

GENERAL SCIENCE

Top STS Winners

All parts of the country are represented by winners in the Eighteenth Annual Science Talent Search, as three physicists, a mathematician and a biologist receive scholarships.

► SCHOLARSHIPS have been awarded to five of the most promising young scientists in the country: a 17-year-old physicist who wants to help "open the skies to man's conquest of the stars," a dedicated young biologist who has done extensive research on mollusks, a boy who has worked out unusual ways of handling complex mathematics, an aspiring particle physicist who has investigated the heat released by immersing solids in liquids, and a 16-year-old paleontologist-physicist who has theorized on the effects of radioactivity upon evolution.

At the awards banquet of the 18th Science Talent Search for the Westinghouse Science Scholarships and Awards, these five high school seniors from Virginia, Maryland, California, Illinois and New Jersey were named as the winners of scholarships ranging from \$7,500 to \$3,000. A sixth student, from Colorado, was named as alternate to the \$3,000 scholarship, and nine girls and 26 boys received awards of \$250 each in recognition of their outstanding promise as creative scientists of the future.

Nuclear Physicist

John Seymour Letcher Jr., 17, of Lexington, Va., a student at The Baylor School in Chattanooga, Tenn., was awarded the top scholarship of \$7,500. As part of his winning entry in the Search, this blonde, six-foot-six physicist designed and built an accelerator which he believes will be especially useful in research studies of resonant nuclear reactions. The device is designed to produce an electron beam containing particles with a wide range of energies.

Since John believes that scientists already will have succeeded in harnessing the energy of fusion reaction by the time he has finished his training at California Institute of Technology, he looks forward to joining in the subsequent work of learning to apply this tremendous power to the propulsion of interplanetary space ships.

John's parents are Brig. Gen. John S. Letcher, USMC Ret., and Mrs. Letcher.

The \$6,000 scholarship went to Frank Wayne Grimm, 17, of Catonsville, Md., whose intense curiosity about living things has led very naturally to his present plans for a Ph.D. in zoology and a "full life devoted to inquiry and questioning."

As early as five years of age, Wayne's favorite books were those about butterflies, birds, and unusual insects, and his interests now include entomology, botany, herpetology, ecology, geology, ornithology, microbiology, ichthyology, meteorology, and, tying all these together, reading and philosophy.

The research paper that helped Wayne to win a place among the 40 winners of

the Science Talent Search reports on six unusual land snails that this 17-year-old zoologist found in the Maryland Piedmont, far from their normal habitat in the Pennsylvania mountains. He found these on expeditions during which he has collected about 1,500 lots of some 1,200 species of local mollusks, many of which he has given to his friend and adviser, Dr. J. P. E. Morrison, associate curator of mollusks at the U. S. National Museum, to round out the museum's collections.

Wayne hopes to attend the University of Michigan to begin training for a career that will include teaching and writing to acquaint other people with the "delights and rewards" gained from the study of living things. He is the son of Mr. and Mrs. Gustav F. Grimm.

Carl Lewis Lyngholm, 17, of San Diego, Calif., winner of the \$5,000 scholarship, submitted a report on his work in formulating new postulates in Boolean algebra, as part of his successful entry in the Science Talent Search.

After training in mathematics and physics at California Institute of Technology, Carl looks forward to spending his life in some form of pure research in these fields. Eventually he hopes to formulate "an infinite-valued logic which would exclude the absolutes 'true' and 'false.'" He is the son of Mr. and Mrs. Carl Lyngholm.

More Physics

The \$4,000 scholarship was awarded to Robert Norman McDonnell, 18, of Park Ridge, Ill., who ranks first in his class at Maine Twp. High School in Des Plaines. He investigated and measured the infinitesimal amount of heat that is released when a solid is immersed in a liquid. Using graphite as the solid and water, benzene, and sodium lauryl sulfate as the experimental liquids, Bob converted the heat into electricity and measured the few millionths of a volt that resulted. The benzene tests produced five times as much heat as those in which he used water. Sulfate tests showed twice as much heat as the water experiments.

Bob's interest in astronomy, started by his father when he was seven years old and stimulated by wide reading and visits to observatories and planetariums, led him eventually to his choice of a career in particle physics. He hopes to attend California Institute of Technology for his undergraduate work and, in the course of his life, to make a significant contribution to the basic theory of particle and nuclear physics. Bob's parents are Mr. and Mrs. Frank W. McDonnell.

Sixteen-year-old Joseph Peter Vajk of Princeton Junction, N. J., who was born in

Budapest, Hungary, won the \$3,000 scholarship. For as long as Peter can remember he has never seriously considered any career other than that of a scientist. His earliest interest was in the biological sciences and, when he was seven years old, he began a series of collections and studies of insects, rocks and fossils, alligators, and turtles. At about ten years of age he became interested in astronomy, which in turn served as the basis for his present interest in a career as a physicist or a paleontologist. Like three of the other scholarship winners, Peter hopes to attend California Institute of Technology.

Radioactivity and Man

In his research paper, he theorizes that radioactivity actually may be useful in speeding up the evolution of humankind to develop a superior species with possibly increased brainpower. His study of paleontology and geology showed that at certain periods in evolution there have been "explosions" of new groups, indicating an increased mutation rate. Since increased background radioactivity causes more mutations, Peter suggests the periods of rapid evolution were caused by radioactivity, intensive mountain-building and volcanic activity. The ethical problem presented by rapid evolution of the species at the cost of harm to millions of individuals is beyond the present scope of his discussion.

William Charles Waterhouse, 17, of Denver, Colo., son of Mr. and Mrs. William T. Waterhouse, was named as the scholarship alternate and was given a \$250 Science Award.

The banquet at which the scholarships and awards were announced climaxed a five-day Science Talent Institute and this year's Science Talent Search. Before the awards ceremonies, Chairman John A. McCone of the U. S. Atomic Energy Commission spoke to the 40 winners and several hundred guests. (See p. 170.)

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STS SIGHTS—Projects of some of the 40 winners and their projects in the Westinghouse Science Scholarships and Awards, as well as scenes of the various activities in which the group participated are shown on the opposite page.

Top, left, is William Charles Waterhouse; center, Richard John O'Connell; right, Carl Lewis Lyngholm.

Center, left, John Seymour Letcher Jr.; right, the three top winners are Michael (right), secretary of the Smithsonian Institution, and Watson Davis (left), director of SCIENCE SERVICE, following the announcement of the awards.

Bottom, left, some of the 40 winners in the Science Talent Search visited the David Taylor Model Basin; center, Frank Wayne Grimm; right, Joseph Peter Vajk. →

