

PSYCHOLOGY—PHYSIOLOGY

Vitamin B Found to Protect Nerves Against Intense Noise

Londoners Living Amid Shrieking Sirens and Bursting Bombs May Be Saved from Jitters by New Enriched Bread

LONDONERS having to live day and night amid the shrieks of air-raid sirens, the scream of dropping bombs and the roar of explosions may be saved from jumpy nerves if not actual breakdown by B vitamins that their government has added to flour and bread.

The part played by this essential vitamin complex in preventing damage to the nervous system ordinarily done by intense sound is revealed in animal experiments just reported (*Journal of Comparative Psychology*, February) by Robert A. Patton, of the University of Pittsburgh.

The noise used by Mr. Patton in his experiments was a buzzer kept always at exactly the same intensity. One minute of this noise was enough to throw Mr. Patton's rats into first the jitters, then an actual convulsive fit similar to epilepsy, and coma.

This effect of intense sound in producing convulsions seems to be peculiar to rats and some other non-human animals. Just what the effect is on the human nervous system is not definitely known to science.

When the rats received only their regular chow, which contains enough vitamins for ordinary health, they suffered a total of 111 fits from 112 exposures. In another group fed a daily supplement of vitamin B₁ (thiamin), this number was cut down to 82—a 26 per cent reduction.

A combination of B vitamins, B₁, B₂, B₆ (thiamin, riboflavin, and pyridoxine) reduced the number of seizures even more—40 per cent. The possible total of 80 fits in this second experiment was reduced to 48 in the animals receiving the extra vitamin B. The group which had only ordinary diet suffered the limit possible, 80 fits.

Brewer's yeast, which contains the B vitamins, also caused a drop in the number of epileptic fits from the total possible number, 112, to 74—a reduction of 34 per cent.

On the basis of these findings, Mr.

Patton suggests that the famous rats, that won for Dr. Norman R. F. Maier of the University of Michigan a \$1,000 prize awarded by the American Association for the Advancement of Science by demonstrating how "nervous breakdowns" occur, may have been affected by an inadequate diet. Since Dr. Maier's much publicized research, other psychologists have brought out the fact that rats can break down in a similar way from the effects of noise alone without any conflict situation. But this breakdown from sound is not considered identical with what occurs in the nervous breakdown of human mental patients.

It is difficult to translate Mr. Patton's results into human terms. Although the dietary needs of rats bear a close relationship to those of humans, the effects on the nervous system of the intense sound is quite different.

The noise of gunfire and bursting bombs produces in most normal animals, however, a violent emotional response which looks like terror. After a long exposure to such noise, this pseudo terror may become associated with almost any sound, and the animals are "jumpy". They may then be terribly disturbed by even the slightest sound.

"If the results with experimental animals have even a reasonably close bearing upon human physiology," Mr. Patton explained, "it is clear that a new approach has been provided for the study of performance under severe conditions of noise exposure in industry and in military service of such types as the tank corps, aviation, artillery fire, and sustained bomb attacks."

It might be expected that a large number of Londoners would develop an "allergy" to noise, but Mr. Patton's research seems to indicate that the British government's action in providing for addition of vitamin B to bread will contribute greatly to protection of the precious nervous systems of those in the firing line along the home front.

The experiments also show that mental upsets may be prompted by a vitamin

deficiency so slight that it could easily be overlooked in planning food for combat troops.

"Their diets are almost normal," Mr. Patton said. "The rats grow normally, and they are capable of reproduction. They look healthy.

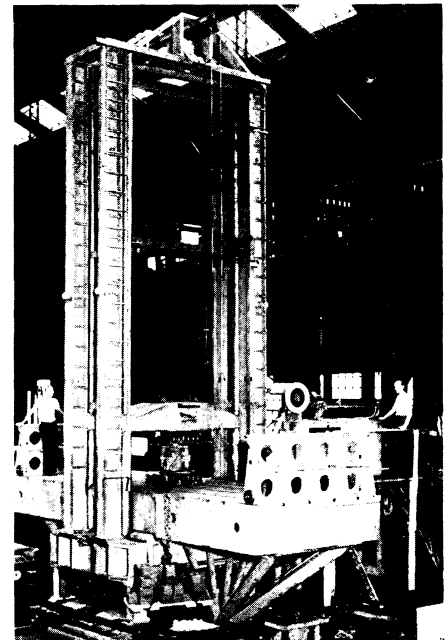
"It should also be remembered that they never become accustomed to the buzzer's noise. No matter how many times they are 'knocked cold' by it, they continue to react to it. We cannot blame this thing on surprise. It is a matter of fundamentally bad diet, and the only way to correct it is to correct the diet."

Mr. Patton's work was carried out in the psychology laboratories of the University of Pittsburgh under the direction of Dr. Harry W. Karn and Dr. Charles G. King. Financial support was provided by the Buhl Foundation of Pittsburgh.

Science News Letter, March 8, 1941

Important tin deposits are a reported discovery in Egypt's eastern desert.

Mechanized warfare enables 1,500 men to throw as much metal on a target now as 20,000 men could during the last war.



POWER WITH CONTROL

A new testing machine is so powerful that it can bend two parallel 12-inch steel I-beams, yet is so accurately controlled that it can crack a nut without crushing the kernel. It exerts a maximum pressure of 350 tons. It is made by the Riehle Testing Machine Division of American Machine & Metals, Inc.