

GENERAL SCIENCE

# Science Fair Winners

Entries in the 12th National Science Fair-International included 385 finalists from 200 local and regional fairs. The high caliber of the projects tied two top awards.

## See Front Cover

► **SIX TOP WINNERS** in this year's National Science Fair-International, sponsored by SCIENCE SERVICE May 10-13 in Kansas City, Mo., include two ties for first place honors in the two major judging divisions for girls' exhibits.

Tied in the girls' biological sciences division were Victoria Sue Richards, 17, Terre Haute, Ind., and Karen Orton Hodges, 17, San Antonio, Texas.

Victoria studied the nutritional possibilities of the Osage orange fruit, or common "hedge ball." After proving it was non-toxic, she went on to process it for use as animal food, extract oil and alcohol from it, and even use it in recipes for cookies and bread.

Karen studied the ecology of shallow beach water on Mustang Island, Texas, stressing factors affecting the abundance of microorganisms.

In the boys' biological division, top award went to James Michael Hosford, 18, Atlanta, Ga., who extracted the molt-controlling hormone from crayfish, injected it in mice, and tested the urine from the mice to establish an increase in calcium concentration. His project suggests possible medical applications.

Judges in the girls' physical sciences division could not make a choice between

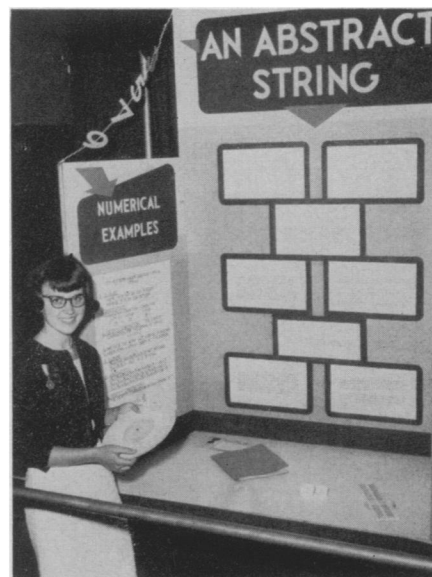
Mary Frances Anderson, 17, San Diego, Calif., and Joyce Lea Yucker, 17, Albuquerque, N.M., and awarded another first-place tie. An "abstract string" suggesting relationships between abstract algebra and studies of intuition, was Mary Frances' winning project. Joyce's exhibit dealt with extraction and isolation of L-cystine from the keratin of human hair.

Winner in the boys' physical sciences division was Richard G. Brusck, Jr., 17, Munster, Ind., who constructed and demonstrated a device for testing characteristics of a rocket nozzle, using compressed air.

All of these winners will receive "Wish Awards" of \$125 of scientific equipment or books of their own choice.

Presentation of the awards followed a talk (to be featured in next SNL) given by Dr. Robert Jastrow, chief, theoretical division, Goddard Space Flight Center, National Aeronautics and Space Administration.

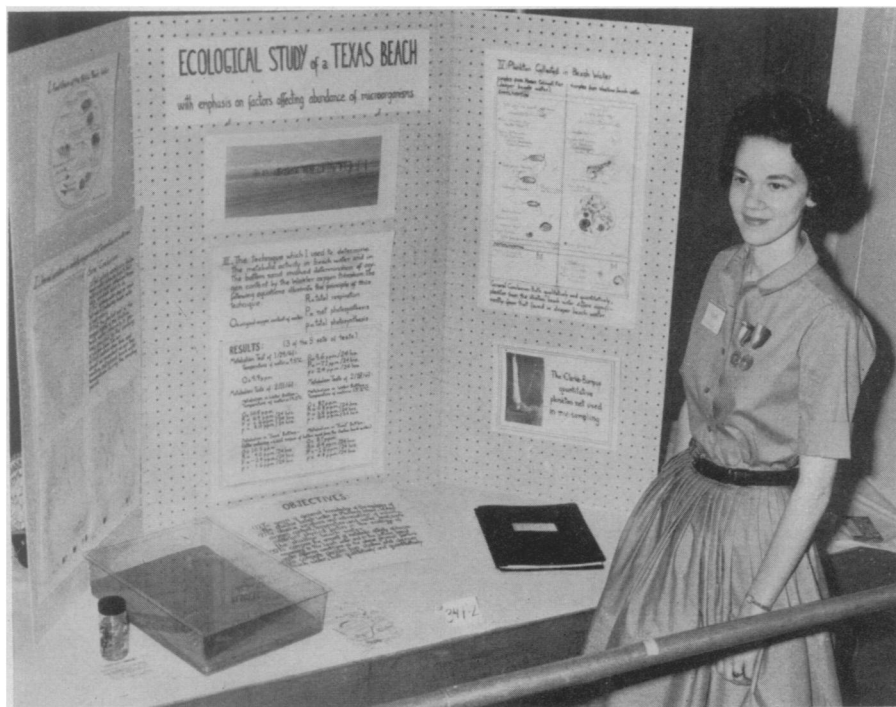
Second Awards and \$75 Wish Awards went to: Arvie Caughfield, 17, Harlingen H.S., Harlingen, Tex., "Studies on Cotton Root Rot"; Ava Leavell, 16, John Tyler H.S., Tyler, Tex., "Flux Lines and Solubility"; Robert W. Berner, 17, Flathead County H.S., Kalispell, Mont., "Nuclear Magnetic Resonance," also winner of U. S. Army 1st award; Christopher George Cherniak, 16, Melbourne H.S., Melbourne,



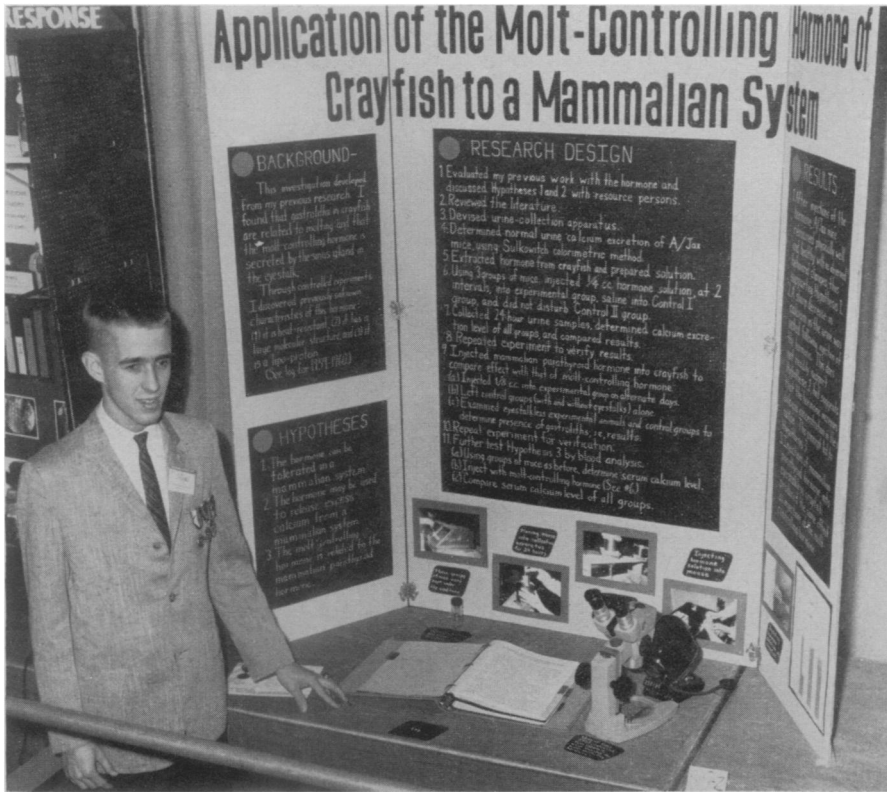
MARY FRANCES ANDERSON—A project on algebra and intuition.

Fla., "Development and Use of Tissue Culture of Functioning Single Neurons," also winner of AMA, U. S. Army, USAF and U.S. Navy first awards; Robert E. Fischer, 17, a three-time finalist, Forest Hills H.S., Forest Hills, N. Y., "Design, Construction and Use of a Modified Cassegrain Electronic Astronomical Spectrum Analyzer," also winner of USAF first award and OSA second award; David C. Hill, 16, a two-time finalist, Grand Blanc H.S., Grand Blanc, Mich., "New Titanium Polymers," also winner of ADA Certificate of Meritorious Achievement and \$50, ACS, and the U.S. Army first awards; Robert Himes, 17, Belmont H.S., Dayton, Ohio, "The Peripheral Jet Ground Effect Machine," also winner of U.S. Army and USAF first awards; Edward Charles Jones, 18, a 1961 Science Talent Search Winner, Wakefield H.S., Arlington, Va., "Convex Smooth Curves"; and Robert E. Strom, 14, a two-time finalist, Bronx H.S. of Science, New York, N. Y., "Symbolic Compiler for Arithmetic and Logical Programs," also winner of U.S. Army and USAF first awards.

Third Place Awards and \$50 Wishes went to: Nancy Ann Free, 17, Immaculata H.S., Washington, D.C., "Triangular Proof of the Law of Probability"; Margaret Valeria Green, 16, Enka H.S., Enka, N.C., "Taxonomy of *Cladonia cristatella* (Lichens)"; Sandra Hager, 17, Milwaukee Lutheran H.S., Milwaukee, Wis., "Cancer Chemotherapy"; Astrid Imke Hausch, 17, Lower Moreland H.S., Huntingdon Valley, Pa., "Retention of a Maze Habit in Planaria After Sectioning"; John Franklin Alexander, Jr., 18, Leon H.S., Tallahassee, Fla., "Videotronic—An Electronic Aid for the Blind"; Gary N. A. Botting, 17, a two-time finalist, Adam Scott Collegiate and Vocational Institute, Peterborough, Ontario, Canada, "Intergeneric Hybridization Among Giant Silk Moths," also winner of NPCA first award; Charles K. Jablecki, 17, East Providence Senior H.S., East Providence, R.I., "Curvature of Droplets"; Karl Le-



KAREN ORTON HODGES—Studied the ecology of shallow beach water.



**JAMES MICHAEL HOSFORD**—Injected crayfish hormone into mice.

Grande Magleby, 18, Highland H.S., Salt Lake City, Utah, "Applied Research in Model Aeronautics"; Keith Goley Morgan, 18, Idaho Falls Senior H.S., Idaho Falls, Idaho, "Phonetic Digit Recognizer," also winner of U.S. Army first award; John H. Pickett, 17, Tantasqua Regional H.S., Sturbridge, Mass., "Spectrographic Analysis of Electron Excitation in Chlorophyll A"; Wayne Lee Settle, 18, a three-time finalist, Portland-Wayne Twp. Senior H.S., Portland, Ind., "Mutations Produced by the Irradiation of German Millet Seeds"; Baylor B. Triplett, 18, Highland H.S., Albuquerque, N.M., "Solid Rocket Propellants," also winner of U.S. Army, USAF and NASA first awards; Kenneth Linn Weaver, 15, Greeley H.S., Greeley, Colo., "Carnotite Radiation on Reproduction and Mortality Rates of *Daphnia magna*," also winner of U.S. Navy first award; Charles Theodore Womack III, 17, Greenwood H.S., Greenwood, Miss., "The Effects of Splenic Extracts on Sarcoma in Two Animal Species," also winner of AVMA and Path.-Med. Tech. first awards; and David Laster Zalkind, 16, Wakefield H.S., Arlington, Va., "A Study of Prime Numbers."

Fourth Place Awards and \$25 Wishes went to:

ALABAMA—Omer L. Burnett Jr., 17, Sylacauga H.S., Sylacauga; James S. McAler, 17, McGill Institute, Mobile.

ARKANSAS—Jon G. Wilkes, 17, Hall H.S., Little Rock.

CALIFORNIA—Steven W. Agee, 18, Mt. Whitney H.S., Visalia; Erwin D. Fitch, 18, Holy Cross H.S., Santa Cruz; Judith Jaime, 16, Pacific H.S., San Bernardino; John L. Koethe, 15, Hoover H.S., San Diego; Steven

David Rosen, 17, Menlo-Atherton H.S., Atherton.

CANADA—Patrick T. McCool, 15, St. Columba's School, Pembroke, Ontario.

COLORADO—Steve W. Ballentine, 17, Abbey School, Canon City; Robert K. Colwell, 17, George Washington H.S., Denver. CONNECTICUT—Francis P. Pandolfi, 18, Kingswood School, West Hartford.

DELAWARE—Margaret E. Cairns, 17, Alexis I. duPont H.S., Wilmington.

FLORIDA—Judith L. Coy, 18, Boca Ciega H.S., Gulfport; Joseph Palatinus Jr., 17, Hillsborough H.S., Tampa.

FRANCE—Julia E. Tiede, 16, Paris American H.S., Paris.

GEORGIA—Mary Ann Asbell, 17, Glynn Academy, Brunswick.

IDAHO—Jesse W. Abbott, 18, Meridian H.S., Meridian; Beth Anne Burt, 16, Boise H.S., Boise.

ILLINOIS—Richard H. Axelrod, 17, James H. Bowen H.S., Chicago.

INDIANA—Mike F. Gorski, 17, T. C. Howe H.S., Indianapolis.

IOWA—Fred C. Damm, 17, Linn-Mar H.S., Marion; William C. Leighty, 17, West H.S., Waterloo.

JAPAN—Mizue Mori, 18, Marugama H.S., Kagawa-Ken.

KANSAS—Linda Dotson, 17, Rosedale H.S., Kansas City; Barbara Ann Winden, 18, Monsignor Luckey H.S., Manhattan.

MARYLAND—Richard L. Falwell, 16, Walter Johnson H.S., Rockville; Thomas R. Shepler, 17, Towson H.S., Towson; Stewart R. Wood, 16, Bladensburg H.S., Bladensburg.

MASSACHUSETTS—Joseph F. Litwin Jr., 18, Masconomet Regional H.S., Boxford; Keith R. Plossl, 16, West Springfield

H.S., West Springfield; Donald O. Whittemore, 17, Wachusett Regional H.S., Holden.

MICHIGAN—Charles M. Howey Jr., 17, Central H.S., Bay City; Barbara E. Parker, 17, St. Cyril H.S., Detroit.

MISSOURI—Michael L. Johnson, 17, Lebanon H.S., Lebanon; Ramsey A. Lammers III, 18, St. Charles H.S., St. Charles.

NEW JERSEY—Joseph F. Karnicky, 17, Notre Dame H.S., Trenton; James L. Maskasky, 18, Long Branch H.S., Long Branch.

NEW MEXICO—Douglas J. Elder, 19, Sandia H.S., Albuquerque; Rosemary T. Smith, 18, Carlsbad H.S., Carlsbad.

NEW YORK—Deborah Chase, 15, Bronx H.S. of Science, New York; Larry R. Presser, 16, Stuyvesant H.S., New York; Melodie M. Williams, 17, Chateaugay Central School, Chateaugay.

NORTH DAKOTA—Allen A. Redmann, 18, Walsh Co. Agricultural School, Park River.

OHIO—Rita C. Manak, 16, Lourdes Academy, Cleveland.

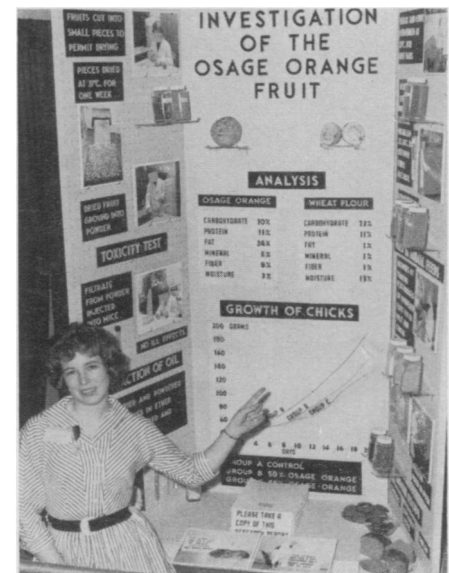
OKLAHOMA—Betty Ann Broding, 17, Thomas A. Edison H.S., Tulsa; Michael A. Phillips, 17, East Central H.S., Tulsa; Garrett Whitney, 15, College H.S., Bartlesville.

PENNSYLVANIA—Allen I. Burstiner, 17, Cedar Cliff H.S., Camp Hill; Gregory F. Fiore, 17, Lackawanna Trail Joint H.S., Factoryville; Walter L. Miller, 17, Nazareth Area H.S., Nazareth; Jay Sarajian, 17, Lower Moreland H.S., Huntingdon Valley; Ann E. Stuart, 17, Camp Hill H.S., Camp Hill.

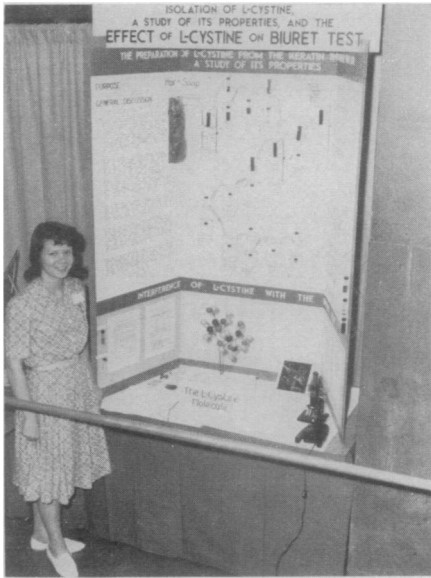
RHODE ISLAND—Kathleen M. McCarten, 15, St. Xavier Academy, Providence.

TENNESSEE—James R. Bishop, 16, Adamsville H.S., Adamsville; David C. Evans Jr., 17, White Station H.S., Memphis; Brenda W. Lisle, 17, Red Bank H.S., Chattanooga.

TEXAS—Mary E. Corneil, 16, Robert E. Lee H.S., Baytown; William R. Eason, 17, Longview H.S., Longview; James R. Hargrave Jr., 18, Wichita Falls H.S., Wichita Falls; Jack B. Hunnicutt, 18, R. L. Paschal H.S., Fort Worth; Kenneth R. Short Jr., 18, Permian H.S., Odessa.



**VICTORIA SUE RICHARDS**—Worked with the Osage orange fruit.



**JOYCE LEA YUCKER**—Studied extraction of L-cystine from human hair.

THAILAND—Vanida Sensathien, 17, Suksanari School, Thonburi.

VIRGINIA—David D. Elsea, 18, Handley H.S., Winchester; Edward W. Lusby Jr., 17, James Madison H.S., Vienna.

WASHINGTON—David B. Goodson, 18, Auburn H.S., Auburn; R. David Guthrie, 18, Mt. Rainier H.S., Des Moines; Leslie M. King, 17, Everett H.S., Everett.

WEST VIRGINIA—Thomas H. Brooks, 18, Buffalo H.S., Kenova; Seth Sharr, 16, Sistersville H.S., Sistersville.

### Special Awards

The American Chemical Society presented First Awards of plaques and \$100 for purchase of materials to further winners' study and experimentation to David C. Hill, 16, Grand Blanc H.S., Grand Blanc, Mich., "New Titanium Polymers" and to Joyce Lea Yucker, 17, Highland H.S., Albuquerque, N. M., "L-Cystine Preparation and Properties." Alternate Awards of inscribed plaques were given to Ava Leavell, 16, John Tyler H.S., Tyler, Tex., "Flux Lines and Solubility," and to George David Mendenhall, 16, Milan H.S., Milan, Mich., "An Azide Rearrangement." Suitably inscribed certificates recognized each winner's sponsoring teacher and the winners were given subscriptions to the Journal of Chemical Education.

The American Heart Association presented a medallion and all-expense-paid trip to its annual meeting in Miami Beach, Florida, Oct. 20-23, 1961, to Thomas Michael Bryan, 16, South Williamsport Area Jr.-Sr. H.S., South Williamsport, Pa., for his project, "Hypothermia."

The American Institute of Biological Sciences presented its awards of all-expense paid trips to participate in and exhibit at its annual meeting, August 26-30, 1961, Purdue University, Lafayette, Ind., to Robert K. Colwell, 17, George Washington H.S., Denver, Colo., "Albino Maize in

Photosynthetic Experimentation," and to Joyce Marie Howell, 17, Stewartsville H.S., Goodview, Va., "Inherited Tail Lengths of Manx Cats." Honorable Mention Awards went to Gary N. A. Botting, 17, Adam Scott Collegiate and Vocational Institute, Peterborough, Ontario, Canada, "Intergeneric Hybridization Among Giant Silk Moths," and to Kenneth Linn Weaver, 15, Greeley H.S., Greeley, Colo., for his exhibit, "Carnotite Radiation on Reproduction and Mortality Rates of *Daphnia magna*."

The Optical Society of America gave two awards. A first award of \$125 to be used for the purchase of materials, equipment, books, etc., for the furtherance of the finalist's interest in the broad field of optics, went to Donald Karl Wiest, Jr., 15, University H.S., Laramie, Wyo., for his work on "Color Changes in Gemstones Induced by Radiation and Heat." The second award of \$75, to be used for the same purposes as specified above, went to Robert E. Fischer, 17, Forest Hills H.S., Forest Hills, N. Y., for "Design, Construction and Use of a Modified Cassegrain Electronic Astronomical Spectrum Analyzer."

The Pathologist-Medical Technologist first award of a certificate and a summer job with the American Registry of Pathology at the Armed Forces Institute of Pathology in Washington, D. C., plus up to \$300 travel expenses, went to Charles Theodore Womack III, 17, Greenwood H.S., Greenwood, Miss., for his exhibit on the "Effects of Splenic Extracts on Sarcoma in Two Animal Species." The second award, a citation, went to Deborah Chase, 15, Bronx H.S. of Science, New York, N. Y., for "Inquiry into Bacteriophage Stimulation of *Escherichia coli*."

The Society of American Bacteriologists presented their first award of an engraved plaque, certificate of merit, and \$125 to further the winner's career in science, to Deborah Chase, 15, Bronx H.S. of Science, New York, N. Y. for her "Inquiry into



**RICHARD G. BRUSCH, JR.**—Constructed a device for testing rocket nozzles.

Bacteriophage Stimulation of *Escherichia coli*." The second award of an engraved plaque, certificate of merit, and \$75 was presented to two finalists who tied for this honor—Ann Elizabeth Stuart, 17, Camp Hill H.S., Camp Hill, Pa., "Development of Lysozyme-Resistant Mutant, *Bacillus megaterium*" and Walter C. Vinson, 17, DeWitt Clinton H.S., New York, N. Y., for "Overcoming the Homograft Reaction in Mice by Producing an Immunological Tolerance to a Homiotransplant Embryonically." Honorable mention went to Judith Louise Coy, 18, Boca Ciega H.S., Gulfport, Fla., for her exhibit "Can Plant Antibodies Replace Human Antibodies in the Production of Rh Typing Serum?"; David Blaine Goodson, 18, Auburn Senior H.S., Auburn, Wash., for "DNA Mechanisms in Viral Infections"; and Kathryn Aleene Kampe, 16, Albert G. Parrish H.S., Selma, Ala., with "Transduction in Bacteria."

The National Pest Control Association presented a first award of a certificate plus \$100 to be used for the purchase of materials to further the winner's study and experimentation in the broad general area of biology to Gary N. A. Botting, 17, Adam Scott Collegiate and Vocational Institute, Peterborough, Ontario, Canada, for his work, "Intergeneric Hybridization Among Giant Silk Moths."

### Armed Forces, NASA Awards

National Science Fair projects especially relevant to science in the U. S. Navy, Army, Air Force and the National Aeronautics and Space Administration were honored at the awards banquet.

Rear Admiral Victor Hicks made National Navy Science Cruiser awards to: Christopher George Cherniak, 16, Melbourne H.S., Melbourne, Fla., "Development and Use of Tissue Culture of Functioning Single Neurons"; Edward L. DeLoach, 17, San Angelo Central H.S., San Angelo, Tex., "Parasitism in the Life Cycle of the *Stagmomantis carolina*"; Frederick Lewis Harris, 15, University H.S., Laramie, Wyo., "The Mystery of Mutations"; Gary J. Hartman, 17, Abbey School, Canon City, Colo., "Regeneration of Bone Marrow Under Severe Stress"; David F. Reichert, 17, Stephen F. Austin H.S., Austin, Tex., "Identification of a Monosomic Chromosome in Cotton"; John David Rigdon, 17, Chaffee H.S., Chaffee, Mo., "3 R's for Rats"; Elliott D. Ross, 16, Curtis H.S., Staten Island, N. Y., "Can Algae Be Used as an Efficient Means of Producing Oxygen and Food Nutrients in Space Travel?"; Edwin Frederic Schultz III, 16, Benjamin Franklin Senior H.S., New Orleans, La., "Fuel Cells: The Power Plant of the Future"; Mark L. Shaw, 16, T. C. Howe H.S., Indianapolis, Ind., "Visual Perception in Rats"; Kenneth Linn Weaver, 15, Greeley H.S., Greeley, Colo., "Carnotite Radiation on Reproduction and Mortality Rates of *Daphnia magna*."

Precision binoculars and invitations for Navy Science Cruises next summer were awarded to these finalists.

Dr. Paul A. Siple, chairman of the  
(continued on p. 333)

# Patents of the Week

A method for shaping metals by explosions has been patented. A warning system for trucks traveling over the safe speed limit has been invented.

► EXPLOSIONS CAN BE USED to shape large pieces of metal, a new patent holds.

Shock waves generated by the explosion shape hard-to-form metals and metal alloys placed in a die, inventor Donald W. Cole of Weatherford, Texas, stated in patent No. 2,983,242, assigned to General Dynamics Corporation, San Diego, Calif.

The die and metal are sunk in a liquid, rubbery solid or a powder. Dynamite is packed into a plastic ball and exploded, sending shock waves slamming into the metal and die.

Because the metal is formed in a split second, all air trapped between the metal and die is removed before the explosive is set off to prevent a rough surface from forming. The invention can replace the huge, expensive hydraulic presses and drop hammers now generally used, the patent stated.

A warning system for large trucks and other heavy vehicles that travel over the safe speed limit while going downhill won patent No. 2,983,911 for James O. Brafford of Pontiac, Mich., assigned to General Motors Corporation. A warning light shows up on the instrument panel when the engine reaches a speed controlled by a governor.

Nighttime driving can be safer by using a patented paint to mark divided highways and lanes for which James F. Wynn of

Marietta, Ohio, received patent No. 2,983,202, assigned to American-Marietta Company. Greater visibility, durability and resistance to skidding are claimed by the inventor. The paint contains rough-surfaced quartz grains that reflect light from a motorist's headlights. The grains do not dislodge easily when cars run over the lines, reducing the tendency to skid that is supposedly found in conventional highway paints.

For persons with a green thumb, Patterson D. Merrill of South Bend, Ind., has invented a compact unit (patent No. 2,983,076) for growing plants and flowers without soil. Nutritious liquid is pumped periodically into a gravel-packed plastic container containing seedlings or plants. The liquid then drains back into a false-bottom where it is stored for reuse.

A new type of surgical mask that permits normal unimpaired breathing, yet traps the bacteria in a person's breath, received patent No. 2,983,271. William C. Beck of Sayre, Pa., assigned the rights to The Frances Beck Memorial Fund, Waverly, N. Y.

A series of slats or shutters across the opening of the surgical mask are claimed to stop the bacteria-containing particles given off when the doctor or nurse exhales.

• Science News Letter 79:333 May 27, 1961

## National Science Fair

(continued from p. 327)

judges, presented the U. S. Army and the Association of the United States Army Science Awards. Trips to Medical Service, Walter Reed Army Institute of Research, Washington, D. C. were awarded to: David Blaine Goodson, 18, Auburn Senior H.S., Auburn, Wash., for "DNA Mechanisms in Viral Infections"; and Jon Gardner Wilkes, 17, Hall H.S., Little Rock, Ark., for "Chemical Modification of Radiation Effects."

Trips to Ordnance Corps, Aberdeen, Md. were awarded to John E. Pearson, 17, Brookings H.S., Brookings, S. Dak., for "The Hyperbolic Paraboloid—An Amazing Surface"; Will F. Rogers, 17, Jonesboro-Hodge H.S., Jonesboro, La., for "Wind Tunnel"; Robert E. Strom, 14, Bronx H.S. of Science, New York, N. Y., for "Symbolic Compiler for Arithmetic and Logical Programs"; and Baylor B. Triplett, 18, Highland H.S., Albuquerque, N. M., for "Solid Rocket Propellants."

A trip to the Army Chemical Center at Edgewood, Md. was awarded to Christopher George Cherniak, 16, Melbourne H.S., Melbourne, Fla., for "Development and Use of Tissue Culture of Functioning Single Neurons"; and to the Army Chemical Center at Fort Detrick, Md., the trip went

to Kathryn Aleene Kampe, 16, Albert G. Parrish H.S., Selma, Ala., for "Transduction in Bacteria."

Trips to the Army Quartermaster Research and Engineering Command, Natick, Mass. were awarded to David C. Hill, 16, Grand Blanc H.S., Grand Blanc, Mich., for "New Titanium Polymers"; and to Ann Elizabeth Stuart, 17, Camp Hill H.S., Camp Hill, Pa., for "Development of Lysozyme-Resistant Mutant, *Bacillus megaterium*."

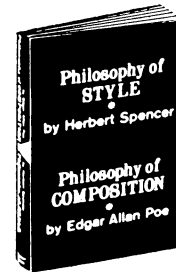
Trips to Army Signal Corps, Fort Monmouth, N. J., went to Keith Goley Morgan, 18, Idaho Falls Senior H.S., Idaho Falls, Idaho, for "Phonetic Digit Recognizer"; and to Rosemary Therese Smith, 18, Carlsbad H.S., Carlsbad, N. M., for "A Study of the Solar Cell."

Trips to the Army Corps of Engineers, Fort Belvoir, Va., went to Robert W. Berner, 17, Flathead County H.S., Kalispell, Mont., for "Nuclear Magnetic Resonance"; and to Joseph F. Litwin, Jr., 18, Masconomet Regional H.S., Boxford, Mass., for "Mechanical-Optical Seismograph."

Trips to the Army Transportation Corps, Fort Eustis, Va., were awarded to Robert Himes, 17, Belmont H.S., Dayton, Ohio for "The Peripheral Jet Ground Effect Machine"; and to Richard Lee, 18, Williston, Senior H.S., Williston, N.D. for "The

## FREE CATALOGUES OF SCIENCE BOOKS

State your interest! Mathematics, physics, history of science, general science, biology, social sciences, earth sciences, chemistry, languages, philosophy, engineering. Dover publishes over 100 books per year; quality production standards, priced for your budget. Dept. SNL, DOVER, 180 Varick St., N. Y. 14, N. Y.



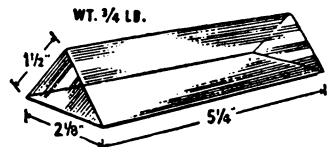
## IF YOU WRITE FOR MONEY!

Enrich your writing by applying Herbert Spencer's and Edgar Allan Poe's classic principles that have inspired many of the world's greatest authors. Indispensable if you want to get published! Send \$1.00 to

PAGEANT PRESS

Dept. SN  
101 5th Ave., N.Y.C. 3.

## PRISMS \$1.50



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. \$ for \$4. Postage paid on prepaid orders. Calif. res. add sales tax.

Volume Sales Co., War Assets Div., Dept. C211  
3828 Sunset Blvd. Los Angeles 26, Calif.



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 61, MASS.

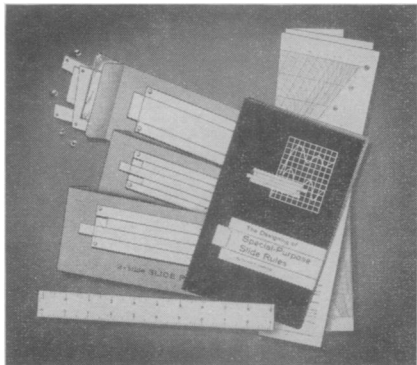
Please rush to me, FREE of charge,  
UNITRON'S OBSERVER'S GUIDE and TELESCOPE  
CATALOG # 5-P-4

Name \_\_\_\_\_

Street \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_

## SLIDE RULE KIT FOR SPECIAL PROBLEMS



**THOUSANDS ARE DISCOVERING this new way to apply slide rule principles to particular problems.**

Clear instructions and precision parts enable you to design and assemble special-purpose slide rules that give instant answers. A real adventure in advancement—order now. **\$850**

Satisfaction guaranteed

**DYNA-SLIDE COMPANY**  
600 S. MICHIGAN, CHICAGO 5, ILL.

## MATHEMATICS SELF-TAUGHT

Now comes a new and completely different kind of self-teaching math "course"—one that yields truly amazing results!

"The author assumes no previous acquaintance with mathematics . . . He advances the reader to some mathematical notions of 'college' level . . . The near-miracle is accomplished by patient, carefully-phrased exposition and by building the discussion step-by-step . . . The book is intended for study without the aid of a teacher."—*New Technical Books* (of the New York Public Library).

If you have despaired of ever "licking" mathematics, if lack of mathematical knowledge is holding you back, if you have tried other methods and found they simply did nothing for you, then perhaps you would wish to try the remarkable Colerus method. It is guaranteed to satisfy your expectations, or full purchase price refunded. Not a tutored math course that stands you anywhere from \$150 to 300, but a self-instruction manual that costs a mere \$3.95—if you decide to keep it. **ORDER NOW!**

**MATHEMATICS FOR EVERYMAN**  
by Egmont Colerus

\$3.95 Postfree • 10-Day Money-Back Guarantee  
**EMERSON BOOKS, Inc.**, Dept. 264-M  
251 West 19 Street, New York 11

## New "Mechanical Educator" to IMPROVE MEMORY

Learn faster than ever with new device effective for learning languages, speech, tables, facts, formulae, etc.

### DORMIPHONE MEMORY TRAINER

- Speeds up learning processes
- Aids concentration
- Provides entertainment

The Memory Trainer records, instantly plays back, and when clock is set, automatically repeats speech, music, any material at regular intervals through a built-in speaker. No reels of tape to snarl or rewind. Portable. Ideal aid for work, school, child training, entertainment—Used by educators, psychologists, people of all ages.



**Self-Contained Recording Cartridges** from 30 seconds to 55 minutes Easily removed. Can be stored or "erased" instantly and re-used repeatedly. Write TODAY for FREE folder with complete information. No salesman will call.

Modernophone, Inc., 125-051 Radio City, N.Y. 20, N.Y.

## A POCKET COMPENDIUM PRECIOUS STONES

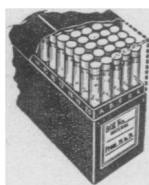
of  
A collection of 30 genuine semi-polished stones from all over the world. Containing synoptical table of names, hardness, specific gravities, refractive index, crystal forms, chemical formulas, place of origin and **BIRTH STONES**. Made in Germany.

We guarantee this beautiful compendium of 30 genuine gemstones as the most wonderful to be seen, **AT ANY PRICE!** It **MUST** be handled to be appreciated. 5 1/2" x 4" booklet form with 30 stones. **\$4.95**

**HARRY ROSS** Scientific & Lab. Apparatus  
61-L Reade St., N. Y. 7, N. Y.

## Store 100 Samples

In 2 3/4" Shelf Space



## Sample Storage Sets

Several Models  
Indexing Features

Write for Leaflet SS-SNL

**CARGILLE**

117 Liberty St.  
New York 6, N. Y.

# GIANT 10 \$1.00 Ft.

Largest Distributors of U.S. Govt. Surplus Balloons in the USA. Inflate up to Giant 30 ft. diameter with air or gas. Fun at the Beach, Water Sports, etc., Flying Advnt. visible for miles. Terrific for attracting crowds at Openings, Fairs, Roadside Stands, Gas Stations, Sports Events. Made of Durable Neoprene Rubber. New, never used. No C. O. D.'s.

2 ft. (Beach Ball Size) . . .	2 for 50c (5 for \$1.00)
6 ft. size . . . . .	59c ea. (2 for \$1.00)
10 ft. size . . . . .	\$1.00 ea. (6 for \$5.00)
30 ft. size . . . . .	\$2.00 ea. plus 50c postage & handling
30 ft. size illus. . . . .	10 for \$20.00—Exp. collect

**NOVEL MFG. CORP.** 31 SECOND AVE., Dept. G-3633  
NEW YORK 3, NEW YORK

## MICRO-ADS

Equipment, supplies and services of special interest to scientists, science teachers and students, science-minded laymen and hobbyists. 25¢ per word, payable in advance. Closing date 3 weeks prior to publication (Saturday).

**SNL, 1719 N St., N.W., Washington 6, D. C.**

**GOVERNMENT SURPLUS RADIOS, RECEIVERS, transmitters, gadgets, parabolic reflectors, infra-red sniperscopes, aircraft camera lenses. Amazing catalog 10¢.** John Meshna, Malden 48, Mass.

**MICROSLIDES: INSECTS, MARINE LIFE, Zoological Botanical, British Fresh Water Algae.** Send for complete list. Free. Esbe Laboratory Supplies, 459 Bloor St., W., Toronto, Ontario, Canada.

**NATIONAL GEOGRAPHIC MAGAZINES, 1888-1960, any issue.** Periodical Service, Box 465-SN., Wilmington, Delaware.

**NEW LIQUID CASTING PLASTIC, CLEAR, COLORS.** Embed real flowers, minerals, biological specimens, delicate instruments, electronic parts. Also cold setting resin and fiberglass for laminating, casting, molding, coating. Manual 25¢. Castolite Company, Dept. E-30, Woodstock, Illinois.

**PERIODIC CHART—POCKET SIZE!** PLASTIC laminated. All elements, atomic weights, densities, valences, etc. Send \$1.00. R. and S. Laminating Co., Box 111, Dept. 3, White Plains, New York.

**ROCKET BUILDING INFORMATION SHEET, 15 drawings of proven methods, 50 cents.** Rockets, P. O. Box 90391, Los Angeles 45, Calif.

**TEACHERS—GOLD ORE SPECIMEN WITH real gold particles.** Enlivens student interest in rocks and minerals. \$1.00 Ppd. Bartlett Scientific, 282 Oakwood, Route 2, Lemont, Illinois.

Computer." Each of the sixteen winners will be invited to spend about a week during summer vacation at one of the above named research facilities.

Brigadier General Aullman Culbertson presented the U.S. Air Force and Space Education Foundation Certificates of Achievement and 15-volume sets of Compton's Pictorial Encyclopedia to nine finalists. Each award carries with it expenses-paid trips of two to five days at an Air Force Research and Development facility in each of the following categories:

1. Aerospace Power—William Robert Eason, 17, Longview Senior H.S., Longview, Tex., for "Project Halo—High Altitude Launching Objective."

2. Aerospace Dynamics—Robert Himes, 17, Belmont H.S., Dayton, Ohio, for "The Peripheral Jet Ground Effect Machine."

3. Aerospace Propulsion—James S. McAleer, 17, McGill Institute, Mobile, Ala., for "The Plasma Jet."

4. Electronics—Jay Sarajian, 17, Lower Moreland H.S., Huntingdon Valley, Pa., "New Design in Microwave Techniques Used in Electron Acceleration."

5. Electronic Computers—Robert E. Strom, 14, Bronx H.S. of Science, New York, N. Y. for "Symbolic Compiler for Arithmetic and Logical Programs."

6. Atmospheric Physics—Mike F. Gorski, 17, T. C. Howe H.S., Indianapolis, Ind., "Sea's in the Sky."

7. Aerospace Bioscience—Christopher George Cherniak, 16, Melbourne H.S., Melbourne, Fla., "Development and Use of Tissue Culture of Functioning Single Neurons."

8. Photography and Optics—Robert E. Fischer, 17, Forest Hills H.S., Forest Hills, N. Y. for "Design, Construction and Use of a Modified Cassegrain Electronic Astronomical Spectrum Analyzer."

9. Materials Research—Baylor B. Triplett, 18, Highland H.S., Albuquerque, N. M., "Solid Rocket Propellants."

The National Aeronautics and Space Administration presented twelve awards—six certificates of merit, plus expenses-paid trips for two full days, for six finalist winners to an NASA facility, and six teacher recognitions—each winner to name a teacher who will accompany the finalist on the trip.

Two winners were selected in each of the following categories:

1. Space Science—Mike F. Gorski, 17, T. C. Howe H.S., Indianapolis, Ind., for "Sea's in the Sky," and Kenneth Roy Short, Jr., 18, Permian H.S., Odessa, Tex., for "My Work in Astronomy."

2. Rockets—Douglas Joe Elder, 19, Sandia H.S., Albuquerque, N. M. for "Development of a Subsonic Single Return Wind Tunnel for Rocket Aerodynamics," and Baylor B. Triplett, 18, Highland H.S., Albuquerque, N. M., for "Solid Rocket Propellants."

3. Manned Space Flight—Gary F. Barton, 16, Roosevelt H.S., Des Moines, Iowa, for "Design Testing of Re-Entry Vehicles from Space in a Two-Dimensional Supersonic Wind Tunnel," and Elliott D. Ross, 16, Curtis H.S., Staten Island, N. Y. for "Can Algae Be Used as an Efficient Means of

Producing Oxygen and Food Nutrients in Space Travel?"

### Second Health Awards

The Second American Pharmaceutical Association Award, a plaque, was given to William A. Burslem, Jr., 17, also an NSF-11 finalist, Northwestern Senior H. S., Hyattsville, Md., for "Combined Chemotherapy and Immunology in Cancer Control." (For First Awards winners, see SNL 79:308, May 20, 1961.)

American Medical Association Honorable Mention citations and plaques were given to Lynne Marie Alescot, 15, Saint Dominic Academy, Jersey City, N. J., for "Radioactive Isotopes as Tracers" and to Gary J. Hartman, 17, Abbey School, Canon City, Colo., for "Regeneration of Bone Marrow Under Severe Stress."

American Dental Association Certificates of Meritorious Achievement and \$50 for scientific equipment were presented to Joan Karen Palmer, 18, John Carroll H.S., Birmingham, Ala., for "Nutritional Value of Various Carbohydrates in White Rats" and to David C. Hill, 16, also a finalist at the 11th NSF-I, Grand Blanc H.S., Grand Blanc, Mich., for "New Titanium Polymers."

An American Veterinary Medical Association Honorable Mention citation plaque was given to Sandra Hager, 17, Milwaukee Lutheran H.S., Milwaukee, Wis., for "Cancer Chemotherapy."

• Science News Letter, 79:325 May 27, 1961

### President's Greetings

➤ "The young scientists and their teachers represented at the Twelfth National Science Fair-International deserve high tribute. Behind this occasion stretch long hours of counsel and guidance by dedicated teachers to whom I send greetings on behalf of a grateful nation. In recognizing and encouraging the ability of the girls and boys here today, you play a significant role in developing the human resources which insure the future strength of our nation through science and technology.

"I extend my best wishes to the Science Clubs of America for the success of its Science Fair."

John F. Kennedy

• Science News Letter 79:335 May 27, 1961

### ASTRONOMY

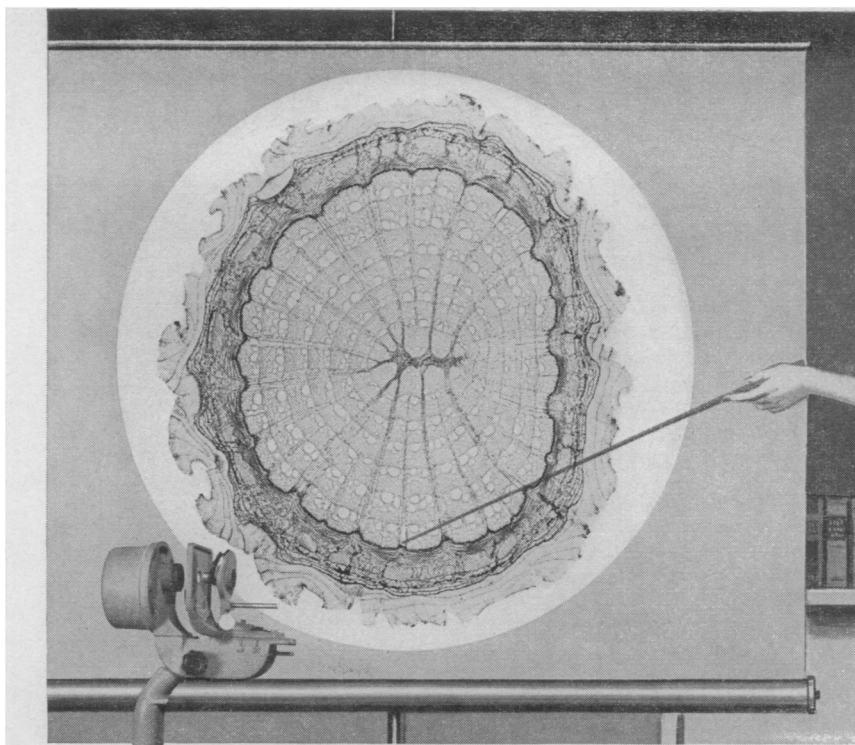
## New Nova Spotted In the Southern Sky

➤ A NEW NOVA, a star that suddenly explodes into brightness equal to thousands of suns, has been discovered.

Novae increase their light and energy output only for a short while after which they dim down again. About 25 novae are reported each year but astronomers estimate that several hundred occur.

The nova Aprimashvili was discovered at a Siberian observatory on April 20 but is so faint it can only be viewed with a large telescope. The nova was of 14th magnitude when spotted in the constellation Ophiuchus in the southern sky, it was reported to Harvard College Observatory.

• Science News Letter, 79:335 May 17, 1961



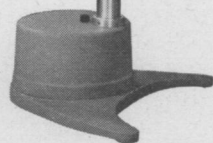
## Why it costs far less to buy Bausch & Lomb

Your investment is protected for life! B&L educational instruments are built to shrug off the punishment of day-after-day, year-after-year use. They're made in America, to the world's highest standards. Workmanship and materials are guaranteed for life. If you should ever need service, a nation-wide network of B&L dealers provides it promptly and dependably.

You save precious teaching time, too. This Tri-Simplex Microprojector lets you point out important details of microscope study to all students at the same time. They see brighter, clearer images than any other school projector can provide. They know exactly what to look for with their own microscopes. They understand better, learn faster.

### GET YOUR FREE COPY

of this data brochure covering the world's finest teaching tools for the balanced science program.



#### BAUSCH & LOMB TRI-SIMPLEX MICROPROJECTOR

Projects mounted specimens or living organisms on screen or tracing pad.



#### BAUSCH & LOMB STANDARD TEACHING MICROSCOPES

Standard size and operation with exclusive student-proof features.



#### BAUSCH & LOMB BUNSEN SPECTROSCOPE

Basic tool of chemical analysis; shows spectra of elements.

### BAUSCH & LOMB

SINCE 1853

Made in America, to the world's highest standards.

BAUSCH & LOMB INCORPORATED  
16917 Bausch Street, Rochester 2, N. Y.  
Please send Brochure D-152.

NAME, TITLE .....

SCHOOL .....

ADDRESS .....