

February 11th.

Mr. LEA, President, in the Chair.

Forty-nine members present.

A paper was presented for publication, entitled :

“Descriptions of new species of *Cyrena* and *Corbicula* in the Cabinet of the Academy of Natural Sciences of Philadelphia, by Temple Prime.

Mr. LEA remarked that when Mr. Binney, at the last meeting, called the attention of the members to a reversed *Paludina* on the table, the discussion taking a wide range, he (Mr. Lea) stated that an abnormal reversed character sometimes occurred in the genus *Unio*, and he then mentioned that he had specimens of various species where this condition was very remarkable. He also then stated that among *Helices*, in a semi-domesticated position—in gardens, hedge-rows, &c., in England and on the continent—it was not a very rare circumstance to find heterostrophe individuals; he had quite a number; but that among the immense number of our own species which had passed under his eyes, he had found only a single specimen which was heterostrophe, viz. : a *Helix hirsuta*, Say. Mr. Lea went on to say that he had prepared himself to exhibit, to-night, his specimens alluded to, and to which he now called the attention of the members. He was glad to see by the December number of the Proceedings of the Boston Soc. Nat. Hist. received by post to-day, that Prof. Agassiz had made a communication to the Society on “reversed bivalve shells,” exhibiting a specimen of the *Unio ligamentinus*, Lamarck, observing that “it was quite rare and generally not easily observed.” Mr. Lea exhibited twenty-one specimens of various species which were all abnormal as regarded their lateral teeth, some having a *single* one in *both* valves, others being simply *reversed* as to the double and single cardinal and lateral teeth; others having *double* lateral teeth in *both* valves, and others again having a *treble* lateral tooth in the *left* valve, and a *double* one in the *right* valve. The first reversed *Unio* he had seen was a specimen of *complanatus* from the mill-dam at Bristol, Penna., about 25 years since; afterward he had found one in the Schuylkill, and subsequently found them occasionally among thousands of specimens sent by friends from various parts of the United States. From Dr. Lewis, of Mohawk, he had received some very fine specimens.

The following table will exhibit the various abnormal forms of *Uniones* in Mr. Lea's collection :

*Single lateral tooth in each valve.*

- Unio complanatus*, Lea, (*Mya complanata*, Solan.) Schuylkill River, Pa.
- “ *occidens*, Lea, Wisconsin.
- “ *purpuratus*, Lam., Claiborne, Ala.
- “ *ventricosus*, Bar., St. Lawrence, Montreal.

*Single lateral tooth in the left, and double in the right valve.*

- Unio complanatus*, Lea, 2 specimens, Bristol, Pa., and Mohawk, N. Y.
- “ *alatus*, Say, Ohio River.
- “ *Hopetonensis*, Lea, Darien, Geo.
- “ *nasutus*, Say, Arkansas.
- “ *radiatus*, Lam., Petersburg, Vir.

*Double lateral tooth in both valves.*

- Unio complanatus*, Lea, 6 specimens, Mohawk, N. Y.
- “ “ “ Genesee, N. Y.
- “ “ “ Schuylkill, Pa.
- “ *corrugatus*, Lam., Pondichery, India.

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*Treble lateral tooth in the left, and double in the right valve.*

*Unio corrugatus*, Lam., Bengal.

*Treble lateral tooth in the left, and partly treble in the right valve.*

*Unio gibbosus*, Barnes, Fox River, Wisconsin.

" *corrugatus*, Lam., India.

Mr. Lea stated that in his first paper published in the *Trans. Am. Phil. Soc.* in 1827, he paid attention to the difference of the teeth, and in 1829 he published a description of that remarkable *Unio* from the Schuylkill, described under the name of *heterodon*, from the very peculiar and aberrant form of the double lateral tooth being placed in the *right* valve, and the single in the *left* one. This was the first form of the kind which had ever come under his notice. A few years subsequently he found the first specimen of an abnormal character, conforming exactly to the normal condition of the *heterodon*, and this was in the Bristol specimen. Since that period he observed closely the abnormal forms of the species, and the result is given in the previous table. But it must be impressed on the zoologist's mind, that the form of teeth which is normal in one species, may be abnormal in another, because, while there is impressed on every species a law as regards its form,—and the general one of this species of *Unio* is to have the lateral tooth double in the left, and single in the right valve, and the cardinal either the same or double in both,—yet aberrant forms from this are quite numerous, as will be found in the following table of species. He wished the attention of the members to the fact that what was abnormal in some individuals of a species, would be perfectly normal in others; thus, in *complanatus*, when the lateral teeth are found double in the right, and single in the left, they are reversed, and therefore abnormal; but in the *heterodon* this condition of the teeth is normal, and so it will be with other conditions of other species, even so far removed from the typical *Unio* as in the *eximius*, Lea, from Siam, which has a treble lateral tooth in the left, and a double one in the right valve as its normal form, for this is imitated by the specimen of *corrugatus* exhibited, which has the treble tooth in the left valve, and double one in the right, which in this case is remarkable, its normal condition being that of the typical *Unio*.

In the following table will be found most of the species which, while they are perfectly normal, are still aberrant from the typical *Unio*, all of them but two having been described by Mr. Lea.

*Cardinal tooth single in both valves.*

*Unio Bengalensis*, Lea, Bengal.

*Cardinal tooth double in the right, and single in the left valve.*

*Unio Corrianus*, Lea, Bengal.

" *lamellatus*, Lea, Bengal.

" *bilineatus*, Lea, Bengal.

" *contradens*, Lea, Java?

" *gravidus*, Lea, Siam.

" *tumidulus*, Lea, Siam.

" *humilis*, Lea, Siam.

" *sagittarius*, Lea, Siam.

" *substriatus*, Lea, Siam.

" *Dunkerianus*, Lea, Brazil.

" *Cambodianus*, Lea, Siam.

" *consobrinus*, Lea, China.

" *Layardii*, Lea, Ceylon.

" *plicatulus*, Lea, Borneo.

" *vittatus*, Lea, Australia.

" *Wilsonii*, Lea, Australia.

" *Mauritianus*, Lea, Indian Ocean.

*Unio bulloides*, Lea, Rio Plata, S. Am.

" *atratus*, (Niña, Swain.) Chili.

" *Araucanus*, Philippi, Chili.

" *piceus*, Lea, Uruguay, S. Am.

*Cardinal and lateral teeth double in both valves.*

*Unio phaselus*, Lea, Siam.

" *scobinatus*, Lea, Siam.

*Lateral tooth double in the right valve only.*

*Unio heterodon*, Lea, Penn.

*Lateral tooth double in both valves.*

*Unio nucleus*, Lea, Siam.

*Lateral tooth treble in the left, and double in the right valve.*

*Unio eximius*, Siam.

*Cardinal tooth treble in the right valve.*

*Unio funebris*, Lea, Uruguay River, S. Am.

*Cardinal tooth treble in both valves, and lateral tooth treble in the right, and double in the left valve.*

*Unio trifidus*, Lea, Buenos Ayres, S. Am.

It is not pretended that the last table is entirely complete. The object is accomplished to shew that the teeth of different species vary *normally*, and that individuals of the *species* vary *abnormally*.

As regards the genus *Triquetra*, Klein, (*Hyria*, Lamark.) which has cardinal and lateral teeth in both valves, so far as observed the lateral tooth in the left valve is double, and in the right single.

The cardinal tooth in both valves is usually lamellar and multiplied, and articulate closely. In some cases it is much longer than in others of the same species. In one specimen of *T. subviridis*, Klein, in Mr. Lea's cabinet, the cardinal tooth is almost the same length of the lateral tooth; and in two specimens both teeth have transverse striæ like *Prisodon*, Schum. (*Castalia*, Lam.) which of course is an aberrant form. The *Triquetra contorta*, Lea, is an aberrant species, the cardinal teeth in both valves being obtusely conical and double in both valves. I have never met with any abnormal form of teeth in any of the species of *Triquetra*, but so few specimens get into the cabinets that if they do exist none have yet been detected.

The genus *Prisodon*, the teeth of which are so nearly the same as those of *Unio* as to induce M. Deshayes to put it in that genus, are almost identical with some of the species, except in character of transverse parallel striæ; and even this characteristic of the genus is absent in some of Mr. Lea's specimens of *truncatus*, Schum., (*ambigua*, Lam.) If, however, the lobes of the mantle are united behind so as to form two tubes, there would be no propriety in placing it with the *Uniones*, as the mantle is never united in that part in them.

Prof. R. E. Rogers made some remarks on the debitumenization of coal, and also communicated the following facts having reference to the propagation of concussion from rock-blasting to strata at a distance, as exemplified in the effect upon the water of wells.

A well, sixty feet in depth, with the water rising within ten feet of the surface, had, previous to the occurrence, been yielding a large supply of water to an extensive factory, when, immediately upon the discharge of a heavy blast in a stone quarry about four hundred yards distant, the water began to fall, and soon altogether disappeared.

1860.]

Another well, remote from the last mentioned one, had been yielding a good supply of water for more than a year. A blast of ordinary violence was discharged in an excavation for stone, three hundred yards distant from it, whereupon the water quickly and entirely disappeared. The proprietor directed a boring to be made in the bottom of the well six feet in depth and a blast to be set off in it.

The result was as curious as the one which preceded it. The water at once reappeared, and the supply has since been steady and in great abundance.

Dr. Leidy observed that the remarks of Prof. Rogers, had reminded him of the so-called Hillsboro coal or Albertite, of Albert Co., New Brunswick. This substance Dr. L. regards as a variety of Asphaltum and not as coal. The latter consists of the fossil remains of plants. The Albertite is a product resulting from the distillation of bitumenous coals or shales. Coal always presents in microscopic section the remains of vegetable structure; Albertite is perfectly amorphous. Coals are stratified or interstratified with other substances; the Albertite presents many evidences of being an injected material into fissures of the surrounding shales.

The number of the Proceedings for January was laid upon the table.

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*February 21st.*

Mr. LEA, President, in the Chair.

Thirty-five members present.

A paper was presented for publication entitled:

“The Mexican Humming Birds, No. 2, by Rafael Montes de Oca.”

Mr. Slack remarked that the two teeth of the *Mosasaurus missouriensis*, presented by him this evening, had been procured for him from the marl pits of Mr. Coward, about two miles west of Freehold, N. J., through the exertions of Mr. Hopper, of Freehold, N. J., a gentleman to whom the Academy is largely indebted for cretaceous fossils. This is the eleventh specimen of the *Mosasaurus missouriensis* identified by Mr. Slack, found within a radius of ten miles from Monmouth Court House.

Dr. Leidy announced that the valuable collection of fossils of Mr. Eli Bowen had been purchased by subscription and presented to the Academy.

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*February 28th.*

Mr. LEA, President, in the Chair.

Forty-four members present.

The Report of the Biological Department for the present month was read.

On report of a committee of the Biological Department, the paper entitled, “Method of painting moist anatomical preparations, by H. D. Schmidt, M. D.,” was recommended for publication in the Proceedings of the Department.

And the following were ordered to be printed in the Proceedings:

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