

PSYCHOLOGY

Mind Affected by Fear

➤ FEAR AND SUSPICION can turn even wild rats into abject "strap-hangers." These anxious animals stand on their hind legs by the hour, hanging like subway riders onto wires at the top of their cages. Even when their cages are left open, they make no attempt to escape. One animal even developed what would be called thumb-sucking in a child.

These strap-hanging rats just stand motionless with their noses thrust through the wire mesh of their cages, eyes fixed straight ahead. And they keep this posture for months, except when they are disturbed or when they eat or drink. Then they run around the cage a few times and go right back to their awkward pose.

The fear that drove the animals into this psychotic state was the fear of food poisoning, Dr. Curt P. Richter, of Johns Hopkins Hospital, told the Mooseheart Symposium on Feelings and Emotions at the University of Chicago.

If such a simple fear can produce such abnormal behavior in wild rats, what will mutual fear and suspicion between nations do to the minds of men in the countries involved in this atomic age, the scientific men at the meeting were speculating?

Dr. Richter is the scientist who, in the course of psychological experiments on the rat's ability to taste, discovered the potent rat poison ANTU. The terrified rats were some that had survived poisoning with ANTU or other poison which had made them very ill.

In later experiments, they were given a choice of eating from either of two food cups. One contained the poisoned food, the other was safe. It was found that the rats could recognize the poisoned food. But, nevertheless, they became suspicious of the unpoisoned food as well. This fear and suspicion is what led to their abnormal behavior.

The strange behavior developed in five out of 30 rats used in the poison experiments.

Science News Letter, November 6, 1948

Tension Sweeps Mobs

➤ THE POPULAR IDEA that crowds or mobs are always so swept away by emotion that they are incapable of rational behavior is a fallacy and should be abandoned, Dr. Franklin Fearing, of the University of California, told the same meeting.

The idea that the group generates an irrational mind or spirit is a notion that was abandoned by psychology in the 1920's, he said. It tends to de-value all collective behavior, and hence is a barrier to the understanding of the full creative possibilities of group action in a democracy.

It would be much better, Dr. Fearing suggests, to give up the use of the term emotion or emotionality as applied to crowds and substitute the concept of "tension."

Science News Letter, November 6, 1948

PSYCHOLOGY

Neurosis from Monotony

➤ SHEEP and goats do not worry as we do, but monotony and a rigid time schedule can drive them into a nervous breakdown. This is what Dr. H. S. Liddell of Cornell University has observed in animal experiments reported to the Mooseheart Symposium on Feelings and Emotions in Chicago.

Their state of chronic, unrelieved tension may be severe enough, Dr. Liddell found, to alter their behavior not only in the laboratory, but in the pasture and the barn for years or for life.

The animal neurosis developed in the course of classical experiments on conditioning first developed by the Russian psychologist Pavlov.

The animal, put into a harness during his daily training, soon learns to control his restlessness and to remain quiet in spite of occasional mild electric shocks on the foreleg. If the shock is regularly preceded by a signal, the animal soon learns to flex his foreleg in anticipation of the shock that is to follow. He will "remember" to do this

for at least three years without practice.

All this is harmless enough. But a neurosis is brought on when the shocks are given with monotonous adherence to a strict time schedule.

If the shocks are applied every two minutes exactly, the animal "freezes" into a state of rigidity like that which physicians see in humans sometimes and call "conversion hysteria."

If the shocks are separated by a constant time interval of five, six or seven minutes, the result is a chronic state of diffuse agitation. In the first case the heart rate is slow, in the second it is rapid and irregular.

Even when the animal is given complete freedom of movement during the experiment, the shocks at regular two-minute intervals will make him go and stand rigidly against the wall exactly as if he were held in the position with the restraining harness.

The presence of his mother may protect a young animal from the psychological danger of this monotonous regimen, it was

found. Twin goats a few weeks old were subjected to the experiment using two-minute time intervals. One was alone in the room when the test took place. The other had his mother's company. The solitary twin developed neurotic manifestations; the other was saved by his mother's presence.

"In our culture," Dr. Liddell said, "the demand for precision of psycho-motor skills and the monotony involved in their co-operative exercise may, we believe, endanger the functional integrity of the nervous system. Our program of investigation may aid in discovering a prophylaxis for the necessary evils of our present mechanical, rigidly time-structured mode of living."

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BIOCHEMISTRY

Adding Special Sugar Helps Body Utilize Fats

➤ FORTIFYING butter, oleomargarine and other fats by adding a special sugar to them may become the next step toward improving our diets, if research by Dr. Curt P. Richter of the Johns Hopkins Medical School in Baltimore proves applicable to humans.

Rats, Dr. Richter finds, make much better use of fat as nourishment when they have a little of the special sugar to go with the fat. The special sugar is galactose. It is found in milk sugar and can be converted to lactose.

The studies bring out a hitherto unsuspected relationship between fat and galactose. The findings also reverse some by other scientists who reported a few years ago that fat played an important part in the utilization of galactose.

Dr. Richter's studies, reported in the journal, SCIENCE (Oct. 22), were made by the "single food choice" technique. Rats of standard weight and under standard conditions are put on a diet consisting of only one foodstuff and water. The length of time the rats survive is taken as a measure of the nourishing value of the foodstuff.

Rats on no food at all survived an average of 4.3 days. With only galactose, the special sugar, for food, the average survival was 6.2 days. On oleomargarine alone, the average survival was 32.4 days. On galactose and oleo it was 69.3 days.

The calories furnished by the sugar were not responsible for the longer survival, because rats allowed to eat as much as they wanted of both oleo and sugar ate very little of the galactose. For some animals it furnished only five percent of the total calories and some ate none at all for 15 days.

Butter was not used in the experiments because they were started during the war when not enough butter was available. Preliminary experiments with corn oil instead of oleo have so far given essentially the same results.

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