GENERAL SCIENCE

Top Science Talent Chosen

The scholarships of the 20th Annual Science Talent Search were won by two young biologists and three mathematicians. All five are already accomplished scientists.

➤ THE MOST PROMISING young scientist of the year is 17-year-old Joshua Wallman of New York City, who has been engrossed in biological research since he was 13 years old. His current investigation of the courtship bowing of the male ring dove upsets the theory that it is purely a reflex action due to instinct.

As top winner in the 20th Science Talent Search conducted by SCIENCE SERVICE, he has been awarded the $7,500 Westinghouse Science Scholarship. The judges selected him from a field of 4,000 high school seniors from all over the nation who submitted completely qualified entries.

Four other scholarships were awarded: $6,000 to Edward C. Jones, 17, of Arlington, Va., a nimble-minded mathematician who is especially concerned with the relationships between logic and language.

$5,000 to William M. Adkins III, 17, of Melbourne, Fla., another enthusiastic biologist who has been absorbed in his various research projects since he was 14 years old.

$4,000 to 17-year-old Daniel E. Kleinman of Louisville, Ky., who looks forward to a lifetime in the challenging field of modern mathematics and mathematical philosophy.

$3,000 to a talented little feminine scientist, Harriet J. Fell, 16, of Flushing, N. Y., who is equally deft in abstract mathematics and zoological research.

Bowing Behavior of Dove

The investigation that top winner Josh Wallman reported as part of his entry concerned the ring dove and its bowing behavior during courtship. Observing that birds unable to inflate the esophagus did not go through this bowing ritual, the young ornithologist investigated the role of the esophagus in the characteristic bowing.

Working through two summers at the Institute of Animal Behavior of Rutgers University, Newark, N. J., he designed his own experiments and spent many hours observing and photographing the male dove. He concluded that inflation of the esophagus was stimulated by introducing a female dove into the cage and that, in turn, the air pressure in the esophagus triggered the bowing.

In addition to his work at the Rutgers Institute, Josh has carried out detailed studies of feathers and of the origin of the domestic ring dove, in cooperation with the American Museum of Natural History, New York.

Josh edits the Journal of Biology at the Bronx High School of Science, where he is now a senior, and serves as chairman of the field trip committee of the Linnaean Society of New York.

Ed Jones, senior at Wakefield High School in Arlington, Va., has developed a special appreciation of simplicity and elegance in mathematical structure. He hopes some day to devise a method of discovering whether some of the classical unproved mathematical conjectures belong to the group of theorems that are true but can never be proved.

Ed's Search paper dealt with convex smooth curves and some proofs and interesting conjectures about them. He proved several geometric theorems about "p" lines, formed by joining points in which the curve is met by a pair of parallel tangents.

Bill Adkins has already begun the contributions he hopes to make to the field of biology through future studies of every aspect of the role of glands and hormones in biological phenomena. In his Search report, Bill described a new technique he designed for studying the role of the pineal gland in animals, shielding the gland from light by using petrolatum and non-drying putty. He concluded that normal functioning of the southern toad's pineal apparatus in response to light is necessary to the well-being of the amphibian, since with the pineal shielded it chose higher temperatures and light intensities and dryer sand than normally preferred.

Now a senior at Melbourne High School, Fla., Bill pays particular tribute to his biology teacher who encouraged him to think independently and try out his own ideas.

Dan Kleinman demonstrated unusual understanding of the language of numbers as early as fifth grade, when he figured out by himself how to determine permutations. Now a senior at Atherton High School in Louisville, the young Kentuckian has devised a new and original approach to the twin primes problem, an unproved number theory classic which conjectures that there are an infinite number of prime number pairs of the form p and p plus two.

Understanding Prime Numbers

Believing that resolution of the question would be an important step toward complete understanding of the distribution of prime numbers, Dan formulated two questions, equivalent to the primes problem, which should facilitate further investigation because they do not deal directly with primes.

Harriet Fell, the feminine member of the outstandingly promising quintet, is also a mathematician. She reported on her investigation of the properties of a linear algebra with 16 units, which may have application to quantum mechanics and to determining vectors in five-dimensional space. Harriet works as a volunteer assistant in the department of animal behavior at the American Museum of Natural History and is completing advanced courses at Jamaica High School, Jamaica, N. Y., in calculus, analytical geometry and history of science. Whatever leisure is left is devoted to painting, ceramics, accordian, guitar and harmonica. Her picture of the future includes both university teaching, in mathematics or zoology, and marriage and children.

Robert M. Axelrod, 17, of Evanston Township High School, Evanston, Ill., was named as alternate to the $3,000 scholarship. Michael Clarke Newlon, 18, of Western High School, Washington, D. C., was named second alternate.

Eight girls and 27 boys received Westinghouse Awards of $250 each in recognition of their top level ability and promise as creative scientists of the future.

• Science News Letter, 79:166 March 18, 1961

GENERAL SCIENCE

Talent Search Winners Meet President Kennedy

See Front Cover

➤ THE 40 Science Talent Search winners visited the President during the trip to the Science Talent Institute in Washington, D C. (See also p. 165)

President Kennedy and Vice President Johnson greeted each winner personally and discussed the science projects and future plans of the young scientists.

The group had elected Roger Paul Peters, Jr., 17, South Bend, Ind., to present gold Science Clubs of America emblems to the President and Vice President.

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BEST SCIENCE TALENT—Scholarship winners with their Science Talent Search projects and activities at the Science Talent Institute in Washington, D. C. Top, left to right, Joshua Wallman, William M. Adkins III and Edward C. Jones.

Center, left, Major Paul E. Teschan, M.C., U.S.A., Assistant Commandant, Walter Reed Army Institute of Research, and the top winner of the first Science Talent Search, shows a germ-free operating chamber to winners. Center, the winners in front of the Capitol. Center, right, winners visit the Smithsonian Institution.

Bottom, left to right, Robert M. Axelrod, Daniel E. Kleinman, and Harriet J. Fell.


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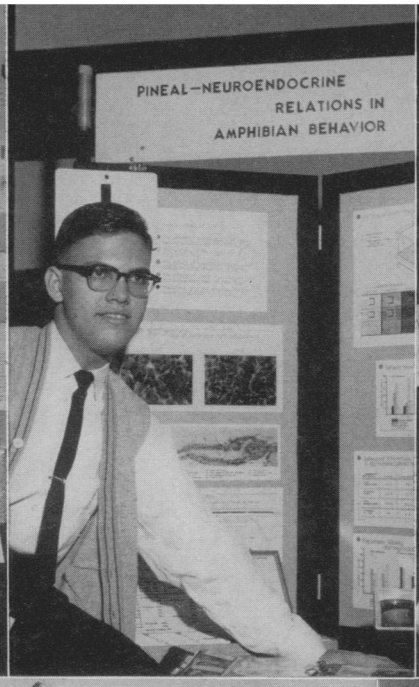
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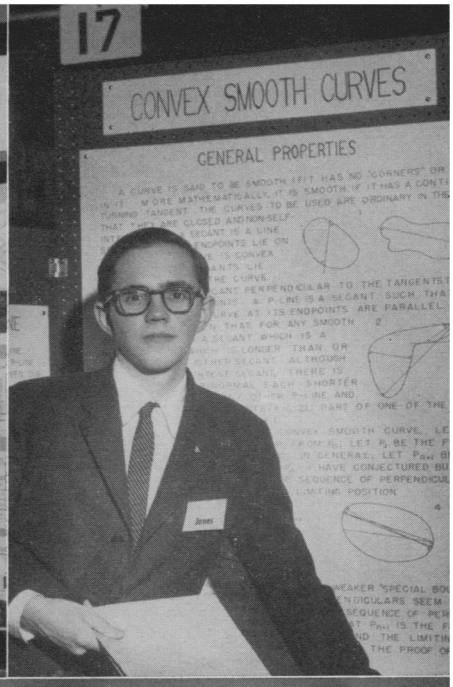
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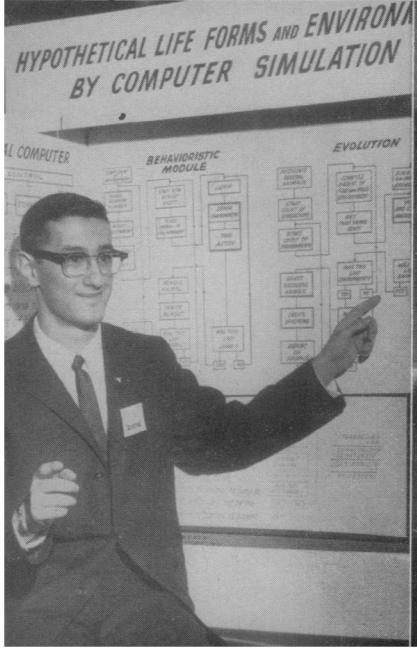
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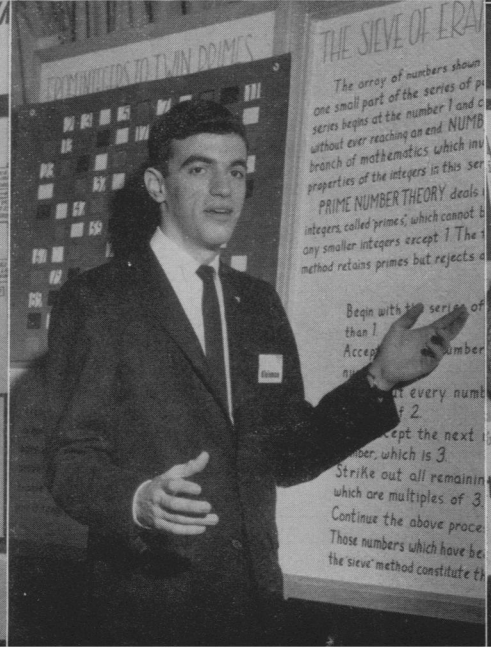
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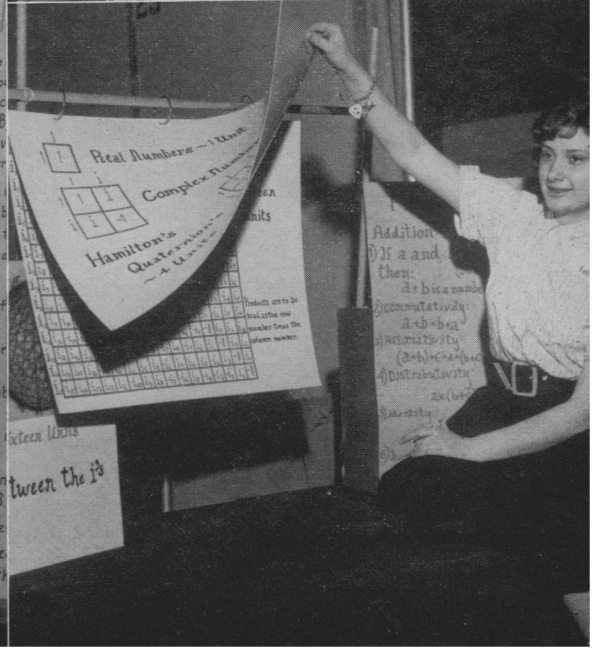
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