

## GENERAL SCIENCE

# Top STS Winners Named

For the first time in Science Talent Search history, the two top winners come from the same school. Northern, eastern, midwestern and western states have winners this year.

## See Front Cover

► THE FIVE most promising young scientists in the country are: a 17-year-old future physicist who has built a home-size cyclotron, an aspiring aeronautical engineer-designer of a flying platform, a girl-astronomer who tracked the first Russian satellite, a boy who has spent three years teaching himself organic chemistry, and a physical chemist-to-be who has done significant research work in the laboratory of a Nobelist. They are the five top winners of the 17th Annual Science Talent Search.

These high school seniors from Massachusetts, New Jersey, Illinois and California were named winners of Westinghouse Science Scholarships ranging from \$7,500 to \$3,000. A sixth student, from Alabama, was named as alternate.

The photograph on the cover of this week's SCIENCE NEWS LETTER shows all five top winners and the alternate. They are, top and left to right, Reinier Beeuwkes III; Dushan Mitrovich; Jane Shelby; and, bottom row, Donald Michael Jerina; Neil Logan Nininger; and Kenneth Wayne Shepard.

Reinier Beeuwkes III of Newton High School, Newtonville, Mass., who was awarded the Grand Science Scholarship of \$7,500, looks forward to a career in university research and teaching in physics. This tall, athletic boy, who enjoys mountain-climbing, skiing, astronomy and being manager of the varsity football team, hopes to continue his training next fall as a physics and mathematics major at Harvard University.

The compact cyclotron, which helped "Rein" win first place among the 40 outstanding young scientists who are this year's winners in the Search, was built from his original design. It fits into the side of a room and cost less than \$150, although, as the young physicist remarks, "a cyclotron is usually thought of as great in size and fantastic in cost." He is eager to improve its operation and to broaden its research possibilities.

A Newton High School classmate of Rein's, Dushan Mitrovich, 18, of Chestnut Hill, Mass., was awarded the \$6,000 scholarship as second winner. Dushan came to the United States from Yugoslavia nine years ago with his parents, Mr. and Mrs. Milenko Mitrovich. The experimental flying platform that was the subject of his research report is the climax of a large number of experiments with aircraft models and wind tunnels which he has been carrying out since his junior high school years. Dushan studied the captive flight performance of this model of a shrouded-propeller type of flying platform and worked out both a theory to explain its instability in flight and a system of automatic control. He plans to

prepare for a career as an aeronautical engineer at Massachusetts Institute of Technology.

Rein and Dushan have brought unusual distinction to Newton High School where they are members of the same accelerated physics class under Dr. Albert F. Navez. No other high school has had two scholarship winners at once in the 17-year history of the Science Talent Search. Dr. Martin Karplus, the 1947 top scholarship winner, was also from this school.

Third place and a \$5,000 scholarship went to 17-year-old Jane Shelby of Teaneck, N. J., who wants "very much to have a part in the epoch-making step into space." Jane has wanted to be an astronomer since she was seven years old and looks forward to future astrophysical research from the moon, exploring the possibilities of astronomical observation without the hindrance of an atmosphere. Her project report concerned calculation of the orbit of sputnik I from amateur observations, which yields information useful in determining the density of the upper atmosphere and the exact shape of the earth.

An "insatiable desire to find out why things happen as they do" inspired 18-year-old Donald Michael Jerina of River Grove, Ill., to devote three years to performing syntheses of more than 60 benzene derivatives to learn the basic concepts of organic chemistry. His winning of fourth place and a \$4,000 Westinghouse Scholarship is dramatic evidence of his success in this self-training.

The winner of the fifth honor and the \$3,000 scholarship is Neil Logan Nininger, 18, of Larkspur, Calif. A tall boy of many talents and interests, Neil has attracted the attention of Nobelist Glenn T. Seaborg and Dr. Edward Teller, noted physicist.

Two summers ago Dr. Seaborg invited Neil to work at the University of California Radiation Laboratory on a student fellowship. Neil was asked to return last summer and his assigned research project was so successful that he was invited to report on it to the faculty of the laboratory. It was this special research, concerned with finding a way to make high temperature tantalum carbide filaments for instruments that employ ion sources, that helped Neil to become a winner in the Search.

Kenneth Wayne Shepard, 17, of Montgomery, Ala., was named as the alternate and along with the remaining 34 of the 40 winners who attended the five-day Science Talent Institute in Washington, D. C., was given a \$250 Westinghouse Science Award.

Presentation of the scholarships and awards at the Awards Banquet climaxed the Institute and this year's Science Talent Search. Dr. James R. Killian Jr., special assistant to President Eisenhower for science

and technology, addressed the 40 winners and several hundred guests. The Search is conducted by Science Clubs of America, administered by SCIENCE SERVICE, and financially supported by the Westinghouse Educational Foundation.

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## GEOPHYSICS

## Chart Shows Satellite Distance and Elevation

► FOR SATELLITE observers who want to spot the man-made objects but do not have all the desired information, the MOONWATCH headquarters of the Smithsonian Astrophysical Observatory, Cambridge, Mass., has prepared a chart for finding a satellite's distance and elevation.

From the new chart, an observer in Chicago who knows that at a particular time a Russian artificial satellite will pass directly over Pittsburgh at a height of 500 miles can tell how high in the sky the satellite will appear from Chicago, how many miles away it will be at the time, and how bright it will look.

Also prepared by the Smithsonian is a table showing the regions from which a U. S. satellite can be seen. Since the time of first sighting depends on the launching time, the table indicates both morning and evening visibility ranges for launchings at hourly intervals for 24 hours.

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**EXHIBIT PROJECTS** — Some of the projects of the 40 top contestants for the Westinghouse Science Scholarships and Awards are shown on the opposite page.

Left column, beginning at the top: Lynda Wallace holds part of her display concerning the unknown bacterium that liquifies potato agar; Eric Martz' project concerned dentifrices; Leslie Smith demonstrates some of the effects of high voltage, high frequency electricity, using an Oudin coil; James Gaidis shows the transistorized transmitter and receiver he designed.

Center column shows: Jane Shelby with the telescope she used; Kenneth Shepard demonstrates the formation of vortexes in water as it drains from a container; Jane Karau points to a sample of cloth she dyed; Alan Kapuler holds an orchid, part of his project on the effects of colchicine on plant growth.

Right column: William Weibofen displays one demonstration of a geometrical relationship; Lawrence Okun explains his generalized theory on the origin of cancer; Saul Kripke points to symbols in his display on symbolic logic; and David Dyroff holds part of his original electronic vector computer, designed to show what vectors are and how they are used in solving practical problems.