role in the nerve malady than is commonly believed. As common neurasthenic symptoms of too little thiamin, he cited poor appetite, fatigue, insomnia, and often with them irritability, nausea, depression, constipation, headache, backache, "gas" and palpitation of the heart.

Patients with paralysis agitans treated with still another part of the B vitamin, known as pyridoxin, have shown definite improvement, he reported.

Science News Letter, November 2, 1940

PSYCHOLOGY—PHYSIOLOGY

Air Raid Noise Not Likely To Harm Nervous System Cells

By DR. CLIFFORD T. MORGAN
Harvard University

This authoritative article was prepared especially for Science Service. Dr. Morgan has been studying intensively the possible effects on the nervous system of loud noises like those of explosions or the screaming bombs which have dropped on London. He recently reported to the American Psychological Association experiments in which rats were driven into epileptic seizures by the blast of a compressed air whistle set at such a high pitch that it was inaudible except for the whishing noise of the air.

IT IS unlikely that any real damage is done to the nervous system by prolonged auditory stimulation such as that to which the Londoner is exposed.

We get damage in the brain of rats only when the sound stimulation has resulted in an epileptic seizure, but this is probably due to the rupture of blood vessels in the seizure.

Such seizures seem to be peculiar to the rat and certain other infrahuman animals.

Aside from such seizures, high pitched sounds or sudden loud noises of guns produce in normal animals violent emotional responses which look like terror and which soon become associated with almost any noise so that animals which are exposed for a long time to such sounds become extremely jumpy and may be greatly disturbed emotionally by the slightest sound.

I should expect that a good number of Londoners will be affected in this way just as were soldiers in trenches during the last war. The Germans probably got the idea of the screaming bombs from the war neuroses of this sort which were numerous in the last war.

The effect may be greatly enhanced where there are additional conditions making for terror, and it may be reduced when a satisfactory adjustment has been made to non-auditory factors in a situation.

There is evidence to support this statement in rat experiments. The jumpiness produced by sound lasts for a considerable time in some cases. It quickly disappears in other animals, especially if they are given good treatment. Such more or less permanent effects of sound exposures are without doubt associated with functional changes in the nervous system but it is extremely doubtful that any material damage is done to nerve cells.

Prolonged very intense sounds may damage the ear but I do not know whether in the case of the Londoner the sound is intense and continuous enough to do this to a significant extent.

Science News Letter, November 2, 1940

PSYCHOLOGY—PHYSIOLOGY

Endurance of Loss of Sleep Tribute to Londoners' Stamina

LONDONERS could not endure the interference with sleep brought by nightly air raids and still go on with their work if they did not have splendid physical stamina and mental stability.

This is the opinion of Dr. W. A. Bousfield, of the University of Connecticut, a psychologist who has for years been studying the effects of loss of sleep and poor sleep on morale.

"Interference with sleep suffered by Londoners in districts subject to nightly bombing must inevitably produce a chronic condition of sleep hunger with an attendant depression of mood," he said.

Experiments by Dr. Bousfield have revealed that not only quantity of sleep but also quality, regularity and continuousness are related closely to the individual's sense of well being. Interference with any one of these is sufficient to alter mood noticeably and to induce feelings of tension.

"The Londoner," he said, "allowed only short naps in an air raid shelter, loses out on all factors conducive to the full benefits of sleep.

"It requires greater effort for him to concentrate, and muscular exertion becomes more difficult.

"Only by virtue of strong motivation and emotional zeal is it possible to maintain the increased effort necessary to counteract this loss in efficiency. Many individuals respond to such a state with a compensatory hilarity, thus making the difficult situation easier to tolerate.

"That the British have been able to endure prolonged interference with their sleep is a high tribute to their physical stamina and their inherent stability."

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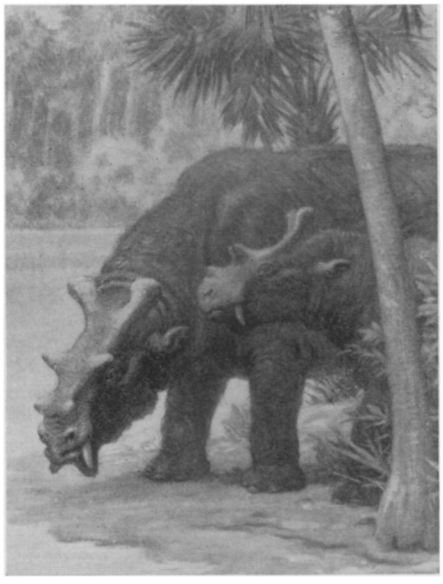
PALEONTOLOGY

Nearly Complete Fossil Of Uintatherium Found

PRIZE fossil find of the season, a nearly complete skeleton of the elephant-sized six-horned beast known as Uintatherium, that dominated the primitive forests about 30 million years ago, has been dug up in southern Wyoming by Dr. Charles L. Gazin, Smithsonian Institution paleontologist.

Bones of this strange giant mammal are common enough, but a skeleton with only a few parts missing is one of the greatest of scientific rarities. Dr. Gazin's find lacks only one hind leg, part of a foreleg, and the neck vertebrae. The yard-long skull is in exceptionally good condition, although the lower jaw is considerably crushed. There is also a second skull, including one of the beast's saber-like down-pointed tusks about a foot long.

"We were fortunate in the location of our specimen," Dr. Gazin informed Science Service. "It was in the side of a steep hill only about a quarter of a mile from a road. We ran a truck from the road up a dry creek bed right to the foot of the hill, and dragged the bones down to it on canvas. As finally boxed up and shipped to Washington, the bones filled four 500-pound cases."



UINTATHERES

This restoration painting, made by Charles R. Knight for the Field Museum of Natural History, gives an idea of what these monstrous, lumpy-headed beasts must have looked like.

The skeleton is expected to become one of the prize exhibits in the U. S. National Museum, after it has been worked free from the matrix of hardened clay in which it is embedded, and properly mounted up. This work may require as much as a year.

Uintatheres probably dominated the woods of the West in mid-eocene time, approximately 30 million years ago, as elephants dominate the forests of India today. They were nearly as large as elephants, although their general outlines more nearly resembled those of a giant rhinoceros. However, they were not at all closely related to either, or to any other animal now in existence. Their whole line passed suddenly out of existence, many millions of years ago—no one knows why.

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PHOTOGRAPHY—PHYSIOLOGY

You Can Use Your Eye For Photo Exposure Meter

THE PUPIL of the eye becomes a photographic exposure meter with the aid of a small mirror on which are a series of black spots. (*Monner Meter Co.*, Rapid City, S. D.) These correspond to different intensities of light, and different exposures.

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In *"bleeding tooth"* shells, what resembles baby teeth are really part of the hinge for the trap door.

METALLURGY

Speed Laws for Metals Measured by New Device

Testing Machine Provides Data on Creeping Qualities Of Steels and Alloys Subjected to Heavy Loads

"SPEED LAWS," concerning the extent to which metals will stretch under heavy loads in machinery over a period of years, can now be determined in tests requiring from 15 minutes to a few days. The testing machine used in these measurements was described by Dr. A. Nadai, consulting engineer of the Westinghouse Electric and Manufacturing Company's research laboratories at East Pittsburgh, Pa. He spoke before the meeting of the Society of Rheology in New York. This is the branch of physical science which deals with the deformation and flow of matter, a subject important in many phases of science and engineering.

In building steam turbines, for instance, parts which are subjected to ten years of service at a temperature of 1,000 degrees Fahrenheit must not stretch more than a tenth of one per cent during that time. Formerly, to test materials for these parts, three to six months were required.

"This new testing machine," explained Dr. Nadai, "will permit engineers quickly to assemble a vast library of intimate data on the creeping properties of a variety of steels and other metals and alloys, so that the designer may select the exact metal that will stand up under the service to be expected of it."

In a typical test with the device, a half-inch-diameter cast carbon-steel bar was subjected to a pull which was gradually increased to about six tons. All the time, an electric furnace around the specimen kept the temperature at 850 degrees Fahrenheit. In four minutes the bar stretched about a tenth of its length. With a pull of only four and one-half tons, four days were required for the same stretch. Dr. Nadai finds that the difference in speed between the slow-moving turbine parts and the relatively rapid deformation of the steel plates in a rolling mill is about one quadrillion (1,000,000,000,000,000) to one.

Since it is known that large rock masses in the outer layers of the earth's crust change shape by creeping, Dr. Nadai suggested that these same laws may apply in geology as well.

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Machine Studies Relaxation

AT ANOTHER session of the meeting, W. E. Trumpler, also a Westinghouse engineer, told of tests to determine what happens when steel parts are held rigidly in a strained position while they relax. Examples of such parts are the bolts holding gasoline engines together. Another machine simulates such conditions.

A test piece, the size of a lead pencil, is pulled with a force of three and one-half tons while heated to 1,000 degrees or more. As it starts to stretch, the machine automatically prevents any change, by reducing the pulling force. Thus the test may continue for a week, the force being lessened enough to restore the original length with every stretch of a few millionths of an inch. A graph, drawn on a sheet of paper, gives a record of the relaxation. By such tests, said Mr. Trumpler, "we shall know just how large a bolt must be used, and how firmly it must be tightened to prevent loosening during years of service."

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ARCHAEOLOGY

Pre-Christian Era Village Just Found in Canada

DISCOVERY of a prehistoric village in Canada, apparently inhabited by Indians centuries before the dawn of the Christian era, is reported by Dr. Emerson F. Greenman, archaeologist. Dr. Greenman has been leading a University of Michigan exploring expedition in the Georgian Bay region of Lake Huron.

Implements of quartzite revealed the presence of aboriginal settlement. Evidence of antiquity is the fact that what was then a beach is now high and dry, 297 feet above water. Before an accurate date of the village's life can be determined, the region must be studied by geologists, Dr. Greenman stated.

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