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SCIENCE NEWS LETTER

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THE WEEKLY SUMMARY OF CURRENT SCIENCE



Pollen Collector

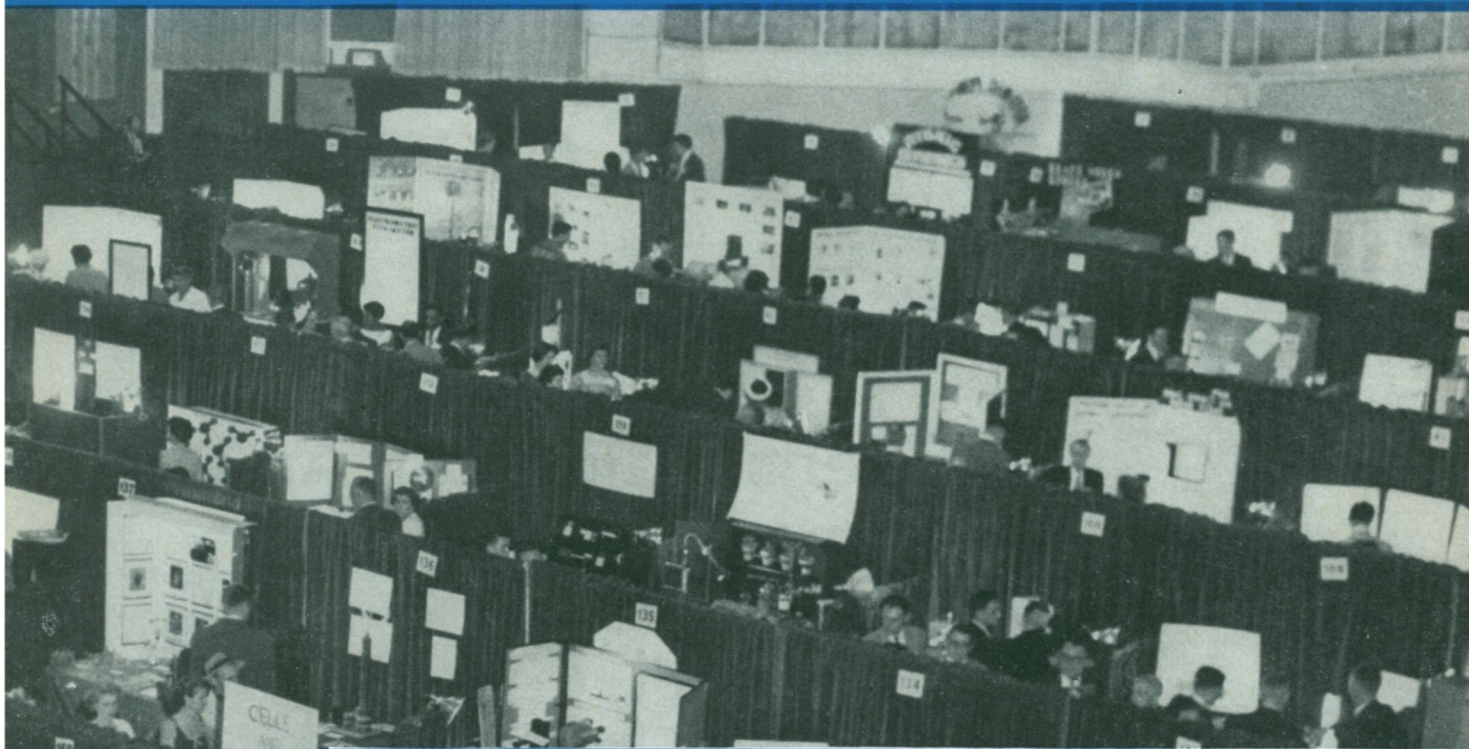
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A SCIENCE SERVICE PUBLICATION

THE SCIENCE SERVICE

Science for Youth

PROGRAM



OVER 600,000 BOYS AND GIRLS PARTICIPATE

in this international program for encouraging science talent. The Youth of Today will become our Scientists of Tomorrow through the motivation and stimulation of these SCIENCE SERVICE activities . . .

SCIENCE CLUBS OF AMERICA

NATIONAL SCIENCE FAIR • SCIENCE TALENT SEARCH



Science Youth Program

Extensive national and international movement directed by Science Service to stimulate and give scientific experience to the youth of the world.

MORE THAN 600,000 students are members of some 25,000 groups, largely in high schools, affiliated with Science Clubs of America, a Science Service activity. Any adult, whether science teacher or club leader, can affiliate a science club without charge.

Individual projects and experiments by young scientists are shown in exhibits prepared for the thousands of school science fairs held each spring. The best of the exhibits in high school fairs are selected to compete in about 185 area and regional fairs which are affiliated with the National Science Fair. Each of these fairs sends not more than two of its top exhibitors to the National Science Fair, the eleventh of which will be held in Indianapolis, Ind., May 11 to 14, 1960 (subsequent National Science Fairs will be Kansas City in 1961 and Seattle in 1962). Thousands of professional scientists, engineers and educators advise student scientists on their projects, and panels of these experts serve as judges at local, regional and national fairs.

Science Fair Committees are organized to conduct local and regional science fairs in cooperation with public, private and parochial school systems, colleges, research institutions, industries, professional science, engineering and educational societies, newspapers, civic clubs, museums and other agencies.

The Science Talent Search for the Westinghouse Science Scholarships and Awards, conducted by Science Clubs of America, is the pioneer top-level competition to select from the nation's high school seniors those giving promise of being the creative scientists of tomorrow. Conducted during the fall of 1959 for the 19th time, the Science Talent Search uses a science aptitude test on a nation-wide basis to select over 400 boys and girls for honors. Forty members of this Honors Group are designated Winners and invited to Washington for a five-day Institute at which \$34,250 in scholarships and awards are given.

Through special arrangement with Science Clubs of America, State Science Talent Searches are conducted in 35 states, usually by academies of science or universities.

Records of achievement of Science Talent Search winners over the years show that 100% go to college and about half of these now old enough have earned their doctorates or are about to do so.

Both of these activities, the National Science Fair and the Science Talent Search, are approved by the Committee on National Contests and Activities of the National Association of Secondary-School Principals.

As part of the National Science Youth Program, Science Service develops and distributes experimental kits at low cost, books and pamphlets promoting scientific experimentation; provides basic and background

information in all fields of science; cooperates with many organizations in their science youth programs. Support from the National Science Foundation and other groups is obtained to materialize and implement mutual objectives in science education, particularly in secondary schools.

Other major activities of Science Service contribute to the National Science Youth Program. Science Service's service to newspapers reaching a total circulation of over 10,000,000, informs teen-age science enthusiasts as well as the general public. SCIENCE NEWS LETTER with a growing circulation of over 70,000 reaches a select audience of non-scientists and scientists alike, including many science teachers, college professors and research scientists.

Science Clubs of America

Active groups of young scientists who, guided by sponsors to creative experiment, find that "science is fun." Most sponsors of science clubs are teachers.

APPROXIMATELY 25,000 science clubs are affiliated with Science Clubs of America. A current evaluation shows that there are active science clubs at all grade levels, although the largest number are organized on a school-wide basis in senior high schools.

The school clubs plan their activities mainly around biology, chemistry, physics, astronomy, general science, mathematics or some combination of these.

Science club membership averages 22 members, but it ranges from a somewhat exclusive-sounding roster of three members to one all-out activity involving 750 students.

Clubs are sponsored by teachers of every science subject in the curriculum. Most of the teacher sponsors are drawn from the science faculty, but some teach other subjects. General science teachers lead the list with 45%. More than 36% of the sponsors are chemistry teachers.

Clubs also are sponsored by a great variety of people who are entirely outside of the teaching profession. A random sampling turns up an accountant, a Cub Scout den mother, a dentist, an executive of a scientific supply company, a former National Science Fair finalist, and a veterinarian.

About 65% of the clubs report that their members are active in science fairs. Many clubs are chiefly responsible for organizing and conducting their school fairs. Others act as student committees for the large regional science fairs in their areas.

In preparation for annual fairs, science clubs frequently program project workshops

and seminars where former science fair winners and professional scientists offer suggestions on project ideas and exhibit techniques. Color slides and movies of the projects at the National Science Fair are shown by many clubs as a source of ideas and a dramatic set of competitive standards.

Some of the great assortment of specialized activities reported by science clubs are photography, geology, medicine, conservation, nuclear science, aeronautics, paleontology, rocketry, civil defense, meteorology, junior museum work, soil sampling, science publications, model building, pet care, mechanics, and studies of scientific careers.

Most club programs and activities are planned and carried out by club members, with the sponsor acting in an advisory capacity. Such a plan allows ample scope for the development of leadership, responsibility, initiative and creative ideas among the student members. The sponsor often is able to act as liaison between the students and community organizations, school administrators, scholarship foundations, scientific libraries and professional societies. In many cases the sponsor supervises groups or individual laboratory experiments.

Affiliating a club with Science Clubs of America is a very simple procedure. All that is required is a note from the sponsor indicating the club's desire to join and to receive materials and information without charge. The Sponsor Handbook, supplied free to sponsors, is revised annually to provide the latest and most complete information on activities for science-minded young people.

THINGS of science, experimental kits containing unusual specimens or explaining experimentally processes through which a familiar product passes, has been issued monthly for 20 years. Now being produced at 30,000 a month, these kits have introduced many young people to the joys and techniques of science experimentation. CHEMISTRY, issued monthly during the school year, brings particularly to high school teachers the latest in its important field.

"October—National Science Youth Month" was inaugurated and sponsored by Science Service as a means of catalyzing the beginning of science youth activities during the school year and enlisting the cooperation of diverse organizations engaged in science youth activities.

Science Service, 1719 N Street, N.W., Washington 6, D. C., invites the cooperation of organizations and individuals in extending science youth activities, particularly in regions where science fairs and clubs are not yet developed.

Information and suggestions will be furnished upon inquiry to Science Service.

Fairs: National—Local

Science Fairs show graphically and effectively the magnitude of creativeness and scientific enterprise of which young scientists are capable.

THE NATIONAL SCIENCE FAIR has developed to its present size and international scope from a beginning of 13 affiliated area fairs in 1950. Even more spectacular is the expansion of the science fair program at local and regional levels. Feeding these, or operating independently, are school fairs which have become so numerous that it is difficult to keep track of them.

A Science Fair is a collection of exhibits, each of which is designed to show a biological, chemical, physical or technical principle, a laboratory or other procedure, an industrial development, or an orderly collection of anything which can be fitted into the broad concept of any branch of any pure or applied science.

Every year millions of people see science exhibits shown by students at science fairs leading to the National Science Fair.

One reason for this growing student interest in science and technology during the past decade is the exciting advance which science has made and is projecting.

Coupled with this is the awareness of educators, from kindergarten through university, that genuine interest in science is sparked at a very early age, often before the first year of school.

Scientific and technical societies, cognizant of the tremendous shortage of skilled scientists and technicians, are encouraging science fair programs for the purpose of recognizing potentials early and because through them additional motivation becomes more easily possible.

Civic and social groups find that science fairs supply an outlet for constructive creativity of youngsters, and see in the fairs a purposeful use for funds accumulated in welfare and other accounts.

Newspapers sense the rich educational service which fairs give to the community. They often sponsor the program and take over, or assist, promotion, arrangements and financing.

Industry sees the fair as an exemplification of the American way of free enterprise. It lends technical experts to the cause, and helps to finance it.

School Fairs

The simplest fair is an exhibition of science projects held in the school itself. There are shown all the experiments, collections, and displays that have been worked out by students either in class or as extracurricular science club activities. These fairs often are a feature of a meeting or a showing to which the public is invited.

City-wide, Area or Regional Fairs

These large science fairs may have several hundred exhibits, viewed by thousands of people who visit an exhibition hall which

may be a school or college gymnasium, an armory, a museum, or other such area. Some science fairs, even in large cities, accept the maximum number of exhibits the hall will allow. In other cases, the city or area fair receives only an allotted number of exhibits from each school which holds its own eliminations first.

Exhibitors in such fairs are rewarded by the stimulation of having their work shown and by receiving certificates of merit. Other awards, ranging from emblems to cash prizes and scholarships, may be given.

The National Science Fair

From regional or state fairs the best exhibits made by individual students (not groups), are selected for entry into the annual National Science Fair.

The rules of the National Science Fair specify that to be eligible boys and girls must be students in the last three years of public, private, parochial or other secondary schools, and must have been selected for highest honors in a regional fair affiliated with the National Science Fair.

Each affiliated fair is entitled to send two finalists and their exhibits to the national fair, paying their expenses and undertaking responsibility for them.

All exhibits must be individual projects and must be limited in size to 48 inches from side to side and 30 inches from front to back. Identical repetition of a project exhibited by the student at a previous year's science fair disqualifies the finalist. However, the project may cover the same field of investigation when a substantial amount of continued and expanded work has been done.

Exhibits must be durably and safely designed and constructed, using approved switches and cords for 110-volt operation. No dangerous chemicals, open flames, explosives or live poisonous reptiles may be exhibited. Live animals must be properly and humanely cared for, and any experimental work that has been done with them must conform with National Science Fair regulations for such experiments. Plants must pass federal and state quarantine regulations.

Honors and Awards

For National Science Fair Awards, exhibits are judged in the two general categories of biological and physical sciences, and the exhibits of girl and boy finalists are judged separately. First place awards are made to the top boy's and girl's projects in each of the two categories. Other awards are pro-rated according to the number of girls and boys among the finalists, regardless of the category of their exhibits.

Each finalist receives a rainbow-ribboned

gold and silver medal engraved with his or her name and that of the cooperating organization. A facsimile medal on a certificate is sent to the principal of the school of each finalist to become a trophy in the school.

On the basis of critical judging, outstanding finalists are given "Wish Awards"—selected scientific equipment and materials which winners have "wished for" to help them in the furtherance of their study and experimentation.

Also given at the National Science Fair are two Award Citations and two honorable mentions from the American Medical Association for the best exhibits in the broad field of medical sciences and health. Award Citations carry with them all-expense-paid trips to the annual meeting of the AMA.

Certificates of Superior Achievement, and invitations to exhibit at the annual meeting of the American Dental Association are awarded to the two finalists whose exhibits are considered best in the broad field of science related to dentistry. Certificates of Meritorious Achievement, plus \$50 gift certificates toward purchase of scientific equipment are given to two other winners.

A plaque and an invitation to exhibit at the annual American Veterinary Medical Association meeting are awarded to the best exhibitor in this field. A sponsor or educator will accompany the winner. An alternate also is recognized and honored.

U. S. Navy judges honor finalists whose exhibits are considered best in the broad area of Navy-oriented projects. Each fall these finalists join other Navy Science Cruisers (one selected from each regional affiliated fair) for about five days on a highly science-oriented trip on fleet ships at sea.

U. S. Army judges honor finalists whose exhibits are in the specialized areas of missiles, satellites, electronics, electronic calculators, mathematics, high and low temperatures, instrumentation, meteorology and medicine. Finalists are given trips to Army science installations.



Air Force and Air Force Association judges select outstanding exhibits in various categories including air power and air exploration. Two finalists receive recognition and appear with their exhibits at the annual Airpower Panorama.

Judging is based on creative ability, scientific thought, thoroughness, skill, clarity, and dramatic value of each exhibit. Scientists designated by Science Service judge the contest, and the decision of these judges is final in all cases.

While every effort is made to prevent damage to exhibits, neither the National Science Fair, Science Service, the National Science Fair Committee of the host city, nor any other sponsoring organization can assume responsibility for loss or damage.

All finalists participate in a four-day program of scientific sightseeing and meetings with leading scientists as well as the public. At the same time they become acquainted with other finalists having similar interests, compare their work and carry back to their local situations an enthusiasm and stimulation that will be reflected by others in future years.

Educationally Valuable

The whole science program is educationally sound. It allows the student to select freely the project upon which he plans to work. Automatically he leads himself through a study of the bed-rock principles of his chosen topic, thus acquiring a basic, fundamental understanding of the facts and techniques involved. All elements of a stiff competition are present to urge the student to do his best, thus reflecting honors on himself, sponsors, school, city and state.

Educators and newsmen cooperating in the program of the National Science Fair plan the fair in a different city each year. This makes it possible for a finalist who returns to the fair each year he is eligible to visit three different cities, meet the outstanding scientists in each and visit them in their research laboratories. Similar cultural values automatically extend to the accompanying educators and press representatives.

Regional or School Fair Rules

Regional and school science fairs generally use the rules of the National Science Fair or adapt them to fit various local situations.

Depending on local rules, students may work individually or in groups. Exhibits must be designed and made by students. They may seek help from educators and others. Each exhibit should be so arranged that it can be understood by the layman without requiring an accompanying demonstration or lecture. Judgment of exhibits is based on work done by students, not on cost of accessory or incidental equipment.

How to Conduct a Science Fair

The science club sponsor or teacher, or group of sponsors or teachers first should get permission from the principal or board

of education for holding a science fair to which parents and the public will be invited.

The fair may be designed for operation in one school, or each school of a group of schools can schedule the event to occur substantially at the same time. The best exhibits may then be presented at a final centralized place.

Fairs should be held early in the spring. If entry is arranged for finalists to participate in the National Science Fair, the regional fair must close early in April. Names of finalists must be reported immediately to the National Science Fair Headquarters, at the close of the regional fair.

Regional fairs may be held in classrooms in school, in the chemistry or physics laboratories, in the school gymnasium or cafeteria, in a community building, college building, museum or armory. In fact, any place where adequate electric current facilities are available and which will accommodate crowds will prove satisfactory. If held in a hall, local police and fire departments should be advised of the event so that guards can be posted to protect the properties adequately. School events should be monitored for protection and to guide people to and from the exhibit areas.

School fairs may be open to students in any year of elementary or secondary school, from kindergarten up, if desired. Exhibits should be so arranged and classified that all those made by students of one grade division may be compared both by the judges and the public. Each exhibit may be made by a group of students or only one student. Group exhibits should be judged apart from those made by individuals.

In the upper grades all physics exhibits should be grouped into a class separate from

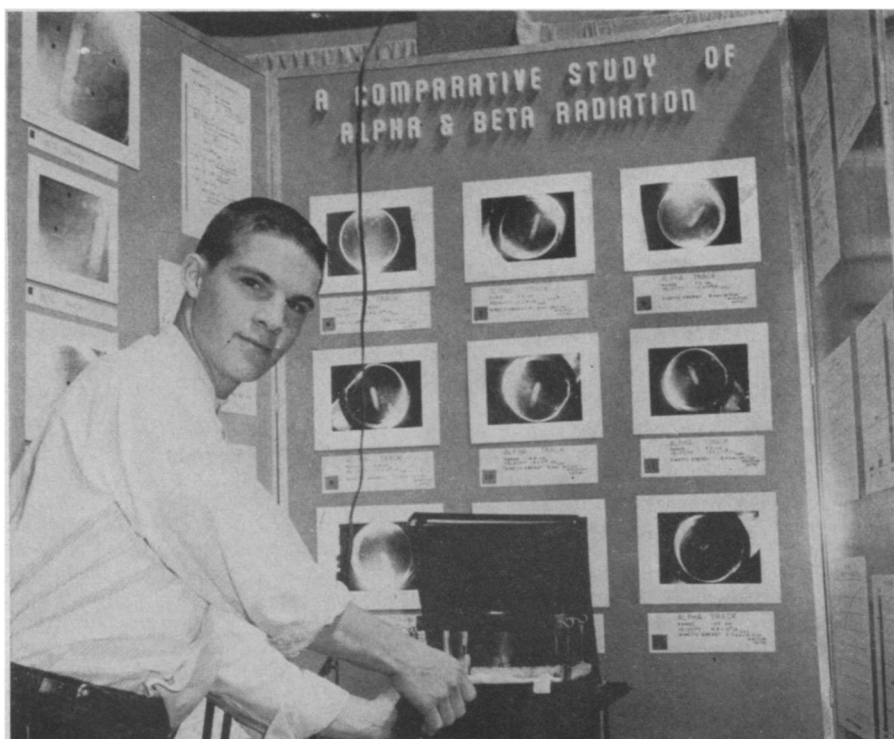
those in chemistry, or biology. The committee should set the limits defined by educational levels, not by age of the student.

Finalists to the National Science Fair must come from the 10th, 11th, or 12th year of a secondary school or equivalent and must have been selected for highest honors in a regional or area fair affiliated with the National Science Fair.

Judges should be people who understand the topic being judged or can approach it open-mindedly. A good combination is a layman, teacher from the same grade but from another school, and a scientist for each division or classification; the layman to tell if he learned something from the exhibit, the teacher to specify if the exhibit represents good work on the part of the student of the specified school year, and the scientist to attest to its technical accuracy. Point scores are recommended. Judges should evaluate exhibits before the show is open to the public.

Anything from a silver star or rubber stamp to more elaborate awards may be made. Often merely the posting of merits will suffice. All exhibits and names of exhibitors, schools, etc., should appear in a list of exhibits. Local townsmen, civic, scientific, or cultural groups, or industry, may present awards. If they are other than certificates, they should be selected so as to further the scientific education of the winners. School plaques or certificates also may be given. Scholarships, if available, should be awarded for scholastic attainments as well as good exhibits.

What has been stated for a school science fair applies to a regional or city-wide fair except that greater numbers are involved and greater attention will be given to each operation.



To properly handle a large scale operation, entry blanks are prepared, instructions are printed and committees are set up to perform definite duties.

Where the space at a large regional fair is limited, run-offs may take place at schools. The final showing to the public of the best exhibits from each school then may be arranged at a central location. Total number invited from each school may be based on total number of students in the school, with minimum of two per school and one additional per "x" number of students.

Although a few state and regional fairs have operated successfully for many years without newspaper association, it is well to have help from a local newspaper. This gives encouragement, inspiration, sharpens the competitive spirit, and provides the public with firsthand information.

A valuable experience for participants at any science fair is to have them meet and talk with scientists, engineers, technologists, and various specialists in their own laboratories or industrial research and field posts. The suggestions, help and guidance these authorities give is always remembered with appreciation.

The already established structure of a Senior or Junior Academy of Science contributes greatly to a coordination of a fair program on both state and regional levels. With regions cooperating directly at the National Science Fair, and the state fair serving to select from those regions which are not yet able to attain national affiliation, the state is assured of adequate representation. At the same time its own state fair becomes increasingly effective and more vital. The National Science Fair does not substitute for a state fair. Instead, it augments it and gives it more purpose and national recognition.

A broad perspective should be taken in the matter of geographical or other boundaries for the fairs. If a newspaper, radio or TV station, college or university, industry or other group, assists toward the financial support of any regional fair, and if any one or all of these are so situated that they normally enjoy the friendship and good will from across state boundary lines, the entire area should be considered in the plans for a regional fair.

One of the goals of the National Science Fair is to permit access to the national event by every student through a cooperating fair within convenient access to his or her school. Long hours of travel are a hardship for young students, and are objected to by parents.

Fairs cooperating in the National Science Fair have shown the same kind of amazing growth which marks the national event. When students learn the kind of competition with which they will be faced, they accept the challenge and demonstrate great abilities. When they are faced with the best throughout the nation, compare notes and gain new ideas, they return with better plans and greater drives. Proof lies in the increasing number of repeat finalists and the more advanced futures toward which they strive.

How to Enter the National Science Fair

Entry to the National Science Fair of exhibits and the students who made them is possible only through a regional, district, or state fair which is affiliated in the National Science Fair program. Affiliation requires signing of a contract with the National Science Fair, the payment of an entry fee, and assurance that the finalists will be properly selected and be sent, all-expenses paid, to the National Science Fair, together with their exhibits. No more than two finalists may be chosen for any one cooperating fair. Exhibits must be made by individual students attending school, and must be declared best in local competition. They must be students in the last three years of secondary school.

Announcement that any fair is sending finalists to the National Science Fair should be made only after contracts have been signed and before the fair is held so that all students may share equally the incentives and rewards.

Science fairs which are affiliated with National Science Fair are privileged and expected to indicate cooperation with Science Service, Science Clubs of America, and the National Science Fair, by reference in literature and use of insignia.

Whether the fair is purely a school activity or one which involves a large area, rules should be set up which will not be misunderstood.

Criteria for judging exhibits should be established and these should be given publicity so that the entrant will know how the judges will evaluate the exhibits.

Regulations for Experiments With Animals

The following rules have been drawn up in consultation with leaders in the biological and medical sciences.

The basic aim of scientific studies that involve animals is to achieve an understanding of, and a deep respect for, life itself and for all that is living.

A qualified adult supervisor must assume primary responsibility for the purposes and conditions of any experiment that involves living animals.

A trained biological scientist, physician, dentist, or veterinarian must directly supervise any experiment that involves anesthetic drugs or surgical procedure.

Experiments on living animals shall be limited to the use of invertebrates, other non-mammals, and such small mammals as mice, hamsters, guinea pigs, or rabbits. An exception to the above rule is in the case of farm animals, in which case the rules of the local 4-H Club shall be followed. No experiment shall be conducted that involves infection with pathogenic organisms or obviously mutilating surgical procedures, unless the animal is humanely disposed of at the end of the experiment. Any such experiment must be performed with the animal under appropriate anesthesia if pain is involved, and the experiment must be of the briefest possible duration.

The comfort of the animal used in any study shall be a prime concern of the student investigator. Gentle handling, proper feeding, and provision of appropriate sanitary quarters shall at all times be strictly observed. Any experiment in nutritional deficiency may proceed only to the point



where definite symptoms of the deficiency appear. Appropriate measures shall then be taken to correct the deficiency, if such action is feasible. Otherwise, the animal must be humanely disposed of.

Students shall not be permitted to participate in science fairs held under the auspices of Science Clubs of America until their adult sponsors have submitted assurance in writing that the above rules have been observed.

How to Do a Science Project

Students who turn out good science projects usually arrive at the system used by all professional scientists.

Read widely—Your success with science projects depends largely on how much you know about your subject. Wide reading broadens your understanding of the possibilities and limitations of your project. Search your school, public, and nearby university, college and specialized libraries for publications in your project field. Librarians are most willing to help you.

Question others—Scientists draw heavily upon the knowledge of others in their own and related fields. Acquire the habit of consulting with others about your plans. Often a classmate or an adult can point out an error in your thinking or suggest a method which might take you many hours to detect otherwise. Professional scientists and technicians are always glad to help answer your questions if you follow simple rules of courtesy such as querying them when they have time to answer and questioning them only when you have done enough reading and thinking to be able to ask intelligent questions. If you do not abuse their kindness you may, like other young scientists, find adults eager to lend you not only suggestion but also equipment, books, publications, etc., that you might not otherwise be able to secure. It even helps to talk over your project with an intelligent person who knows nothing about your work. In attempting to explain it to him you will be forced to clear your own thinking and his questions may point out things that need more attention for the sake of clarity.

Plan carefully—Scientists save much time and money by planning so thoroughly that the actual experimenting goes through with a minimum of failure. Try to anticipate the difficulties you will encounter and forestall as many as possible by deliberate planning.

And some don'ts—

Don't write some organization to send you everything they have on the subject, or expect them to do your project for you.

Don't tackle such a large project that you have time only to build the instrument you plan to use. If you must build an instrument that you have not tried to build before, better limit your project to that, and present a completed job.



Science Talent Search

Science-minded students offered unusual opportunity for recognition and scholarship assistance toward careers in scientific research.

MANY STUDENTS in junior high school and the early years of senior high school look forward to and prepare for entering the Science Talent Search for the Westinghouse Science Scholarships and Awards when they reach their senior year of high school. This competition discovers, with essential educational cooperation, the youth of America whose scientific skill, talent and ability indicate potential creative originality. Science club and science fair activities have proved to be excellent preparation and background for success in this scholarship competition.

The Science Talent Search is conducted annually by Science Clubs of America as an activity of Science Service in cooperation with the Westinghouse Educational Foundation. It is open to boys and girls who are seniors in public, private or parochial schools in the United States, including Alaska and Hawaii, but excluding U. S. possessions, who are expected by the certifying school officials to complete college entrance qualifications before the following October. Students must not have competed in any previous Science Talent Search.

Each year an Honors Group of approximately ten percent of the fully qualified entrants is chosen for special recognition. Members of the Honors Group receive certificates and recommendations to the colleges and universities of their choice. These recommendations usually result in acceptance of the students for admission as well as scholarships and other financial assistance offered by colleges and universities seeking students of unusual promise in science.

From the Honors Group, the top 40 winners of the Science Talent Search are chosen. These winners are invited to attend the Science Talent Institute held for five days each spring in Washington, D. C., with all arranged expenses paid. During the Institute they are judged for five scholarships of \$7,500, \$6,000, \$5,000, \$4,000, and \$3,000, and 35 Awards of \$250 each.

Each winner receives a bronze Science Talent Search Plaque to be presented to the

permanent honors and trophy collection of the winner's school.

Each member of the Honors group receives a Science Talent Search Certificate signifying the honor. The Certificate, suitable for framing, is sent to the school for presentation to the honorable mention. It becomes his or her property.

Committees of judges designated by Science Service will judge the contest, and the decision of these judges shall be final in all cases.

A scholarship may be applied toward a course in science or engineering at a college or university chosen by the winner and approved by a scholarship committee named by Science Service. Science and engineering courses must be within the fields of activity of the National Academy of Sciences and the National Research Council. If a scholarship winner withdraws from college, or if the Scholarship Committee disapproves further use of the scholarship because of reports from the college of unsatisfactory progress, any further benefits from the scholarship are forfeited.

Entering the Science Talent Search

To enter the Science Talent Search the senior takes the science aptitude examination in his own school under the supervision of his sponsor, teacher or other authorized school official. Such persons also prepare recommendations and see that the scholastic record is transmitted. The student writes a report of about 1,000 words on "My Science Project." This should involve original work. Entrants should develop a project that is planned for the Search or adapt to the Search something they already are doing.

Science teachers and school officials qualified to administer the examination may request entry materials for any number of eligible students. Entry blanks are mailed from Washington about Nov. 15. The examinations must be administered early in December.

All entries in the Annual Science Talent Search must reach headquarters of Science Clubs of America in Washington, D. C., by midnight, Dec. 27.

Girls as well as boys are encouraged to enter the Science Talent Search. The number of girls chosen for honors is determined by the proportion of girls who complete entries.

Search Winners Succeed

One of the most frequent questions asked is, "Do Science Talent Search winners really become successful scientists?"

The winners all have attended, or are attending college. With rare exceptions they proceed to bachelors' and about 50% of those who have had time have a doctors' degrees. The educations of these winners have been supported liberally by scholarships and fellowships. Advanced study on fellowships takes many of them abroad.

Membership in such honorary fraternities as Tau Beta Pi, Phi Beta Kappa, and Sigma

Xi is so frequent as to be almost standard.

Publication of their work in various scientific journals increases as they proceed with education and research.

Almost every known science has at least one winner specialist. Physics has attracted the largest number. A very small minority choose non-science fields for their careers.

The largest group prefers academic research and teaching. As professors they often have younger winners in their classes or working as their research assistants.

The second largest number now working fulltime is in industry. Research is the most frequent assignment but a few are in sales, production or administration.

Offers of summer employment in research laboratories come to all 40 as soon as they are named winners.

Almost all earlier winners have served in the armed forces but later ones, in general, have been deferred until their education is completed.

Most of the older winners are married and many have four or five children. Science Talent Search women tend to marry

scientists and engineers of comparable training or more. The men do not so frequently choose mates in those fields but all have college-trained wives, frequently with degrees to match their own.

All women have worked before marriage; many afterward. Those retired to care for their children express the desire to resume their careers later. Meanwhile they keep up their science themselves and through their husbands' work.

By entering the national Science Talent Search, students automatically enter a state search if held in their state.

Science Talent Search Aids

Back issues of Science Talent Search science aptitude examinations and answers are available as long as the supply lasts. Specify the year desired. Price 15c per copy, answers and passing scores included

Send 50c to cover postage and packing of a bundle of four different past Science Talent Search booklets containing abstracts of winners' papers and other information.

At no cost whatever you can join the
largest scientific organization in the world
SCIENCE CLUBS OF AMERICA



SCIENCE CLUBS OF AMERICA
 1719 N Street, N.W., Washington 6, D.C.

AFFILIATION

Please enter our club for affiliation with Science Clubs of America without charge.

Send me as sponsor the free SCA HANDBOOK of educational aids and tested science club techniques. I understand that we shall have the cooperation of the SCA staff in organizing and helping our club conduct interesting and worthwhile activities. Please keep us informed on the National Science Fair and the Science Talent Search.

Name of Sponsor _____ Profession _____

School or Organization _____

Address _____

City _____ Zone _____ State _____

My club is:

- Class
- School
- Other

- Elementary
- Jr. High School
- Sr. High School
- Other

If a teacher, check subjects taught:

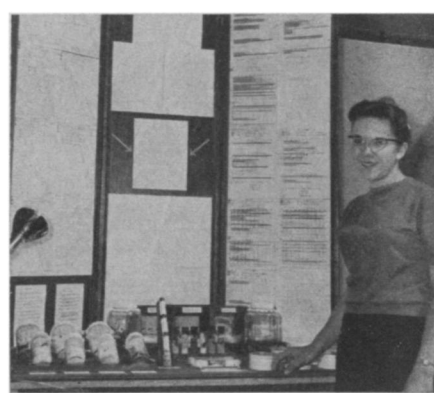
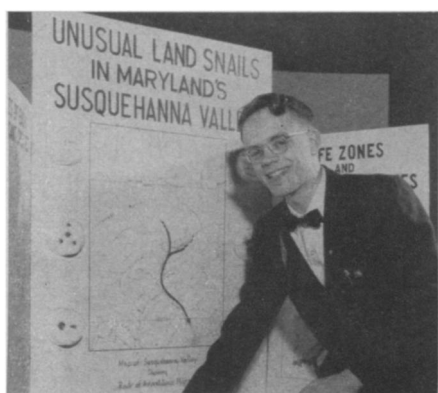
- Chemistry
- Biology
- Physics

Club activities:

- Chemistry
- Biology
- Physics

- Mathematics
- General Science
- Non-science

- Mathematics
- Astronomy
- Other



SCIENCE SERVICE AIDS TO YOUTH

SCIENCE NEWS LETTER

● **HOW TO FIND OUT THE NEW IDEAS OF SCIENCE!** Now you can get a 16-page illustrated SCIENCE NEWS LETTER each week, tersely and compactly written, filled with news of science, important developments, new inventions, research—new ideas that can be helpful to you, information that you can find in no other single place. Special school rate, 41 weeks (2 semesters) for \$3.13. \$.....

THINGS of Science Experimental Kits

● **AN EXPERIMENTAL KIT** issued each month, consisting of interesting specimens of new products of scientific research. Not just words, but actual samples of educational value, with explanation and experimental directions. Useful for museum and for teaching. Membership \$5 a year (add \$1 overseas postage). \$.....

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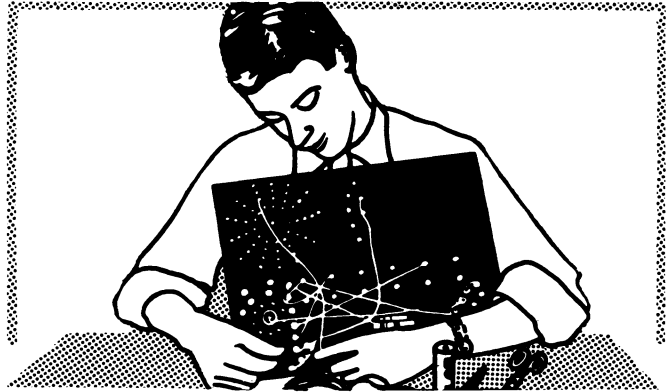
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