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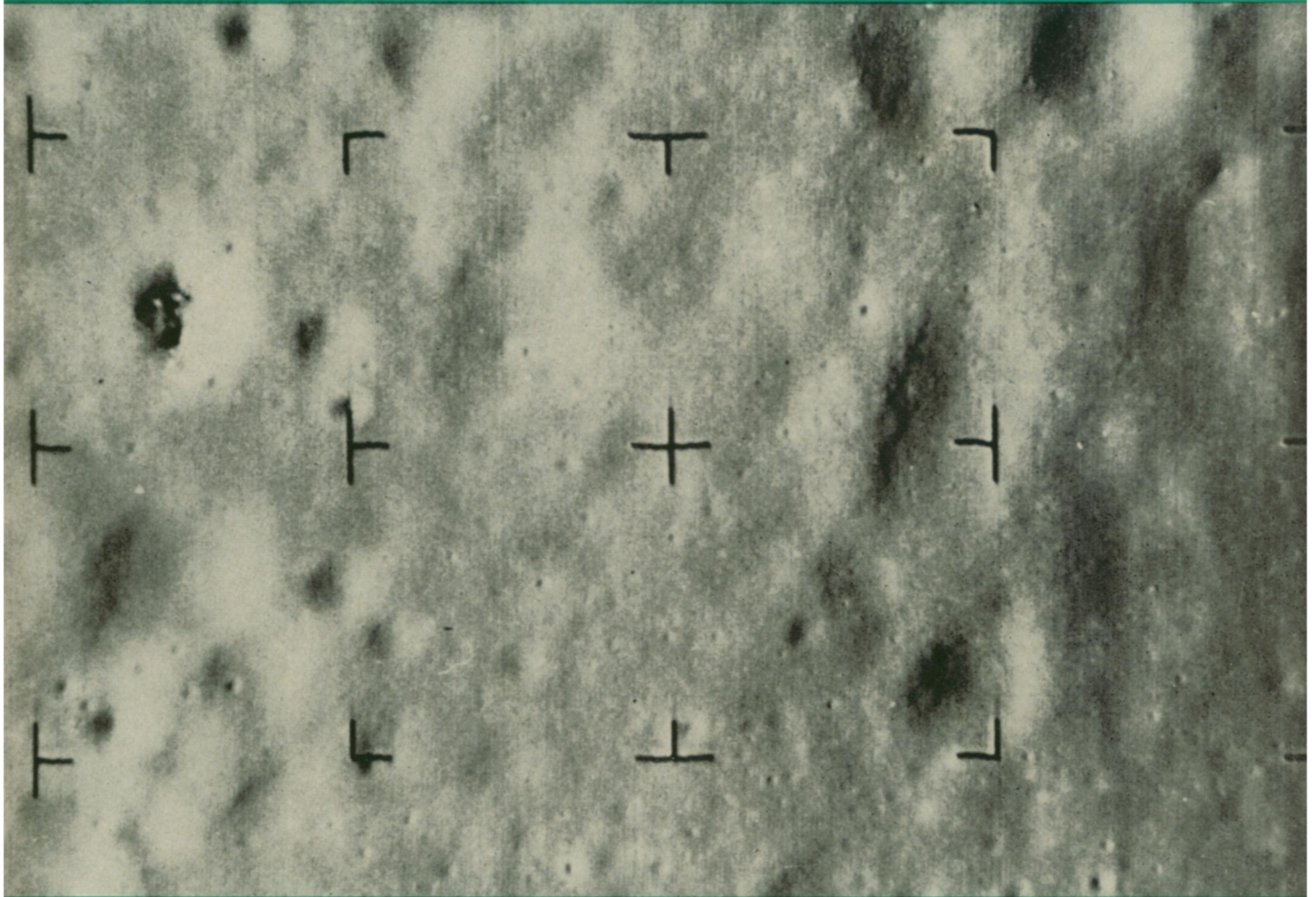
August 15, 1964

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SCIENCE NEWS LETTER

®

THE WEEKLY SUMMARY OF CURRENT SCIENCE



NASA

Moon Close-Up

See Page 101

A SCIENCE SERVICE PUBLICATION

SPOTLIGHTING SCIENCE TALENT OF TOMORROW...



OCTOBER—NATIONAL SCIENCE YOUTH MONTH

OCTOBER 1964

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October as National Science Youth Month Inaugurates the Year's Activity of Over a Million Science Students and Thousands of Dedicated Teachers Throughout the World

Science Service has organized the Ninth Annual National Science Youth Month in cooperation with more than 50 national agencies to nurture science talent in youth.

TODAY'S YOUTH = TOMORROW'S SCIENTISTS

Organize a local National Science Youth Month Committee to plan a full scale program in your community. • Encourage professional and technical societies, civic groups, PTA's, school science clubs, and other groups to devote an October meeting to science youth activities, science careers and new developments in science • Help science teachers, classes, clubs and other school groups schedule scientific tours, workshops and clinics on club activities, science projects and fairs, and career opportunities • Publicize what you are doing through the media of radio, television and newspapers.

Cooperating in National Science Youth Month:

American Association for the Advancement of Science

AAAS sponsors a commission on Science Education primarily concerned with the improvement of science teaching materials in elementary schools. Scientists and teachers have prepared experimental science materials for grades K through 5. Address: Dr. John R. Mayor, Director of Education, AAAS. Through AAAS-affiliated Academies of Science, Junior Academies of Science are encouraged and grants are given for student projects. A Junior Scientists' Assembly is sponsored at the AAAS Annual Meeting by the Academy Conference. During Christmas and Easter vacations of each school year, Holiday Science Lectures by outstanding scientists are scheduled by AAAS in several cities, open to students and teachers by invitation. For lecture information address: Edward G. Sherburne, AAAS. AAAS publishes science book lists for school and public libraries selected and annotated under the direction of Dr. H. J. Deason. Available: *The AAAS Science Book List for Children* (\$1.50); *The AAAS Science Book List for Young Adults* (\$2.50); *A Guide to Science Reading* (paperbacks: ask for Signet P2283 at bookstores, or send 70¢); and *Careers in Science*, a selected bibliography of career guidance materials for high school students (25¢). Send orders to: AAAS Publications, 1515 Mass. Ave., N.W., Washington, D. C. 20005.

American Cancer Society

The American Cancer Society endeavors to stimulate student interest in science studies and careers. In cooperation chiefly with senior high schools, colleges and community resources, the Society is carrying out an active career-incentive program. It helps conduct and support science fairs, provide medical and research speakers, facilitate student visits to hospitals and research centers—and in other ways seeks to aid student interest. Certain divisions have provided train-

ing grants for careers in medical technology and granted other scholarships. Free teaching aids and informational materials on cancer are provided to science teachers and students upon request to local units of the Society.

American Chemical Society

The ACS sponsors a variety of educational activities. Four National Science Fair-International (NSF-I) awards are presented by the ACS which also publishes career literature and the journal *Chemistry* for the high school student and teacher. The ACS initiates conferences and institutes in chemistry. The Division of Chemical Education's activities include a test program for high schools and colleges, and publication of the *Journal of Chemical Education*. Over 160 local sections in all areas of the U.S. are active in educational activities. More than 400 student affiliate chapters in colleges and universities engage in programs to better prepare students for careers in chemistry. Consult your local section or the American Chemical Society, 1155 16th St., N.W., Washington, D. C. 20036.

American Dental Association

State and local dental societies and dental schools are urged to participate in science fair activities. They are prepared to offer advice and material assistance to science teachers and students. ADA annually presents awards at the NSF-I. Resource material available includes: *Frontiers in Dental Science* (50¢) from Scholastic Book Services, 904 Sylvan Ave., Englewood Cliffs, N. J.; *Dental Projects for High School Science Students* (25¢ for single copy; 20¢ each for 10 or more) from Science Service, and *ADA Catalog* describing dental health literature, information and films on career opportunities in dentistry (single copy on request). Write: Dr. Sholom Pearlman, ADA, 222 E. Superior St., Chicago 11, Ill.

American Federation of Labor and Congress of Industrial Organizations

AFL-CIO supports better schools and encourages scientific education. Many of its affiliated

unions conduct apprenticeship schools to transmit skills to young apprentices and the latest scientific processes to journeymen members. Central labor organizations and local unions of skilled workmen in almost every community stand ready to help pupils with their science projects, clubs and fairs. Students are invited to contact the local union bodies or write AFL-CIO, Coord. of State and Local Councils, 815 16th St., N.W., Washington, D. C. 20036.

American Heart Association, Inc.

AHA is actively engaged in programs to interest young people in science and health careers. State and local associations cooperate extensively with science fairs and other school-related science activities. AHA and many of its state and local associations have health career committees which plan and conduct specific youth activities such as field trips, seminars, student research, work experience in science laboratories and consultation on special projects. For program information and educational materials contact your local heart association.

American Institute of Biological Sciences

Among major AIBS educational activities are continuous liaison with the Biological Sciences Curriculum Study (BSCS), directed at the secondary level with three approaches using fundamental concepts and modern trends, a Visiting Biologist Program in radiation biology administered by AIBS and supported by the U.S. Atomic Energy Commission. The Secondary School Biological Sciences Film Series, directed primarily at 10th grade level, consists of 120 lecture-demonstrations 30-min. films, each with correlated teachers' manuals and study guides, and availability of information on careers in biology. Write: Educational Activities, AIBS, 2000 P St., N.W., Washington, D. C. 20036.

American Institute of Mining, Metallurgical and Petroleum Engineers

AIME National Headquarters provides monetary support for participation in local science fairs by 109 sections of the Institute located throughout the nation. The Women's Auxiliary

of AIME sponsors an Engineers for Tomorrow program to take high school students on field trips to mines and oil fields. Seventy-one AIME Student Chapters pursue active programs at colleges offering mining, metallurgical and/or petroleum engineering curricula. Career opportunity booklets are distributed in all three fields of AIME activity. AIME awards are made at the NSF-I. Contact: R. William Taylor, AIME, 345 E. 47th St., New York, N. Y.

American Medical Association

County and state medical societies cooperate with local science clubs and fairs by joining in sponsoring committees, giving special awards and scholarships, arranging counseling, etc. AMA presents citations at the NSF-I and selected winners are guests at AMA annual meeting. A 25-min. color, sound motion picture—*I Am a Doctor*; a large-scale exhibit on Medicine as a Career; descriptive literature on the study of medicine, scholarship information and school guidance program suggestions are available without charge from the AMA and local medical societies. Write: Norman H. Budde, AMA, 535 N. Dearborn St., Chicago 10, Ill.

American Pharmaceutical Association

Through the efforts of the National Advisory Commission on Careers in Pharmacy, which is comprised of representatives of every national organization in the profession, practicing pharmacists are urged to assist students and science teachers in the development of science projects. APhA presents two awards at the NSF-I. Material available includes: career brochure, *See Your Future in Pharmacy*; two films about career opportunities in pharmacy; *Pharmaceutical Sciences Project Handbook* (25¢ for single copy, \$2.00 for 10 or \$15.00 for 100 copies). Address: George B. Griffenhagen, American Pharmaceutical Association, 2215 Constitution Ave., N. W., Washington, D. C. 20037.

American Psychological Association

The program of APA is to advance psychology as a science and a means of promoting the public welfare. APA members are interested in helping students become familiar with research, theory and practice of psychology. APA will award several prizes at the NSF-I for projects relating to psychology conceived broadly as a behavioral science. For information and booklet, *A Career in Psychology*, write: American Psychological Association, 1333 16th St., N.W., Washington, D. C. 20036.

American Society for Metals

ASM distributes information on metals, materials, presents technical congresses and exhibitions, issues accredited home study courses and publishes technical and periodical books. Local chapters cooperate with schools and libraries in attracting students to engineering and encourage young engineers' meetings. Scholarships are provided through colleges offering degrees in metallurgy. ASM cooperates in FSA Awards, a metal science kit and establishment of BSA Explorer Posts in metals. ASM awards are made at the NSF-I, and American Society for Metals Foundation for Education and Research Merit Scholarship is presented annually. Contact: Allan Ray Putnam, American Society for Metals, Metals Park, Ohio 44073.

American Society for Microbiology

ASM local branches have committees which provide speakers on microbiological topics and give aid to biology students and teachers. ASM issues citations to students and their sponsors for microbiology exhibits at science fairs. Certain local branches give additional awards. ASM sponsors awards at the NSF-I. Suggestions for experiments, projects, film lists, references and other teaching aid materials are available free to teachers. A career brochure, *Microbiology in Your Future*, is available free to students and teachers. A list of universities offering degree programs in microbiology is available at 50¢. Address: American Society for Microbiology,

115 Huron View Blvd., Ann Arbor, Mich. A movie, *A Career in Bacteriology*, may be rented or purchased from Audio-Visual Center, Indiana University, Bloomington, Ind.

American Veterinary Medical Association

Veterinary associations are being encouraged to assist students in the development of proper scientific attitudes and techniques when using animals in their exhibits. Two booklets, *Career Facts About Veterinary Medicine* and *Dimensions of Veterinary Medicine* (single copies free, additional copies 3¢ each), and a list of veterinary medical associations to contact for direct assistance are available. AVMA presents awards at the NSF-I. Top winner is guest at AVMA annual meeting. Address: Heinz R. Kuehn, Dir., Public Information, AVMA, 600 S. Michigan Ave., Chicago, Ill. 60605.

Armed Forces Chemical Association

AFCA is a nonprofit organization interested in promoting and supporting chemical, bacteriological and radiological technology. Membership is composed of military men from all branches of the Armed Services, civilian technicians employed by government agencies and representatives of chemical manufacturing firms. AFCA supports six NSF-I awards. Educational activities include symposia, national and local meetings, briefings and publications. Publications include: *Armed Forces Chemical Journal* and *Newsletter of the Armed Forces Chemical Association*. For information, write: AFCA Headquarters, Suite 610, 1025 Connecticut Ave., N.W., Washington, D. C. 20036.

Army Aviation Association of America

AAAA will participate again in the NSF-I by awarding five \$100 cash awards and inscribed plaques to the finalists having the most outstanding Army aviation oriented projects in the fields of aerodynamics, propulsion, or supporting techniques. AAAA plans to continue its participation in all NSF-I affiliated local and regional fairs by offering certificates of achievement, and where feasible, by providing qualified judges. Directors of NSF-I affiliated fairs are requested to contact AAAA on or before Feb. 1, 1965. Write: AAAA, 1 Crestwood Rd., Westport, Conn. 06882.

B'nai B'rith Vocational Service

BBVS has 20 field offices in various U.S. cities which offer individual counseling and group guidance activities. Write for free publications listing: BBVS, 1640 Rhode Island Ave., N.W., Washington, D. C. 20036.

Boy Scouts of America

The Boy Scouts are expanding their scientific opportunities for boys from 8 to 18. There are now seven science electives for Cub Scouts (8-10). For the Boy Scouting program (11-13) 14 merit badges in scientific subjects are now available in addition to the new badges in Atomic Energy, Electronics and Oceanography. Explorers (14-18) have specialty posts in scientific subjects, usually sponsored by industries or science groups. Monthly themes for all three programs stress scientific subjects regularly. Merit badge pamphlets are available at your local Scout Headquarters (35¢) and further information can be had by writing School Relationships Service, Boy Scouts of America, New Brunswick, N. J.

Chamber of Commerce of the United States

The Education Department of the Chamber of Commerce of the United States publicizes education projects sponsored by its 3500 member local and state chambers of commerce. These organizations cooperate with school leaders in arranging career conferences, science fairs and visits to industry for students. Through participation in these events, students learn about job opportunities, training requirements, and possibilities for advancement. Businessmen stress the importance of early career planning and ade-

quate training to meet their manpower requirements. These business and professional leaders work with teachers and school administrators to improve guidance programs, to provide material, equipment and work experience for young people. Contact local Chambers of Commerce or the Education Department, Chamber of Commerce of the United States, 1615 H St., N.W., Washington, D. C. 20006.

Cooperative Extension Service

The Cooperative Extension Service of the U.S. Department of Agriculture in cooperation with the Land Grant College or University in each state, provides through 4-H Club work a program of youth development based on scientific approach to problem solving. This is supported by extension specialists representing various divisions of each college or university. Scientific approach to agriculture, home economics and youth development has always been an important segment of 4-H Club work. It is increasingly imperative that materials relating to science be provided volunteer local leaders who work directly with 4-H members in 50 States, Puerto Rico and 76 foreign countries. Information from the 4-H and Youth Development Div., Federal Extension Service, USDA, Washington, D. C. 20250; Land Grant Colleges or county extension offices.

Engineering Manpower Commission

Engineering Manpower Commission is concerned with problems of education, personnel, training and utilization. Teachers and others may make inquiries on special problems in science, technology and careers. Each field of engineering has its own professional society and some are represented by the Engineers Joint Council. Write: EMC, Engineers Joint Council, 345 E. 47th St., New York, N. Y. 10017.

Entomological Society of America

ESA is a professional society of entomologists, students of entomology and others with related interests. Membership is principally North American with about 100 other countries represented. The Society publishes: *Annals of the Entomological Society of America*, *Bulletin of the Entomological Society of America*, *Journal of Economic Entomology*, *Miscellaneous Publications of the Entomological Society of America*, *Entoma*. Write: Executive Secretary, ESA National Headquarters, 4603 Calvert Rd., College Park, Md. 20740.

Federal Surplus Property

Science becomes more meaningful to students when they can learn by observing, by experimenting, by testing and by measuring. School systems, teachers and students can all benefit from participation in the Surplus Property Utilization Program. Because of the variety of materials available, students' individual needs can be met. Students active in science research projects under school supervision would be eligible to use surplus property acquired by their schools. A single State Agency for Surplus Property in each state distributes the property. For the name of your State Director, contact the Regional Representative, Division of Surplus Property Utilization, Department of Health, Education and Welfare, for your Region: Region I, 120 Boylston St., Boston 16, Mass.; Region II, 42 Broadway, New York 4, N. Y.; Region III, 700 E. Jefferson St., Charlottesville, Va.; Region IV, 50 Seventh St., N.E., Atlanta 23, Ga.; Region V, 433 W. Van Buren St., Chicago 7, Ill.; Region VI, 560 Westport Rd., Kansas City 6, Mo.; Region VII, 1114 Commerce St., Dallas 2, Texas; Region VIII, 621 17th St., Denver 2, Colo.; Region IX, 405 Federal Office Bldg., 50 Fulton St., San Francisco 2, Calif.

Junior Engineering Technical Society

Program designed to stimulate and encourage interest in engineering, applied science and mathematics among high school students. JETS chapters are sponsored by local industry and/or

professional groups throughout the U.S. and 11 foreign countries. JETS provides materials for initiating and operating chapters. Program includes a National Project Exposition and Conference. JETS offers students an opportunity to explore various technical fields and to compare attitudes, interests and abilities with requirements of technical professions through actual experiences and contacts. Write: JETS, 345 E. 47th St., New York, N. Y. 10017.

Junior Science and Humanities Symposia Program

The U.S. Army cooperates with universities, educational and civic organizations, and industries in conducting this program. Symposia are normally held on college campuses and are designed to seek out, motivate and stimulate talented youth toward careers in science and provide recognition for outstanding students and teachers. Programs are two to three days in length and consist of presentations of research papers by high school students, presentations by outstanding scientists and humanists, panel discussions on career and technical matters and visits to research laboratories. Presentations on humanities are given to stress to young scientists the need to be intellectually well-rounded. A National U.S. Army JSHS is held honoring outstanding student speakers and teachers. Write: Director, JSHS Program, Duke University, Box EM, Duke Station, Durham, N. C.

Manufacturing Chemists' Association, Inc.

MCA, representing the chemical manufacturing industry, executes an aid-to-education program from kindergarten to college. Request free copy: *An Industry Helps Our Schools*. Holt, Rinehart and Winston, 383 Madison Ave., New York 17, N. Y., distributes *Scientific Experiments in Chemistry* (for senior highs), *Superstition to Supersonics* (for junior highs) and *Matter, Energy and Change* (for elementary supervisors and teachers). For MCA's chemistry films information write Southerland Educational Films, Inc., 201 N. Occidental Blvd., Los Angeles 26, Calif. Free publications: *Guide to Aid-to-Education Materials Available from the Chemical Industry*; *Frontiersmen of the Future*; *Careers Ahead in the Chemical Industry*; *Film Guide on Chemicals, Chemistry and the Chemical Industry*. *Chemical Industry Facts Book* (single copy 40¢ to educators). Address: Manufacturing Chemists' Association, 1825 Connecticut Ave., N.W., Washington 9, D. C.

Mathematical Association of America

MAA offers guidance and information to students interested in mathematics. The guidance pamphlet: *Professional Opportunities in Mathematics* may be purchased (25¢ for single copy, five or more 20¢ each). Under a National Science Foundation Grant, MAA sponsors a program of lecturers to secondary schools. Annual High School Mathematics Contest is sponsored jointly by MAA and Society of Actuaries. For information, write: Harry M. Gehman, Exec. Dir., MAA, SUNY at Buffalo (University of Buffalo), Buffalo N. Y. 14214.

National Aeronautics and Space Administration

NASA has organized the Office of Educational Programs and Services (OEPS) to inform educators, students and the public. OEPS programs encompass the development, production, and distribution of publications, reports, motion pictures and other visual aids and the Space-mobile, a space science lecture-demonstration presented to school assemblies, science fairs, teacher workshops and institutes, adult and higher education groups, civic organizations and general public audiences. Included are services to educational and commercial networks, curriculum planners of elementary and secondary schools, colleges, and professional educational organizations, which activities involve personal consultative services of NASA educational specialists and the help and advice

of NASA experts in the fields of space science and technology. Address: Office of Educational Programs and Services, NASA Headquarters, Washington, D. C. 20546.

National Aerospace Education Council

NAEC helps teachers locate free and inexpensive aerospace teaching aids. *Pictures, Pamphlets and Packets* (25¢) lists more than 600 booklets, pamphlets, charts, pictures, films, bibliographies, units, etc., produced by industry, government agencies, private and professional organizations; *1964 U.S. Aircraft, Missiles and Spacecraft* (\$2) pictorial descriptions, three-view drawings, specifications; *Earth and Space Science* (\$1.50) guide for secondary teachers covering geology, climate, oceans and space science; a similar book for elementary grades—*Earth and Space Guide for Elementary Teachers* (\$1); *Aviation Education Bibliography* (25¢), a 72-page annotated compilation of children's, youths', and adults' books, periodicals, films, filmstrips and teaching aids related to aviation. To provide continuing aviation and space information, NAEC offers a mailing service (\$5 a year). Address National Aerospace Education Council, 1025 Connecticut Ave., N.W., Washington, D. C. 20036.

National Association of Manufacturers

The NAM encourages study of science and mathematics in schools and cooperates with local and regional science fairs and the NSF-I. NAM Education Dept. and Committee on Research promotes development of science talent. Write for booklets, *Industrial Research and Development and The Growth of American Industry*. Education Dept., NAM, 277 Park Ave., New York, N. Y. 10017.

National Association of Rocketry

NAR, an affiliate of the National Aeronautics Association, U.S. Representative to the Federation Aeronautique Internationale, is nationally recognized for the Space Age Hobby and is the USAF-approved model rocketry organization. Model rocketry is a sport, hobby and educational tool involved with building and flying small, light, non-metallic, recoverable models powered by factory-made solid propellant rocket engines of proven reliability and safety. Membership includes privileges of obtaining information, plans, club charters, contest sanctions, etc. Write: National Association of Rocketry, Stamford Museum and Nature Center, Stamford, Conn.

National Committee for Careers in Medical Technology

In cooperation with the Intersociety Committee on Pathology Information, NCCMT supplies certificates for local and state medical technologist and pathologist societies to award at science fairs. Summer jobs in hospital laboratories, science equipment, books and other prizes often accompany certificates. A summer job with the Armed Forces Institute of Pathology in Washington, D. C., plus travel expenses is awarded for a pathology-medical technology project at the NSF-I. Career information on medical technology and pathology is available. NCCMT is sponsored by the American Society of Clinical Pathologists, American Society of Medical Technologists and College of American Pathologists. Address: National Committee for Careers in Medical Technology or Intersociety Committee on Pathology Information, 1785 Massachusetts Ave., N.W., Washington, D. C. 20036.

National Institute of Neurological Diseases and Blindness (NIH)

NINDB conducts research on the brain and nervous system, neurological and sensory disorders. Pamphlets explain many of these disorders. Special exhibits available for conventions and science fairs. Write for pamphlets, film list, information concerning research materials: NINDB, National Institutes of Health, Bethesda, Md. 20014.

National Merit Scholarships

National Merit Scholarships are four-year college scholarships available to high school seniors. Stipends are based on need and vary from \$100 to \$1500 per year. Winners choose colleges and curricula during the competition. Last year 1,625 Merit Scholarships were awarded, including 1,100 Merit Scholarships offered by and named for 220 sponsors. Each principal is sent registration materials in September. The following spring, National Merit Qualifying Test is administered to second semester juniors and first semester seniors. Participating students pay a \$1 testing fee. The 1965-66 competition begins with Qualifying Test in March 1965. Winners will be announced in the Spring of 1966. See your principal or write: National Merit Scholarships, 990 Grove St., Evanston, Ill. 60201.

National Pest Control Association

NPCA stimulates interest in the biological sciences by encouraging individual members and affiliated state associations to assist teachers, student clubs, science fairs and other local programs. For free list of local members and associations, write National Pest Control Association, Inc., 250 W. Jersey St., Elizabeth, N. J.

National Safety Council

NSC, organizing framework of the safety movement in America, is a voluntary non-commercial, nonprofit membership association. Its purpose is to reduce number and severity of accidents and serves as a national and international clearing house to gather and distribute safety information. Through its national headquarters, regional offices, state and local affiliated units, it stimulates continuous and coordinated accident prevention programs. Co-operating with other organizations, it stimulates interest in safety in all fields. For information on materials and services for science clubs write: Youth Activities Dept., National Safety Council, 425 N. Michigan Ave., Chicago 11, Ill.

National Science Foundation

This Federal Government agency makes grants to other organizations to support scientific research and science education. Programs in education include institutes, research participation, summer fellowships and other training programs for secondary school and college teachers of science and mathematics; research participation and independent study for college undergraduates; special programs for high school students in science and mathematics; holiday lectures; fellowships for graduate students and advanced scholars in science, mathematics and engineering; and projects for the improvement of course content materials and the development of new teaching and learning aids in science and mathematics. For general information on these programs write for *National Science Foundation Programs for Education in the Sciences* to National Science Foundation, Washington 25, D. C.

National Science Teachers Association

NSTA is a department of NEA and an affiliate of AAAS. Regular membership (\$8.00) provides: 9 issues of *The Science Teacher*, 8 issues of *Science and Children*, 4 issues of the Packet Service. Youth activities include: Future Scientists of America clubs, Ford-FSA awards, NASA-NSTA Youth Science Congresses, Vistas of Science® original paperback books, International Youth Science Fortnight. Annual Convention (March 27-31, 1965, Denver) and 10 Regional Conferences. For NSTA and FSA information, write: National Science Teachers Association, 1201 16th St., N.W., Washington, D. C. 20036.

National Youth Conference on the Atom

The 1964 Conference will be held Nov. 5-7, Sheraton-Chicago Hotel, Chicago. More than 60 investor-owned electric utility companies are sponsoring outstanding high school students and teachers who will be presented an authoritative

and inspiring picture of the peaceful atom in its various applications and help advance interest in the study of science. Delegates will tour Argonne National Laboratory and Museum of Science and Industry. Co-sponsored by National Science Teachers Assn., the conference is supported by 16 other scientific and academic organizations. Delegates are selected by local educators working with electric companies. Contact local electric company or write: T. R. Jordan, Bozell & Jacobs, Inc., 230 Park Ave., New York, N. Y. 10017.

Oak Ridge Institute of Nuclear Studies

ORINS is a nonprofit educational and research corporation of Southern colleges and universities, operating under contract with the U. S. Atomic Energy Commission. It is a major avenue through which these institutions participate in and support the nation's nuclear energy program. Programs are designed to further the cause of science and science education from the pre-college to post-doctoral levels. Institute activities include training secondary science teachers to become either "traveling teachers" or specialists in their own school systems; administration of graduate fellowship programs, traveling atomic energy exhibits, student tours of nuclear facilities and college student training programs; special courses for teachers, symposia and conferences; maintenance of a museum of atomic energy and provision of a mobile radioisotopes laboratory for on-campus college training. Write: Oak Ridge Institute of Nuclear Studies, P. O. Box 117, Oak Ridge, Tenn. 37831.

Optical Society of America

OSA has an active career-incentive program. A booklet, *Careers in Optics*, is available. OSA sections welcome young scientists to meetings. OSA student memberships, available at \$3 a year, give students the right to attend OSA meetings and receive as a gift OSA publications. OSA will present two awards at the NSF-I of \$100 and \$75 for books and materials to enable the students to continue their studies in optics, plus one to three honorable mention awards, if merited. All awardees receive a one-year student membership in OSA, including gratis subscriptions to *Journal of the Optical Society of America* and to *Applied Optics*. For information about local OSA sections, write: Optical Society of America, 1155 16th St., N.W., Washington, D. C. 20036.

Science Service

Adult sponsors are invited to affiliate their groups with Science Clubs of America and receive the free SCA Sponsor Aids. Science Talent Search, conducted by Science Clubs of America and sponsored by Westinghouse Educational Foundation, is open to high school seniors. Teachers should request examinations about October 15. Affiliated regional science fairs send their top two finalists to the National Science Fair-International to be held in St. Louis, Mo., May 5-8, 1965. A news service for newspapers is operated. *Science News Letter*, a weekly summary of current science (\$5.50 per year), is published. THINGS of science, monthly experimental kits (\$5 per year), are produced. Books valuable in science youth activities are available. Write: Science Service, 1719 N St., N.W., Washington, D. C. 20036.

Scientific Apparatus Makers Association

SAMA represents some of the nation's principal manufacturers and dealers in scientific laboratory and equipment. Leaflets and reports available without charge: *A Guide to Evaluating Your Science Facilities, Your Career With the Instrument and Control Industry by the Recorder-Controller Section, I Am the Science Teacher, SAMA Motion Picture Film Directory, Chart—Suggested Built-In Instruments and Equipment for Laboratory Furniture*. Write: Scientific Apparatus Makers Association, 20 N. Wacker Dr., Chicago, Ill. 60606.

Scientific Manpower Commission

SMC is a nonprofit corporation sponsored by 11 major scientific societies representing the various scientific disciplines. SMC is concerned with problems of education, training and utilization of scientific manpower. Students making career inquiries are sent a bibliography of scientific career information. SMC also may be consulted on selective service and other military problems. Write: SMC, 2101 Constitution Ave., N.W., Washington, D. C. 20418.

Society of Women Engineers

Objectives of SWE are to inform the public of qualifications, abilities and achievements of women engineers, bring about better utilization of engineering talent for economic and social benefit of humanity, encourage young women with suitable aptitudes and interest to enter the engineering profession and guide them in educational programs. SWE presents a \$100 U. S. Savings Bond to the girl with the best project showing engineering aptitudes at the NSF-I. Write: Society of Women Engineers, Room 305, 345 E. 47th St., New York, N. Y. 10017.

Soil Conservation Service

The Soil Conservation Service of the U. S. Dept. of Agriculture furnishes technical assistance to land owners and operators to establish soil and water conservation programs and practices. SCS provides teachers, librarians and other leaders with publications about soil and water conservation and the program it directs. Contact local and state SCS offices.

The National Foundation

An organization supported largely by the March of Dimes, The National Foundation conducts programs of research, patient care, and education in virus diseases, birth defects, arthritis and polio. Research financed by The National Foundation developed Salk and Sabin vaccines. A network of 80 Clinical Study Centers, Special Treatment Centers and Evaluation Centers for arthritis and birth defects is supported. Many local chapters offer scholarships in medicine, physical therapy, occupational therapy and medical social work. Booklets, posters, films, filmstrips and exhibits are available for loan. Headquarters: 800 2nd Ave., New York, N. Y. 10017.

U. S. Air Force

The USAF will participate in regional, state and local science fairs, recognizing high achievement in fields related to aerospace and providing tours of its research laboratories or student summer employment for NSF-I finalists. The Aerospace Education Foundation of the Air Force Association will award recognition prizes to USAF recognized finalists.

U. S. Army

The Department of the Army will provide judges from Army Reserve R&D Units for the regional and state science fairs who will award Certificates to winning students with exhibits of interest to the Army. The Army will also participate in the 16th NSF-I by awarding prizes to approximately 20 students with outstanding exhibits. These awards will consist of offers of summer employment at Army R&D laboratories or a one-week all-expense-paid tour to an Army laboratory of interest to winning students. Again in 1965 it is planned that the top final winner will be sent with his or her exhibit to the Japan Student Science Award Exhibit in Tokyo, Japan.

U. S. Atomic Energy Commission

The AEC encourages interest of elementary and secondary school students in nuclear science and applications by providing educational literature and motion picture films (write USAEC, P.O. Box 62, Oak Ridge, Tenn. 37831); traveling exhibits and student assembly demonstrations (see ORINS listing); and AEC Special Awards for outstanding nuclear-related exhibits at the NSF-I to 10 students and their science teachers for a Nuclear Research Orientation

Week at an AEC national laboratory. AEC has prepared a "how-to" booklet on exhibiting nuclear energy projects at science fairs which is scheduled for publication this fall. Write: USAEC, P. O. Box 62, Oak Ridge, Tenn. 37831.

U. S. Department of Defense

The Department of Defense, including Military Departments, cooperates with individuals and groups in providing guidance and assistance on projects designed to stimulate interest in scientific pursuits. This includes speakers' programs, films, instructional and informational materials, demonstrations, exhibits and displays of military products, installation tours and briefings, and assistance in certain forms of scientific experimentation. Address: Commanding Office of local military installations.

U. S. Forest Service

Through its Conservation Education Branch the Forest Service, U. S. Department of Agriculture, assists teachers in the development of conservation materials in the curriculum. Forest Service provides teaching materials, charts and posters. Its personnel serve as resource specialists in school programs. Several publications serve to inspire and inform youth of career opportunities. Special ideas are outlined for science fair projects. Write: Conservation Education Branch, Forest Service, USDA, Washington 25, D. C.

U. S. Geological Survey

The Geological Survey has prepared *Project Ideas in the Earth Science*, describing 20 projects, for free distribution to teachers and students. Write to nearest U. S. Geological Survey Office: 516 E. 5th Ave., Anchorage, Alaska; 1031 Barlett Bldg., Los Angeles, Calif.; 504 Custom House, 555 Battery St., San Francisco, Calif. 94111; 468 New Customhouse, Denver, Colo.; 602 Thomas Bldg., Dallas, Texas; 125 S. State St., Salt Lake City, Utah 84111; South 157 Howard St., Spokane, Wash.; or Director, U. S. Geological Survey, Washington, 25, D. C.

U. S. Office of Education

The Office of Education's Division of Educational Research activities include research, publication and consultation services to improve quality of science instruction. Science Teaching Exploring for Excellence Program (STEPS) is a "bootstrap" operation in some 20 pilot project areas. Key to the STEPS program is local initiative. In a STEPS program an effort is made to draw upon all resources available for science teaching improvement. New curriculum materials, equipment and facilities purchased under NDEA, science institute returnees, college and industrial scientists are among the many resources which might be tapped. State science supervisors and U. S. Office of Education personnel will provide consultant help when requested, but a STEPS project remains a local effort. For information write: Publications Inquiry Unit, U. S. Office of Education, Washington 25, D. C. Ask for bulletin No. OE-29037.

U. S. Patent Office

The Patent Office provides a vital public service by issuing patents and granting to inventors the exclusive right to exclude others from making, using or selling their inventions for a 17-year period. The Patent System affords incentives for scientific and technological advancement. Before granting a patent, all prior patents and literature must be searched. The Patent Office and its reservoir of over three million U.S. and seven million foreign patents form the major concentration of technological know-how in the world. Information is provided to students, teachers, inventors, researchers, scientists and the public. For pamphlets: *Answers to Questions Frequently Asked About Patents; Obtaining Information From Patents; List of Publications Obtainable From the Patent Office*, write Office of Information Services, U.S. Patent Office, Washington, D. C. 20231.