

a Power of Attorney to M. Carlier, of Paris, to receive moneys on account of the Michaux Legacy.

Donations for the Library were received from Doctor Zenaro, of Constantinople, the Union at Donauerschingen, the Prussian and Belgian Academies, Geographical Society at Paris, Annales des Mines, Revue Politique, the Meteorological Office and Nature of London, the Montreal Natural History Society, the American Academy, Natural History Society, and Old and New of Boston; Mr. Edmund Quincy, of Dedham, Massachusetts, the American Journal of Arts and Sciences; Doctor Squibb, of New York, the Franklin Institute, College of Pharmacy, and Penn Monthly, of Philadelphia, the Census Bureau at Washington, and the Historical Society of Georgia at Savannah.

An obituary notice of the late Doctor Rhoads, of Philadelphia, was read by Doctor Henry Hartshorne.

Professor Kirkwood's paper on the Origin of the Solar System, was read by the Secretary.

A letter from Professor Cope to the Secretary, on the Reptile and Fish remains in the State Museum of Kansas, was read by the Secretary.

Mr. Baird communicated his views on the cause of the decline of vegetable vitality in fruit trees, dating from the year 1860.

Mr. Lesley read a note on some supposed Egyptian letters, in the Dolmen of Manelud, in Brittany.

New nomination, No. 679 was read, and the meeting was adjourned.

*Note of some Cretaceous Vertebrata in the State Agricultural College of
Kansas, U. S. A.*

BY EDWARD D. COPE.

MANHATTAN, KANSAS, 1871.

MY DEAR PROF. LESLEY :

A visit to the State Agricultural College of Kansas at Manhattan, has enabled me to examine the cretaceous vertebrata contained in its collection. Professor B. F. Mudge, already well known by his interesting discoveries among the *Pythonomorph* reptiles and *Saurodont* Fishes, has

added to his collections by an excursion in the neighborhood of Fort Wallace, during the present summer. By his permission I have made an examination of these fossils, and find them to be of much interest. They consist of seven species of *Pythonomorpha*, and three of *Sauroidontidæ*. The following are approximate or exact determinations of them.

PYTHONOMORPHA.

MOSASAURUS quite near to *M. depressus*, Cope, from New Jersey.

LIODON DYSPOLOR, Cope, probably. The first time that this gigantic reptile has been discovered in Kansas.

LIODON; a large species near to *L. proriger*, Cope. It is represented by dorsal, lumbar, and caudal vertebræ, by ribs, and by bones of the extremities. The humerus is a remarkable bone having the outline of that of *Clidastes propython*, Cope, but is very much stouter, the antero-posterior dimensions of the proximal extremity being greatly enlarged. The long diameters of the two extremities are in fact nearly at right angles, instead of in the same plane, and the outline of the proximal is subtriangular, one of the angles being prolonged into a strong deltoid crest on the outer face of the bone, which extends half its length. The inner or posterior distal angle is much produced, while the distal extremity is a flat slightly curved diamond-shaped surface. The radius is as broad as long and three quarters of a disc. The phalanges are stout, thick and depressed, thus differing much from those of *Liodon ictericus*. A bone which I cannot assign to any other position than that of femur * has a peculiar form. It is a stout bone but more slender than the humerus. The shaft is contracted and subtrilateral in section. The extremities are flattened, expanded in directions transverse to each other, the proximal having, however, a lesser expansion, in the plane of the distal end. The former has, therefore, the form of an equilateral spherical triangle, the apex enclosing a lateral fossa and representing probably the great trochanter. The distal extremity is a transverse and convex oval.

M.

Length humerus.....	0.10
Proximal diameter do.....	.095
Length femur08
Proximal diameter do.....	.065
Median "035
Length centrum dorsal vertebra without ball.....	.061
Transverse diameter cup.....	.06
Vertical "053

LIODON LATISPINUS, Cope, sp. nov.

This is a large species, nearly equalling the *L. mitchilli* in its dimensions, that is forty or fifty feet in length. The remains representing it consist of seven cervical and dorsal vertebræ, five of them being continuous and enclosed in a clay concretion.

* Prof. O. C. Marsh has discovered the posterior limbs in this genus and *Clidastes* but has as yet published no description of them. See Sillim, Journ. 1871, p. 418.

These display the elongate character seen in *L. laevis*, etc., but the articular surfaces are transversely oval, thus resembling the *L. ictericus*. They are less depressed than in *L. perlatus* and *L. dyspelor*. The cup and ball of the penultimate cervical rise a little more transverse than those of the fourth dorsal. The last cervical is strongly keeled on the middle line below, and with a short obtuse hypopophysis marking the beginning of the posterior third of the length; the median line of the first dorsal has an obtuse ridge. There is no keel on the fourth dorsal. The diapophyses on the last two cervical and three first dorsal vertebræ have great vertical extent; the articular surface for the rib is not bent at right angles on the last cervical. Neural arches and spines are well preserved in most of the specimens. There is no trace of zygantrum. The neural spines are flat, and have considerable antero-posterior extent on cervical as well as dorsal vertebræ, and are truncate above. The first dorsal has a long strong rib.

	M.
Transverse diameter cup penultimate cervical vertebra.....	.051
Vertical diameter of same.....	.041
Length centrum fourth dorsal, without ball.....	.072
Vertical diameter ball.....	.0455
Transverse do0555
Elevation front margin neural spine penultimate cervical.....	.088
Antero-posterior diameter do do do do05

There are smooth bands around the balls and the surfaces of the centra are striate to these.

The depressed cups of the cervicals and anterior dorsals distinguish this species from the *L. validus*, *L. proriger* and *L. mudgii*. The same elements are much larger and more elongate than in *L. ictericus*.

LIODON, sp. near *ictericus*, Cope.

Represented in Prof. Mudge's collection by portions of cranium including jaws and quadrate bones, etc., with cervical and dorsal vertebræ.

CLIDASTES VYMANII, Marsh, probably.

CLIDASTES CINERIARUM, Cope. Dorsal and cervical vertebræ.

SAURODONTIDÆ.

ICHTHYODECTES, nr. *ctenodon*, Cope.

ANOGMIUS CONTRACTUS, gen. et sp. nov.? Saurodontidarum.

Represented by a large series of vertebræ and portions of fins of an individual of perhaps four feet in length. The characters of the vertebræ are those of *Ichthyodectes* in part, i. e. they lack the lateral grooves, but they resemble those of *Saurocephalus* in having the basal elements of the neural and haemal elements inserted by gomphosis and not coössified with the centrum. Specifically, the centra are relatively longer than in *I. ctenodon*, and more as in the shorter forms of *Saurocephalus*, as *S. prognathus*, which species the present one approaches in size.

SAUROCEPHALUS, nr. *prognathus*, Cope.



Cope, E. D. 1871. "Note of Some Cretaceous Vertebrata in the State Agricultural College of Kansas, U. S. A." *Proceedings of the American Philosophical Society held at Philadelphia for promoting useful knowledge* 12(81), 168–170.

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