



### 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

**T**HE 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

**“S**PEED 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

**A**T 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

**D**ISCOVERY 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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