

GENERAL SCIENCE

Discover Scientists of Future

So far 3,000 top potential scientists have been discovered in ten years of the Science Talent Search. Nation desperately needs to find more for defense research.

See Front Cover

By WADSWORTH LIKELY

► IN TEN YEARS, the number of scientists employed by industry has doubled. In the same period the number of scientists and engineers employed in defense establishments has multiplied ten times. And in the next ten years, the trend will continue upward.

In 1950, there were 75,000 college graduates in scientific fields, in 1951, only 47,000. For the next ten years, the trend will continue downward.

It is the considered opinion of most people that this nation can defend itself from Communist aggression only by maintaining a great technological superiority over the Soviet Union and its satellites. This technological superiority must be based on the knowledge and findings of an ever-increasing number of scientists and engineers. Therefore, everything which promotes the idea of science among young people promotes this nation's defense.

One significant movement which ferrets out new scientists is the annual Science Talent Search, organized and managed by SCIENCE SERVICE through Science Clubs of America and sponsored by the Westinghouse Educational Foundation.

Now Is Time to Enter

Right about now, high school seniors in all parts of the nation are planning to enter the Eleventh Annual Science Talent Search. More than 15,000 of them, if other years are criteria, will have the opportunity of taking the Science Talent Test, the first of four hurdles which the youngsters will have to jump.

Only about 2,000 of them will complete this grueling test, designed to do part of the job of finding potential science talent among the nation's high school seniors.

Every high school in the nation, every sponsor of the more than 15,000 science clubs, receives notice of this year's Science Talent Search. They are urged to make this opportunity known to their seniors. The sponsors of the search hope, in this way, to make thousands of youth aware of the potentialities of a science career.

For direct stimulation there is the prospect of a fabulous five-day visit to Washington for the 40 top winners and \$11,000 in scholarships awarded at the Science Talent Institute held during this trip. There is the certainty that dozens of col-

leges and universities will, on their own, offer thousands of dollars more in scholarships. These offers go not only to the top 40 winners but also to most of the 260 other seniors who receive honorable mention in the Science Talent Search.

And more and more states are holding their own Science Talent Searches. This year, 23 states will take the final results on all students who complete their entries in the national search and hold their own supplementary competitions. More scholarships will be awarded on a state-wide basis.

But, perhaps, the indirect benefits to the nation will be even greater. Thousands of students besides the 15,000 who enter the Search will be stimulated to study science when they go to college. Success of a classmate, the knowledge that large national organizations are seeking scientific talent will give them the motive to go into the fields of science, technology and engineering after they graduate from high school.

For those who do enter the Science Talent Search, the road is rough. Of the 15,000 who send for the two-and-a-half-hour test,

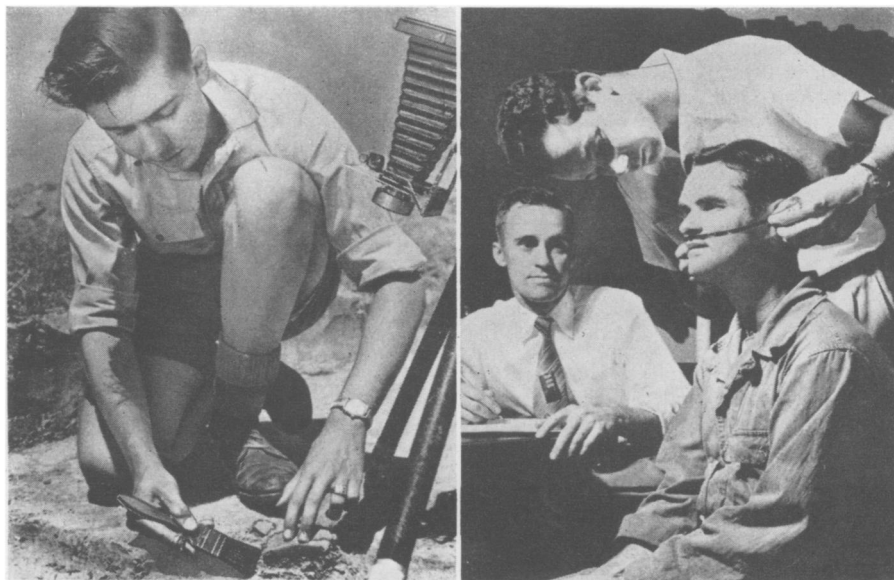
only about 2,000 complete it. The tests are all given during the same period in December. Thorough evaluations by teachers, and complete records of the marks made by the students, including their class standing, must accompany the completed tests.

Report on Science Project

Last, but most certainly not least, each student must write a report on "My Scientific Project." These range from studies of photographs of the tracks of cosmic rays to a detailed description of the tasks involved when one 17-year-old built a cyclotron. A California girl reported on the geology of the Sierra Nevadas, drawing on knowledge gained from field trips which included climbing Mount Whitney, this country's highest. A New York girl studied the confused flour beetle, called confused not because of its way of life but because it is easily confused with a similar beetle.

The reports are detailed, intelligent and sometimes show results of surprisingly original work. They are read carefully—usually during the Christmas week—by a board of judges at SCIENCE SERVICE.

On the basis of the reports, the tests, the marks and the teachers' evaluations, the 40 who will come to Washington at the end of February and the 260 honorable mentions are chosen.



TALENT SEARCH WINNERS—Robert Leonard Hall, left, of West De Pere, Wis., Science Talent Search Winner in 1945, is shown here working on an archaeological project. He is a University of Wisconsin graduate now studying for his doctor's degree. At right, Gilbert S. Daniels of the Wright-Patterson Air Force Base in Ohio, a 1944 winner and Harvard graduate, measures the head of one of more than 5,000 Air Force personnel in a study to provide better designs for flight equipment.

The day the announcement of the winners is made is a great one for the student. But it is also a great one for his teachers and for the school he is attending. High schools are as proud of a Science Talent Search winner as they are of the football heroes.

The trip to Washington for the 40 winners provides five days of excitement, intellectual and otherwise. For one thing, the \$11,000 in Westinghouse Science Scholarships must be distributed. The top winner receives \$2,800 and the runner-up, \$2,000. Everybody receives at least \$100.

Four Judges for Scholarships

Four men judge the distribution of these scholarships: Dr. Harlow Shapley, president of the SCIENCE SERVICE Board of Trustees and director of the Harvard College Observatory; Dr. Harold Edgerton, vice-president, Richardson, Bellows, Henry & Co., New York; Dr. Stuart Henderson Britt, vice-president and director of research, Needham, Louis & Brorby, Inc., Chicago, and Dr. Rex E. Buxton, Washington psychiatrist. Drs. Edgerton and Britt devise the tests each year.

When they are not being interviewed by the judges, the winners may well be being interviewed by representatives of the press. There is a formal program laid out for them which includes visits to the scientific laboratories in defense establishments and government departments, talks with noted scientists and a visit with the President of the United States. The scholarship winners are announced with a great deal of suspense at the annual banquet which concludes the five-day Science Talent Institute.

The boys and girls who attend these Institutes come from all over the nation. Most of them are leaders in their schools, holding offices in their classes and school organizations. Some are athletic stars, a high proportion play musical instruments—there is usually at least one jam session during the Washington visit.

They are normal in every way except that they have more knowledge of science and much more of a drive to do scientific work than do their classmates. Some of them like the five-day visit because for the first time they meet people "like themselves" in this respect.

In the fall of 1951, almost ten years after the first 40 winners were picked in 1942, all but two are working in scientific, technical or engineering fields. One of these two is a political scientist, the other a retired chemist now a wife and mother. Six are Ph.D.'s, eight are doctors of medicine, almost half hold masters degrees, their equivalents or better. In the class of 1943 there are six Ph.D.'s.

The search is spreading the interest in science, too. Every year more than half the winners come from schools which have never before placed. The state Science Talent Searches grow, in numbers of states and in numbers of scholarships offered, every year.

On the cover of this week's SCIENCE NEWS LETTER, Paul Sternberg, top 1950 Science Talent Search winner, is shown at work in the Brookhaven National Laboratory of Associated Universities, Lipton, Long Island, N. Y. Now an 18-year-old sophomore at Swarthmore, Pa., during the past summer he examined tracks made by nuclear particles in photographic emulsions exposed to cosmic rays at high altitudes.

Meantime, the students go on with their careers. Last year's winners are just starting their first year in college, while the early groups are already involved in advanced research. They hope, and the nation does too, that more of our young men and women will join them in scientific careers. Confronted by a long-sustained crisis, the nation can certainly use them.

For complete details of the national and state Science Talent Searches, write to Science Clubs of America, 1719 N St., N. W., Washington 6, D. C.

Science News Letter, October 6, 1951

INVENTION

Radio Beacon Will Guide Plane by Coded Signal

➤ A WARTIME-DEVELOPED radio beacon for guiding airplanes in flight by a coded signal sent out in response to a signal from the plane brought patent 2,568,265 to Luis W. Alvarez of Belmont, Mass., with rights assigned to the U. S. Navy.

The radio beacon, designed to be located at an airport or on an aircraft carrier, is normally inoperative but may be triggered from remote points by radio signals. It will fire only when it receives a signal of a predetermined character, and then it will send out a single high-speed coded signal which permits the pilot to identify the beacon.

In the system, the coded signals sent out from the beacon are received by special instruments in the plane in which they are translated into light impulses on the face of a cathode ray tube, so that the code will actually be visible and instantaneously observed. This enables the pilot at a glance to know the direction of the beacon from the plane as well as its distance away.

Science News Letter, October 6, 1951

TECHNOLOGY

Concrete Now Made With Corncob or Air

➤ FARMERS WHO want a lightweight concrete for farm buildings can now utilize in making it either one of two plentiful farm materials—corncocks or air.

Both types of concrete are being made, the U. S. Department of Agriculture reports, but much work must be done before they are ready for general use. The first uses corncob pellets as filler or aggregate, the second is filled with bubbles of air.

The corncob concrete is being developed at the Michigan State College, East Lansing, in cooperation with the federal department. The pellets used are about three-eighths of an inch in diameter and replace ordinary aggregate. Before mixing with the cement, water and sand, the corncob pellets are soaked in water for hours. Otherwise they will absorb the water in the mix and cause the concrete to rupture in setting.

An improved air-containing concrete, suitable for farm use, has been developed by the National Bureau of Standards. Officially it is called air-gravel concrete. Gravel is used as the aggregate, but air replaces all or part of the sand. The air bubbles are created in the mix by the use of chemicals called air-entraining agents.

Science News Letter, October 6, 1951

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Edited by Dagobert D. Runes

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