

GENERAL SCIENCE

Top Science Fair Awards

Two boys and two girls picked as top winners from the group of 213 science-minded exhibitors from all parts of the United States at the Seventh National Science Fair.

See Front Cover

► A SEARCH for an antibiotic in the digestive tract of an earthworm, a demonstration of the natural environment of skeletons, a study of where energy goes when its source is dissolved in acid, and an exhibition of an electrochemical technique of blood protein separation earned four high-school-aged scientists first place awards in the Seventh National Science Fair, held in Oklahoma City.

The four winners, two boys and two girls, were chosen from the group of 213 young exhibitors from 37 states and the District of Columbia by a panel of 23 judges.

The winning scientists were named at an awards dinner by Dr. Robert MacVicar, head of agricultural chemistry and research at Oklahoma A & M College and executive director of the Frontiers of Science Foundation, Oklahoma City. Dr. Alan T. Waterman, director of the National Science Foundation, addressed the group. (See p. 333.)

The finalists in the two divisions, physical and biological sciences, are Charles Pickford Egerton, 17, of Durham, N. C.; Suzan Lynn Hopkins, 16, of Waterloo, Iowa; Loren Cameron Mosher, 17, of Phoenix, Ariz.; and Taimi Toffer, 18, of Allentown, Pa.

Each of the award-winning young students demonstrated a solution to a problem that his or her project illustrated. Some of the 213 exhibits are shown in the photograph on the cover of this week's SCIENCE NEWS LETTER.

Exhibits Showed Projects

Sixteen-year-old Suzan Lynn Hopkins attempted to show why earthworms can survive after passing large amounts of dirt through their digestive tract. Her exhibit demonstrated her belief that an antibiotic is involved in the process. A junior at East Waterloo High School in Iowa, she was the winner in the girl's biology division. She requested and will receive a microscope as her prize. Each top winner can take his pick of scientific awards valued at \$125.

Taimi Toffer, 18, a senior at Allentown High School in Allentown, Pa., showed how electricity can be used to trace protein molecules. Her exhibit, winner in the girls' physical sciences division, was entitled Electrophoresis. The project resulted from her desire to use better techniques when she worked as a nurse's aid during a vacation last year. She will receive a camera and accessories as her prize.

In the boys' biology division, Charles Pick-

ford Egerton, a 17-year-old junior at Durham High School in Durham, N. C., won his \$125 "wish" award with an exhibit of the natural habitat group of skeletons. He has asked for and will get a dissecting set, light meter, tripod and camera.

A demonstration of what happens to the energy in a compressed spring when the spring is dissolved in acid earned Loren Cameron Mosher top honors in the boys' physical sciences division. The 17-year-old senior at North Phoenix High School, Phoenix, Ariz., will get his "wish," an oscilloscope kit, probe kits, vacuum voltmeter kit, resistance substitution box kit, capacitance substitution box kit and slide rule.

A.M.A. Awards

The winners of the American Medical Association's special awards at the Fair were Evelyn La Heist, 16, Kearny High School, San Diego, Calif., for her exhibit entitled Malaria, and Lynn C. Dunn, 16, Central Senior High School, Oklahoma City, Okla., for her exhibit, Molds and Algae.

They will show their exhibits among professional displays at the Chicago meeting of the American Medical Association, June 11 to 15.

Winners of honorable mention, who will go to Chicago in the event the first place winners are unable to do so, were Robert B. Nathanson, 15, Hall High School, West Hartford, Conn., whose exhibit is called The Effect of Aureomycin on the Encystment and Excystment of the Amoeba, and Robert Henry Armsby, 17, Sanford Preparatory School, Hockessin, Del., who exhibited a Respiration Calorimeter.

The American Medical Association awards were bestowed in addition to the regular prizes at the Fair, conducted by Science Clubs of America and administered by SCIENCE SERVICE. The A.M.A. citation includes a plaque and an all-expense paid trip to the A.M.A. convention in Chicago.

Second Place Winners

Winners of the second place "wish" awards, amounting to \$75 in scientific equipment of their own choosing, and the titles of their Fair projects are: Evelyn La Heist, 16, Kearny High School, San Diego, Calif., Malaria; Joel Fredric Lubar, 17, Montgomery Blair High School, Silver Spring, Md., Investigation of the Universe; Donald Brooks Kelley, 18, Charleston (W. Va.) Catholic High School, Tetrahedron Tower; Betty Marie Howell, 17, Valley High School, Al-

buquerque, N. Mex., Wind Tunnel; Sandra Lee Orr, 16, Park County High School, Livingston, Mont., Plant Nutrition; Richard Savage, 17, St. Meinrad (Ind.) Minor Seminary, Release of Free Oxygen by Algae.

Third Place Winners

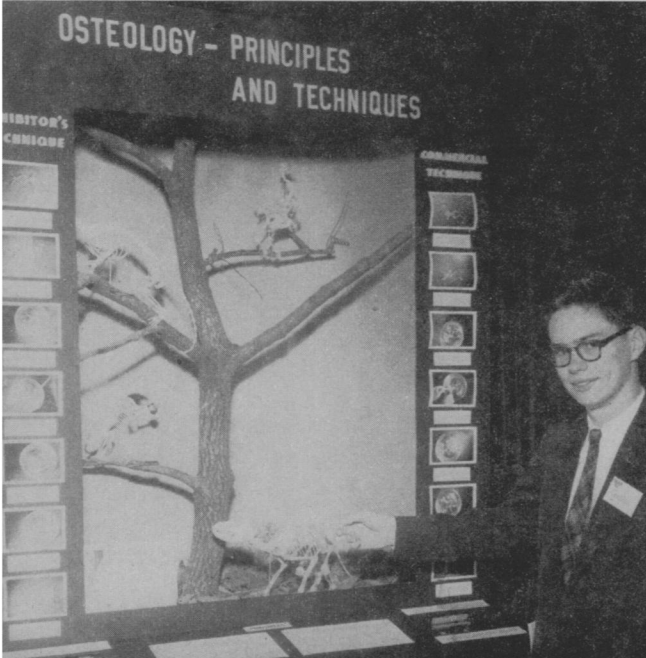
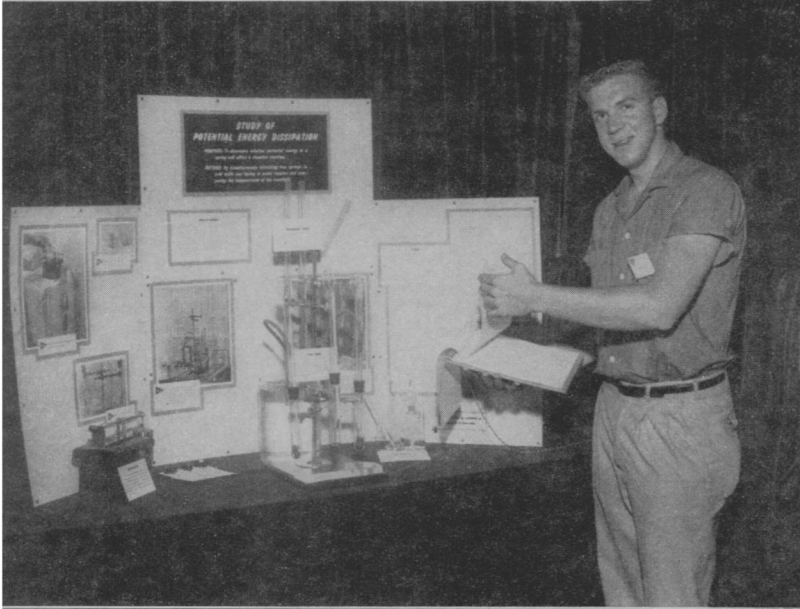
Winner of the third place "wish" awards, amounting to \$50 in scientific equipment of their own choosing, and the titles of their Fair projects are: Robert Henry Armsby, 17, Sanford Preparatory School, Hockessin, Del., Respiration Calorimeter; Catherine E. Connell, 18, Girls Central High School, Butte, Mont., Trigonometric Functions in the Unit Circle; Robert B. Nathanson, 15, Hall High School, West Hartford, Conn., Effect of Aureomycin on the Encystment and Excystment of Amoeba; Judith Marie Pelton, 18, South Kingstown High School, Wakefield, R. I., The Effect of Chemicals on Morphogenesis in the Rana Pipiens; Judith Kay Powers, 16, Kermit (Texas) High School, The Keystone Ellenburger Oil Field; James F. Votava, 18, Grafton (N. D.) Central High School, The Law of Induction; Roberta Whiteley, 15, Thomas Carr Howe High School, Indianapolis, Ind., Reaction in Plants; John Winter, 17, Charleston (W. Va.) High School, Sound Wave Reproduction by a Modulated Light Beam.

Fourth Place Winners

Winners of the fourth place "wish" awards, amounting to \$25 in scientific equipment of their own choosing, are: James L. Allen, Jr., 17, Central Catholic High School, Allentown, Pa.; Melvin Douglas Ball, 15, Clovis (Calif.) Union High School; (Miss) Sammie Wray Beckham, 17, Jal (N. Mex.) High School; Mary Jane Bernaciak, 18, Ivanhoe (Minn.) Public School; Suzanne Berry, 16, Norman (Okla.) High School; William Riley Bracewell, 17, William A. Bass High School, Atlanta, Ga.; Fred Simms Coffey, 17, University (Miss.) High School; W. Louise Conover, 17, Mesa (Ariz.) High School; Elizabeth Ellen Dowling, 16, Montgomery Blair High School, Silver Spring, Md.; Alfred L. Dunklee, 17, Brattleboro (Vt.) High School; Dorsey Carl Dunn, 16, Weatherford (Okla.) High School; Kenneth

(Continued on p. 335)

FAIR ACTIVITIES—Shown on the opposite page are the four Science Fair prize winners (left column and center, right column), Taimi Toffer, Loren Mosher, Charles Egerton and Suzan Hopkins; the four winners of the American Medical Association's special awards (top right) Robert Armsby, Lynn Dunn, Evelyn La Heist and Robert Nathanson; and Dr. Alan T. Waterman (bottom right), director of the National Science Foundation, who addressed the young scientists. (See p. 333.)



ENTOMOLOGY

Control Cattle Grub

► THE CATTLE GRUB, which costs the livestock industry an estimated \$100,000,000 annually, can now be kept from developing inside its victims, the U. S. Department of Agriculture has announced.

An organic phosphate chemical fed to the animals kills any grubs in their flesh.

The new preventive technique is still in the experimental stage, but it was hailed by Department of Agriculture scientists as a major step toward development of a grub control chemical that can effectively be used by livestock owners.

Scientists do not yet know whether the chemical, called Dow ET-57, is poisonous to cattle or whether it leaves harmful chemicals in milk or meat. The chemical name of Dow ET-57 is O,O-dimethyl-O-2,4,5-trichlorophenyl phosphorothic acid.

The grub is one of the most damaging pests that attack United States cattle. Besides spoiling the meat of infected animals, the tiny worms irritate their victims, sometimes making them stumble into ditches and water holes. Infected beef cattle frequently do not put on weight normally, and cows fail to yield milk. The animals' hides are damaged by small holes made when the grubs emerge.

The worms live as parasites within their victims. After about seven months they emerge through the hide on the animals' backs, drop to the ground and, a short time later, become heel flies. The heel flies fasten their eggs to the hair of the cattle. The eggs hatch into tiny grub worms that penetrate the hide and enter the flesh of the animals, starting the entire process again.

The grub is now controlled by an insecticide, rotenone, which does not kill the pest until after it has emerged. This helps prevent future infestations but is not a cure.

The research on the cattle grub was carried out by Agriculture entomologists G. W. Eddy, A. R. Roth, W. S. McGregor, and Drs. R. C. Bushland and R. D. Radeleff.

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Science Fair Winners

(Continued from p. 326)

E. Dunn, 17, Central Senior High School, Oklahoma City, Okla.; Leland N. Edmunds, Jr., 17, Newport News (Va.) High School; Marvin J. Feldman, 17, Soldan High School, St. Louis, Mo.; Robert Huth Gaither, 18, Northwestern Senior High School, Hyattsville, Md.; Stanley S. Goldberg, 17, Henry Grady High School, Atlanta, Ga.; Charles Augustus Gray, 17, Woodrow Wilson High School, Washington, D. C.; John Laurent Hodge, 16, Sumner High School, Kansas City, Kans.; (Miss) Segail Jordan Irwin, 17, Ensley High School, Birmingham, Ala.; Robert F. Jennings, 15, Roosevelt High School, Yonkers, N. Y.; Leona Jane Kananen, 16, Negaunee (Mich.) High School; Peter Titcomb Knight, 15, University School, Shaker Heights, Ohio; Donald Wayne Linzey, 16, Baltimore (Md.) City College (a secondary school); Michel Allan Lynch, 16, Northwest Classen High School, Oklahoma City, Okla.; Margaret Patricia Maerten, 17, Norte Del Rio High School, North Sacramento, Calif.; Anne Maino, 15, Thomas Downey High School, Modesto, Calif.; Jack Maniloff, 17, Forest Park High School, Baltimore, Md.; Barry Arnold Maxwell, 16, Winter Haven (Fla.) High School; Katherine Claire Moseley, 16, West Point (Miss.) High School; Yvonne Nasser, 18, Huntington (W. Va.) Central High School; Neil Logan Nininger, 16, Tamalpais High School, Mill Valley, Calif.; Neal S. Perry, 15, Sacramento (Calif.) Senior High School; John Douglas Reichert, 17, Stephen F. Austin High School, Austin, Texas; Roy Glyen Roberts, 17, Chatham (La.) High School; Winston A. Salsler, 17, Wichita (Kans.) High School East; Hubert M. Schmitter, 18, Delphi (Ind.) High School; (Miss) Alwynelle Parker Self, 15, Byrd High School, Shreveport, La.; (Miss) Corrie Evon Simmons, 17, Mabel C. Williams High School, Germantown, Tenn.; Christopher Speeth, 17, West High School, Cleveland, Ohio; Joel Sturman, 17, Brooklyn (N. Y.) Technical High School; Larry Clinton Thomas, 16, Ponca City (Okla.) High School; Stella Elizabeth Thompson, 18, Radford (Va.) High School; Louise M. Veltman, 16, Hackettstown (N. J.) High School; John Heinz Venable, Jr., 17, Northside High School, Atlanta, Ga.; Robley Cook Williams, Jr., 15, El Cerrito (Calif.) High School; George G. Zipfel, Jr., 17, H. B. Plant Senior High School, Tampa, Fla.

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Questions

ASTRONOMY—What is chromatic aberration? p. 330.

CARDIOLOGY—How many diseases can affect the heart? p. 328.

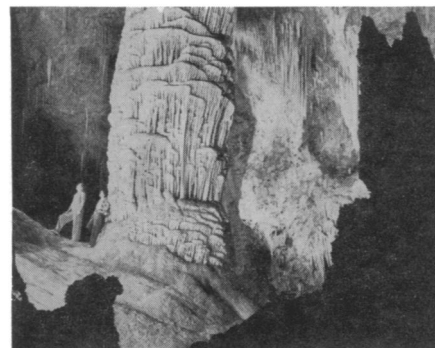
ENGINEERING—How do wide shoulders affect the number of automobile accidents? p. 332.

MEDICINE—What bandages have proved effective in saving lives of badly burned children? p. 329.

METEOROLOGY—Where are pressure jumps often found? p. 325.

VETERINARY MEDICINE—How does farm spring clean-up threaten livestock? p. 325.

PHOTOGRAPHS: Cover and p. 327, Science Service; p. 323, Polytechnic Institute of Brooklyn; p. 336, King Photo Corporation.



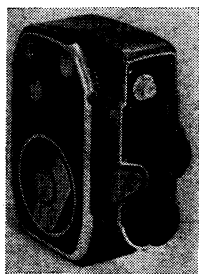
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