

PHYSIOLOGY

Appetite Center in Brain

Spot food intake center in brain's hypothalamus. Damage of this organ at one point increases appetite tremendously, while injury at nearby point cuts off food intake.

► A PLACE in the brain that controls how much you want to eat has been discovered. Its location and action were announced by Dr. C. N. H. Long of Yale University at the meeting of the American Philosophical Society in Philadelphia.

This appetite center, or food intake control center, is located at the base of the brain in a structure called the hypothalamus.

Damage or destruction of one part of this appetite center may cause such a voracious appetite that an animal will eat twice or three times the normal amount of food. This soon leads to such a marked degree of obesity that the body may ultimately contain 70% of fat.

Damage slightly to the side of the voracious appetite spot causes an abrupt and permanent stop to all food intake. An animal with damage in this location will starve itself to death in the presence of an abundant food supply. Animals voracious because of damage to the first, more central spot also stop eating when the spot on the side is destroyed.

"It would appear," Dr. Long stated in reporting these discoveries by himself and his associates, "that there exist in the hypothalamus two areas, in close proximity to each other, which exert opposite effects on food intake." One may be regarded as inhibiting, the other as stimulating the body mechanisms that "ultimately convey the sensations of hunger or satiety to the realm of consciousness."

"There is little doubt," Dr. Long said, "that the activity of these primitive regulatory mechanisms may be modified by impulses reaching them from other areas of the brain and that this accounts for the marked effect of the sight, smell and taste of food upon appetite. Furthermore, dietary habits and social customs can and do produce alterations in food intake which may be contrary to the well being of the organism."

"The fact that certain hypothalamic lesions cause voracity and ultimate obesity may be used to produce experimental animals in which the consequences of this condition may be compared to those occurring in obese humans."

"It has been found, as in the case in man, that such obesity not only shortens the life of the animals but is associated with the appearance of diabetes, cardio-vascular renal disease; conditions which are of infrequent occurrence in normal animals."

"Since, in this country, obesity has become one of the major contributing factors to the increased evidence of these so-called

degenerative diseases, its experimental production in animals affords an opportunity for further study of the reasons why excessive food intake ultimately leads to the premature failure of the essential organs of existence."

Science News Letter, May 2, 1953

CHEMISTRY

Better Reactor Materials By Quick Freeze Studies

► BETTER MATERIALS for use in nuclear reactors for atomic power production are expected from studies of the quick freezing of ceramics at the Argonne National Laboratory, Lemont, Ill.

George B. Eyerly and Wingate A. Lambertson have developed a new kind of high-temperature furnace. In it, they can heat ceramic materials to 5,000 degrees Fahrenheit, then suddenly quench the materials by

plunging them to 320 degrees below zero.

Changes in the structure of the ceramic materials that occur because of the high temperature are "frozen" for future study at room temperature by the quenching operation. Such studies aid in developing construction materials for nuclear reactors in the high temperature ranges. Speed of quenching in the 18-inch-high furnace has been found by high speed photography to be less than one second.

Science News Letter, May 2, 1953

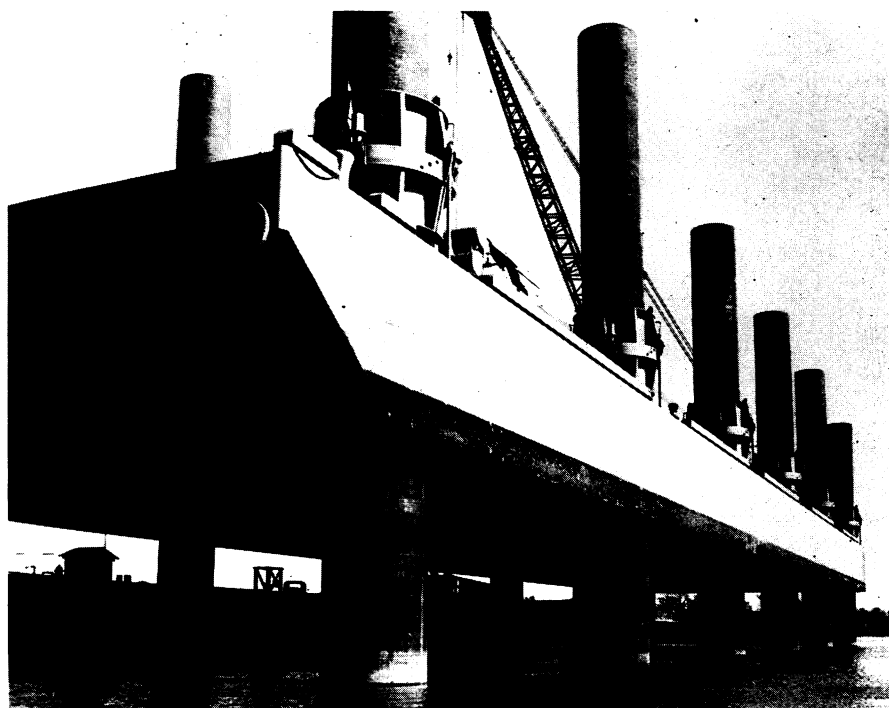
ENTOMOLOGY

Bed Sheet Is Signal For Traffic of Midges

► WHITE-SHEETED GHOSTS should not be troubled much with mosquitoes in Alaska—even if they did have blood to suck. Observations on the mosquito, *Aedes punctator*, in southeastern Alaska show that their great swarms are broken up when a white bed sheet is placed under them, Dr. W. C. Frohne, U. S. Public Health Service entomologist, reports in the *Mosquito News* (March).

The swarming midge, *Anatopynia algens*, on the other hand, is attracted to a light-colored surface, he said. When a white sheet was spread out near the midges, they gathered over it. When the sheet was picked up and moved along a 50-foot walk, the swarm of tiny midges followed it.

Science News Letter, May 2, 1953



DOCK-BARGE COMBINATION—This new type of steel dock, built as a barge, can be floated to its destination, then installed permanently on its jack-driven legs. The jack mechanism works on the same principle used to shimmy up a tree. The Army has ordered six larger models of the version shown here.