

GENERAL SCIENCE

Research of STS Winners

Final 40 competitors for the Westinghouse Science Scholarships will demonstrate their independent scientific projects in Washington. They vie for \$11,000 in scholarships.

► FORTY HIGH school seniors, possibly tomorrow's leaders in the world of science, will meet in Washington on Feb. 24 for five days during which they will take part in the Science Talent Institute.

They will bring with them exhibits demonstrating their scientific projects which helped win them a place among the top 40 in the country-wide competition.

They will compete for \$11,000 in Westinghouse Science Scholarships. Here are descriptions of a few of the projects they that helped win them the trip:

Radiation Photographs

► PHOTOGRAPHING RADIOACTIVE samples on special emulsions made for nuclear studies formed the scientific project of 17-year-old Roald Hoffman, senior at Stuyvesant High School, New York.

When exposed to the special photographic plates, particles from the radioactive samples leave a distinct pattern, known as tracks, on the emulsion. In describing one experiment with thorium salts, the young scientist reported, "the plate contained a large number of stars. These stars were created by the radioactive decay of the thorium."

Roald explained that the unstable thorium salt emitted six alpha particles and four beta particles. Each of the alpha particles has a different energy level. By measuring the alpha tracks on the photograph, Roald could tell from which parent nucleus the alphas were emitted. This technique, the teenager stated, is widely applied in the study of nuclear physics.

The young student hopes some day to become a medical doctor and to do research work. As a second choice of a career, he said that he is interested in becoming a psychiatrist.

Builds Own Radar Set

► BELIEVING THAT you can do something about the weather other than talk about it, David Karl Nergaad has built his own radar set to study the weather. He hopes to set it up in the tower of his high school in Princeton, N. J.

An 18-year-old senior, he hopes some day to become a research physicist. He built his three-centimeter radar set after he studied meteorology and became interested in the use of radar for weather studies.

The set is capable of receiving reflections from as far away as ten miles. He described its construction and studies made with it in

a report of his scientific project, required for eligibility as a Search candidate.

The teen-age researcher explained that he wants to move the set from his home to the tower of Princeton High School, because the surrounding landscape in the valley in which he resides does not permit full use of the set's range.

He has, however, in addition to tracking the weather, received reflections from cars up to one-half mile away.

Studies Star Clusters

► CLUSTERS OF stars whose brightness varies regularly in periods of less than a day were studied by James Halbert Havey Jr., 17-year-old son of an Air Force officer.

Young Havey, a senior at Grant Union High School in Del Paso Heights, Calif., calculates the possible structure of variable stars with periods of less than a day, and the relation of such structure to the changing light received from them. The teen-age researcher hopes to be able to continue investigation on this topic in the future.

Discovers New Fossil

► A FOSSIL species, never before reported, was discovered by Charles Jetter Eichman, 17.

Uncovered along the cliff of a ravine at Haddonfield, N. J., the fossil was named *Emarginula ladowae*, in honor of Dorothy S. LaDow of Woodbury, N. J., whom the young scientist reported is a friend and inspiring naturalist. It is a fossilized shellfish belonging to the same class as slugs and snails.

A description of the new species has been accepted for publication by the Academy of Natural Sciences of Philadelphia. John Dyas Parker, assistant to the editor of the Academy's publication, wrote to the senior at Audubon High School, Audubon, N. J., telling him that the discovery "upsets" some "preconceived notions" concerning the rise of this type of shellfish, "which had never before been found living" prior to about the middle Eocene period or approximately 50,000,000 years ago. Jetter described his new fossil as being more than 63,000,000 years old, belonging to the upper Cretaceous period.

Solid Fuel Engine

► DESIGN AND construction of a solid fuel internal combustion engine was ac-

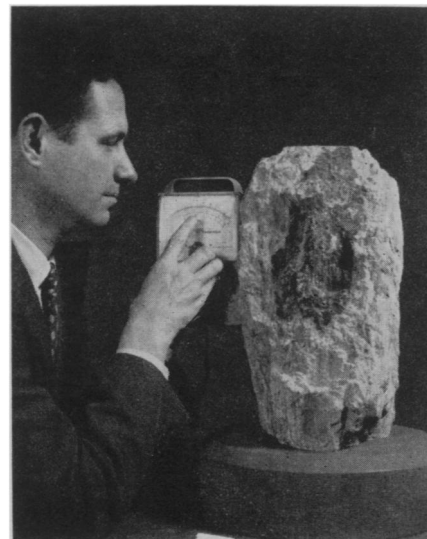
complished by Lawrence Ernest Williams, 17, who is a senior at East High School, Youngstown, Ohio.

Gaining his interest in solid fuel engines from the story of Rudolph Diesel's early attempts to market a compression-ignition engine which used powdered coal, Lawrence began to experiment with combustion of solids. His experiments to find a highly combustible solid fuel involved the testing of coal, sugar, wood, flour, starch, ash, various chemicals and coffee crystals. The best fuels to use, the young scientist discovered in his studies were dehydrated starch and coal dust.

Lawrence said that an engine operating on solid fuel might be used economically for such things as earth-moving equipment in the world's underdeveloped areas. The teen-ager would like to become an aeronautical engineer and some day do research in the field of rockets.

Descriptions of more scientific projects submitted by the top 40 Science Talent Search competitors will be published in the next issue of the SCIENCE NEWS LETTER.

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EIGHTY PERCENT URANIUM—*This 103-pound rock, one of the largest specimens of high grade uranium ore, on display at the American Museum of Natural History in New York. It is colored a brilliant orange and yellow with black spots. Its circumference is about 24 inches and it is about 19 inches long. As ore it is worth \$1,000. Dr Brian H. Mason, curator of physical geology and mineralogy for the museum, tests the ore with a Geiger counter. The stone was a gift of Vernon J. Pick, who struck it rich near Hanksville, Utah.*