send us your solution with your name, address & zip. We'll think you're smart and you'll be our friend... always!

If you are not only smart, but also pretty cagey, clip a \$2.00 check to your solution. Then we'll include our impressive & practical **Nifty Pocket Calculator** that adds, subtracts—and even multiplies & divides in a crunch)—up to 999,999,99! Comes in a neat slipcase. In addition (excuse the pun) you'll get a **\$2 Gift Certificate** that you may apply to your first purchase from Haverhill's. Which really makes the **Pocket Calculator FREE** doesn't it? Sometimes we wonder how smart we really are.



haverhill's

581 Washington St., San Francisco 94111
SNO-3-13-71

IS THERE A CHEMIST IN THE HOUSE???

Only \$4.00 Plus \$1.50 p.p.
Will bring 49 "PLUS" individual, assorted, items of standard quality laboratory apparatus: glassware, porcelain, rubber, plastic, etc., etc. Value? 2 to 3 times our offer. None dangerous. No junk. Surprise items. Pyrex Advanced Student Assort. @ \$10 plus \$2.50 p.p.
HARRY ROSS Scientific & Lab. Projects
61-L Reade St. N.Y. 10007



SCIENCE EXPLORING AT SPRUCE MOUNTAIN CAMP FOR BOYS

BRYANT POND, MAINE
New knowledge, new skills, new challenges in 3 major areas—Science Exploring, Outdoor Exploring and Lifetime Sports. Boys 10-15. Field, mountain, canoe trips. Outpost at Mt. Katahdin. Ham radio, photography, plants, animals, weather, geology, ecology, astronomy. Staff inquiries invited. Catalog:
William T. Harty
12 Highland St., W. Medway, Mass. 02053

Cargille Send for Free Data Sheet SS
SAMPLE STORAGE SETS & BOXES Contains Technical and Application Information, and Prices
R. P. CARGILLE LABORATORIES, INC.
CEDAR GROVE, N. J. 07009 U.S.A.

TELLS HOW TO SELL YOUR INVENTION

If you have an invention that you believe has merit, write us at once for copy of copyrighted booklet "How to Go About Selling Your Invention." We work with manufacturers, and booklet reveals present markets, qualities of a saleable invention, current royalty rates being paid by manufacturers. Booklet is FREE, is offered to encourage new ideas we might submit to manufacturers. Just send name (no drawings please) to Kessler Sales Corp., Dept. D-413, Fremont, Ohio 43420

IT'S EASY . . . to order a subscription to SCIENCE NEWS simply fill out and mail this coupon

Your Name _____
Occupation _____
Address _____
City _____ State _____ Zip _____

Check here to begin your subscription.

Check here to extend your current subscription.

1 year \$7.50 2 years \$13.50

3 years \$19.50

Check here to send a gift subscription to:

Gift to _____
Address _____
Occupation _____
City _____ State _____ Zip _____

A Science Service Publication
Vol. 99/March 13, 1971/No. 11
Incorporating Science News Letter

Watson Davis, 1896-1967

Publisher: E. G. Sherburne Jr.

Managing Editor: Kendrick Frazier

DEPARTMENTS

Aerospace: Everly Driscoll

Earth Sciences: Louise Purrett

Environmental Sciences: Richard H. Gilluly

Physical Sciences: Dietrick E. Thomsen

Copy Editor: Nadine Clement

Production: Robert Trotter

Production Assistant: Melinda Armistead

Books: Margit Friedrich

Editorial Assistant: Esther Gilgoff

Advertising: Scherago Associates, Inc.

Circulation: Gustave T. Wescott

Copyright © 1971 by Science Service, Inc.,
1719 N Street, N.W., Washington, D.C. 20036.
Republication of any portion of SCIENCE NEWS
is strictly prohibited.

SUBSCRIPTION DEPARTMENT
231 WEST CENTER STREET
MARION, OHIO 43302

Subscription rate: 1 yr., \$7.50; 2 yrs., \$13.50;
3 yrs., \$19.50. Special trial offer: 39 weeks,
\$3.97. Single copy, 25 cents. \$1.00 per year for
foreign postage. Change of address: Four to
six weeks' notice is required. Please state
exactly how magazine is to be addressed. In-
clude zip codes.

Printed in U.S.A. Second class postage paid at
Washington, D.C. Established as Science News
Letter ® in mimeograph form March 13, 1922.
Title registered as trademark U.S. and Cana-
dian Patent Offices. Indexed in last Science
News of June and December, in Reader's Guide
to Periodical Literature, Abridged Guide and
the Engineering Index. Member of Audit Bu-
reau of Circulation. UNSOLICITED MANU-
SCRIPTS will not be returned unless accom-
panied by a stamped, self-addressed envelope.

Published every Saturday by SCIENCE SER-
VICE, Inc., 1719 N St., N.W., Washington, D.C.
20036. NOrth 7-2255. Cable Address: SCIEN-
SERV.

ADVERTISING STAFF

Director: EARL J. SCHERAGO

Advertising Sales Manager:

RICHARD L. CHARLES

Production Manager:

BONNIE F. SEMEL

Address all advertising to Scherago Associates,
11 W. 42nd St., New York, N.Y. 10036.

Sales: New York, N.Y. 10036: Herbert L. Burk-
lund, 11 W. 42 St. (212-PE-6-1858); Scotch
Plains, N.J. 07076: C. Richard Callis, 12 Unami
Lane (201-889-4873); Medfield, Mass. 02052:
Richard M. Ezequelle, 4 Rolling Lane (617-444-
1439); Chicago, Ill. 60611: John P. Cahill, Room
2107, 919 N. Michigan Ave. (312-DE-7-4973);
Beverly Hills, Calif. 90211: Winn Nance, 111 N.
La Cienega Blvd. (213-657-2772).

OF THE WEEK

- 177 Environment R&D: Promise vs. performance
- 178 Scyllac begins operation
Gap in heavy-ion accelerators
- 179 China's second satellite
Priorities for space science
- 180 Hot spots and crust motions
Retraining aerospace workers
- 181 Earth Sciences: Crustal deformation in Italy; Formation of Antarctica's cirques; Seasonal geomagnetic variations; Supernova theory of organism extinction; Report on Allende meteorite shower
- 182 Behavioral Sciences: Parental behavior toward firstborns; New light on alcoholism; Photography for social research; Syntax and reading; Invalidating the lie detector
- 183 Physical Sciences: Time out on electron-ring accelerator; Heavy-ion accelerator scheduled; Chemical analysis by mu mesons; Variation on cancer radiation methods; Uncertainties about superconducting magnets

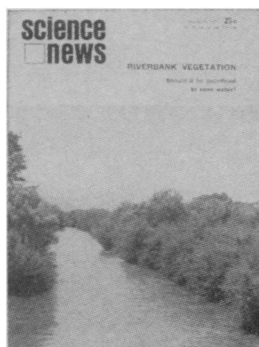
IN SCIENCE FIELDS

- 184 Environment: Defoliation along Arizona's waterways

176 Letters to the Editor

Films of the Week

186 Books of the Week



In Arizona and other arid states in the West, proposals have been made to remove vegetation from the banks of some waterways to conserve water. This stretch of the Gila River, one of the best wildlife habitats in Arizona, is scheduled for clearing. See p. 184. (Photo: Arizona Game and Fish Dept.)

SCIENCE SERVICE

Institution for the Popularization of Science founded 1921; a non-profit corporation

Board of Trustees—Nominated by the American Association for the Advancement of Science: Athelstan F. Spilhaus, West Palm Beach, Fla.; Wallace R. Brode (Treasurer), American Chemical Society, Washington, D. C.; Bowen C. Dees, Franklin Institute, Philadelphia, Pa. Nominated by the National Academy of Sciences: Henry Allen Moe, The Clark Foundation; Harlow Shapley, Cambridge, Mass.; Allen V. Astin, Bethesda, Md. Nominated by the National Research Council: Glenn T. Seaborg (President), U.S. Atomic Energy Commission; Leonard Carmichael, National Geographic Society. Nominated by the Journalistic Profession: O. W. Riegel (Secretary), Washington and Lee University; Gordon B. Fister, Call-Chronical Newspapers. Nominated by the Edward W. Scripps Trust: John Troan, Pittsburgh Press; Edward W. Scripps II (Vice President), Edward W. Scripps Trust.

Director: E. G. Sherburne Jr.; Assistant Director: Dorothy Schriver; Staff, Youth Division, Howard Weisbrod; Things of Science, Ruby Yoshioka.