

drawn with caution, since but few marked maxima have as yet been interpreted. True, the rain minima may in a general way be associated with atmospheric 'lows,' while the maxima on the 10th (and others in less marked degree) coincide with 'highs.' In so far as the cyclone and anticyclone may be regarded as upcast and downcast shafts, the supply of nuclei would seem to come from above. But as the rain minima admit of an independent explanation, and the remaining evidence is naturally vague, any such inference is precarious. Whether, therefore, the nucleation is the triturate of the land and the seas (particularly the latter), with contributions from bacteria, or whether the ultraviolet light or other radiation at the boundary of the atmosphere is the efficient source, must be left for future determination. The data already go far to show that from long series of observations of the above character much may be learned. Recalling that the coronas were obtained in ordinary glass bottles and are, therefore, distorted, the present project of studying nucleation seems secure, particularly as plate-glass apparatus will not be difficult to construct. It is, therefore, my purpose to install a small permanent plant at Brown University, and I shall take occasion to report progress if any novelty of sufficient interest makes its appearance.

CARL BARUS.

THE LARAMIE CRETACEOUS OF WYOMING.

IN the paper by Mr. Lambe and Professor Osborn on the mid-Cretaceous fauna of the Belly River deposits of Canada recently noticed in *SCIENCE*,* Professor Osborn has concluded, from the evidence presented by the vertebrate fossils, that a portion, at least, of those deposits in Montana which have previously been referred to the Laramie are really mid-Cretaceous in age, and perhaps contemporary with the Belly River series. Mr. Hatcher more recently† has called attention to the fact that a similar opinion had already been expressed by him concerning the Judith River deposits, and he is now in-

clined to locate them much earlier than the close of the Fox Hills time.

The Laramie deposits of Converse County, Wyoming, have usually been placed at the end of the Fox Hills, but I am somewhat skeptical of this. I believe that future research will show that, not only the Judith River beds, but also those of Wyoming will be found to be contemporary, in part at least, with the Fox Hills deposits, and that they are not separated by so great an interval from these other deposits which have hitherto been supposed to be contemporaneous.

This conclusion I base largely upon the fauna of the Wyoming beds, which present, in some respects at least, a startling resemblance to that of both the Judith River and the Belly River series.

Hitherto, almost our only published knowledge of the Wyoming Laramie fauna is that derived from Professor Marsh's writings. Aside from the Dinosaurs, he has described from these beds various lizard, snake and bird remains, but has said nothing of a number of other interesting forms of which he must have known. I can only attribute this neglect to a belief on his part that these other forms were identical with those described from the other deposits which he believed to be of equivalent age.

Among the collections made by the University of Kansas in Converse County in 1895, and those obtained by Professors Baur and Case in the same regions, there is not a little of interest in this connection. Not only a number of genera, but also a number of species previously described from Montana and now recognized by Lambe in the Belly River deposits, occur here in the supposed much later deposits of Wyoming. It would seem almost incredible that so many of these should have persisted unchanged through the long interval represented by so many thousand feet of Fox Hills deposits, to say nothing of those of the Fort Pierre. I doubt if a parallel can be found elsewhere in vertebrate paleontology. It is true that many of these forms from both the Judith River and the Laramie are known only from fragmentary remains, and that future researches may

* *SCIENCE*, October 24, 1902, p. 673.

† *SCIENCE*, November 21, 1902, p. 831.

show specific differences in some of them, but the resemblance in any event is marvelous.

The Converse County collections of which I have spoken include more or less numerous representatives of *Chamops*, *Iguanavus*, *Coniophis* and *Cimolopteryx*, originally described by Marsh from these regions, together with others that are yet new, and the following which have been recorded from other deposits only:

Myledaphus bipartitus Cope.—This species, originally described from the Montana beds, is common in the Wyoming deposits. The teeth are variable in size, and seem to agree well with that figured by Lambe from the Belly River deposits by Lambe. It is of interest to add that the genus is closely allied to, possibly identical with, *Rhombodus* Dames, from the uppermost Cretaceous of Europe. Jaekel shows clearly that *Rhombodus* belongs among the Trygonidæ.

Accipenser albertensis Lambe.—The keeled and ornamented shield figured by Lambe from the Belly River appears to be identical with others in the Baur collection from Wyoming. I suspect that they belong with a fish different from *Accipenser*.

Lepidosteus occidentalis Leidy.—Numerous scutes, associated with opisthocœlous vertebræ, from Converse County can not be distinguished from this species, originally described from the Judith River and recognized by Lambe from the Belly River.

Crocodylus humilis Leidy.—This species was described from the Judith River beds, and is identified by Lambe from the Belly River. Numerous teeth, scutes and vertebræ from the Converse County beds can not be distinguished.

Scapherpeton tecton Cope.—The four known species of this genus are typically from the Judith River beds. Lambe has identified the above species from the Belly River. Numerous vertebræ and fragments of the mandible are in the Wyoming collections, among which I recognize this species.

Champsosaurus.—This genus is well represented in the Laramie collections.

Aublysodon (*Deinodon*, preac.).—Teeth of carnivorous dinosaurs are not at all rare in

the Converse beds, some of which agree well with the figure of *A. explanatus* Cope given by Lambe.

Paleoscincus.—Teeth of three or four species from the Wyoming deposits are referred to this genus (evidently a composite one) among which there is one that seems identical with *P. asper*, described by Lambe from the Belly River.

Baëna is well represented in the collections, doubtless including *B. Hatcheri* among them, which is also known from the Belly River.

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UNIVERSITY OF CHICAGO,
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BOTANICAL NOTES.

AIR HUMIDITY.

STUDIES made on the humidity of the air in an office in Lincoln, Nebr., by G. A. Loveland, and reported to the Nebraska Academy of Sciences, January, 1902, show that the air is much drier in the winter than is commonly supposed. Thus in an office in Nebraska Hall on the campus of the University of Nebraska the following results were obtained for the winter of 1899-1900.

	Mean Exterior Temperature.	Mean Relative Humidity.
December	22.6°	18.6 per cent.
January	26.8°	21.0 " "
February	19.2°	15.3 " "

The office in which these observations were made is on the main floor of a large brick building which is heated by steam, using ordinary pipe radiators. On the same floor a few feet away are the rooms of the Botanical Department, one of which is used for physiological experiments. It will be seen very readily that experiments upon ordinary plants must be made in such a dry air with considerable difficulty, and these results may help some students to understand why their work has been unsatisfactory. The air in such rooms is drier than in the driest climates in the world, and the effect on plants under observation can not be otherwise than most trying. Plants for study are taken from the