

kind of zoological second-cousin to the pig, but not a direct descendant.

Another line of animals which like the hippopotamus now exist only in Africa but are represented by fossils in the Siwaliks are the giraffes. Some of the extinct giraffe-like animals that once lived in this part of India had astonishing arrays of horns on their heads, instead of the pair of rather insignificant little stumps that crown modern giraffes.

As traced by Dr. Colbert, the earliest ancestors of the giraffe line originated in Asia. Their first offspring-genera migrated into Asia Minor and Europe. Some of their descendants, in turn, went back into Asia, as the bizarre, many-horned species of the Siwalik Hills, while two other lines of descent passed into Africa, where they still survive as the giraffe and the okapi.

*Science News Letter, August 24, 1935*

## PALEONTOLOGY

## Giant Turtle and Mosasaur Found in Alabama

**G**IANTS that were deadly enemies in the warm seas of the world 70,000,000 years or so ago have been found as fossil skeletons in the rocks of Alabama by Dr. Walter B. Jones, state geologist and director of the Alabama Museum of Natural History.

They were a tremendous sea turtle, whose bones still bear the marks of an enemy's teeth, and a mosasaur. Mosasaurs were kin-beasts of the great dinosaurs that ruled the land, and they were themselves no less the tyrants of the sea. They were huge, short-necked, paddle-limbed reptiles, with powerful jaws like crocodiles and long, snaky, flat-tailed bodies built for speed and maneuverability in the water. The tooth-marks on the turtle's bones were doubtless inflicted by a mosasaur, which either caught and slew the turtle or found and devoured its body after death from some other cause.

Discovery of the fossil remains of these two sea giants in what has long been solid land in Alabama shows how far the sea transgressed the Gulf slopes of America during the Cretaceous, or Great Chalk Age, when they were living. The wide central valley of this continent has been invaded by the sea many times during the long ages of geology, and the records of these millions of years of ebb and flow are written in the sedimentary rocks.

Both skeletons were in a more or less broken-up condition when found, but the pieces have been carefully cleaned and fitted together, and are now on display.

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## ENGINEERING

# Sodium Lighting System Will Illuminate New Bridge

## Upper Deck to be Bathed in Light Equivalent to That of Thirty-Five Full Moons; New Lamps Very Saving of Power

**T**HE LARGEST installation of sodium vapor lighting in the world will be installed on the new San Francisco-Oakland Bay bridge.

More than 35 full moons would have to shine simultaneously to give the same average intensity of light on the upper roadways of the bridge, which will be reserved for passenger high speed vehicles. General Electric engineers who designed them claim the golden yellow light of the sodium units has the greatest optical efficiency of any lighting system in existence.

Small objects can be seen at low intensities with greater ease under the soft, diffused light of the sodium lamps than under any other kind, tests indicate, and at the same time they are far more economical than ordinary lights.

The 10,000 lumen lamps used on the upper level of the bridge will produce approximately two-and-a-half times as much light as ordinary lights of the same energy consumption.

On the lower deck the 6,000 lumen units which will be installed to light the way for trucks and slower traffic will produce twice as much light as that obtained from incandescent bulbs of the same energy consumption.

### Low Power Input

Lamps adding up to 6,720,000 lumens will be installed on the upper deck, and 1,500,000 lumens on the lower deck, making a grand total of 8,220,000 lumens for the entire bridge, the largest single order ever placed for sodium lights.

The new golden sodium lamps giving out 10,000 lumens require an energy input of only 220 watts, of which 185 watts or less goes to the lamp, the rest being used by transformers and other equipment. In comparison, ordinary incandescent lamps would require approximately 550 watts to produce 10,000 lumens.

Consisting of a special sodium-resistant glass, the bulb of the 10,000 lumen sodium lamp contains a small quantity of sodium and some neon gas.

When the lamp is cold, the first application of the current causes the neon gas in the lamp to glow brilliantly with its

characteristic red color. Thirty minutes is needed to store up enough heat to vaporize the sodium fully and cause the lamp to shed its characteristic orange-yellow light.

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## GENERAL SCIENCE

## Scientific Expedition Scales Hawaii's Highest Mountain

**M**AUNA KEA, loftiest of Hawaiian mountains, is being explored by an expedition of the Hawaiian Academy of Science. The slopes rising to its 13,784-foot summit are thickly crowded with dense forests and undergrowth, making the ascent difficult but at the same time affording unparalleled wealth to searching naturalists.

Data sought by the expedition are many-sided. The personnel includes students of botany, zoology, geology, geography, archaeology, forestry, and number of other sciences.

Amateur short-wave radio carried word of the Mauna Kea expedition to Station W3BWT in Washington, D. C., from Station K7EFW at Hilo, Hawaii. The message was signed by Dr. Constance Hartt, one of the botanists of the expedition.

*Science News Letter, August 24, 1935*

## PHYSIOLOGY

## Muscle Tone Differentiates Living Man From Corpse

**B**ESIDES the heart and the vasomotor mechanism — the system of blood vessels and the sympathetic nerves controlling them—there is a third factor important in maintaining the adequate blood circulation. It is the system of muscular reactions which promote the flow of blood back to the heart through the veins.

This is pointed out by Prof. Yandell Henderson, professor of applied physiology, Yale University.