SCIENCE

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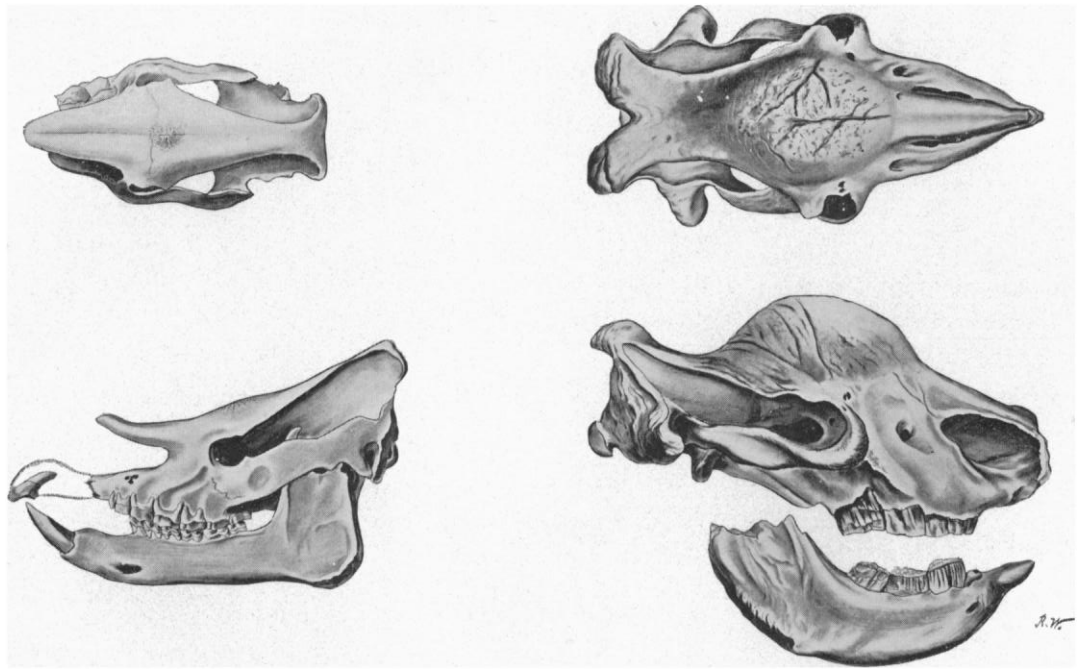
MSS. intended for publication and books, etc., intended for review should be sent to the responsible editor, Professor J. McKeen Cattell, Garrison-on-Hudson N. Y.

FRONTAL HORN ON ACERATHERIUM INCISIVUM.

RELATION OF THIS TYPE TO ELASMOTHERIUM.

IN the classical collection of the Museum of Darmstadt there are the two type skulls of *Aceratherium incisivum*, Kaup, which have hardly been disturbed since the death of that distinguished paleontologist. Through the kindness of Professor G. Richard Lepsius, the writer was recently enabled to carefully examine these skulls, which are in a fragile condition. A slight rugosity was observed upon the frontal bones just behind their junction with the nasals, and a very careful examination demonstrated to both Professor Lepsius and the writer the undoubted presence of a rudimentary frontal horn in this typical hornless type. Even more distinctive proof of the existence of a horn is afforded by the characteristic convergence towards the center of the rugosity of a number of small grooves which indicate the course of the blood vessels which supplied the horn. The support of a horn is further indicated by a distinct swelling of the skull above the orbits which is observed with especial distinctness in the profile view. This swelling will probably be found to consist of a thickening of the frontals at this point.

This discovery is of the very greatest interest. In the first place it practically removes this typical Acerathere from the group to which it has given its name and places it among the Rhinoceroses. Second,



OSBORN on *Aceratherium incisivum.*

the precocious development of the frontal horn, and the marked reduction of the nasals, at once suggested to the writer that this animal may possibly represent an ancestor of *Elasmotherium*, which, as is well known, was distinguished from all other Rhinoceroses by the smooth, narrow nasals and enormously developed frontal horns, as shown in the accompaning figures. It is true that in *A. incisivum* the horns are small, the rugosity, or horn core, being rudimentary; but in paleontology a rudiment is almost invariably prophetic of a fully developed organ in a later horizon. The question whether this type actually marks the first branching-off of the Elasmotheres from the Aceratheres turns, therefore, upon a detailed comparison of the skull and skeleton of the two types. Both skulls are dolichocephalic with high occiputs. A marked difference is seen in the very narrow space between the orbit and narial opening in *A. incisivum*, as compared with the broad space in *Elasmotherium*. These and other differences may be due to profound changes which occurred during the Pliocene period, for *Elasmotherium* is a well-advanced Pleistocene type. Other profound changes which would be involved in such a transformation are in the loss of old cutting teeth and the folding of the enamel in the molar teeth, so characteristic of the Pleistocene form.

Taken altogether, the evidence that *A. incisivum* is an ancestral Elasmothere is, however, decidedly slender at present, and we must probably await the discovery of intermediate stages in the Pliocene of Europe or Asia. Henry F. Osborn.

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*REPORT CONCERNING THE OFFICIAL STATE BUREAUS CONNECTED WITH THE JOHNS HOPKINS UNIVERSITY.**

I submit for your information the following report concerning the Maryland Geological Survey and the Maryland Weather Service during the past year. Much of the work of these bureaus is carried on in cooperation with the Geological Department, and the offices are provided by the University free of all charges to the State.

* A report presented to the President of the Johns Hopkins University.

THE MARYLAND GEOLOGICAL SURVEY.

The Maryland Geological Survey, which was established by an act of the General Assembly of 1896, began operations upon March 25th of that year, when, by the action of the Commission designated by the act, the organization of the Survey was formally effected. The General Assembly of 1898 passed two additional acts which added largely to the powers of the State Survey Commission by providing for the construction of topographic maps and the investigation of the question of proper highways for the State. By the first act an additional appropriation of $5,000 annually was granted, while the second act appropriated $10,000 annually, the original appropriation of $10,000 annually by the Assembly of 1896 still remaining in force. By these acts the Survey received the very generous appropriation of $25,000 annually.

During the two and a-half years that the Survey has been in operation several lines of investigation have been taken up, some of which have already been followed to a conclusion. The preliminary survey of the State, in which general information in regard to the geology and economic resources was secured, placed the Survey in a position to inaugurate those lines of investigation which would prove most beneficial to the people of the State and at the same time would contribute most largely to the sum of knowledge regarding the stratigraphy and structure of Maryland. In connection with this general survey there has been maintained a system of collection of statistical data regarding the output of each industry that has to do with the mineral