affected tremendously, so that now the comet alternately comes within 270 million miles of the sun and goes as far away as 480 million miles, nearly twice as far. This latter is Jupiter's average distance from the sun, so there will be future occasions when the comet and the mighty planet will wage their battle.

The comet will always lose. It lost three years of its "life" in 1922, so instead of taking 10 years for a trip around the sun, it now takes only about seven years. Before 1920 its history is uncertain, but an astronomer, with time on his hands, can compute backwards and find out whether or not this comet may have had a much larger orbit than Jupiter's and possibly have been "captured" by the Goliath of the solar system.

Science News Letter, June 27, 1942

GENERAL SCIENCE

Nine Girls, 31 Boys Awarded Science Talent Search Trips

Ages of Winners Range From 15 to 18; More Than Half Stood at Head of Their High School Senior Classes

NINE girls and 31 boys have been invited to Washington, July 13-15, to compete for twenty Westinghouse science scholarships in the Science Talent Search conducted by Science Clubs of America, sponsored by Science Service.

The names of the trip winners were selected as the result of a strenuous competition in which superior seniors of all secondary schools in the United States were invited to participate. The 40 winners were selected from more than 10,000 entrants and some 3,200 who completed a science aptitude examination, submitted recommendations and scholarship records and wrote an essay on "How Science Can Help Win the War."

The trip winners come from 31 localities in 13 states. Entries were received from every state in the union.

Twenty of those who come to Washington the middle of next month on the all-expense trips will be selected for scholarships which will allow them to go to any college of their own selection, so that they may continue science or engineering training. One boy and one girl will be awarded $2,400 Westinghouse Grand Science Scholarships ($600 a year for four years), while 15 boys and 3 girls will be awarded $200 Westinghouse Science Scholarships.

Selected without regard to geographical considerations, the results showed that three high schools among the more than 25,000 have more than one winner among the 40. The Herbert Hoover High School at Glendale, Calif., furnished three trip winners, all boys, the Shorewood High School at Shorewood, Wis., had among the winners a boy and a girl, and Walton High School in the Bronx, New York City, placed two girls in the list of winners. Evansville, Ind., also furnished two winners, a boy from Reitz Memorial High School and a girl from Benjamin Bosse High School.

More than half, 52.4%, of the Science Talent Search trip winners stood first in their high school classes. Twenty-two of the winners were members of science clubs and six of them were club presidents.

The ages of the trip winners range from 15 to 18, with the average age 16 years, six months.

Of the trip winners, 14 intend to study chemistry, 10 are headed for engineering careers, 8 have selected physics as their field of study, 7 will study some field of medicine or biology, while one is headed for higher studies in astronomy.

The proportion of boys and girls who submitted completed entries in the Science Talent Search determined the distribution of boys and girls among the trips awarded. Girls accounted for 22% of the entries. The scholarships, with the exception of the two grand scholarships, will be distributed among boys and girls in the same ratio.

Science Talent Search judges have authorized the issuance of a list of 260 boys and girls who, in the Science Talent Search, have been awarded honorable mentions. A copy of this list will be sent to any official of an institution of higher learning who desires it.

"A major need for America today is the discovery and development of scientific ability among boys and girls now in high school," the Science Service announcement states. "Real ability for creative research and engineering is rare. Many who do not now have the opportunity to develop their scientific talents will be discovered and made available for America's future progress through this Science Talent Search.

"This is more than a scholarship contest. It is a major step toward making available potential scientific talent to important tasks in war and peace. Within the next five years, either in war or peace, boys and girls now in high school must begin to take leadership in scientific research and engineering."

The Science Talent Search is conducted by Science Service as one of the activities of Science Clubs of America. Awards are provided and the Science Talent Search made financially possible by the Westinghouse Electric & Manufacturing Company, a leader in scientific research, engineering and manufacture in the electrical industry, as a contribution to the advancement of science in America.

Science News Letter, June 27, 1942

CHEMISTRY

Plants, Like Steel, Require Many Chemicals

HEALTHY PLANTS, like good steel, need the addition of minute amounts of a number of chemical elements. Some of them are the same as those required for modern steel making, including manganese, molybdenum and copper.

The story of these "micro-nutrients" was told by Prof. D. R. Hoagland of the University of California, in his address as president of the Pacific Division, American Association for the Advancement of Science.

The need of plants for these minute traces of certain elements was completely unknown until a few years ago, and even now it is not certain that the list of micro-nutrients is complete. Of most of them, only a few parts in a million of soil solution are needed to maintain plant health, yet without them the plant sickens and perhaps dies.

Lack of some of these elements produces plant diseases that might formerly have been ascribed to the attack of submicroscopic viruses. Fruit trees in soils without zinc, for example, produce symptoms known as "little leaf" and "mottle leaf." Most soils have sufficient quantities of the micro-nutrient elements for all practical purposes, but where they are lacking it is important to detect which ones are short and to remedy the defect.

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