

Top Winners at ISF

International Science Fair awards were presented to student-scientists in fields including biology, physics, chemistry, engineering and mathematics

► THE INTERNATIONAL Science Fair presented top awards to the most promising student-scientists of the year.

The 419 participating finalists and their teachers were honored at a banquet in Dallas, Texas, where the fair, conducted annually by SCIENCE SERVICE was held this year (May 11-13). The long-anticipated announcement of the winners was made for the various categories of competition—botany, chemistry and biochemistry, earth and space sciences, medicine and health, physics, mathematics and computers, and zoology.

First Awards were presented to:

Botany—Edward J. Emery, 17, New Albany H.S., New Albany, Ind., for "L Forms and Gonidial Variants of Strain B6 of *Agrobacterium tumefaciens* Produced by Glycine," also a finalist in 1965; and Melinda L. Warner, 16, Bryan Adams H.S., Dallas, Texas, for "Hemerocallis Hybridizing."

Chemistry and Biochemistry—Carolyn C. Gerhardt, 18, Terry Parker Sr. H.S., Jacksonville, Fla., for "Amminization of Transition Metal Sulfates"; and Robert Michael Swift, 15, Mather H.S., Chicago, Ill., for "Biochemical Study of Crown Gall Bacteria."

Earth and Space Sciences—Scott A. Jenkins, 15, Valley H.S., Albuquerque, N. Mex., for "Disturbance Theory for Rocket Drag Reduction."

Medicine and Health—Frank R. Rudy, 17, Susquehanna Twp. Sr. H.S., Harrisburg, Pa., for "Polymorphous DNA Molecules Adapted to Experiments on the Cause, Annihilation and Prevention of Malignancies," also a finalist in 1965; and Mary L. Wade, 18, Gilmer H.S., Gilmer, Texas, for "Oral Roentgenotherapy," also a finalist in 1964.

Physics—James Kopel, 18, Miami Beach Sr., H.S., Miami Beach, Fla., for "Experimental Confirmation of Wave-Particle Duality by the use of Electron and Ion"; and Joseph F. Leykam, 18, St. Louis University H.S., St. Louis, Mo.; for "Design and Construction of an Electron Microscope."

Mathematics and Computers—Dennis A. Hejhal, 17, Lane Technical H.S., Chicago, Ill., for "Selected Topics in Complex Analysis," also a finalist in 1965; and Mary D. R. Ruggere, 16, Central Catholic H.S., Kingston, Pa., for "Expansion of the Moebius Strip in Dimension and Genus," also a finalist in 1965.

Zoology—Dena Lyn Ditzenberger,

16, Garfield H.S., Terre Haute, Ind., for "Trichinosis in Non-Mammalian Vertebrates"; and N. Morris Summers Jr., 16, Terry Parker Sr. H.S., Jacksonville, Fla., for "Enzymic Basis for Melanization and Sclerotization in the Fiddler Crab, *Uca pugnax*," also a finalist in 1965.

All of these winners will receive "Wish Awards" of \$100 for scientific equipment or books of their own choice.

Second honors and \$75 Wish Awards went to: John R. Shaska, 17, Central Catholic H.S., Kingston, Pa., for "Allergy-Producing Airborne Pollens"; Ellen Wolff, 17, St. Helena H.S., New York, N.Y., for "Effect of Near U.V. on Mitotic Periodicity in *Allium cepa* L."; Paul R. Herstein, 15, Holy Rosary H.S., Flint, Mich., for "Synthesis of the Aliphatic Alpha-

Amino Acids"; Sharon L. Payne, 17, McLean H.S., McLean, Va., for "Complexing of Ions and Interionic Attractions in the Variation of the KSP"; John L. Gilkey, 17, New Albany H.S., New Albany, Ind., for "Effects of Simulated Space Flight Upon White Mice"; John W. Bengel, 17, Lovington H.S., Lovington, N. Mex., for "Isolation of the Radiation Protection Factor in *Micrococcus radiodurans*"; Beth A. Romanowich, 17, Point Loma H.S., San Diego, Calif., for "Establishing a Blood Group System in the Laboratory Rat"; Felice R. Tillman, 18, Metairie Park Country Day School, Metairie, La., for "Survival at 40G—Hypothermic vs Normothermic Mice"; Carolyn A. Ross, 16, Governor Livingston Reg. H.S., Berkeley Heights, N.J., for "Experiments with Sonic Location"; Glenn A. Shaver, 18, South

THE WHITE HOUSE

WASHINGTON

May 3, 1966

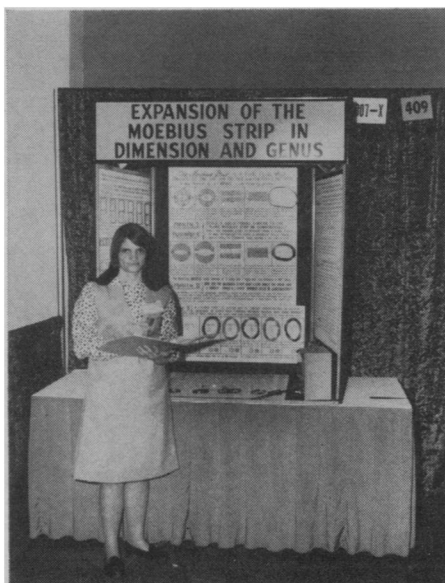
It always gives me great pleasure to applaud the outstanding performance of America's youth.

This pleasure is multiplied as I greet the young people from all over the world who are represented at this Seventeenth Annual International Science Fair.

As you plan your careers in sciences you chart the future progress of man in a field of ever-growing importance.

And as you assemble here to share your knowledge and to advance your plans for the years ahead, I want to express to you and to those who guide and assist you my warm admiration and best wishes.





MARY D. R. RUGGERE

Rowan Sr. H.S., China Grove, N.C., for "Theoretical 'Star' Configuration Design"; Edward C. Svendsen, 17, Washington-Lee H.S., Arlington, Va., for "Derivation of the Maxwell-Lorentz Equations"; Michael H. Levin-tow, 16, Walt Whitman H.S., Bethesda, Md., for "Operation and Properties of Artin Braids"; Susan L. Campbell, 16, Bossier H.S., Bossier City, La., for "Organic Phosphates Versus Chlorinated Hydrocarbons"; and James R. Simpson, 18, Central Catholic H.S., Reading, Pa., for "Determination of Concentration of Trace Amounts of HC Insecticides by Gas Chromatography."

Third Award

Third Awards and \$50 Wishes went to: Robert S. Brubaker, 17, Meeker H.S., Meeker, Colo., for "The Possibilities of a Fertilizer-Herbicide in a Common Organic Substance"; Janice M. Moos, 16, Circle H.S., Circle, Mont., for "*Typha latifolia*"; Robert L. Jeffcoat, 18, Spartanburg H.S., Spartanburg, S.C., for "Spectral Changes in Chlorophyll Following Flash Illumination"; Maria Klein, 22, Chemischen Instituts Dr. Flad, Stuttgart, Germany, for "Refraction Index Iodine Value"; Bruce W. Broding, 15, Edison Sr. H.S., Tulsa, Okla., for "Weather Pictures via the Satellites"; Curtis Bryant, 16, Le Mars Community H.S., Le Mars, Iowa, for "Studying the Solar Atmosphere"; Edwin R. Collier, 17, Mesquite H.S., Mesquite, Texas, for "The Immunological Study of the Thymus Gland and Its Role in Transplanting"; Letantia B. Jankowski, 18, Immaculate Conception H.S., Lodi, N.J., for "Radioprotection and Immunosuppression"; Ellen Middlecamp, 17, St. Francis Academy, Bethlehem, Pa., for "Sound Affects Physiological Measurement of Emotive Reactions"; Richard W. Edelman, 18, Nicolet H.S., Glendale, Wis., for "Internal Friction Effects"; Carl H. Fro-

mer, 15, Port Richmond H.S., Staten Island, N.Y., for "The Laser and Outer Space Communications"; H. Grady Rylander III, 18, Austin H.S., Austin, Texas, for "Construction of a Metal-Oxide-Surface Field-Effect Transistor"; Patsy A. Brewer, 18, Andrews H.S., Andrews, Texas, for "Mathematical Principles of the Hexton System"; Theodor Hildebrand, 19, Evangelischen Gymnasiums Zum grauen Kloster, Berlin, Germany, for "Electronic Computer With Semiconductor Elements"; James A. Bennett, 18, Moss Point H.S., Moss Point, Miss., for "Masculinization Analysis of Methyl Testosterone Administered *Lebistes reticulatus*"; and Wendy B. Fain, 17, Lincoln School, Providence, R.I., for "Cytological Basis of Coloration in *Fundulus heteroclitus*."

Fourth Award

Fourth Awards and \$25 Wishes were given to: Francis K. Aona, 17, St. Louis H.S., Honolulu, Hawaii; Donald H. Atha, 17, Mission Bay H.S., San Diego, Calif.; Karen L. Baker, 18, North H.S., Denver, Colo.; Gregory P. Bambenek, 18, Winona Sr. H.S., Winona, Minn.; Jeffrey B. Bentley, 16, Temple H.S., Temple, Texas; Roger E. Billings, 18, Provo H.S., Provo, Utah; Frank K. Bolyard Jr., 17, Academy of Richmond County, Augusta, Ga.; Rena M. Bonem, 18, Tucumcari H.S., Tucumcari, N. Mex.; James A. Brannock, 17, Easley Sr. H.S., Easley, S.C.; Patrick B. Briley, 18, Harding H.S., Oklahoma City, Okla.; Carol A. Bruce, 16, East Rowan H.S., Salisbury, N.C.; Gayle E. Burns, 17, Central H.S., Memphis, Tenn.; Donald R. Chesnut Jr., 17, London H.S., London, Ky.

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Questions

What clues did scientists use in determining variations in the height of Mars' surface? p. 418.

What new technique allows measurements accurate to one part in 10 million? p. 419.

What is a new explanation for the abundance of helium in the atmosphere? p. 425.

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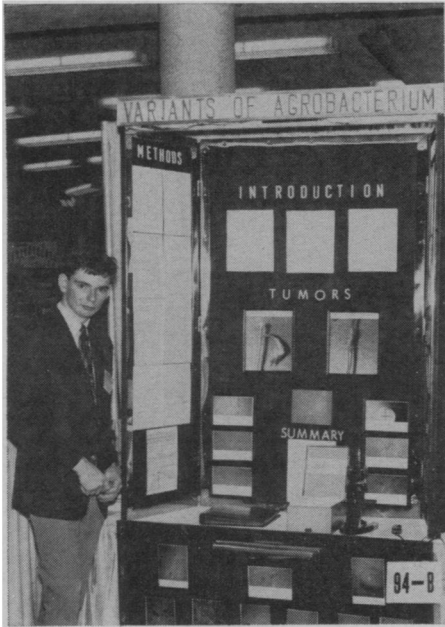
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• Science News, 89:409 May 28, 1966



SECOND ISF AWARDS WINNERS SHOWN WITH DR. LESLIE A. WILLIG (FAR RIGHT)



THIRD ISF AWARDS WINNERS SHOWN WITH DR. WAYNE TAYLOR (FAR RIGHT)

GENERAL SCIENCE

New ISF Council Chairman Elected

► THE INTERNATIONAL Science Fair Council, in session during the 17th ISF held in Dallas this month, elected Dr. Leslie A. Willig, to the post of council chairman. Dr. Willig is vice president of Tri-State College, Angola, Ind., and has been active in science fairs almost since their inception.

Dr. Willig replaces Dr. Wayne Taylor, professor, Science and Math Teaching Center, Michigan State University, East Lansing.

Elected vice chairman was Dr. Reuben A. Diettert, professor of botany at Montana State University, Missoula. Dr. Diettert succeeds Dr. Willig as vice chairman.

The International Science Fair Council advises SCIENCE SERVICE on administration of the ISF, and is comprised of 21 members who have been active in science fairs at least five years prior to Council service and have attended a minimum of three International Science Fairs. Term of membership on the Council is three years with terms of seven members expiring each May.

• Science News, 89:412 May 28, 1966

MEDICINE

Sports for Adolescents Do More Good Than Harm

► IN SPITE OF the danger of injuring the growing bones of youngsters competing in sports, the advantages of athletics far outweigh the disadvantages, the American Medical Association said.

"Adolescents are simply going to compete, with or without sanction," said an AMA Journal, 196: 607, 1966, editorial by Dr. Thomas E. Shaffer of Columbus, Ohio, who is a member of the AMA Committee on the Medical Aspects of Sports.

A report from Eugene, Ore., by two

physicians of Sacred Heart Hospital, reviewed 1,338 athletic injuries treated by four orthopedists in the area, and found that although 20% of the injured children were 14 years old or younger, only six percent sustained injury to the epiphyses, the pieces of bone joined by cartilage to the body's long bones.

This is the potentially crippling injury that causes greatest concern, the doctors said. Growth takes place in these cartilaginous joint areas during childhood, and eventually the bones grow together under normal circumstances.

Among the six percent of injuries involving the epiphyses, growth disturbances were the exception rather than the rule.

Drs. Robert L. Larson and Robert O. McMahan, who made the study, suggested that certain types of youngsters should postpone sports activity

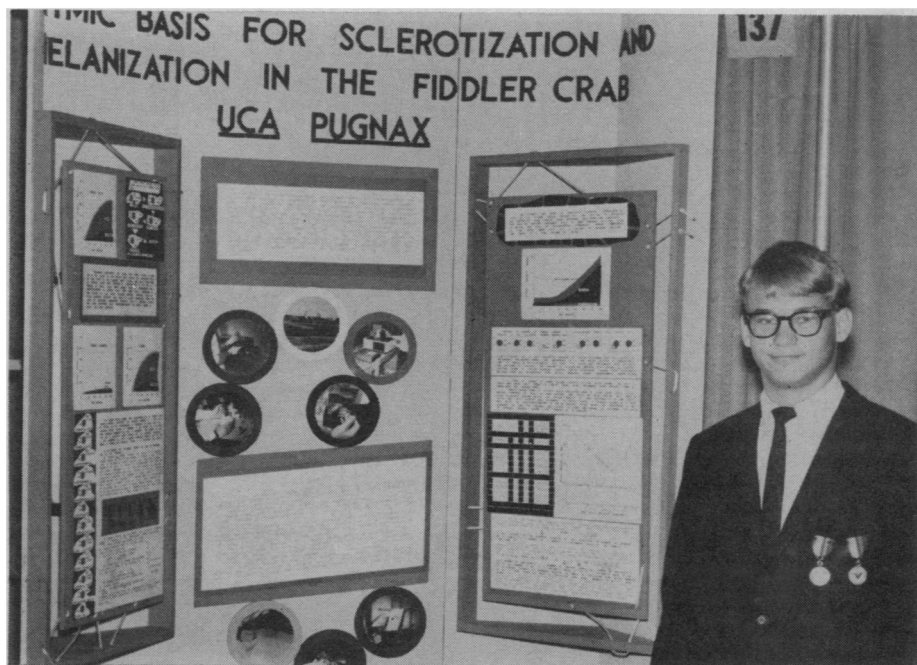
until they develop further. Most susceptible to epiphyseal injury are obese children and tall uncoordinated, lanky youngsters with poor muscle development.

Some activities are unusually hazardous for young athletes. The base-runner's slide in baseball is a cause of frequent bone and joint injury and consideration is being given to eliminating it from Little League play.

One medical study suggests that curve balls should be ruled out for pitchers, aged nine to 14, and that they be limited to two innings of play per week. Little Leagues already limit pitchers to four to six innings.

Sprains on weight-bearing joints should be watched for possible damage to epiphyseal areas, the doctors said. Youngsters 12 to 15 years old are often injured after landing stiff-legged in basketball rebounding, or pole-vaulting.

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N. MORRIS SUMMERS JR.