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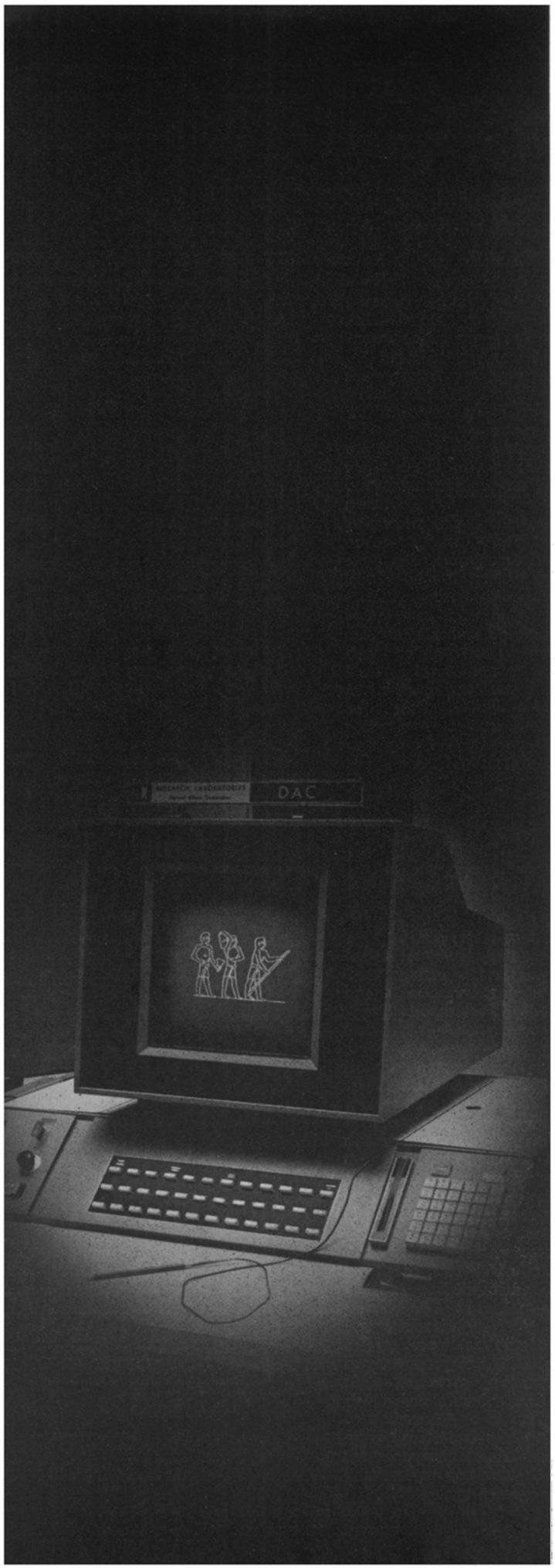
SCIENCE NEWS

SCIENCE NEWS LETTER®

THE WEEKLY SUMMARY OF CURRENT SCIENCE

Baby Ray
Page 148

A SCIENCE SERVICE PUBLICATION



One of a series briefly describing GM's research in depth

Pictures spoken here

If ancient man had invented the digital computer, we'd have no problem. His language was pictures.

But the alphabet came along, and we're saddled with computers whose native tongue is one of letters, numbers, and punched cards. Some modern men speak this language, too. But not all.

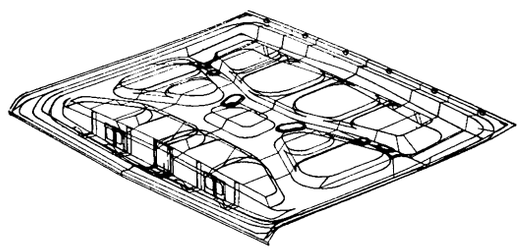
The designer, for instance, represents ideas in drawings. With proper schooling, so can the computer. Two years ago we announced the first such development: the DAC system, design augmented by computers. It used an educated computer speaking some of the designer's language. That was the first big step . . . a move to free the man from routine tasks, to let him spend more time creatively.

What's followed has been step-by-step improvement, bringing us closer to man-machine communication directly in graphics.

Without writing program statements, the designer now can use the computer to generate, manipulate, and evaluate free-form lines and surfaces. Every item in a designer's picture is a variable under his control. As he reviews and selects items on our laboratory console screen he can, for example, gradually develop a complex three-dimensional surface for an automobile.

The goal: Let the designer put a rough sketch on the computer console and make instantaneous changes as he develops his idea into a final exact design—all without translating into computer language.

A way-out fantasy? Not any more.

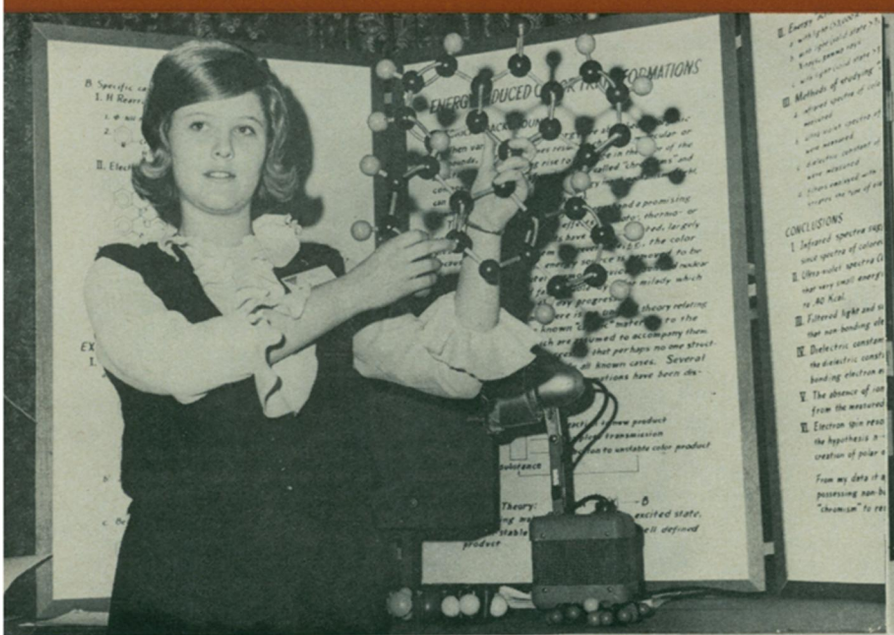


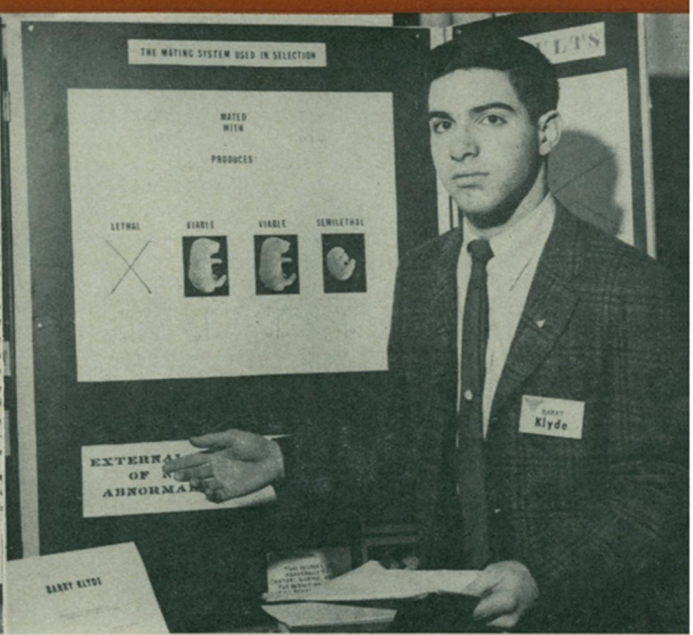
Typical automobile surface.

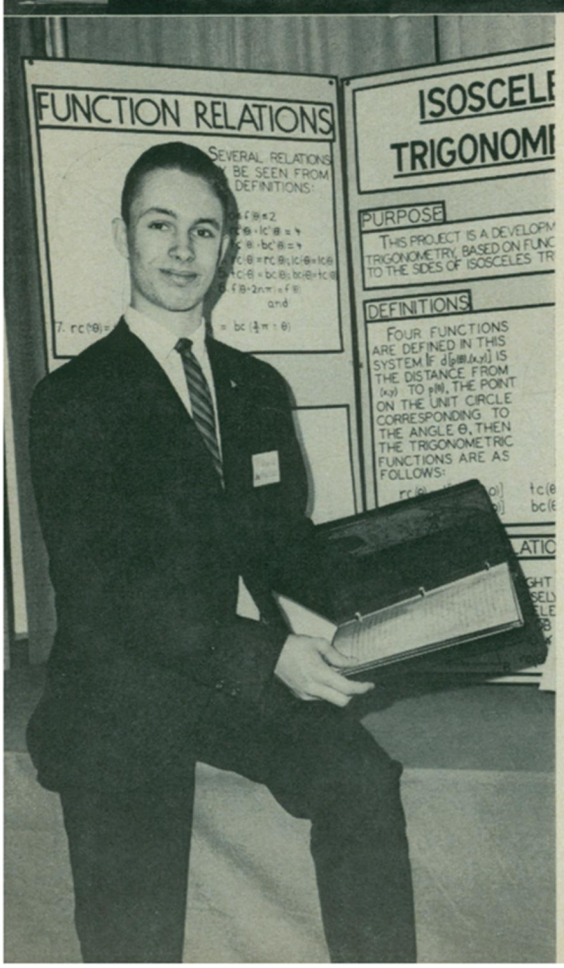
GM General Motors Research Laboratories
Warren, Michigan 48090

THE **SCIENCE SERVICE**

International Science Youth Program





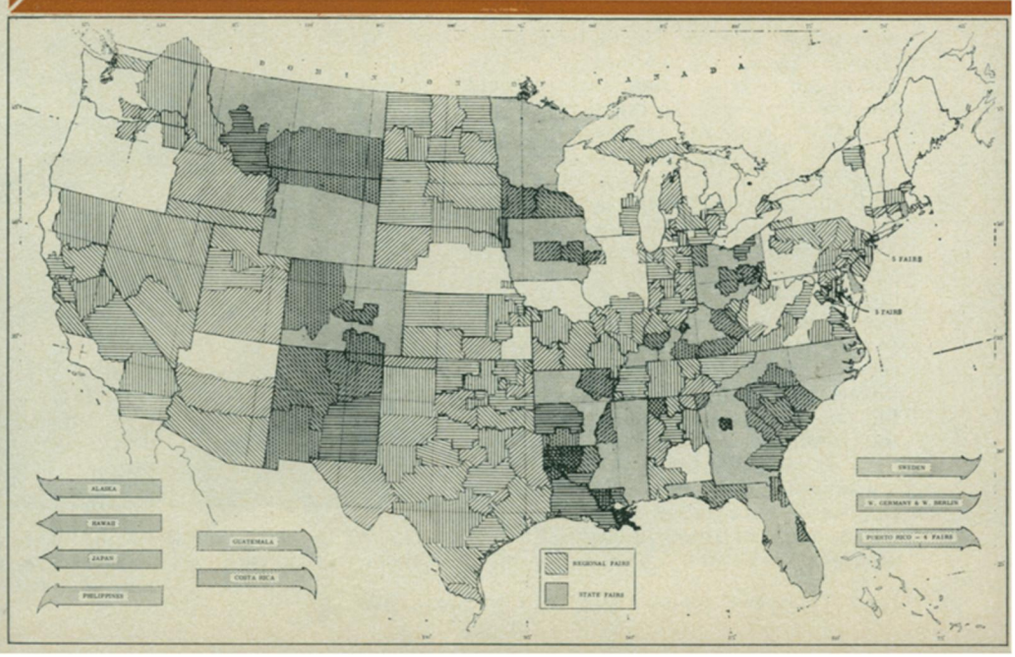


OVER 1,000,000 BOYS AND GIRLS PARTICIPATE

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 activities . . .

INTERNATIONAL SCIENCE FAIR

SCIENCE CLUBS OF AMERICA · SCIENCE TALENT SEARCH



Science Talent Search®

For more than a quarter century science-minded seniors have been offered 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. Any boy or girl who is in his last year in secondary school (public, private, parochial) in the United States, but excluding U.S. possessions, who is expected by the certifying school official to complete college entrance qualifications before October 1 following his graduation, and who has not competed in any previous Science Talent Search is eligible to enter this competition.

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 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 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 student. It becomes his or her property.

Committees of judges designated by Science Service judge the contest and the decision of these judges is 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 the Scholarship Committee disapproves further use of the scholarship because of reports from the college of unsatisfactory progress, further benefits from the scholarship are forfeited.

Entering the 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 verify the personal data form submitted by the student and see that the scholastic record is transmitted. The student writes a report of about 1,000 words on his science project. This should involve original work. Entrants should develop a project that is planned for the Search or adapt 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. Examinations must be administered early in December. All entries 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.

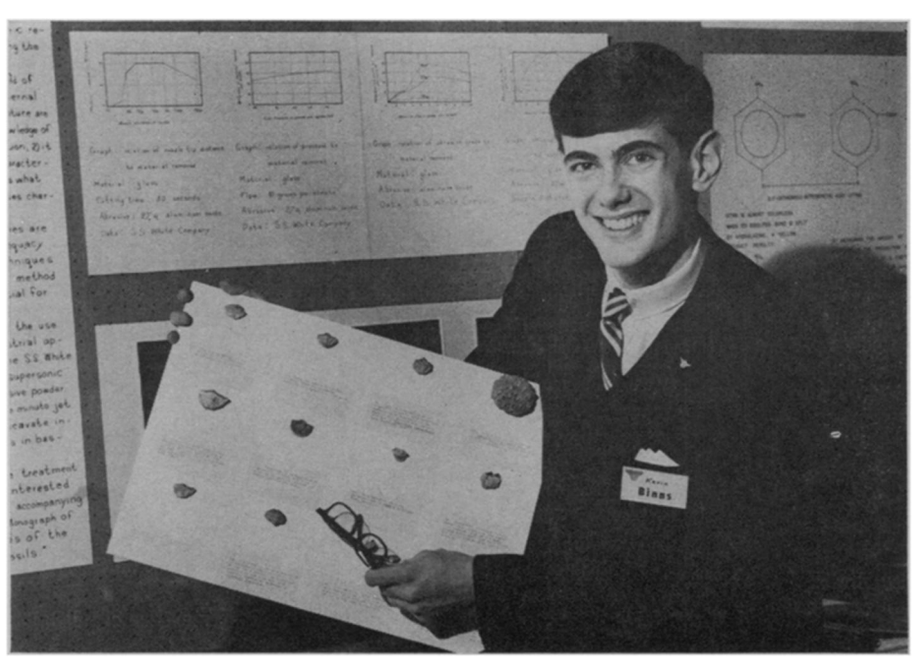
By entering the national Science Talent Search, students automatically enter a state Search, if one is held in their state, at the close of the national competition.

The National Association of Secondary-School Principals has placed this program on the Approved List of National Contests and Activities for 1966-67.

Science Talent Search Aids

Ten back issues of Science Talent Search science aptitude examinations and answers are available as long as the supply lasts. The price is 15¢ per copy, answers and passing scores included.

Send 50¢ to cover postage and packing of a bundle of four different past Science Talent Search booklets containing abstracts of winners' papers and other information. Address: Science Clubs of America, 1719 N Street, N.W., Washington, D.C. 20036.



STS WINNER—Kevin R. Binns, 18, fourth place STS scholarship winner from Des Moines, Iowa, unearthed an archaeological riddle from an old Indian burial ground.

Fairs: International – National – Local

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

THE INTERNATIONAL Science Fair has developed to worldwide coverage with more than 400 exhibits from over 220 U.S. and other areas since 1950. (See map.) Even more spectacular is the expansion of the science fair program at local and regional levels. Feeding these, or operating independently, are school fairs, numbering over 15,000, with an estimated million exhibits.

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 international 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 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. The fairs provide a purposeful use for funds accumulated in educational 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 in the promotion, arrangements and financing.

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

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 bedrock 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.

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 the public will be invited.

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

Additional information on conducting and organizing a science fair will be sent without charge or obligation to anyone requesting it. Write to Science Service, 1719 N Street, N.W., Washington, D.C. 20036.

School, Area or Regional 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.

Regional 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 area fair receives only an alloted number of exhibits from each school, which holds its own elimination first.

Regional and school science fairs generally use the rules of the international fair or adapt them to fit various local situations.

FAIR FINALIST—Carolyn C. Gerhardt, 18, a 17th NSF-I Finalist from Jacksonville, Fla., is shown with her project, "Amminization of Transition Metal Sulfates."

International Science Fair

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

To be eligible boys and girls must be students in the last three years of public, private or parochial secondary schools, and must have been selected for highest honors in a regional fair affiliated with the international organization.

Each affiliated fair is entitled to send two finalists, their exhibits and adult escorts to the international 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. Height limit: 11 feet, floor to ceiling. 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 new work has been done.

Rules and regulations of the International Science Fair are available at no cost upon request to Science Service.

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.

For International Science Fair Awards, the projects of boy and girl finalists are judged separately. First, second, third and fourth place awards are made in a number of scientific categories designated as sections. Special awards also are made by many national organizations, armed forces and Federal agencies.

The National Association of Secondary-School Principals has placed the International Science Fair on the Approved List of National Contests and Activities for 1966-67.

Science Youth Program . . .

An extensive national and international movement directed by Science Service stimulates and gives scientific experience to the youth of the world

EVERY YEAR young scientists of the nation, a million strong, do science projects. They perform experiments of their own devising. They show exhibits in science fairs. In science clubs, they supplement their school classes with enthusiastic hobby activity, learning while they "have fun."

Long before our fear of Sputniks and Russian education created a renaissance in science interest, the International Science Youth Program, supplementing science education, was begun under the aegis of Science Service.

There are now some 25,000 affiliated clubs in senior and junior high schools, and elementary schools.

As the institution for the popularization of science, Science Service has been engaged in reporting and interpreting advances in the world of science and technology since 1921. Out of this experience there came the conviction that there would be a greater demand for well-equipped scientists of all descriptions. The youth program was designed to implement this need.

To discover those high school seniors whose scientific skill, talent and ability indicate potential creative originality, the Science Talent Search for the Westinghouse Science Scholarships and Awards was inaugurated in 1942.

More than 15,000 science fairs are held each spring in secondary schools. The best student exhibits are sent to regional or area fairs which now number over 220, which in turn send top winner finalists to the International Science Fair held annually since 1950 in different cities. Foreign countries participating in this culminating event are: Austria, Canada, Costa Rica, El Salvador, Germany, Israel, Japan, Sweden and Switzerland. There are also national science fairs in Chile, Colombia, Guatemala, Ireland, Mexico, Nicaragua, the Philippines, Portugal, Spain and Uruguay which are expected to participate in the future.

Science clubs also are international with clubs overseas being serviced on the same free basis as those in the United States.

As part of the International Science Youth Program, Science Service develops and distributes experimental kits, books and pamphlets promoting scientific experimentation and provides information in all fields of science.

Other major activities of Science Service contribute to the International Science Youth Program. Science Service's service to newspapers, reaching a total circulation of over 10,000,000, informs teen-age science enthusiasts. SCIENCE NEWS with a circulation of over 100,000 reaches a select audience of non-scientists and scientists alike, including students and science teachers.

THINGS of science, experimental kits containing unusual specimens and experimental directions, have introduced many young people to the joys and techniques of science experimentation.

Science Clubs of America

Active groups of young scientists in affiliated clubs throughout the world, guided by sponsors to creative experiment, have fun with science

SCIENCE CLUBS OF AMERICA is dedicated to the development of science interest and talent and through its affiliated clubs in the U.S.A. and other countries seeks to stimulate an increasing knowledge and understanding of science.

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

Clubs are sponsored by teachers of every science subject in the curriculum. Most teacher-sponsors are drawn from science faculties. Clubs also are sponsored by a great variety of people who are entirely outside of the teaching profession, including, for example, an accountant, a Cub Scout den mother, a dentist, an executive of a scientific supply company and a veterinarian.

In preparation for science activities, science clubs frequently program project workshops and seminars where science students, teachers and professional scientists offer suggestions on project ideas and exhibit techniques.

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.

Science Clubs of America cooperates with many groups, such as junior academies of science, in science youth activities.

A free copy of the SCA Science Activities Handbook and other educational aids are sent to the sponsor to help in the organization and conduct of interesting and worthwhile activities for a successful science program.

SCIENCE CLUBS OF AMERICA AFFILIATION
1719 N Street, N.W., Washington, D. C. 20036

Please enter my class, group or club for annual affiliation with Science Clubs of America without charge. Send me the free educational aids and tested science techniques. I understand that we shall have the cooperation of the SCA staff in organizing and helping us conduct interesting and worthwhile activities. Please keep us informed on the International Science Fair and the Science Talent Search.

My school is: Elementary ☐ Jr. High School ☐ Sr. High School ☐
My group is from: Club ☐ Classes ☐ Other_____No. of club members_____
Science Fair in my school: Yes ☐ No ☐
I read Science News: Yes ☐ No ☐
Name of Sponsor _____
(Sponsor must be a science teacher, parent, adult leader or professional scientist)
Position _____
School or Organization _____
Address _____
City _____ State _____ Zip Code _____
Affiliation Open to Youth Leaders of All Nations Y8011