

## Genes, stars, puzzles win Talent Search

Some people can eat anything and never get fat; others just look at a chocolate bavarian or even one of Proust's memorable madeleines and it's expansion city. For a study of the structure of the DNA segment that codes for an enzyme important in fat metabolism, Christopher Roland Montanaro of South Paris, Maine, won first place and a \$12,000 scholarship in the 43rd annual Westinghouse Science Talent Search. A student at Oxford H.S. in South Paris, Montanaro used mice, not people, in his study, in which he found genetic differences in the DNA from different individuals. Contest judges said the work could provide clues to the ways different individuals metabolize fat.

Montanaro did his research at the Jackson Laboratory in Bar Harbor, Maine, under the direction of Senior Staff Scientist Leslie P. Kozak. Montanaro credits one of his high school teachers, Ernest W. Johnson, with introducing him to the Jackson Laboratory, saying that before his experience there he had "practically no knowledge of frontier molecular genetics." Kozak says Montanaro's work is of postdoctoral quality.

Sandy Chang of New York City, a student at Bronx High School of Science, won second place and a \$10,000 scholarship. His project involved monitoring the visual and near-infrared intensities of four variable stars. He built his own telescope and used it for almost 250 measurements.

The solutions to the puzzle of Rubik's cube from each of its  $4.3 \times 10^{19}$  starting positions won third place and a \$10,000 scholarship for Michael Tai-ju Lin of La Jolla, Calif., a student at La Jolla H.S. Lin used the cube solutions to develop a computer program to teach abstract algebra with the cube as a "friendly aid."

Fourth through sixth places carry \$7,500 scholarships. An evaluation of the performances of low-speed airfoils for such applications as human-powered flight won fourth place for Roger Charles Hayward of Falmouth, Mass., a student at Falmouth H.S. Eva Lana Assimakopoulos of Ft. George Hill, N.Y., a student at Bronx High School of Science, won fifth place for a study of the inhibition of fatty acid metabolism. Sixth place went to Atom Sarkar of New York City, a student at Stuyvesant H.S. A native of Calcutta, he studied the role of histidine-rich protein in the life cycles of malarial parasites. It is a step, he says, toward understanding how such parasites invade red blood cells and investigating how to make antibodies against them.

Scholarships of \$5,000 go the winners of seventh through tenth place. They are Lisa Szubin of Teaneck, N.J., a student at Ramaz School in New York City, Peter Mead of Greenwich Conn., a student at Greenwich



Montanaro

Chang

Lin

H.S., Jessica Riskin of New York City, a student at Stuyvesant H.S., and Mark Hamburg of Midland, Mich., a student at H.H. Dow H.S.

Two alternates were also named, Jonathan Harwitz of Buffalo, N.Y., and Douglas Galarus of Missoula, Mont. The 30 remaining national winners will receive cash awards of \$500 each.

This year's 40 winners of the competi-

tion, which is conducted by Science Service, Inc., are overwhelmingly from public schools. On this year's list are 12 schools that have never appeared before. At the same time, certain schools (in some cases specialized schools) that seem to make a tradition of competing appear again this year. As one young man puts it: "In our school if you don't do a Westinghouse project..." □

## Now in orbit: The last(?) Landsat

The fifth Landsat earth-observations satellite, last of its kind unless present plans change, was launched on March 1, ten months in advance of its original schedule. The liftoff was moved ahead when problems with Landsat 4 last year prevented its two sophisticated cameras from being operated at the same time and threatened to shut down the entire satellite (SN: 8/13/83, p. 100).

A major factor in the speed-up was the National Oceanic and Atmospheric Administration's (NOAA) desire to keep pictures coming from one of the cameras, called a multispectral scanner (MSS), by launching its replacement as soon as possible. Also at stake, however, was the other sensor, a higher-resolution and spectrally broader device called a thematic mapper, which adds four channels of infrared imagery to make a wider range of distinctions among vegetation types, pollutants and other surface characteristics. Landsat 4 is still working, but since NOAA has chosen to keep the MSS in operation to provide continuity of the data, no images have been made with Landsat 4's thematic mapper since last Nov. 18.

Aboard the new satellite (Landsat D', soon to be renamed Landsat 5), meanwhile, both cameras are operating, although the TM's infrared channels and their necessary communications route through a complex data-relay satellite will not be tried out for a few weeks.

But then what? No more Landsats are presently planned (although NOAA is thinking about seeking funding for another), and controversy still rages over whether Landsat's kind of remote-sensing

activities should be retained by the government or turned over to the private sector. Proposals are due at NOAA later this month from interested private firms and consortia, but the matter is far from resolved. One concern is over whether development of improved sensors for future satellites would suffer if the government got out of the business, particularly if the market for the data turns out not to be so large as some projections have indicated.

Launched on the same rocket as Landsat D' was a satellite called UOSAT-B, developed at the University of Surrey, England, for scientific and educational use by amateur radio operators and others. It fell silent after three orbits, however, and controllers this week were trying various ways of bringing it to life. —J. Eberhart

## Ariane launch ESA's last

The tenth of Europe's Ariane rockets, which carried an Intelsat V communications satellite into orbit on March 4, was the last to be launched under the auspices of its original parent organization, the European Space Agency. Beginning with flight 11, now scheduled for May, responsibility will shift to Arianespace, a specially created private company whose shareholders include the 36 major European aerospace firms, 11 European banks and the French space agency. Arianespace will also become responsible for producing the rockets themselves and marketing the launch services, and has already taken firm orders for 25 satellite launchings and options for 15 more. □