

ANIMAL PSYCHOLOGY

Obese Laboratory Rats

► RATS, animals that ordinarily eat and drink only what they need to maintain normal body weight and health, can be "conditioned" to step up their intake of a nourishing liquid until they become markedly obese.

This was found when rats were trained in an experiment at Harvard University conducted by Drs. David R. Williams and Philip Teitelbaum. Dr. Williams has since moved to the department of psychology, Yale University.

One normal female rat was taught by conditioning to increase her weight almost 70%—from 240 to 406 grams. This would be equivalent to a gain of over 100 pounds in a 150-pound woman.

During the experiment the rat drank a daily average of 89 milliliters (ml.) of the nourishing liquid. Normally she would drink only about 48 ml. a day and she would show little or no gain in weight.

This is how the rats were taught to make pigs of themselves: First the rats were made thirsty. Then they were placed in an experimental cage where they were given a

mild electric shock every .9 second. A tube filled with a sugar solution was placed so that the rats could lick it by sticking their tongues through an aperture. A single lick on the tube would postpone the next shock for five seconds.

The rat soon learns that if he keeps on licking the solution, he can avoid the shock.

When the sugar solution was replaced with a quinine solution, the rat would lick the tube immediately after receiving a shock but did not learn to step up further his rate of licking the bitter stuff.

When plain water was used, the rats would take about 30 ml. in five consecutive hours even though they were not thirsty.

By using this technique, it is possible for scientists to control the amount and rate of liquid intake of rats when used as laboratory "guinea pigs." It is also possible to produce obesity at will in rats. Thus the rats could serve as "guinea pigs" in experiments designed to disclose the effects of obesity on the functioning of the body.

Details of the experiment are reported in *Science* (Dec. 28, 1956).

Science News Letter, January 12, 1957

MEDICINE

Music Is Wonder Drug

► MODERN MEDICINE is reviving an age-old healer, music, to bring new health to the sick.

Surgery, psychiatry, and just plain hospital boredom are benefiting from the new music therapy, according to a special report in the *Journal of the American Medical Association* (Dec. 29, 1956).

At Billings Hospital, in Chicago, a special sixth floor studio pipes in music to the operating rooms and patients can listen to their favorite selections through earphones. The night before the operation the patient gets to choose his "music for surgery," whether its classical, semiclassical or popular.

Music therapy helps children at the Denver, Colo., Children's Hospital whose arms are affected with polio and other diseases. They learn to play a piano by using one finger, their elbows, their fists, or their knuckles, the report states.

The new music therapy finds one of its greatest uses with the mentally ill. Music, "the ancient tranquilizer," brings response from many patients when nothing else will. Properly selected, it helps to relieve tensions and allay fears, and is widely used in many Veterans Administration hospitals.

Even so, it is still not recognized as "therapeutic in the true sense of the word" by most doctors.

"Music is only one of many avenues of approach to the patient when words alone, as is often the case, are inadequate," Dr.

Jules H. Masserman, professor of nervous and mental diseases, Northwestern University, reports.

However, true music therapy still does not exist, Dr. Emilian A. Gutheil, a New York City psychiatrist, states. No institution has yet gone through the careful step-by-step research to see just what effect certain types of music have, he said.

These causes and effects must be known "if we wish to write prescriptions for therapeutic music selections," the psychiatrist reported.

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MEDICINE

Anti-Cancer Drugs Make Cells Less Sticky

► TWO POTENT ANTI-CANCER drugs work by preventing cancer cells from clotting, the American Cancer Society has reported.

The two drugs, colchicine and bacterial polysaccharides, have been used experimentally to treat animal and human cancer cells, but up to now no one has known exactly why they work.

Dr. Edwin T. Nishimura and Joseph H. Baum, Northwestern University Medical School, have discovered that, when the drugs were injected into cancer-bearing mice, the individual cancer cells became less sticky. The protoplasm of the cells was

then unable to clot or gel, a condition necessary before the cells can divide and multiply.

Within 15 minutes after injection of the drugs, the viscosity or stickiness of the cells had dropped from one-third to one-half of its normal value, although the rate of cell division was not affected for five or six hours. Normal viscosity returned in less than 24 hours.

The drugs apparently affect only cells that are dividing or about to divide, the researchers reported. Cells not dividing at the time the drug is given can divide later and perpetuate the cancer, they found.

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