

GENERAL SCIENCE

# Science Fair Winners

Four young scientists share top honors in the 11th National Science Fair-International. The winners come from Canada, Texas, New Jersey and Connecticut.

## See Front Cover

NATIONAL SCIENCE Fair-International awards were presented at a banquet in Indianapolis, Ind., honoring all of the 356 finalists and their teachers.

The outstanding projects from 193 regional and area fairs in 44 states, the District of Columbia, Puerto Rico, Germany, France, Italy, Japan, Canada and Thailand were judged by 186 scientific specialists. Top winners among the finalists were announced by Watson Davis, director of SCIENCE SERVICE, which conducts the annual fair. A view of this year's exhibits is seen on the cover of this week's SCIENCE NEWS LETTER (See also SNL, 77:326, 327, May 21, 1960).

First Place Awards in the biological sciences division went to Susan Brown, 16, Stephen F. Austin H.S., Austin, Texas, for her project, "A Root Growth Factor from Seedlings," and to Gary N. A. Botting, 16, Peterborough Collegiate and Vocational School, Peterborough, Ontario, Canada, for his study of "Interesting Variations of the Cynthia Silk Moth."

In the physical sciences division, First Place Award winners were Mavis Ilene Atkinson, 18, Watchung Hills Regional H.S., Plainfield, N. J., for her exhibit on "Nature's Color Carpet," and to Donald F. Carpenter, 16, William Hall H.S., West

Hartford, Conn., for his work on the "Aerodynamics and Thermodynamics of a Counterflow Vortex Tube." He also received a National Navy Science Cruiser award, an Army Science Award, and the Air Force Aerospace Dynamics Award. First Place winners will receive "Wish Awards" of \$125 of scientific equipment or books of their own choice.

Presentation of the awards followed a talk by Dr. Paul A. Siple, Scientific Adviser, Army Research Office, and president, Association of American Geographers.

Second Honors and \$75 Wish Awards were given to: Kathleen Anne Higgins, 17, Lourdes Academy, Cleveland, Ohio, "Carbohydrate Metabolism Pathways in *Pseudomonas GAA*"; Joan Wallace, 15, Roosevelt H.S., Des Moines, Iowa, "Hatchability by Germinal Disc Observation"; Shannon Wells, 17, Bethany H.S., Bethany, Okla., "A Study of Cancer and the Inhibitive Substance and Their Relationship to Each Other"; Robert Herman Baum, 18, Melbourne H.S., Melbourne, Fla., "Studies of DNA and Mutants of the Mold Neurospora"; David Hou-Cheung Chen, 18, Bethesda-Chevy Chase H.S., Bethesda, Md., "Juvenile Hormone in Lepidoptera and Calf Thymus—Its Isolation and Bioassays"; Murray P. Hamlet, 17, Valley City H.S., Valley City, N. Dak., "Avian Air Sacs"; Lester Martin Partlow, 17, Fairfax H.S.,



GARY N. A. BOTTING—He studied the Cynthia silk moth.

Fairfax, Va., "The Orientation of *Euglena gracilis*"; Junko Sugimori, 18, Aisen H.S., Sakaishi, Osaka, Japan, "Systematic Quantitative Analysis of Metal Ions by Titration"; Joe Dan Bourland, 18, Pampa Senior H.S., Pampa, Texas, "The Effect of Impurities on the Photoemission Properties of Zinc Sulfide Electroluminescent Phosphors"; James Kirk Bramblett, 17, Jefferson H.S., Lafayette, Ind., "Ultraviolet Flying Spot Microscope"; William Edward Jones, 18, Abilene H.S., Abilene, Texas, "A Study of Digital Computers"; Donald Campbell Shapero, 18, Cubberly Senior H.S., Palo Alto, Calif., "Proton-Free Precession Magnetometry"; David Joel Wilson, Jr., 18, Athens H.S., Athens, Ala., "Survival on Mars"; Eldred Houck Wiser, 17, Central H.S., Murfreesboro, Tenn., "Chemical Reactions in Silicic Acid Gel."

Third Place Awards and \$50 Wishes went to: Karen Orton Hodges, 16, Alamo Heights H.S., San Antonio, Texas, "Exploring Tidewater"; Judith McHale, 16, Saint Francis Academy, Bethlehem, Pa., "The Effects of Color and Light on Brine Shrimp"; Edith Katherine Schuele, 16, Treadwell H.S., Memphis, Tenn., "Algae—Food of the Future"; Fredrick Anthony Dombrose, 15, Okemos H.S., Okemos, Mich., "Comparative Anatomy of the Eye"; Marc Garry Roth, 14, Framingham H.S., Framingham, Mass., "Variation and Speciation of New England Butterflies"; Wayne Lee Settle, 17, Portland-Wayne Township Senior H.S., Portland, Ind., "Mutations in German Millet Induced by Gamma Radiation"; Barry G. Vesper, 16, College H.S., Bartlesville, Okla., "Effect of Positive G Forces on Pulse and Respiration of the Rat"; Jane Marie Bader, 17, Iowa City H.S., Iowa City, Iowa, "Effect of Ultraviolet Light on  $CCl_4$ , I, and Selected Olefins"; Margaret E. Kottke, 17, Bladensburg Senior H.S., Bladensburg, Md., "Sugar-Boron Complexes"; James Harold Collins, 17, Central H.S., Evansville, Ind., "The Bubble Chamber—A Device Used to Study Subatomic Particles"; Gay Leon Dybwad, 18,



FIRST PLACE WINNERS—Four proud National Science Fair-International top award winners beam after banquet announcement that they are the cream of the crop. From left to right: Gary N. A. Botting, Mavis Ilene Atkinson, Susan Brown, and Donald F. Carpenter.

Central H.S., Grand Forks, N. Dak., "Spectroscopic Experiments with Densitometer Comparisons"; William Hugh Mann, 17, Idaho Falls Senior H.S., Idaho Falls, Idaho, "A New Concept in Color Television"; David Crosby Milne, 16, Will C. Crawford H.S., San Diego, Calif., "Automatic Electronic English-to-Braille Translator"; William King Rich, 16, Highland H.S., Salt Lake City, Utah, "Abundance of the Elements"; Irving J. Spitzberg, Jr., 18, Hall H.S., Little Rock, Ark., "The Inversion of Sucrose in Alcohol-Water Solvents."

Fourth Awards of \$25 Wishes were given to:

ALABAMA—Omer Lee Burnett, Jr., 16, Sylacauga H.S., Sylacauga.

ALASKA—Jack Denny Griffith, 18, Anchorage H.S., Anchorage.

ARIZONA—Jarel B. Hambenne, 17, Catalina H.S., Tucson.

ARKANSAS—Barbara Sue Friend, 17, Mena H.S., Mena.

CALIFORNIA—Belmont Frisbee, Jr., 17, Burroughs H.S., Ridgecrest; Russell Lowell Morgin, 17, Tracy H.S., Tracy; Todd Gilmore, Jr., 18, Palm Springs H.S., Palm Springs; Harriet Lynn Pryor, 17, Colton Union H.S., Colton; Alysa Kathryn Dees, 16, Norte Del Rio Senior H.S., North Sacramento; Margaret Clare Martin, 17, El Cerrito H.S., El Cerrito.

COLORADO—Douglas Howell Chesson, 16, East H.S., Denver; Martin J. Murphy, Jr., 17, Abbey School, Canon City.

DELAWARE—Jonathan Seville Bragdon, 15, Henry C. Conrad Sr. H.S., Wilmington; Charles Joseph Twardowski, 17, Brown Vocational H.S., Wilmington.

FLORIDA—Judyth Anne Vary, 16, Manatee H.S., Bradenton; Sheila Marie Most, 15, Boca Ciega Senior H.S., Gulfport; Roman Stuart Ohnemus, 17, Leon H.S., Tallahassee.

FRANCE—Lucy McCartan, 17, Verdun American H.S., Verdun.

GEORGIA—John Bryan Kethley, 17, Decatur H.S., Decatur; James Michael Hosford, 17, Northside H.S., Atlanta; Douglas Rumble III, 17, Henry Grady H.S., Atlanta.

IDAHO—Richard Bingham, 17, Blackfoot H.S., Blackfoot; Eldon S. Kearn, 17, Fielding H.S., Paris; Mary Bernice Robison, 15, Roberts H.S., Roberts.

ILLINOIS—Barry Ronald Dworkin, 16, Amundsen Senior H.S., Chicago; Douglas Randolph Thornton, 17, Taft H.S., Chicago.

INDIANA—Judy Ann Edwards, 18, Columbus Senior H.S., Columbus; John Dewood David, 17, Benjamin Bosse H.S., Evansville; Larry Wayne Kramer, 18, North Side H.S., Fort Wayne; Alice Margaret Koch, 17, Garfield H.S., Terre Haute; John Thane Bartlett, 15, Rochester Joint H.S., Rochester; Ronald Charles Carlson, 18, LaPorte H.S., LaPorte; Kara Elene Wike, 17, Isaac C. Elston Sr. H.S., Michigan City.

IOWA—Jerry Foote, 17, Bettendorf H.S., Bettendorf; Bryce Anthony Ecklein, 16, Cedar Falls H.S., Cedar Falls; Mary Sue Wilson, 16, Malcolm Price Laboratory School, Cedar Falls; James Philip Robbie, 17, Iowa City H.S., Iowa City.

JAPAN—Akira Kamo, 17, Toin H.S., Wakayamashi.

KANSAS—Patricia Anne Keating, 17, Luckey H.S., Manhattan.

LOUISIANA—Ronnie Ramin, 18, Fair Park H.S., Shreveport.

MARYLAND—William A. Burslem, Jr., 16, Northwestern H.S., Hyattsville.

MICHIGAN—Jim Colando, 17, Pontiac Central H.S., Pontiac; Susan Lynn Smith, 17, Ottawa Hills H.S., Grand Rapids.

MINNESOTA—Kent B. Crossley, 17, Faribault Sr. H.S., Faribault.

MISSISSIPPI—George Alexander Everett, Jr., 17, Greenwood H.S., Greenwood.

MISSOURI—George Barisas, 14, Southeast H.S., Kansas City; Claudia Reed Shepard, 18, Central H.S., Kansas City; Diana Lee Maxwell, 17, Jennings Senior H.S., Jennings.

NEW JERSEY—Barbara J. R. Jones, 17, Jonathan Dayton Regional H.S., Springfield.

NEW MEXICO—Wesley H. Smith, 16, Valley H.S., Albuquerque.

NEW YORK—Emerita Marie Caputo, 17, Aquinas H.S., New York; Marvin Kent Hutt, 16, Jamaica H.S., New York; Philip J. Friedman, 16, Lincoln H.S., Yonkers.

NORTH CAROLINA—Laura Russell Livingston, 17, Myers Park H.S., Charlotte; Charles Lee Kling, 17, Washington H.S., Washington.

OHIO—Donna Gene Hayes, 16, Woodward H.S., Toledo; John Janis Bungus, 18, Thomas W. Harvey H.S., Painesville.

OKLAHOMA—Cara Mitchell, 18, Kingfisher H.S., Kingfisher.

PENNSYLVANIA—Melvin Alan Snyder, 17, Easton H.S., Easton; Eugene Louis Diveglia, Jr., 17, Central Dauphin H.S., Harrisburg; Karen C. Silver, 16, William Penn H.S., Harrisburg; Robert Edward Humphreys, 17, A. D. Eisenhower Senior H.S., Norristown; George F. Post, 17, Reading Central Catholic H.S., Reading; Barbara Jane Dymond, 16, Benton Township H.S., Fleetville; W. James Prowse, 17, Clarks Summit-Abington H.S., Clarks Summit.



**DONALD F. CARPENTER**—He worked on aerodynamics and thermodynamics.



**MAVIS ILENE ATKINSON**—She exhibited colors from nature.

RHODE ISLAND—Donald Francis Kearney, 17, Warwick Veterans Memorial H.S., Warwick; Stephen Ernest Silverman, 17, Classical H.S., Providence.

SOUTH CAROLINA—James Gustave Speth, Jr., 18, Orangeburg H.S., Orangeburg.

SOUTH DAKOTA—Merrill Conklin, Jr., 18, Rapid City H.S., Rapid City; Douglas Lee Franzen, 17, Washington Senior H.S., Sioux Falls.

TENNESSEE—Norma Jean Ayers, 17, Powell H.S., Powell; James Madison Foster, Jr., 19, East H.S., Memphis.

TEXAS—Martha Catherine Moon, 17, San Angelo Central H.S., San Angelo; Robert Slater Parkinson, 17, Woodrow Wilson H.S., Dallas; William Robert Richerson, 18, Arlington Heights H.S., Fort Worth; David Berwick Vinson III, 16, Mirabeau B. Lamar H.S., Houston; Timothy Coit Mock, 17, Wichita Falls Senior H.S., Wichita Falls; Ann Shelton, 18, Knox City H.S., Knox City.

VIRGINIA—Richard Newell Boyd, 17, Washington-Lee H.S., Arlington; Warren Douglas Drumheller, 17, William Fleming H.S., Roanoke; Ruth Ann Ziegler, 15, William Fleming H.S., Roanoke; Peter Howarth Henry, 17, Warwick H.S., Newport News.

WASHINGTON—Thomas Franklin Stinson, 17, Puyallup H.S., Puyallup.

WEST VIRGINIA—George Robert Harper, 17, St. Albans H.S., St. Albans; Ralph Lawrence Stenger, Jr., 18, Central Catholic H.S., Wheeling.

WISCONSIN—William E. Schoknecht, 17, Rufus King H.S., Milwaukee.

### Special Awards

American Chemical Society presented First Awards of plaques and \$100 for purchase of materials to further winners' study and experimentation to Kathleen Anne Higgins, 17, Lourdes Academy, Cleveland, Ohio, "Carbohydrate Metabolism Pathways in *Pseudomonas* G4A" and to Robert Edward Humphreys, 17, A. D. Eisenhower Sr., H.S., Norristown, Pa., "An Investiga-

(Continued on page 351)

GENERAL SCIENCE

# Second Honors in Health

IN ADDITION to top awards made at the Health Awards Banquet of the National Science Fair-International (see SNL, 77:327, May 21, 1960), American Medical Association Honorable Mention citations were given to Norma Jean Ayers, 17, Powell H.S., Powell, Tenn., for "Antibodies" and to Richard Komorowski, 17, Notre Dame H.S., Milwaukee, Wis., for "Cancer Immunization."

American Dental Association second honors, certificates of Meritorious Achievement and \$50 gift certificates for scientific equipment, were presented to Mary Sue Wilson, 16, a top ADA winner last year, Malcolm Price Laboratory School, Cedar Falls, Iowa, "Mutational Origin of Bacterial Resistance to Antibiotics" and to Alan Paul Bloebaum, 18, A. N. McCallum H.S., Austin, Tex., for "Effect of Sugars in Popular Carbonated Beverages on the Growth of *Lactobacillus acidophilus* in Saliva."

The American Veterinary Medical Association Honorable Mention citation plaque was given to Fredrick Anthony Dombrose, 15, Okemos H.S., Okemos, Mich., for "Comparative Anatomy of the Eye." He is alternate for the AVMA meeting.

The second American Pharmaceutical Association Award, a plaque, was given to Miss Shannon Wells, 17, Bethany H.S., Bethany, Okla., for "A Study of Cancer and the Inhibitive Substance and Their Relationship to Each Other."

Presentations of the awards were made on behalf of the American Medical Association

by Dr. Carl L. Lincke, chairman of the judges, and chairman of AMA's Council on Scientific Assembly; for the American Dental Association by Dr. Maynard K. Hine, dean, School of Dentistry, University of Indiana; for the American Veterinary Medical Association, Dr. C. Roger Smith, College of Veterinary Medicine, Ohio State University; and for the American Pharmaceutical Association by Dr. Howard C. Newton, president of the APhA and dean of the Massachusetts College of Pharmacy in Boston.

Announcement of the awards followed a talk by Dr. John Furbay, writer and guest lecturer for the Institute of World Trade and for the Strategic Intelligence School in Washington, D. C.

Science News Letter, May 28, 1960

## Medicine Career Choice

MORE THAN ONE-FIFTH of the 356 promising young scientists who were finalists at the 11th National Science Fair-International look forward to professional careers in the medical sciences.

According to a study made by SCIENCE SERVICE, which conducts the annual event, most of these medically-minded students plan on medical research or practice in various medical specialties. Fifteen of them want to enter such associated fields as veterinary medicine, nursing, medical technology, pharmacy and psychology.

Physics claims the interest of 13% of the finalists, with engineering close behind with 12%. The biological sciences are the choice of 10%.

"Science" or "research" in unspecified fields appeals to 8% of these sophomores, juniors, and seniors, many of whom have not yet had basic high school courses in the various sciences.

Chemistry appeals to 7.6%, and science or mathematics teaching to 6%.

Only 6% remain undecided about their career goals or believe they will enter non-science professions. Non-science choices include such fields as law, political science, linguistics, and missionary work.

Science News Letter, May 28, 1960

## President's Greetings

"It is a pleasure to send greetings to those attending the eleventh National Science Fair-International.

"The constructive creativity of the young scientists and educators represented here gives assurance of continuing progress in the field of science. I am delighted to extend my congratulations to them and to their sponsors in the Science Clubs of America. Best wishes for a fine and stimulating fair."

DWIGHT D. EISENHOWER.

Science News Letter, May 28, 1960

## Congratulations

"To the young scientists, and their teachers assembled at the eleventh National Science Fair-International and to the many hundreds in the home communities who have given their time and energies in support of your research, I extend congratulations. Your creative endeavors are symbolic of the abilities and skills our country will need in the scientific and technological era that is facing us."

L. G. DERTHICK,  
Commissioner of Education,  
Office of Education,  
Washington, D. C.

Science News Letter, May 28, 1960

## Albuquerque Wins 1963

THE 1963 NATIONAL Science Fair-International will be held the second week in May at Albuquerque, N. M., the Science Fair Council recommended. The recommendation was later affirmed by SCIENCE SERVICE which conducts the National Science Fair.

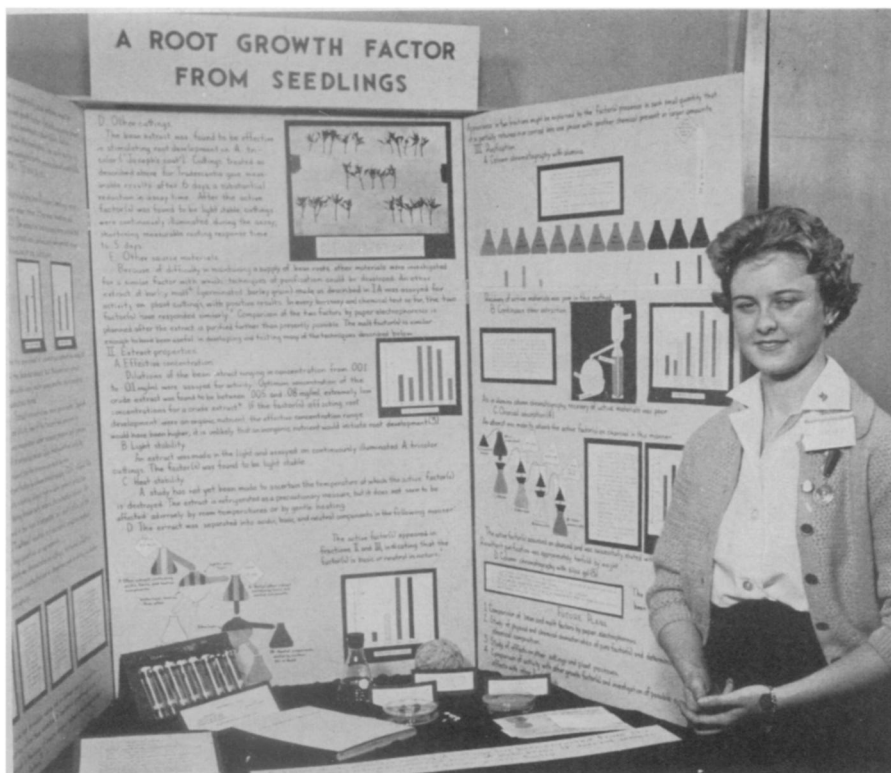
Dr. Burrell Wood of New Mexico Institute of Mining and Technology and science fair director in New Mexico said the fair will be held at the New Mexico State Fair Coliseum.

Sponsors of the fair will be the Albuquerque Journal and New Mexico Institute of Mining and Technology.

The coliseum has more than 70,000 square feet of floor space which will be devoted to exhibit space.

National Science Fair-International will be held in May 1961 at Kansas City and in May 1962 it will be held in Seattle in connection with the Century 21 Exposition.

Science News Letter, May 28, 1960



SUSAN BROWN—She showed a root-growth factor in seedlings.

## Science Fair Winners

(Continued from page 342)

tion of Fluorescence in Relation to the Porphyrins." Alternate Awards of inscribed plaques were given to Junko Sugimori, 18, Aisen H.S., Sakaishi, Osakafu, Japan, and to Martin J. Murphy, Jr., 17, Abbey School, Canon City, Colo. Suitably inscribed certificates recognized each winner's sponsoring teacher and the winners were given subscriptions to the Journal of Chemical Education.

The Society of American Bacteriologists gave its First Award to Barry Ronald Dworkin, 16, Amundsen Sr. H.S., Chicago, Ill., for "The Mitotic Sensitivity of *E. coli*." He won an engraved plaque, certificate of merit, and \$125 to further his career in science. Second Award went to Mary Sue Wilson, 16, Malcolm Price Laboratory School, Cedar Falls, Iowa, for "Mutational Origin of Bacterial Resistance to Antibiotics." She received an engraved plaque, certificate of merit, and \$75. Winners' schools also get engraved plaques. Honorable Mentions named: Robert Herman Baum, 18, Melbourne H.S., Melbourne, Fla.; J. Steve Smith, 17, Northeast H.S., Oklahoma City, Okla.; Marilyn Pui-lin Yee, 16, Punahou Academy, Honolulu, Hawaii.

The Indiana Heart Association gave its Award of \$100 Government Bond to Barry G. Vesper, 16, College H.S., Bartlesville, Okla., for "Effect of Positive G Forces on Pulse and Respiration of the Rat."

The Indiana Pest Control Operators Association presented a First Award to Harriet Lynn Pryor, 17, Colton Union H.S., Colton, Calif., for "Microscopic Study of Roach for Hansen Bacilli." A Second Award went to Edward Fontaine Colston, 16, Martinsville H.S., Martinsville, Va., for "A Study of the Body Fluids of the Common Cockroach." The awards were \$75 and \$25 for the purchase of scientific materials.

Science News Letter, May 28, 1960

## Do You Know

True *hibernation* involves a drop in body temperature to within a few degrees of the surroundings; breathing and heartbeat become very slow and irregular.

The longest *drought* in U.S. history was in Bagdad, Calif., where no measurable rain fell between Oct. 3, 1912, and Nov. 8, 1914—767 days.

## Questions

**ANTHROPOLOGY**—Who were the two groups of people in ancient Greece having good teeth? p. 339.

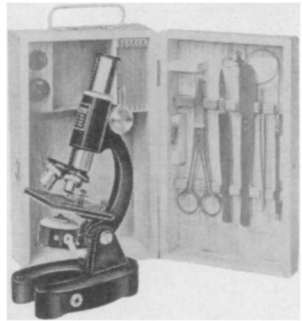
**ASTROPHYSICS**—How far above the surface is Jupiter's radiation belt located? p. 338.

**MEDICINE**—What method was used for pinpointing clots in blood vessels? p. 344.

**Photographs:** Cover, Science Service; p. 339, the National Society for Crippled Children and Adults; p. 341, p. 342 and p. 343, Science Service; p. 352, Damar's.

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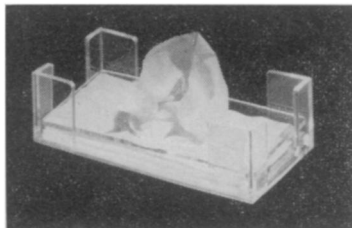
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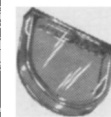
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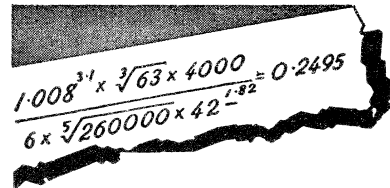
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