

have made a lake of all of southern Tippecanoe County. This lake would have been about one hundred and fifty feet deep at Dayton, in the east part of the county. Some of the moraines were entirely covered with water. The broad upper valley of Little Wea was probably made by a stream flowing in the opposite direction to that of the present stream from where it is crossed by the Chicago, Indianapolis & Louisville Railroad. Some part of the valley of the Big Wea below Romney may have been made by a stream afterward reversed. When the Wabash was uncovered the lake covering nearly the whole south part of the county fell to a much lower level and the general course of the present Wea streams was laid out. As the water fell the tops of the moraines appeared and the waters flowed across their crests at the lowest places. But the streams were not continuous as now. The region was nearly covered by several smaller lakes held in by bordering moraines and the streams connected the lakes and formed the outlet of the lowest. The deep valleys show the parts of the streams that flowed across the moraines from lake to lake. As the streams deepened their valleys, the lakes were gradually drained, leaving their smooth, muddy bottoms exposed to become the level marshy prairies found at the settlement of the country. As the lakes fell to lower and lower levels, the streams were extended across the lake beds, where they now meander in sluggish courses in narrow, shallow channels.

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## PALEONTOLOGY OF BARTHOLOMEW COUNTY, INDIANA, MAMMALIAN FOSSILS.

J. JEP. EDWARDS, M. D.

1. *Mastodon americanus* (Blum.).

This animal is represented in this county by two specimens.

a. *Os sacrum*.

Weight of fossil, eight pounds and nine ounces. Found in 1898 upon a sand-bar in White River, one mile east of Wailesboro; identified by Dr. M. N. Elrod. It is in a fair state of preservation, with foramina and tuberosities well defined. In possession of the writer. A brief account of the find appeared in the *Indianapolis News* of January 15, 1901, and the *Columbus (Ind.) Daily Herald* of same date.

b. Tooth. Found in Ohio Township, Bartholomew County, in 1900. Have been unable to see it.

2. *Elephas primigenius*.

The only known specimen found in the county was a tooth unearthed in a gravel pit one-half mile south of Wailesboro in 1898. It was covered with seven feet of soil and gravel. Weight, nine pounds. It was destroyed by fire in the office of Dr. Webster Peck, at Frankton, Indiana. Identified by the writer. See Columbus, Ind., *Home Advocate* of September 9, 1898.

3. *Cervus americanus* (Harlan).

Extinct elk. Post pliocene fossil. The specimen is the *Ox frontis* to which is attached the antler with two branches. Present length two feet, weight five pounds. When found it measured over seven feet in length and was then incomplete. By handling it has crumbled to its present length. Found in White River one mile east of Wailesboro. Identified by the writer. A meager description appeared in the *Columbus Herald* of January 15, 1901.

4. *Cervus virginianus*.

Virginia deer. Sub-fossil. Specimen is the right frontal appendage (antler). Found in Wayne Township in 1898. Identified by the writer.

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 ORGANIC ACID PHOSPHIDES.

P. N. EVANS.

Phosphorus in the organic phosphines shows such a perfect analogy to nitrogen in the amines, that it seems strange that we should not be familiar also with the phosphorus analogues of the acid amides—which we may appropriately call *phosphides*. Of this class of bodies no mention is made in most books on organic chemistry, and an examination of the literature shows only two of these substances to have been prepared and very superficially investigated, namely, mono- and tri-chlor-acetyl phosphides, dating back to the seventies.

With a view to preparing other representatives of this class and examining them, the methods used to make the acid amides were considered as to their applicability; the reaction between hydrogen phosphide ( $\text{PH}_3$ ) and acid chlorides seemed to be the most promising by which to attempt to prepare new acid phosphides.