

Man May Learn to Be Ill

People may be able to learn to control their heart beats and other involuntary activities and thereby make themselves sick—By Patricia McBroom

► THE OLD QUESTION of whether or not people can learn to make themselves sick may be close to an answer. And the answer is probably yes.

If some Yale University experiments with dogs, cats and rats are any indication of human response, the way is clear to understanding why one person regularly faints before a test and another gets sick to his stomach.

Until now scientists have doubted that such "involuntary" activities as heart beat, blood vessel constriction and glandular secretion could be influenced by learning. They are, of course, affected by intense emotions—fear, shock or sudden anger. But could someone unconsciously "learn" to constrict his blood vessels and bring on a faint simply to avoid something unpleasant?

Dr. Neal E. Miller, eminent psychologist and a 1964 winner of the National Medal of Science, reported to the National Academy of Sciences meeting in Washington, D.C., that such learning is possible in animals.

He said rats can be taught to increase or decrease their heart rate by electrically stimulating certain pleasure centers of the brain. Intestinal contractions can be taught in the same way.

Thirsty dogs learned to salivate for water. Salivation is not a normal reaction to water as it is to food. Therefore the dogs had to be taught through many trials before they learned that salivation would bring water.

Applying the research to humans, Dr. Miller hypothesized: Two boys are afraid of an examination and manage to avoid it. One faints, the other gets stomach trouble. They are not consciously aware of it, but when they were younger they learned their mothers would react strongly to these signs of illness—one to fainting, the other to nausea. Either the maternal attention or the chance to escape something unpleasant was high reward and the boys learned to control these fundamental body functions—blood vessel and gastro-intestinal activity. Although hypochondriacs have long been suspected of being somehow able to make themselves ill, no one has known how this could be done.

Dr. Miller's work points the way to the development of a theory on psychosomatic illness. He said results show that this type of trial-and-error learning can probably extend to a variety of internal activities.

J. Trowill, Leo Di Cara, Alfredo

Carmona and Ali Banuazizi participated in the research supported by a grant from the National Institute of Mental Health.

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MEDICINE

Contraceptive Pills Can Correct Abnormalities

► BIRTH CONTROL pills apparently can correct abnormal conditions in the womb and breasts as well as act safely as contraceptives, Dr. Gregory Pincus of the Worcester Foundation for Experimental Biology, Shrewsbury, Mass., said.

Dr. Pincus, well known in the field of oral contraceptives, also told a National Academy of Sciences meeting that he has found no endocrine disease states as a result of year-in, year-out use of pills containing female hormones.

Dr. Pincus has completed a study of the effects of pills on 13,000 women in Puerto Rico and Haiti.

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ZOOLOGY

Homing Ability Strong In Some Trinidad Bats

► A PARTICULAR kind of bat in Trinidad has been setting records for finding its way home at night.

The tropical bat, *Phyllostomus hastatus*, has made several performances that are superior to any previous record for other bats, reported Drs. T. C. Williams, J. M. Williams and D. R. Griffin of the Rockefeller University and New York Zoological Society.

The bats' homing ability was checked by taking marked bats to specified distances from their home caves, then releasing them and clocking their time of arrival at the caves.

In one night, 34 out of 74 bats returned to their home caves from three to six miles away, 146 out of 257 returned from seven to 21 miles, and 29 out of 112 from 25 to 33 miles, the meeting of the National Academy of Sciences was told.

Although none of 50 bats returned home during the first night from a distance of 39 to 40 miles, six did so during the next few days.

Like other members of the bat family, the *P. hastatus* bats navigate mainly by a system of echolocation, a sort

of radar that enables them to find their way in the dark or when blindfolded. Bats, however, also use their eyes to orient themselves and find directions by sighting the sun, moon, stars and perhaps the 2,000- to 3,000-foot high mountains near their home caves in the West Indies.

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MOLECULAR BIOLOGY

New Process Discovered In Molecules' Dance

► A NEW PROCESS has been discovered in the endless, mysterious dance of molecules in living things.

Newest discovery in the molecular world of living animals and plants sheds light on how living cells assimilate carbon molecules in the complex process known as photosynthesis.

The new process has been discovered in the tiny bacterium, *Chlorobium thiosulfatophilum*, announced Drs. M. C. W. Evans, Bob E. Buchanan and Daniel I. Arnon of the University of California at Berkeley at the meeting of the National Academy of Sciences.

It has been known that carbon molecules are assimilated in plants and simple-celled animals by a process that continuously regenerates material to accept the molecules.

Until now, scientists have found that one complete turn of a certain chemical cycle incorporates one molecule of carbon dioxide, regenerates ribulose diphosphate and yields a net synthesis of one-sixth of a molecule of glucose, the Berkeley scientists said.

One complete turn of the reductive carboxylic acid cycle regenerates a molecule of oxalacetate and yields a second molecule synthesized from four molecules of carbon dioxide.

Oxalacetate may then be further metabolized through the cycle to provide up to six carbon compounds for the synthesis of amino acids, lipids or other basic materials of the living cell.

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MEDICINE

Allergy to Corn Often Remains Unrecognized

► CORN MAY be the cause of an allergy. However, it is present in so many food products that it is often difficult to spot it as the source of trouble, the American College of Allergists meeting in Chicago was told.

Dr. Kenneth J. Johnson, Bismarck, N. Dak., allergist, reported that 25 of 50 patients tested were allergic to corn. Symptoms include gastrointestinal reactions, headache, breathing difficulty, fatigue, runny nose and itchy eyes.

Dr. Johnson proposed a technique whereby a patient can give himself an injection of dilute corn extract to alleviate symptoms quickly.

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