

Search for science talent scores 40 finalists

Advocates of applied science should be encouraged by the crop of 40 high school seniors named as this year's finalists in the Westinghouse Science Talent Search. About half of their projects tackled down-to-earth problems, such as groundwater contamination and disposal of used oil.

One student came up with a way to reduce the hazard of industrial fires caused by aluminum dust; another invented a monitor that could help designers improve the efficiency of radio frequency devices like pagers and cellular phones.

Backers of basic science should take heart, too. Fundamental questions in mathematics, physics, chemistry, and biology, the most popular subject, also captured the students'—and the judges'—interest. One student studied the evolution of symbiosis between jellyfish and algae. Another used Schur's theorem to solve a 1980 number theory problem posed by Hungarian mathematician Paul Erdős.

"Increasingly, the level of scientific research of the Science Talent Search finalists has grown more sophisticated," says Thomas Peter Bennett, president of Science Service, which administers the competition and publishes SCIENCE NEWS.

Princeton University astrophysicist J. Richard Gott heads the panel of 10 scientists, including 1986 Nobel chemistry laureate and Science Service board chairman Dudley R. Herschbach, who will interview the students in Washington, D.C., from March 5 to 10, 1997, to pick the top 10 projects. First prize is a \$40,000, 4-year scholarship. A total of \$205,000 in scholarships will be awarded to the 40 finalists in a ceremony at the National Academy of Sciences.

The finalists were selected from 1,652 entrants in the national scholarship competition, now in its 56th year. The 18 young women and 22 young men come from 35 high schools in 16 states. New York continued to provide the greatest number of entrants and finalists.

The finalists are:

● California: Elizabeth Danhwa Chao, Palo Alto Senior H.S., Palo Alto; Carrie Shilyansky, San Marino H.S., San Marino.

● Colorado: Dylan Micah Schwindt, Montezuma-Cortez H.S., Cortez.

● Florida: William Clive Blodgett, Wellington H.S., West Palm Beach; Emily Beth Levy, North Miami Beach Senior H.S., North Miami Beach.

● Illinois: John Spencer Neumann, Lake Forest H.S., Lake Forest; Michelle Chung-Ming Tam, University of Chicago Lab H.S., Chicago.

● Minnesota: Ana Maria Navarro, Min-

netonka H.S., Minnetonka.

● Mississippi: Adam Amiel Friedman, Saint Andrew's Episcopal School, Ridge-land; Rachel Anne Hutchins, Poplarville H.S., Poplarville.

● Montana: Nicholas Karl Eriksson, Sentinel H.S., Missoula.

● New Jersey: Joanna Beatrice Byar, Byar Home School, Willingboro; Merri Carole Moken, Morristown H.S., Morristown.

● New Mexico: Ann Clair Seiferle-Valencia, Farmington H.S., Farmington.

● New York: Alyssa Norma Benjamin and Whitney Paige Bowe, Lawrence H.S., Cedarhurst; Carl Noah Bialik, Bronx H.S. of Science, New York City; Long Cai, Jonathan William Plau, and Katheryn Joanna Potenza, Ward Melville H.S., Setauket; Roletta Chen, Benjamin Cardozo H.S., Bayside; Adam Ezra Cohen, Hunter College H.S., New York City; Caroline DeFilippo, Byram Hills H.S., Armonk; Daniel James Durand, Shoreham-Wading River H.S., Shoreham; Joshua Ellis Gewolb and Joshua Jacobs, Paul D. Schreiber Senior H.S., Port Washington; Davesch Maulik, Roslyn H.S., Roslyn

Heights; Stephen Oskoui, Pittsford Mendon H.S., Pittsford; Rose J. Payyapilli, Midwood H.S. at Brooklyn College, New York City; Joseph P. Turian, Great Neck North H.S., Great Neck; Sophia Akbarali Virani, Herricks Senior H.S., New Hyde Park; Elaine Wan, Stuyvesant H.S., New York City.

● Oregon: Joshua Ladau, South Eugene H.S., Eugene.

● Pennsylvania: William Frederick Thies, State College Area H.S., State College.

● Texas: Dev Edward Kumar, Texas Academy of Math & Science, Denton.

● Virginia: Logan Joseph Kleinwaks and Greg Yuchang Tseng, Thomas Jefferson H.S. for Science and Technology, Alexandria; Diameng Pa, Wakefield H.S., Arlington.

● Washington: Grace Lynn Williams, West Valley H.S., Spokane.

● Wisconsin: Michael James Colsher, Marquette University H.S., Milwaukee.

The finalists are in good company. Past winners include many members of the National Academy of Sciences, several MacArthur fellows, two Fields medalists, and five Nobel laureates. — C. Mlot

Drug could provide alternative to flu shot

Though common and usually no more than an inconvenience, influenza can be deadly, especially for the elderly. Accordingly, getting a flu shot has become an annual ritual for many people.

A drug now being developed may someday provide an alternative to the flu vaccine. Tested only in animals so far, the drug cures flu whether taken before infection or up to 60 hours afterward, when symptoms have appeared. Researchers at Gilead Sciences in Foster City, Calif., the Australian National University in Canberra, and the University of California, Berkeley describe their synthesis of the drug in the Jan. 29 JOURNAL OF THE AMERICAN CHEMICAL SOCIETY.

Each year, public health agencies try to predict which flu strains will prevail that season. A vaccine is then tailored to protect against them. The new drug, in contrast, works on a part of the virus that varies little among strains. It blocks the action of neuraminidase, an enzyme on the surface of the virus that helps it migrate through mucus in the lungs. Neuraminidase also helps the virus spread to other cells, although "it's not entirely clear how," says Gilead vice president Norbert Bischofberger.

The drug is similar to one under development by Glaxo Research Institute in

Research Triangle Park, N.C., Bischofberger says, except that it has been chemically modified so it can be taken orally. The Glaxo medication, now being tested in humans, must be inhaled as a powder or taken as nasal drops.

In mice infected with a version of the human flu virus, the oral drug resulted in 100 percent survival, compared to less than 15 percent without treatment. In ferrets, which cough, sneeze, and run a fever in response to the virus, the drug prevents symptoms, Bischofberger adds.

The drug must still be tested in humans, says Frederick G. Hayden of the University of Virginia School of Medicine in Charlottesville, but if oral delivery is effective, it could offer "ease of administration or broader distribution to the respiratory tract." He notes, however, that an inhaled formula gives the patient a high local concentration of the drug while minimizing potential side effects.

In the past, virulent flu pandemics have swept across the globe, claiming millions of victims (SN: 12/2/95, p. 382). "Most officials agree that it's a question of when a new pandemic comes, and not if," Bischofberger says. Effective influenza drugs will be needed to stop it in its tracks. — C. Wu