

PHYSIOLOGY-PSYCHOLOGY

Hearing Equipment Has Safety Factor Approved by Engineers

NATURE, in building the hearing apparatus, used a safety ratio which would meet the requirements of modern engineering standards, Dr. W. J. Brogden, of the University of Illinois, told the Midwestern Psychological Association.

A loss of 50 per cent of an animal's auditory equipment reduces his hearing sensitivity by only 2 or 3 per cent, Dr. Brogden said. He was reporting an investigation on the hearing of cats conducted in cooperation with Dr. Edward Girden, of Brooklyn College, Dr. Fred A. Mettler, of the University of Georgia School of Medicine, and Dr. Elmer Culter, of the University of Illinois.

"It seems unlikely," said Dr. Brogden, "that a loss of 3 decibels in acuity would appreciably impair the animal's chances for survival; in which case we may properly speak of a safety factor of two.

"Indeed we may question whether the mortality-ratio among cats would be seriously increased by a loss of three-fourths of their normal acoustic equipment, that is by a functional attenuation in hearing of 16 to 18 decibels" (about 15 per cent).

Sounds travel four main highways in

their journey from the ear to the upper brain centers, for the impulses starting in each ear travel to both sides of the brain cortex.

Loss of one cochlea—the snail-shaped part of the inner ear essential to hearing—which closes two of the highways, is followed by a hearing loss of 3 to 4 decibels.

Loss of one side of the brain cortex, also closing two highways, results in a hearing loss of the same magnitude. The experiments indicate that the left hemisphere may be slightly superior in acoustic value to the right, but there is no great difference.

Loss of one cochlea plus loss of the brain cortex from the other side (closing 3 paths) results in a loss of only 16 to 19 decibels.

Loss of one cochlea plus loss of the brain cortex from the same side results in a loss of only 13 to 14 decibels.

Since, in these last two cases, only a single one of the four highways to the upper brain centers remains open for the hearing impulses, the small impairment to hearing indicates a safety-factor which compares favorably with that found in other physiological systems and with good engineering practice.

Science News Letter, June 13, 1936

PUBLIC HEALTH

Married People Healthier, Live Longer; Study Shows

IF YOU want to live long and be healthy, get married.

Figures showing that the married state, whether blissful or not, is at least a healthy one, are reported in the current issue of the Metropolitan Life Insurance Company's Statistical Bulletin.

"Marriage, apparently, is conducive to long life and good health," the report states. "At any rate, married men and women live longer than do single persons, and married people register lower death rates from nearly all the important causes of death than do bachelors or spinsters.

"We would expect these findings to emerge from any statistical study of

mortality according to conjugal condition, for married persons constitute a selected group. 'The lame, the halt, and the blind' do not marry, as a rule. Nevertheless, the differences between the respective death rates of wedded and single persons are so large that this factor of selection can be only a partial explanation of them.

"It would seem that the relatively staid and regular course of married life is more conducive to health than are the comparatively free and easy ways of the unmarried.

"Among males over 15 years of age, the standardized death rate for bachelors

is 1,218.2 per 100,000 as compared with 855.9 for married men.

"Among females the standardized death rate of spinsters is 1,039.1, as against 856.6 for the married of all ages."

The death rates for influenza, pneumonia, tuberculosis, chronic heart disease, kidney disease, apoplexy, ulcer of the stomach, alcoholism and suicide are appreciably higher among the single than the married, showing that ways of life among the single are not so healthy. Cancer, on the other hand, which so far as known is not subject to control by living habits or environment, except in certain very special cases of industrial hazards, shows relatively little difference in mortality between married and single persons.

Reasons suggested for the healthier and longer life of the married are greater regularity of sleep, meals and recreation; sense of responsibility on the husband's part which makes him avoid known sources of infection and hazardous adventures; and the solicitude of married couples for each other's health which "often insures timely medical attention to conditions which, in single individuals, are likely to be ignored until the damage is beyond repair."

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PLANT PHYSIOLOGY

Some Perfumes Help, Others Harm Plants

PLANTS are aided in their growth by certain odors, harmed by others, reports Dr. Madaus, of the staff of the Radebeul Biological Station, near Dresden. Seedlings of rye, lupines and cress grew much more rapidly when exposed to the scent of ripe apples. The odor of peppermint, on the contrary, had a marked depressing effect.

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THE IDENTITY THEORY

By Blamey Stevens

Is time a fourth dimension of space? Or is it the same thing as space, but expressed in one dimension instead of three? This is a fundamental question that no physicist can afford to evade. The answer to this question affects the interpretation of many results in experimental work. For example, the validity of the electron-volt as a measure of kinetic energy, or the reliance to be placed on the mass spectroscopy.

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