

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

GIANTS 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.

Science News Letter, August 24, 1935

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

THE 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

MAUNA 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.

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PHYSIOLOGY

Muscle Tone Differentiates Living Man From Corpse

BESIDES 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.

"Clear evidence has only recently been developed that in the healthy body, even during complete bodily rest, the tonic contractions of the muscles maintain continually a pressure within the tissues sufficient to send a continuous stream of blood through the veins to the heart," Prof. Henderson said. "This pressure between the fibres of a muscle under tension arises in much the same way that pressure between strands of a rope is produced by a longitudinal pull upon the rope."

The tonus—which may be roughly described as the liveliness—of human

muscles, and thus of the whole body, distinguishes a living man from a corpse "more fundamentally than any other feature," states Prof. Henderson. Among influences which decrease tonus are anxiety, anaesthesia—particularly spinal anaesthesia—and surgical shock.

Tonus returns fully only with the recovery of vitality and health, Prof. Henderson adds. It is increased temporarily by frequent change of position—even turning over in bed—by strychnine and by inhaling carbon dioxide.

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report (*Biological Bulletin*, February), that in their laboratory experiments "sunlight has a feeble lethal effect on bacteria in the uppermost few millimeters of sea water, but even shallow layers of sea water are not sterilized by prolonged exposure."

"Virtually no bactericidal radiations penetrate sea water 3 meters," they continued, "and the intensity is materially reduced by passage through 10 centimeters of sea water."

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ARCHAEOLOGY

"Stone-Plated" Florida Mound Resembles Mexican Pyramids

COVERED with thick slabs of limestone, a rectangular Indian mound recently discovered on Key Largo, off the southern tip of Florida, has some features of resemblance to the much more highly developed pyramids built by the Indian nations of Yucatan and Mexico. It also has some suggestions of the type of mounds built in the Ohio and Upper Mississippi valleys by the ancient Hopewell Indians.

Preliminary examination of the mound has been made by Matthew W. Stirling, chief of the Bureau of American Ethnology of the Smithsonian Institution, who hopes to return and carry out a complete excavation next winter. Mr. Stirling also intends to investigate statements made to him by Seminole Indians, that there is another stone-faced mound in the middle of the Everglades.

The Key Largo mound is in the shape

of a very low, rectangular, truncated pyramid. The stone slabs, averaging six inches thick and roughly a foot and a half on the sides, are not dressed smooth but are fitted together as closely edge to edge as their natural shape permits.

The Maya and Mexican pyramids were much higher rectangular earth mounds, flat-topped and covered with stone-slabs, which, however, are dressed smooth and fitted into regular masonry courses. The mounds of the Ohio valley often have a few rows of stone laid about their bases, but the main structure was left as naked earth, over which grass and trees have grown.

A completely stone-faced mound is a wholly new thing in Florida, where all previously known structures of the kind have been simple heaps of sand.

The purpose of the Key Largo mound cannot be known until it is excavated. Some mounds contain more or less elaborate burials, others seem to have served as foundations or platforms for ceremonial buildings. The flat-topped, stone-faced pyramids of Yucatan and Mexico belonged to the latter class, usually bearing temples on their summits.

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BACTERIOLOGY

Sunlight Has Little Effect On Bacteria in Sea Water

BACTERIA that live in the sea are relatively safe from the action of sunlight, it has been discovered by Drs. Claude E. Zobell and George F. McEwen of the Scripps Institution of Oceanography, the University of California. They

FORESTRY

Portable Power Saw Makes Pruning Easier

LIFE grows easier for the forester. No longer will it be necessary for him to wear out his shoulders pushing and pulling a saw on the end of a long pole, pruning trees to make them produce better timber.

At the U. S. Forest Products Laboratory a light-weight power saw has been developed. It consists of a small gasoline engine, that drives a small circle-saw mounted on a long pole, by means of a flexible shaft. The whole kit can be dragged about the woods on a toboggan or light wheeled carriage.

Use of the portable power saw greatly increases the amount of work a forest worker is able to accomplish, and at the same time it produces cleaner cuts that heal over more quickly.

The new tool is described by John B. Cuno, of the Laboratory (*Journal of Forestry*, August).

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ECOLOGY

Mediterranean Fruit Fly Causes Rise of New Industry

AN INSECT from Europe has been responsible for the establishment of a new food industry in Hawaii.

The insect is the Mediterranean fruit fly, which caused a furor in the southern states a few years ago when it gained a temporary foothold in Florida. It has unfortunately long been established in Hawaii, so that most of the islands' fruits cannot be exported to the continental United States.

The industry is the manufacture of avocado paste, used in salads. Hawaii grows good avocados but the "Medfly" embargo keeps them at home. So the growers have turned to processing them into the palatable paste which is beginning to find an outside market.

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RIIS EXPEDITION

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