Science Talent Search tops million dollar mark; math takes first place

With the conclusion this week of the 34th annual Science Talent Search, sponsored by the Westinghouse Educational Foundation and administered by Science Service, the total amount of scholarship awards presented to promising high-school science students topped the million dollar mark, according to Robert E. Kirby, chairman and chief executive officer of the Westinghouse Electric Corp. Ten scholarships, totaling $67,500 were presented Monday night to students selected from among the 40 Science Talent Search winners, from 19 states (SN: 2/1/75, p. 71), gathered in Washington for the annual contest.

The first place award of $10,000 went to Paul Andrew Zeitz for a project in advanced mathematics. Zeitz, first in his class of 700 at New York City's Stuyvesant High School, plans to attend Harvard University and work toward a career as mathematician or physicist.

The idea for his project came from an unsuccessful attempt to solve a problem posed in a mathematical journal. The problem involved gamma functions—the definite integral that results when one tries to calculate the factorial of a non-integer—but instead of evaluating the stated integral Zeitz derived a formula for determining the value of a whole class of similar functions.

In addition to interests in music, chess and science fiction, young Zeitz won first place in the USA Math Olympiad and went to East Germany last summer to compete in the International Mathematical Olympiad, where he placed third. For the last couple of years, the Brooklyn student has been keeping a journal of "mathematical discoveries," and his winning entry was drawn from various "discoveries" he had recorded in his journal.

Second place winner Alan Stuart Geller of Ridgewood, N.J., who will receive an $8,000 scholarship, began his project in theoretical physics when he became puzzled at the omission of a proof for a sweeping statement about gravity and relativity in a textbook he was reading. According to one current theory of gravity (SN: 5/24/69, p. 512), a spin-two particle is involved in transmission of gravitational force. Geller read a statement by Nobel laureate Richard Feynman that such a theory leads uniquely to general relativity, and he set out to see why.

Geller, who began to teach himself calculus in the eighth grade, and quantum mechanics in the tenth, was able to connect the two abstract theories in a three-page derivation. He hopes to attend Princeton University in physics.

Third place winner Daniel Robert Marshak, of La Jolla, Calif., will also receive an $8,000 scholarship for his project in biochemistry. By incorporating a particular enzyme into an artificial cell membrane, he was able to simulate movement of sugar across cell membranes in humans and thus test the relationship between the enzyme and insulin, the hormone that controls the rate of sugar metabolism. Marshak, who is a photographer, pianist and canoeist, hopes to study biochemistry or mathematics at Harvard.

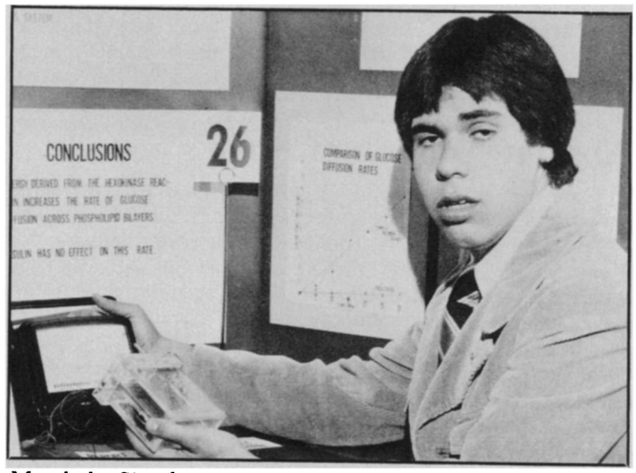
Three winners received $6,000 each. Byron Bong Siu of Bronx, N.Y., won the award for studies in advanced number theory, using perfect digital invariants, or numbers which equal the sum of a given power of each of their digits. Richard James Foch of Titusville, Fla., designed and built model airplanes to investigate the Kline-Fogleman airfoil—an experimental wing configuration with several claimed advantages over conventional wings. Robert Mark Claudson of Richland, Wash., used simulation techniques to investigate the ecology of river plankton.

Winners of $4,000 scholarships were Charlene Gail Sanders of Narberth, Pa., for studies in sleep learning; Lorraine Alice Pillus of Cocoa, Fla., for research on how to culture nitrogen-fixing bacteria; Craig Franklin Miller of Whitestone, N.Y., who used a combination of mathematical and statistical analyses to devise a theoretical economic model relating unemployment and inflation, and H. Britton Sanderford of Metairie, La., who designed and built a multiprocessing computer which combines features of large and small computers.

The remaining 30 Science Talent Search winners received a $250 prize. All received an all-expense paid five-day trip to Washington. During their visit the winners met with their congressmen on Capitol Hill, toured laboratories and talked individually with prominent Washington scientists. Rep. Mike McCormack (D-Wash.) addressed the winners at their awards banquet. □

Zeitz: A new formula for integrals.

Geller: Relating theories of relativity and gravitation.



Marshak: Simulating enzyme function in cell membranes.