PSYCHOLOGY

Students—Not Rats—Run Through Maze

➤ STUDENTS at the University of California at Los Angeles—instead of rats—are running through a maze. And they love it.

Approximately 350 vounteers at UCLA have run blindfolded through a 40-yard, serpentine maze as part of a continuing study of learning processes being conducted by Dr. Bryant J. Cratty, assistant professor of physical education.

Taking to the experiment in the spirit of a game, the students guide themselves through the maze by sliding their hands along two plastic railings placed waist high. Traversal time is the learning criterion.

One of Dr. Cratty's several objectives with the "fluid-patterned, locomotor maze" is to determine if there is a transfer of learning between fine motor movement, such as is involved in following a small maze with a stylus held in the fingers, and gross motor movement (running through the large maze).

If this is the case, and test results so far indicate that it is, then fine movement drills might be profitably used to speed learning in any spatial pattern task, including basketball plays, dance choreographies, or perhaps industrial skills.

Dr. Cratty discovered that verbal skills are useless in memorizing the gross motor maze (its fluid or "S" pattern prevents memory "clues" such as corners might provide), and that the tranquil, less verbose personality seems to be best suited for this type of learning.

• Science News Letter, 82:160 September 8, 1962

IMMUNOLOGY

New Anti-Cholera Vaccine Developed

➤ THE FIRST PHASE of human testing of a new type vaccine offering protection against cholera infection in mice has been successfully completed.

After extensive experimentation in animals, the new immunizing agent has been tried in a group of nine humans, including the two medical investigators who developed the vaccine. None experienced any significant toxic reactions and all produced substantial amounts of anti-cholera immune substances in their blood serums. The human trials were supervised by Dr. Etta Mae MacDonald.

The new vaccine was extracted from El Tor vibrio cultures during three years of research by Dr. Yoshikazu Watanabe of the Kitasato Institute of Tokyo and Dr. W. F. Verwey in the department of microbiology at the University of Texas Medical Center, Galveston, Tex.

The El Tor vibrio caused serious cholera-like epidemics recently in Hong Kong, Pakistan and Thailand. Last year an El Tor epidemic claimed more than 1,500 lives in the Philippines, which had been cholera-free for many years.

The new immunizing agent protects animals against both El Tor infection and true cholera infection, the research scientists said. Drs. Watanabe and Verwey pointed out that only extensive trials under field conditions in countries where cholera is prevalent will produce a true evaluation of the new vaccine in humans.

The new agent is a purified material, free of the toxic substances which are in the usual cholera vaccine, and laboratory experiments have proved it to be much stronger in its immunizing effect and less toxic.

A grant from the National Institute of Allergy and Infectious Diseases has been awarded to continue the work.

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PUBLIC SAFETY

Derbies Make Good Crash Helmets

➤ DERBY HATS for all pedestrians have been advocated by Dr. Francis E. Camps, a London pathologist, to reduce traffic deaths. He believes they could save lives as effectively as the crash helmets of motor cyclists.

Dr. Camps told a conference of leading doctors, lawyers, scientists and highway experts in London that many people run down by vehicles received fatal injuries, not from the initial impact but from head wounds suffered as they hit the pavement. The conference was sponsored by the British Academy of Forensic Science.

"Women could wear bowlers (as the English know the derby) too. It should be possible for millinery designers to create hard hats without loss of feminine charm," he said.

Dr. Camps also said the need for a safety belt is greatest in the "death seat"—the front seat beside the driver of an auto. But rear seat passengers require them too, a point that is often forgotten.

• Science News Letter, 82:160 September 8, 1962

TECHNOLOGY

Mechanical Thumb Mimics Housewife Testing Fruit

➤ FRUIT-PINCHING housewives may be replaced by automation.

A mechanical thumb has been developed by the U. S. Department of Agriculture to squeeze ripe fruit to test its firmness, as any good housewife does.

The mechanical thumb has a more sensitive "feel" for an apple than the thumb of the most talented produce expert, the USDA reports.

It can be more objective than humans since it has no emotional feeling and is not influenced by looks.

The "thumb" has a good performance record and can be duplicated to perform exactly the same as its brothers. Fruit inspectors, therefore, will be able to judge produce on the same basis.

It has such a gentle touch that only a slight indentation is left on the fruit and will not impair sales, Department scientists said. It takes very little training to use the thumb.

The thumb is being tested for several types of fruits and vegetables.

• Science News Letter, 82:160 September 8, 1962

IN SCIENC

PSYCHOLOGY

Sleepers Watch Dreams By Quickly Moving Eyes

➤ YOU WATCH your own dreams by actually moving your eyes in sleep.

Eight volunteers in Edinburgh, Scotland, were awakened on 103 occasions during 37 nights when rapid eye movement was observed by a University of Edinburgh psychologist. In 89 cases the dream was recalled and recorded on magnetic tape.

Another psychologist, also of the University, who had not been present, classified the dream reports as "active" or "passive" according to the nature of the events described, especially if he believed such events would have been accompanied by many shifts of gaze if they had occurred during waking periods.

Although skeptical of the association eventually found, the second investigator, after inspecting the whole set of records in a different order, confirmed association of 50 dream reports as active, with 42 relevant periods of rapid eye movement.

Drs. Ralph J. Berger and Ian Oswald reported the study in Science, 137:601, 1962.

• Science News Letter, 82:160 September 8, 1962

ASTRONOMY

U. S. Stargazers to View Sky From Argentina

➤ U.S. ASTRONOMERS will be able to measure accurately the position of the stars from the Southern Hemisphere at a new observatory being built in Argentina by Columbia and Yale Universities.

The new installation is being built in the eastern foothills of the Andes Mountains. It is about 80 miles southwest of the city of San Juan, at the hacienda El Leoncito. Construction of the foundations has started on land leased from the National University of Cuyo. Dr. Jan Schilt, Rutherfurd professor emeritus of Astronomy at Columbia, said that the site is 6,000 to 7,000 feet above sea level.

"The location was selected after a three-year study of possible sites, financed by the National Science Foundation," Dr. Schilt said. The observatory is being financed partially by the Ford Foundation.

"Most of the large observatories are located in the Northern Hemisphere," he said. "The new observatory will fill a gap consisting of about one-third of the sky, in which the positions of stars cannot now be measured precisely."

Professor Schilt said the telescope, now under construction in Rotterdam, actually is a twin telescope with two lenses, each 20 inches in diameter.

The new observatory, and housing for the resident in charge and attendants, is expected to be in operation by late 1963.

• Science News Letter, 82:160 September 8, 1962

E FIELDS

ASTRONOMY

Comet Believed Reacting With Sun's Particles

➤ A STRANGE-APPEARING comet that is believed to be reacting with particles thrown into space by the sun has been spotted in the solar system.

The comet was originally discovered nearly a year ago by Dr. Milton L. Humason, shortly before he retired from Mt. Wilson and Palomar Observatories, Pasadena, Calif. Observations by Dr. Jesse L. Greenstein, also of the observatories, show that Comet Humason (1961e) is in a "very unusual state."

Invisible clouds of particles from the sun, wrapped in magnetic fields, are ejected into space and move outward through the solar system as "solar winds." Dr. Greenstein believes one such cloud bumped into Comet Humason and stripped the electrons from its molecules.

Although the destructive effects of solar radiation on comets have been observed near the sun, this is the first time that such effects have been seen so far away. Comet Humason is about 240,000,000 miles from the sun, between the orbits of Mars and Jupiter, fourth and fifth planets outward in the solar system.

Special photographs show that carbon dioxide and carbon monoxide gases are being torn from the comet, and that most of its gases are carbon monoxide and nitrogen that have been stripped of their electrons, or ionized.

Because its gaseous tail is very tenuous, Comet Humason cannot be seen without binoculars or a telescope. It is low in the southern sky, of eighth magnitude. Observations of the object are needed from the Southern Hemisphere, Harvard College Observatory, Cambridge, Mass., reports in a bulletin telling astronomers of the Western Hemisphere of the comet's highly distorted form.

Comet Humason will not return to the earth's vicinity for 2,900 years.

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ENGINEERING

Plastic Coat for Dam Resists Water and Ice

➤ A PLASTIC COAT on the Suorva power-station concrete dam on the Stora Lule river in Arctic Sweden is protecting the structure from mountains of ice and tons of water.

Tests with an epoxy coating have shown its effectiveness for two years, the Swedish State Power Board has announced. A rubber coat of neoprene is also being tried on the dam.

The Suorva dam was built in the early 1920's and was reinforced just before World War II. However, owing to the severe climate and temperature variations, cracks soon appeared in the dam and it became necessary to undertake more repairs.

The choice was then between casting a new 10-inch arch onto the old one or adopting the new and considerably cheaper, but still untried, method of reinforcing with plastics.

Epoxy was chosen for its high elasticity, flexural strength, and resistance to water and wear. The choice has been justified, the State Power Board reported, because the epoxy resisted the attacks of ice and other severe stresses.

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SPACE

Moon Metals Could Power Spaceships

➤ ATOMIC FUEL from the moon or planets could power future space vehicles, two scientists proposed at a meeting in Colorado Springs.

"Second-hand" atomic fuel and parts from nuclear power systems could be used by astronauts instead of allowing them to be "wasted in space," A. L. Bethel and J. H. Bach of the Westinghouse astronuclear laboratory, Pittsburgh, suggested at the Seventh Symposium on Ballistic Missile and Space Technology at the U. S. Air Force Academy.

Nuclear systems do not "burn" their propellant by oxidation but rather by direct heating, Mr. Bach said. They should therefore be able to depend on whatever gas or mixture is nearest.

Use of propellants other than hydrogen would result in some loss in performance, but for a system already in orbit and not required to lift off a launching pad, this should not be a problem, he added.

A nuclear reactor should be designed to use unprocessed or waste materials left in space or taken from other planets, even if it has to be towed into space as "dead weight," the two scientists suggested.

• Science News Letter, 82:161 September 8, 1962

OCEANOGRAPHY

Ocean Currents Do Slow "Twist"

➤ SEA CURRENTS doing a slow "twist" in the waters off California have captured the attention of scientists.

Measurements by the Scripps Institution of Oceanography, La Jolla, Calif., show the California Current has a slow rotation, fluctuation or "twist" which varies with the time of day.

Dr. Joseph L. Reid Jr. reports in Deep-Sea Research, 9:1, 1962, that the twisting is completed in a 24-hour period and is probably associated with the movements and attraction of the moon, the same force which creates tides.

From a combination of this study and others scientists suggest that the "twisting" in the open ocean occurs only near latitudes where the movement of the ocean coincides with the movement of the tides.

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LIMNOLOGY

Crowded Marine Animals Become Tense

➤ CRAYFISH and other small water animals crowd together until there is just enough food and space to go around, then they become tense and jumpy, a zoology professor claimed in Madison, Wis.

The animals become tense, according to Dr. Richard V. Bovbjerg of the State University of Iowa, when the space they occupy is reduced, or when they get pushed around. And just like people, when this over-crowded situation occurs, they either become increasingly tense or they move out.

The less aggressive individuals or species of marine animals usually move, Dr. Bovbjerg said. If this emigration is within the species, those who are left behind remain as crowded as conditions will allow, still having enough food and space, he told the scientists gathered at the International Congress of Limnology.

They also fill up any voids or available space. In this respect, crayfish are just like humans in a city who build on any vacant lot.

• Science News Letter, 82:161 September 8, 1962

PSYCHIATRY

Buddy System Beneficial In Mental Institution

➤ MOTHERLY care of a fellow patient has been worked out in a buddy system of mutual self-help for elderly women at Northern State Hospital, a state mental institution at Sedro Woolley, Wash.

Thirty-four patients from 61 to 86 years of age were divided into pairs, the more capable looking after the less fortunate.

This buddy system answered fundamental needs of both those helping and those helped.

Elderly persons, Drs. Frederic Paul Kosbab and Marianne E. Kosbab pointed out in the American Medical Association's Archives of General Psychiatry, 7:135, 1962, have these outstanding needs:

1. Worthwhile and purposeful daily activities.
2. A general feeling of worthiness, or being needed.
3. Appropriate care if physical weakness, infirmities or ailments are present.
4. Being loved by others.

Each "Buddy Aid," as the helper was called, helped her "Buddy" follow the hospital routine and gave other assistance that did not require qualified nursing skill. The aids got satisfaction from being entrusted with responsibilities, while their buddies benefited from emotional comfort.

The aids were carefully chosen from those who had no dangerous symptoms, and the buddies were picked from those who were manageable. Difficulties were rare, and the researchers believe the system might be useful in nursing and rest homes.

Not only were the buddy teams helped, but the program relieved nurses of some minor tasks and gave them more time for duties requiring nursing skills.

• Science News Letter, 82:161 September 8, 1962