

NOTES ON THE PALAEOONTOLOGY OF CERTAIN CHESTER FORMATIONS IN SOUTHERN INDIANA.

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In the course of an examination of the Chester formations of southern Indiana in the summer of 1918, especial care was taken at a few points to secure a representative collection of the fossils present. The study of the collections made at that time has not yet been completed, but enough has been done to make clear certain interesting relations between the formations exposed in Indiana and those which have been examined in southern and southwestern Illinois, and for this reason it has seemed worth while to record the results apparent in the work thus far.

The localities from which the largest number of species were collected are all in Orange County, and the horizons yielding the greatest abundance of well-preserved specimens were of limestone, three in number.

RENAULT LIMESTONE.

The lowest of the three limestones referred to yielded the following forms:

- Talarocrinus, somewhat abundant, one or two species.
- Pentremites, somewhat abundant, including some very small forms.
- Cup coral (*Zaphrentis?*).
- Bryozoans (*Archimedes* rarely present).
- Cliothyridina sublamellosa* (Hall).
- Composita sulcata*, Weller.
- Composita trinuclea* (Hall).
- Diaphragmus elegans* (Norwood and Pratten).
- Eumetria vera* (Hall).
- Girtyella* (cf.) *indianensis* (Girty).
- Orthothetes kaskaskiensis* (McChesney).
- Productus ovatus*, Hall.
- Productus parvus*, Meek and Worthen.
- Spirifer*, sp. (near *breckenridgensis*, Weller).

The above fauna, considered in connection with the relation of this limestone to the other formations exposed, seems to afford sufficient evidence to justify the correlation of this horizon with the Renault of Illinois as defined by Weller.

PAINT CREEK LIMESTONE.

The middle one of the three limestones examined, found in some places eighty to ninety feet higher stratigraphically than the lowest one, yielding the forms named below, and is consequently correlated with the Paint Creek formation of Weller in Illinois. The uncertainty recorded as to species in some cases is to be understood as indicating more or less difference from described forms; some of these may be new species, while others may deserve to be classed merely as variations marking less than specific divergence. The fauna as made out so far follows:

Gastropods sp?.

Cup corals (*Zaphrentis*?).

Crinoid stems, locally abundant, some of large size. ,

Pentremites numerous, larger than in the lowest limestone.

Archimedes, not numerous, but somewhat more abundant than in the lowest limestone.

Pygidia of trilobites. *Phillipsia*?

Chonetes chesterensis, Weller.

Cliothyridina sublamellosa (Hall).

Composita sulcata, Weller.

Diaphragmus elegans (Norwood and Pratten).

Eumetria verneuilliana (Hall).

Girtyella (cf.) *indianensis* (Girty).

Martinia (cf.) *sulcata*, Weller.

Orthothetes kaskaskiensis (McChesney).

Productus (cf.) *ovatus*, Hall.

Pustula sp?.

Spirifer sp?.

OKAW LIMESTONE.

The upper of the three limestones here referred to is found in some places within the areas examined seventy to eighty feet higher stratigraphically than the middle limestone, and on the basis of the fauna collected and the relations observed is correlated with the lower Okaw as defined by Weller from studies in Illinois. The fauna collected shows the following forms:

Gastropods sp?, a few.

Cup corals sp?, many partly silicified in places.

Bryozoans including abundant *Archimedes*.

Crinoids numerous; mostly in fragmental state including wing plates of *Pterotocrinus* sp?.

Pentremites abundant; some large forms.



LEGEND

- | | |
|-------------------------------|--------------------------------|
| Miami loam
ML | Clyde silty clay loam
CS |
| Miami silt loam
MSL | Clyde loam
CL |
| Miami fine sandy loam
MS | Clyde fine sandy loam
CSL |
| Genesee fine sandy loam
GS | Genesee loam
GL |
| | Dunkirk fine sand
DS |
| | Muck
M |
| Fox loam
FL | Fox sandy loam
FS |
| | Dunkirk loamy fine sand
DSL |

SOIL MAP
OF
CASS COUNTY
INDIANA

SCALE
0 1 MI.

Trilobites; pygidia of *Phillipsia*?.
Camarophoria explanata (McChesney).
Cliothyridina sublamellosa (Hall).
Composita sulcata, Weller.
Composita trinuclea (Hall).
Productus sp?.
Pustula sp?.
Spirifer sp?.

In addition to the fauna listed and correlated above, a brief examination was made of the massive limestone beds lying below the formation interpreted as Renault limestone. In the best exposure found good specimens of fossils were not abundant, and the exact location of the lowest Chester bed was therefore not ascertained. Stems of *Platycrinus huntsvillae*, Wachsmuth and Springer, were, however, found at forty-five to fifty feet below the limestone named here Renault, thus indicating the presence of the Ste. Genevieve as defined by Weller, and fixing the lower limit of the Chester and therefore the upper limit of the Ste. Genevieve at a level not more than forty-five or fifty feet below the fossiliferous Renault limestone layer.