

GENERAL SCIENCE

Hybrid Yeast Forms

Other Science Talent Search winners study soilless gardening, flat wall paints, learning rate of hamsters and luminescent glazes.

Talented youngsters from high schools throughout the nation are now in Washington for the Eleventh Annual Science Talent Institute, competing for top scholarship awards. For other reports of their achievements for which they were awarded a five-day trip to the nation's capital, see SNL, Feb. 23.

Tries to Hybridize Yeast

► AN INVESTIGATION into methods of producing hybrid forms of yeast was the scientific project of Wilma P. Laufer, 17, one of the top winners in this year's Science Talent Search.

Yeast, the Forest Hills (N. Y.) High School senior explained, is very difficult to hybridize. Some types are not capable of being hybridized. She worked with three types of lager yeast and two types of ale yeast.

She tried several methods of producing spores from the five different yeasts. Sporulation, she explained, is necessary to hybridization.

By only one method was a fair amount of spores obtained in all the yeasts. She concluded that the lager yeast differs from the ale yeast, in such ways as to indicate that some forms of the lager yeast have lost their ability to form spores.

Plants Without Soil

► PLANTS GROWN without soil can withstand transplanting better because they are able to produce better-developed root systems than do plants grown the old-fashioned way.

This is the conclusion of Mary B. Boat, 18, who has studied the soilless growth of radish seedlings.

The Poughkeepsie (N. Y.) High School senior divided her radish seeds into four groups. Three were raised by soilless culture, the fourth, a control group, was sown in soil.

Miss Boat kept records of the time of germination of the different groups of seeds, of the average heights of the seedlings, of the root development and the leaf color.

She found indications that soilless culture produced earlier germination, probably because less weight was bearing down on the seeds and more oxygen was able to get to them. Damping off, she said, was virtually eliminated in the three groups grown without soil.

The readily available food in the nutrient solution on which the soilless plants grew and the ease with which roots can grow in pure sand, vermiculite or water promote a compact root system, she pointed out, which makes for easier transplanting.

Constructs Counter

► EXPERIMENTATION with radioactivity was the scientific project of 17-year-old David Y. Smith, a Mont Pleasant (Schenectady, N. Y.) High School senior. He first became interested in radioactivity when, as president of his science club, he had to answer questions of the other members.

He constructed his own Geiger counter and then went about his home, listening for radioactivity. Outside of an occasional cosmic ray, all he found to activate his Geiger counter were the luminous paint on an old watch dial and the luminous end of an electric light chain.

So he bought some radioactive carnotite. With this he carried out two systematic

experiments: The relation of radiation intensity as a function of the distance from the source, and the relation of the absorbing power of the metal as a function of the thickness.

He plotted both experimental and theoretical curves on graphs to demonstrate these relationships.

Tests Wall Paints

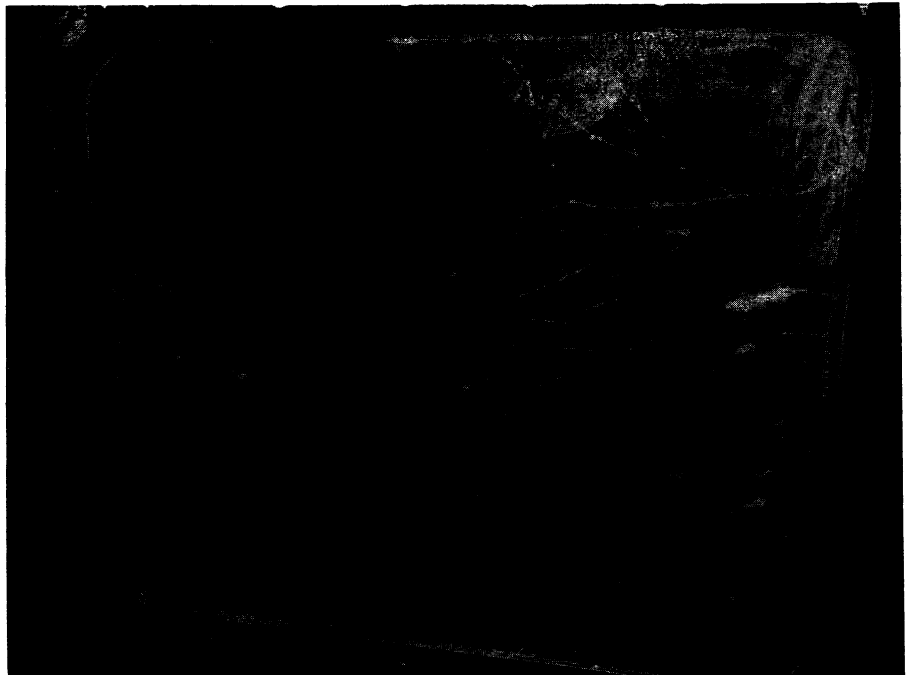
► RALPH E. GRISWOLD, 17, tested three kinds of flat wall paint to find out how they compared in durability, looks, resistance to water and other qualities.

The young scientist built several of his own instruments to make the tests. The three paints he tested were a standard oil-base flat wall paint, a latex-resin emulsion flat wall paint and a resin emulsion flat wall paint.

The Northside (Atlanta, Ga.) High School senior found that the standard oil-base paint had good brushing qualities and satisfactory hiding power. It took 23 hours to dry as compared with four and three hours for the latex-resin paint and the resin paint, respectively.

The resin paint, which is sold as a paste and is mixed with water, applies easily and demonstrates outstanding hiding power, the young scientist said. However, the surface qualities of the paint were unsatisfactory, he found.

The latex-resin paint, he reported, resisted soiling better than the other two, but



CRACKED WINDSHIELD—Uneven temperature distribution caused this electrically-heated windshield panel to fail during test flight on a Boeing C-97 Stratofreighter. Windshields have now been improved to eliminate this defect. (See opposite page.)

the standard oil-base paint was more resistant to water than the others.

Hormone Injections

► **ROOSTERS STOP** crowing, their tail feathers droop and their combs wither away when they are injected with female hormones. Their meat seems to be more tender when they are killed and eaten.

Sixteen-year-old Charlotte A. Eddings, found this out in experiments with four young roosters. Two of the roosters were injected under the skin of the neck with pellets containing 12 milligrams each of the female hormone. The other two were used as controls.

Hardly two weeks after the injection the "caponettes" had lost the liveliness common to the roosters used as controls. Eight weeks after injections, the effect was beginning to wear off and soon one made his first feeble attempt to crow.

There was little difference in weight from week to week between the caponettes and the controls. However, the young North Phoenix (Phoenix, Ariz.) High School senior said, this might not prove out with a large group of roosters.

The final act of the experiment was to kill one of the caponettes and eat it. Miss Eddings reports that its meat seemed to be more tender than ordinary rooster meat.

Hamsters' Memories

► **MALE HAMSTERS** can learn about as fast as female hamsters, but females forget more. These are the tentative conclusions of 15-year-old John R. Seaman, an Ocean-side (N. Y.) High School senior who took four Syrian golden hamsters, two male and two female, and put them through a four-by-six foot maze. Food was in the middle and the hamsters had to learn the maze to reach the food.

On each successive "lesson" the hamsters, both male and female, cut their time down at about the same rate, with the males, perhaps, being a little quicker than the females.

The animals completed 15 trials between May 2 and June 13 last year, cutting their time down from an original average of 551 seconds to 70 seconds.

After that they were given a rest during summer vacation and in September the young scientist tried them out again to see how their memories were. In the first four trials in the fall, the males averaged 99 seconds, the females 129 seconds.

Glowing Tiles

► **TILES WHICH** glow, under the proper activation, made from natural materials, were the subject of 17-year-old H. Rodney Hartmann's scientific project.

The New Brunswick (N. J.) High School senior attempted to make a luminescent

glaze out of natural phosphors he found in the surrounding countryside. He baked his experimental glazes in a ceramic oven at Rutgers University.

His conclusions were that such glazes are still in the experimental stages and need much work. He found that the luminescence seemed to vary inversely with the quality of the glaze—a glaze with superior covering quality seemed to glow with a lower intensity of the phosphor.

The young scientist pointed to a wide range of uses for his luminescent glazes, if perfected. These include, he said, a variety of decorative purposes, particularly in the form of mosaics. Also, they might be used in producing warning and directional signs, provided a cheap source of activation could be developed.

Plankton Movements

► **ZOOPLANKTON**—tiny organisms on which fish feed—do not all move up and down in lakes in the same way or at the same time. Russell Noyes, Jr., 17, discovered this in a survey of the vertical migrations of zooplankton.

As a rule, he pointed out, plankton migrate toward the surface at dusk and back toward the depths at dawn. In surveying the various kinds in five Indiana lakes, the young scientist found considerable variations in this general rule.

The University (Bloomington, Ind.) High School student found many factors affecting the way in which the various kinds of plankton migrate. Among these are the temperature of the water, dissolved gases, food, gravity, wind and the age of individual plankton.

One kind actually rises toward the light at dawn. Others do not seem to migrate at all, he found.

Caponized Fowl

► **ROOSTERS TREATED** with female hormones to make their meat tender and to increase their weight may have some effects on human beings if they eat enough of the meat.

This is the conclusion of 17-year-old Karl H. Muench, Evanston Township High School senior, Evanston, Ill., who fed stewed chicken caponized with chemicals to 24 golden hamsters.

It is a wide-spread practice, he pointed out, to put a pellet of female hormone under the skin of a rooster, near the head. Eating this pellet would be dangerous. However, the question still remains whether the rooster absorbs enough of the female hormone through the edible portions of the body to make the meat harmful to human beings.

"The evidence seems to favor the fact," said Mr. Muench, "that chemically sterilized roosters contain appreciable amounts of stilbestrol in their edible portions."

Science News Letter, March 1, 1952

● RADIO

Saturday, March 8, 1952, 3:15-3:30 p.m. EST

"Adventures in Science," with Watson Davis, director of Science Service, over Columbia Broadcasting System.

Dr. Alan Waterman, director of the National Science Foundation, discusses the "National Science Foundation."

ZOOLOGY

Antipodes Chelonians Arrive in California

See Front Cover

► **TWO INOFFENSIVE** plodders have arrived at the California Academy of Sciences.

The half-way-around-the-world travellers are registered officially as *Chelodina longicollis*. They poked five inches of necks out from under their six-inch carapaces for their first look at the U. S. They are rare, long-necked turtles found in rivers and streams of southern Australia.

The bright, yellow-eyed pair, now weighing about five pounds each, may eventually weigh nine pounds. They can grow to 14 inches with ten-inch necks.

Dr. Joseph Slevin, curator of herpetology, noted that long-necked turtles lay eggs in the dirt, scooping out nests by rapidly turning round and round, throwing out the sand or earth with their feet. Egg-laying time, 20 eggs to a setting, Dr. Slevin says, is in November. The young appear in February or March. Omnivorous in habits, they eat meat, fish, and vegetables.

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TECHNOLOGY

"Picture Drawings" Speed Production for Boeing

► **ISOMETRIC DRAWINGS**—which look like pictures but which have much of the accuracy of blueprints—are being employed by the Boeing Airplane Company along its B-47 medium-bomber assembly line in Seattle.

Company officials said the isometric drawings also were to be used when the company begins producing B-52 Stratofortresses, a heavy bomber.

The isometric drawings eliminate the necessity of a workman consulting several blueprints before he drills a hole. Shown in picture form, the design is so clear that even a "green hand" can see at a glance exactly where the hole is to be drilled.

For wiring and tubing illustrations, technical illustrators go inside an airplane which has been built and sketch the wiring and tubing runs against the background of the plane's interior. These drawings have cut installation time in half, the officials said.

The isometric technique was tried first during World War II in Boeing's Wichita plant.

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