

GENERAL SCIENCE

Special Award Winners

Outstanding finalists at the 15th NSF-I were selected by participating Federal agencies and professional organizations for special honors in their respective fields.

► JUDGING PANELS of specialists from Federal agencies and professional organizations selected outstanding finalists at the 15th National Science Fair-International for special awards in their particular fields.

The AMERICAN CHEMICAL SOCIETY gave First Awards to Dorothy E. Sanders, 17, Many H.S., Many, La., for "Detection, Identification and Isolation of Natural Pteridines and Their Effects on Embryonic Development," and to Alan R. Cutler, 17, Auburn, H.S., Auburn, Mass., for "Isolation of Sodium Superoxide from Sodium Ozonide." Both won plaques and \$100 awards to be used for science materials and study.

First alternate awards of plaques went to Kathleen M. Thomas, 17, Detroit, Mich., and Joseph K. V. Comeau, 17, Champlain, N. Y. All four students received subscriptions to the Journal of Chemical Education and their teachers received special plaques.

The AMERICAN INSTITUTE OF BIOLOGICAL SCIENCES honored Frances Marie Hefelfinger, 16, Carlisle Sr. H.S., Carlisle, Pa., for "Effects of Gamma Irradiation: Induced Mutations on Snapdragons," and Philip Y. Paden, 18, Lawrence H.S., Lawrence, Kans., for "Stimulus Induced Changes in the Synaptic Complex." The winners each will receive expense-paid trips to the annual AIBS convention.

The AMERICAN INSTITUTE OF MINING, METALLURGICAL, AND PETROLEUM ENGINEERS, Inc., gave a First Award of a certificate and \$100 U. S. Savings Bond to Theodore Bernard Lerman, 17, Brooklyn Technical H.S., Brooklyn, N. Y., for "Tin—The Metal That Cries." Two finalists tied for the AIME alternate award, each receiving a certificate and a \$50 U. S. Savings Bond: William Horton Caskey, 18, Jonesboro, La., and Robert Marion Willingham, Jr., 17, Washington, Ga. All three will receive subscriptions to one of the AIME journals.

The AMERICAN PSYCHOLOGICAL ASSOCIATION gave a First Award of a certificate and \$100 U. S. Savings Bond to Marilyn Beech, 15, Fulton H.S., Atlanta, Ga., for "Does Mother Factor During Infancy Affect Growth and Behavior in Maturity?" Certificates of Merit were given to Ann Virginia Guthrie, 15, Kansas City, Mo.; Ruth Carol Silberman, 17, Chateaugay, N. Y., and James A. Nathanson, 17, West Hartford, Conn.

The AMERICAN SOCIETY FOR METALS gave a First Award plaque and \$100 to Erwin James Stierle, 16, Ann Arbor H.S., Ann Arbor, Mich., for "Design, Construction and Operation of the Field Ion Microscope." The second award plaque and \$75 went to John Richard Gott III, 17, Louisville, Ky.

The AMERICAN SOCIETY FOR MICROBIOLOGY gave its First Award plaque, Certificate of Merit and \$100 to further the winner's

career in science to Robert R. Spencer, 16, Woodbury Central Community School, Menville, Iowa, for "Production and Testing of Avian Bronchitis Vaccine." The second award plaque, Certificate of Merit and \$75 went to Patricia N. Schultz, 17, Faribault, Minn. Honorable mention plaques were awarded to Patricia Camille Murphy, 17, Memphis, Tenn.; Charles R. Bokesch, 17, Frederick, Md.; and to Mary Kristine Malins, 17, Corpus Christi, Texas.

The ENTOMOLOGICAL SOCIETY OF AMERICA awarded a \$100 U. S. Savings Bond and the current issue of the Annual Review of Entomology to Robert Steven Brown, 17, Bethesda-Chevy Chase H.S., Bethesda, Md., for "Fractionation of *Drosophila melanogaster* and Correction of Hereditary Diseases."

The NATIONAL AERONAUTICS AND SPACE ADMINISTRATION awarded Certificates of Merit and two-day visits to NASA facilities to winners in six categories: in Aerodynamics and Space Flight, awards went to Laidacker M. Seaberg, 17, Forest Park H.S., Beaumont, Texas, for "Design of Autogyros" and Joseph Russell Mosher, Jr., 15, Reese H.S., Reese, Mich., for "Effects of Rocket Flight on Training"; in Space Vehicles to Ronald DeWayne Jones, 18, Welch H.S., Welch, Okla., for "Micrometeoroid Erosion and Spacecraft Materials" and Virginia Mason Morris, 15, Columbia H.S., Richland, Wash., for "Mouse in a Closed Ecological Environment"; in Space Propulsion Systems to Donald P. Hutchinson, 17,

R. H. Watkins H.S., Laurel, Miss., for "Acceleration of Charged Particles for Space Propulsion" and to Richard Darrell Bennett, 17, Norte Del Rio H.S., North Sacramento, Calif., for "The Making of a Ramjet"; in Space Life Sciences to Judith Lauren Herr, 18, Northeast H.S., St. Petersburg, Fla., for "An Analytical Study of a Martian Phenomenon" and to Sharon Ann Fair, 17, Sandia H.S., Albuquerque, N. Mex., for "Sleep—A Habit? Rest—Necessary!"; in Space Physical Sciences to Alan Emerson Wittbecker, 17, Waynesboro H.S., Waynesboro, Va., for "General Mathematical Model of a Zwicky Humason Star" and to Martha Eleanor Matter, 16, Washington-Lee H.S., Arlington, Va., for "Jupiter—Composition, Structure, Origin"; in Space Electronics and Communications to David G. Taylor, 16, Middletown Township H.S., Middletown, N. J., for "Experiments in the Simplification of Television Image-Conversion and Transmission" and to H. Grady Rylander III, 16, Austin H.S., Austin, Texas, for "Simultaneous Oscillations in Negative Resistance Devices." Each of the 12 winners will name a teacher to accompany him on the trip.

(Continued on p. 333)

SCIENCE FAIR WINNERS—The 13 top winners with their exhibits at the 15th National Science Fair-International are shown on the following two pages.

Reading from left to right, top row: Kevin J. Glading, Martha E. Matter, Amory B. Lovins, Judith Herzfeld.

Middle row: Toshiko Matsumaru, Richard E. Albrecht, Charles G. Taylor, Jr., Patricia N. Schultz.

Bottom row: Philip Y. Paden, Erick O. Wright, Robert J. Brock, Joan M. Keene, David R. Gibbs.



Science Service

TYPICAL SCENE AS OVER 400 EXHIBITS ARE PUT INTO PLACE—Over 100,000 visitors saw the more than 400 exhibits during the two days the public was admitted to the Baltimore Civic Center during the 15th National Science Fair-International.

Books of the Week

Listing is for readers' information, not advertising. For convenient purchase of any book listed or any U.S. book in print, remit retail price (we pay postage) plus 25¢ handling charge if price is less than \$2 to Book Department, Science Service, 1719 N St., N.W., Washington, D. C. 20036.

MOTIVATION: Theory and Research—C. N. Cofer and M. H. Appley—Wiley, 958 p., illus., \$12.50. Offers a comprehensive, up-to-date review of the theoretical and experimental research literature on motivational psychology, examining the field of motivation in historical context and evaluating the major theories and positions in the field.

NEW WAYS IN PSYCHOANALYSIS—Karen Horney—Norton, 313 p., paper, \$1.55. Reprint (1939).

THE NEW WORLD OF COPPER—Edward B. Tracy—Dodd, 80 p., photographs, \$3. About locating and mining methods, alloys, wire and modern uses of copper, for young people.

NUCLEAR ENGINEERING FUNDAMENTALS—Roy Weinstein, Alvin Boltax and Giovanni Lanza—McGraw, 1,064 p., diagrams, \$20. Text covering principles and applications is divided into five parts—Atomic Physics, Nuclear Physics, Interaction of Radiation and Matter, Nuclear Materials, and Nuclear Reactor Theory; each part is also available separately for \$5 each.

THE NUMBER OF THINGS: Pythagoras, Geometry and Humming Strings—Evans G. Valens—Dutton, 189 p., diagrams, \$4.95. Concerned with things that can be described with numbers, ideas that gathered other ideas around themselves.

1001 QUESTIONS ANSWERED ABOUT SPACE—Clarke Newlon—Dodd, rev. ed., 356 p., illus., \$6. Expanded edition reflects the progress in the U.S. space program of the past two years.

PARASITOLOGY: The Biology of Animal Parasites—Elmer R. Noble and Glenn A. Noble—Lea & Febiger, 2nd ed., 724 p., illus., \$11. Thoroughly revised, written primarily for the advanced undergraduate student, emphasis is on the ecology and evolution of parasitism.

PEACOCK MANURE & MARIGOLDS: A "No-Poison" Guide to a Beautiful Garden—Janet Gillespie—Viking, 184 p., illus., \$3.95. A personable and practical book by a third-generation gardener in New Hampshire.

PHYSICAL FACTORS AND MODIFICATION OF RADIATION INJURY—L. D. Hamilton, Ed.—N. Y. Acad. of Sciences, Vol. 114, Art. 1, 716 p., illus., paper, \$12. Contributions range from paper on the correlation of radiation quality and biological effect to a discussion of the transplantation potential of hemopoietic tissue.

THE POPULATION CRISIS AND THE USE OF WORLD RESOURCES—Stuart Mudd, Ed.—Indiana Univ. Press, 563 p., diagrams, \$7.95. Realistic and objective investigation by eminent authorities of the dramatic changes in human ecology brought about by the world-wide application of scientific medicine and public health to the reduction of death rates without corresponding reduction of birth rates.

PREDICTION OF SUSCEPTIBILITY TO HYPNOSIS—Richard H. Dana and George W. Cooper, Jr.—Psychological Reports, 14 p., paper, \$1. Monograph Supplement 2-V14.

PREHISTORIC MAN IN THE NEW WORLD—Jesse D. Jennings and Edward Norbeck, Eds.—Univ. of Chicago Press, 633 p., illus., maps, \$10. Brings together in nontechnical language, fully annotated, the principal findings on the record of man's life in the Americas, written for both professional archeologists and lay readers.

PRIDE AND POWER: The Rationale of the Space Program—Vernon Van Dyke—Univ. of Ill. Press, 285 p., \$6.50. An analysis of the reasons, motives and goals behind the United States space program.

PRINCIPLES OF QUANTITATIVE GENETICS—Wharton B. Mather—Burgess, 152 p., paper, \$5.50. Summarizes the essential features of statistical, population and biometrical genetics as an integrated whole.

THE PROBLEM OF ANXIETY—Sigmund Freud, transl. from German by Henry Alden Bunker—Norton, 127 p., paper, \$1.25. Reprint (1936).

SALINE WATER CONVERSION REPORT FOR 1963—Office of Saline Water, Charles F. MacGowan, Dir.—GPO, 187 p., illus., paper, \$1.50. Information on the 1963 operations of the Department of the Interior regarding the desalting of sea water and brackish water.

SCIENCE AND THE FUTURE OF MANKIND—Hugo Boyko, Ed.—Indiana Univ. Press, 380 p., diagrams, \$6.95. This Volume I of the World Academy of Art and Science offers a collection of articles by foremost scientists and humanists exploring the vital problems of mankind in the face of increasing technological and scientific advancement.

SEX AND THE COLLEGE GIRL—Gael Greene, introd. by Max Lerner—Dial Press, 256 p., \$4.95. A journalistic report based on interviews with 614 students from 102 colleges and universities focusing on a new type of adolescent.

SPACE GROUPS AND THEIR REPRESENTATIONS—G. F. Koster—Academic Press, 84 p., diagrams, \$3.95. Reprinted from Vol. 5, 1957, Solid State Physics.

STELLAR INTERIORS—Donald H. Menzel, Prabhu Lal Bhatnagar and Hari K. Sen—Wiley, 317 p., \$12.50. Mathematical treatment, suitable as a textbook for courses dealing with the theory of the internal constitution of the stars, including basic information on atomic fusion and atomic building processes.

THE STRATEGY OF DISARMAMENT—Henry W. Forbes, introd. by Quincy Wright—Public Affairs Press, 158 p., \$3.75. A detailed discussion of methods of disarmament between the two World Wars and methods proposed since 1945.

YOUR GUIDE TO THE WEATHER—George L. Cantzlaar—Barnes & Noble, 242 p., illus., \$4.50; paper, \$1.50. Presents to the layman the essentials of modern meteorology with the help of many diagrams.

UNUSUAL FORMS AND ASPECTS OF CANCER IN MAN—N. Henry Moss, Ed.—N. Y. Acad. of Sciences, Vol. 114, Art. 2, 366 p., illus., paper, \$7.50. This monograph focuses attention on examples of malignant disease which are of clinical interest yet occur infrequently, such as radiation-induced cancer and site specific neoplasms.

• Science News Letter, 85:333 May 23, 1964

Special Award Winners

(Continued from p. 325)

THE NATIONAL COMMITTEE FOR CAREERS IN MEDICAL TECHNOLOGY gave a 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 \$100 for travel expenses, to Wilson Ayers Clark, Jr., 17, Grainger H.S., Kinston, N. C., for "Thalidomide Induced Teratogenic Differentiation in Chick Embryos." Alternate to the First Award was Nancy Lee Williamson, 17, Bryan, Ohio. Honorable mention citations went to: Rhea Louise Keller, 18, New Haven, Ind., and Donna Lee Rehkop, 17, Berwick, Pa.

THE NATIONAL PEST CONTROL ASSOCIATION gave a certificate and \$100 for science materials and experimentation in biology to Darrell Addison Posey, 17, Henderson County H.S., Henderson, Ky., for "The Fascinating World of the Ant."

THE NATIONAL TELEMETERING CONFERENCE awarded a certificate and a trip for himself and his sponsor to exhibit at the annual conference to John Scott Winterle, 17, Leon H.S., Tallahassee, Fla., for "Multi-Channel Optical Communications." Charles W. Buenzli, Jr., 17, East Stroudsburg, Pa., was named as alternate.

THE OPTICAL SOCIETY OF AMERICA presented a First Award of \$100 for materials, equipment, or books to Dennis Lee Schatz, 17, George Washington H.S., Denver, Colo., for "Determining the Velocity of Light." The second award of \$75 went to Richard E. Albrecht, 18, Parkersburg, W. Va.

THE SOCIETY OF WOMEN ENGINEERS presented a \$100 U.S. Savings Bond to Janice Dinegar, 17, Los Alamos H.S., Los Alamos, N. Mex., for her project "Quantization of Direction in a Magnetic Field—The Stern-Gerlach Experiment."

THE U. S. ATOMIC ENERGY COMMISSION gave certificates and trips to Argonne National Laboratory to Charles R. Bokesch, 17, Frederick H.S., Frederick, Md., for "Bacterial Protection Against Radiation"; David E. Brown, 17, Menlo-Atherton H.S., Atherton, Calif., for "Biochemistry of Cholesterol: Role of Cholesterol in the Biosynthesis of Ergosterol in *Neurospora*"; Eric Miles Dulberg, 16, Benjamin Franklin Sr. H.S., New Orleans, La., for "The Universe of Subatomic Structure"; Joan Marie Keene, 17, Bethlehem H.S., Bardstown, Ky., for "Germ-Free Chicken Experimentation"; Amory Bloch Lovins, 16, Amherst Regional H.S., Amherst, Mass., for "A New Nuclear Magnetic Interaction"; Eileen M. O'Brien, 17, New Dorp H.S., Staten Island, N. Y., for "Effects of RNA and DNA Nucleosides on Growth, Morphology and Biochemistry of Irradiated *E. coli*"; Jonathan R. Pawlik, 17, Dearborn H.S., Dearborn, Mich., for "Atomic Transmutation"; John F. Schultz, Jr., 15, Burges H.S., El Paso, Texas, for "Spark Chamber Construction and Operation"; Gerald A. Serwer, 17, Harding H.S., Oklahoma City, Okla., for "Effects of Radiation on the Electrocardiographic Development of the Chick Embryo Heart"; Eileen Thompson, 18, Ottawa Hills H.S., Grand Rapids, Mich., for "Effect of Serotonin Against Gamma Radiation." Each winner will designate a teacher who also will be honored with an expenses paid trip. Alternates were Frederick R. Aronson, 18, Hillsdale, N. J.; Thomas Abbott Girard, 16, Monterey, Calif.; John J. Keller, 17, Hampton, Va.; Richard Evans Koehler, 17, West Lafayette, Ind.; Cheryl Ann Kogele, 16, Circle, Mont.; Paul Lawrence Modrich, 17, Raton, N. Mex.; June Sheryl Moore, 16, Americus, Ga.; Joe Alexander Sigman, 17, Dyersburg, Tenn.; Joyce Elaine Solomon, 17, Columbia, S. C.; James Daniel Ware, 18, New Albany, Ind.

(Continued on p. 334)

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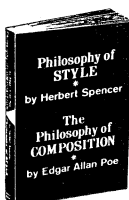
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(Continued from p. 333)

THE U. S. PATENT OFFICE Awards sponsored by the Patent Office Society, consisting of a certificate and \$50, were given in four categories: Mechanical Engineering, Richard Darrell Bennett, 17, Norte Del Rio H.S., North Sacramento, Calif., for "The Making of a Ramjet"; Electrical Engineering, David G. Taylor, 16, Middletown Township H.S., Middletown, N. J., for "Experiments in the Simplification of Television Image-Conversion and Transmission"; in Chemical Engineering, Alan R. Cutler, 17, Auburn H.S., Auburn, Mass., for "Isolation of Sodium Superoxide from Sodium Ozonide"; in Design or Dramatic Value to Susan Katherine Hart, 17, McMinn County H.S., Athens, Tenn., for "Clowning Around with Algebra."

THE U. S. ARMY awarded a certificate and either a trip to an Army research facility or the opportunity to accept a salaried summer job as a student-trainee in a research laboratory to: Phillip P. Hughes, 17, Woodrow Wilson H.S., Beckley, W. Va., for "Plasma Physics"; H. Grady Rylander III, 16, Austin H.S., Austin, Texas, for "Simultaneous Oscillation in Negative Resistance Devices"; Thomas M. McGahee, 17, Central Catholic H.S., Melbourne, Fla., for "X-Ray Power Supplies"; Amory Bloch Lovins, 16, Amherst Regional H.S., Amherst, Mass., for "A New Nuclear Magnetic Interaction"; Jim Lloyd Pickren, 15, Lewisville H.S., Lewisville, Ark., for "Learning Ability of Four Rodents"; Paul Stephen Kaplan, 16, Lebanon Sr. H.S., Lebanon, Pa., for "Inducing Pregnancy by Artificial Insemination in C-57 Mice"; Richard E. Albrecht, 18, Parkersburg H.S., Parkersburg, W. Va., for "Atmospheric Refraction of the Low Sun"; Edward Jackson Pugh, 17, John Marshall H.S., Oklahoma City, Okla., for "Phenomena of the Fluvial Geomorphic Cycle"; Erik Olin Wright, 17, Lawrence H.S., Lawrence, Kans., for "Analysis of the Total Number of Twists Resulting From Cutting any Order Möbius Band with any Number of Cuts"; John G. Cleland, 18, Decatur H.S., Decatur, Ala., for "Fluid Computer System"; David Edward Kieras, 16, Central H.S., San Angelo, Texas, for "A Machine Which Duplicates the Learning Process"; Susan

Carol Doherty, 17, Wichita H.S., East, Wichita, Kans., for "Influence of the Borate Ion on Crystals of Sodium Chlorate and Sodium Bromate Oriented in an Electric Field"; Judith Herzfeld, 16, Martin Van Buren H.S., Queens Village, N. Y., for "Spectropolarimetric Analysis of the Secondary Structure of Gramicidin-S and Tyrocidine-A"; Charles Griffith Taylor, Jr., 18, Glynn Academy, Brunswick, Ga., for "Control of Anthocyanin Synthesis by the Photoreceptor System"; Kathleen M. Thomas, 17, Cass Technical H.S., Detroit, Mich., for "Metallic Diazotates Applied to Analytical Chemistry"; Eileen M. O'Brien, 17, New Dorp H.S., Staten Island, N. Y., for "Effects of RNA and DNA Nucleosides on Growth Morphology and Biochemistry of Irradiated *E. coli*"; Stephen Hayward Sinclair, 18, North Phoenix H.S., Phoenix, Ariz., for "Hibernation vs Hypothermia"; Linda Phyllis Wills, 17, Auburn H.S., Auburn, Ind., for "Electrical Conductivity in Malignant and Non-Malignant Tissues"; Nancy Lee Williamson, 17, Bryan H.S., Bryan, Ohio, for "Immunological and Serological Studies of Plant Lectins as Related to Blood Grouping"; Mary Kristine Malins, 17, Incarnate Word Academy, Corpus Christi, Texas, for "Some Aspects of Marine Microbiology."

Alternates named for the U.S. Army Awards included: David R. Meador, Jr., 17, Roanoke, Va.; Jonathan R. Pawlik, 17, Dearborn, Mich.; Tony M. Quisenberry, 17, Quanah, Texas; Gail B. Halpern, 17, Long Branch, N. J.; David L. Abel, 17, Hyattsville, Md.; Alice Earlene Mitchell, 16, Vinton, Va.; Dennis Lee Schatz, 17, Denver, Colo.; Louis H. Hardin III, 17, Nashville, Tenn.; Leslie Everett Webb III, 17, Falfurrias, Texas; Oliver Eugene Dial, Jr., 16, Chula Vista, Calif.; Carin Catherine Clamann, 15, San Antonio, Texas; Carol A. Norcia, 17, Jersey City, N. J.; Spencer Woods Roedder, 16, Bethesda, Md.; William Gregory Mueller, 16, South Bend, Ind.; Donald Willis Tubbs, 16, Lacey, Wash.; Rhea Louise Keller, 18, New Haven, Ind.; Barbara Elaine Marzocchi, 17, Cumberland, R. I.

The U. S. Army alternate winners were given meritorious second awards.

THE ARMED FORCES CHEMICAL ASSOCIATION gave plaques and \$50 toward transportation expenses to their U.S. Army job or trips to: Jim Lloyd Pickren, Paul Stephen Kaplan, Charles Griffith Taylor, Jr., Kathleen M. Thomas, Eileen M. O'Brien.

THE ARMY AVIATION ASSOCIATION OF AMERICA awarded a plaque and \$100 to Laidacker M. Seaberg, 17, Forest Park H.S., Beaumont, Texas, for "Design of Autogyros" and Richard Darrell Bennett, 17, Norte Del Rio H.S., North Sacramento, Calif., for "The Making of a Ramjet."

THE U. S. NAVY designated ten Navy Science Cruisers and awarded them Principal Award Certificates and official U.S. Navy binoculars, in addition to science-oriented trips on U.S. Naval vessels and at land-based USN research facilities. The Cruisers are: Robert James Brock, 17, Arlington Heights H.S., Fort Worth, Texas, for "Determination of Suppressor Gene Loci in *E. coli* K-12"; John Richard Gott III, 17, Mayme S. Waggener H.S., Louisville, Ky., for "A

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New Concept in Metallic Crystal Structure"; Amory Bloch Lovins, 16, Amherst Regional H.S., Amherst, Mass., for "A New Nuclear Magnetic Interaction"; David L. Abel, 17, Northwestern Sr. H.S., Hyattsville, Md., for "*Plasmodium berghei*: p-aminobenzoate"; Rudy Steve Spraycar, 16, Anaconda Sr. H.S., Anaconda, Mont., for "Tracer Studies of Nutrient Utilization by *Fungi imperfecti*"; Ronald DeWayne Jones, 18, Welch H.S., Welch, Okla., for "Micro-meteoroid Erosion and Spacecraft Materials"; Preston W. Cook, Jr., 16, Dartmouth H.S., North Dartmouth, Mass., for "Constructional and Operational Problems of High Speed Displacement Hulls"; David Edward Kieras, 16, Central H.S., San Angelo, Texas, for "A Machine Which Duplicates the Learning Process"; Donald Willis Tubbs, 16, North Thurston H.S., Lacey, Wash., for "Effects of High 'G' on Living Things"; John F. Schultz, Jr., 15, Burges H.S., El Paso, Texas, for "Spark Chamber Construction and Operation."

THE U. S. AIR FORCE awarded plaques, expenses-paid trips to USAF research facilities and salaried summer jobs at research laboratories in the fields of their individual interests to ten finalists. USAF winners and alternates to their awards were: in Aerospace Biological Sciences, Arthur Edward Frankel, 16, Stephen F. Austin H.S., Austin, Texas, for "Biochemical and Physiological Analysis of the Hemoglobin in *Daphnia magna Strauss*" (Alternate: Robert James Brock, 17, Fort Worth, Texas); in Aerospace Chemistry, David A. Shannon, 17, Choteau H.S., Choteau, Mont., for "Chemical Analysis by Infrared Spectrophotometry" (Alternate: Eugenia Ozier, 17, Greenwood, Miss.); in Aerospace Dynamics, Laidacker M. Seaberg, 17, Forest Park H.S., Beaumont, Texas, for "Design of Autogyros" (Alternate: Patricia Anita Titsworth, 16, Cookeville, Tenn.); in Aerospace Electronics and Communications, H. Grady Rylander III, 16, Austin H.S., Austin, Texas, for "Simultaneous Oscillations in Negative Resistance Devices" (Tied for Alternate: Thomas M. McGahee, 17, Melbourne, Fla., and Robert George Spencer, 17, Soquel, Calif.); in Aerospace Environmental Sciences, David Aaron Matthews, 18, Anacostia H.S., Washington, D. C., for "Extratropical Cyclones" (Alternate: Alan Emerson Wittbecker, 17, Waynesboro, Va.); in Aerospace Medicine, Stephen Hayward Sinclair, 18, North Phoenix H.S., Phoenix, Ariz., for "Hibernation vs. Hypothermia" (Alternate: John McLean Shearman, 16, Lovington, N. Mex.); in Aerospace Physics, Kevin J. Glading, 16, Albany H.S., Albany, Calif., for "Nuclear Quadrupole Resonance Effects" (Alternate: Thomas Abbott Girard, 16, Monterey, Calif.); in Aerospace Physiological and Social Sciences, Sharon Ann Fair, 17, Sandia H.S., Albuquerque, N. Mex., for "Sleep—A Habit? Rest—Necessary!" (Alternate: Karen Lee Cray, 16, Atchison, Kans.); in Aerospace Propulsion, Richard Darrell Bennett, 17, Norte Del Rio H.S., North Sacramento, Calif., for "The Making of a Ramjet" (Alternate: Charles Filmore Peach, 18, Arlington, Texas); in Mathematical and Computational Sciences, Douglas Allen Lind, 17, George Mason Jr.-Sr. H.S., Falls Church, Va., for "Generali-

zations of Circular and Hyperbolic Functions" (Alternate: David R. Jefferson, 15, Beltsville, Md.).

• Science News Letter, 85:325 May 23, 1964

GENERAL SCIENCE

Armed Forces 'Operation Cherry Blossom'

► THREE TEEN-AGED FINALISTS at the 15th National Science Fair-International will go to Japan to exhibit their winning science projects as special representatives of the U.S. Armed Forces.

The unprecedented award, sponsored jointly by the three services, was announced in Baltimore at the NSF-I Awards Banquet.

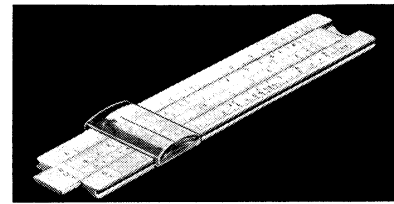
Nancy Lee Williamson, 17, Bryan H.S., Bryan, Ohio, selected by the U. S. Army for her project, "Immunological and Serological Studies of Plant Lectins as Related to Blood Groupings"; Robert James Brock, 17, Arlington Heights H.S., Fort Worth, Texas, selected by the U. S. Navy for his project, "Determination of Suppressor Gene Loci in *E. coli* K-12"; and H. Grady Rylander III, 16, Austin H.S., Austin, Texas, selected by the U.S. Air Force for his project, "Simultaneous Oscillations in Negative Resistance Devices," will be flown to Japan to exhibit at the 8th Annual Japan Student Science Awards' Science Fair in Tokyo, Nov. 2-8.

Alternates for "Operation Cherry Blossom" are: Erik Olin Wright, 17, Lawrence H.S., Lawrence, Kans.; John Richard Gott III, 17, Mayme S. Waggenger H.S., Louisville, Ky.; and Kevin J. Glading, 16, Albany H.S., Albany, Calif.

Representing The Honorable Stephen Ailes, Secretary of the Army, and Gen. Earle G. Wheeler, Chief of Staff, was Brig. Gen. Walter E. Lotz, Director of Army Research. Representing The Honorable Paul H. Nitze, Secretary of the Navy, and Adm. David L. McDonald, Chief of Naval Operations, was Rear Adm. Donald G. Irvine, Assistant Chief of Naval Personnel for Education and Training. Representing The Honorable Eugene M. Zuckert, Secretary of the Air Force, and Gen. Curtis E. LeMay, Chief of Staff, was Maj. Gen. Don R. Ostrander, Commander, Office of Aerospace Research.

• Science News Letter, 85:335 May 23, 1964

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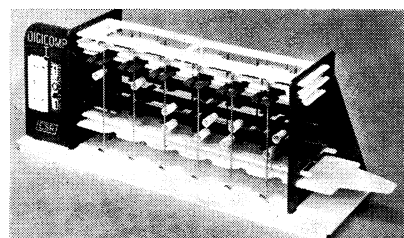
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