

mum St., *L. aculeatum* St., also *Stigmaria ficoides* Brngt., *Cordaites borassifolius* St., *Dadoxylon antiquum* Dn.

The metamorphic Carboniferous region of Worcester, Mass., where the slates are mica schist, have afforded I. H. Perry specimens of *Lepidodendron* (*Sagenaria*) *acuminatum* Göpp., as identified by Lesquereux (*Am. Jour. Sc.*, xix., 1885). It is doubtful whether the plant is Subcarboniferous or Carboniferous.

See, further, *Pa. Geol. Rep.*, No. P.; *Ill. Geol. Rep.*, vols. ii. and iv.; *Ind. Geol. Rep.* for 1883; *Dawson's Hist. Plants*, 1888, etc.

ANIMALS. — 1. **Rhizopods.** — *Endothyra Baileyi* H. occurs in the St. Louis limestone of Indiana.

2. **Spongiozoans.** — The hornstones of the limestones in Illinois and Indiana abound in microscopic spicules of sponges, with a few Desmid-like forms similar in general to those of the Corniferous limestone (page 583) (M. C. White). *Palæacis* (*Sphenopterium*) *obtusum* M. & W., Keokuk limestone, *P. cuneiformis* M. Edw., St. Louis limestone. In the Keokuk occur many Hexactinellid sponges of the genera *Hydnoceras*, *Physospongia*, *Phragmodictya*.

3. **Actinozoans.** — Fig. 991, *Lithostrotion Canadense* Castelnau, St. Louis l.; *L. proliferum* H., St. Louis group; *Zaphrentis spinulosa* E. & H.; *Z. minas* Dn., West River, Pictou; *Cyathophyllum Billingsi* Dn., Nova Scotia.

4. **Echinoderms.** — (a) *Blastoids*: Fig. 999, *Pentremites pyriformis* Say, Kaskaskia l.; 1000, *P. Godoni* Defr., *ibid.*, and 50 other species of this and the related genera *Granatocrinus* and *Troostocrinus*.

(b) *Crinoids*. — Fig. 992, *Scaphiocrinus Missouriensis* Shum., St. Louis l.; 993, *Actinocrinus proboscidioides* H., Burlington l.; 994, *Dorycrinus unicornis* Owen & Shum., *ibid.*; 995, *Woodocrinus elegans* H., *ibid.*; 996, *Batocrinus Christyi* Shum., arms broken off, *ibid.*; 998, proboscis of *Batocrinus longirostris* H., *ibid.*; 997, *Platycrinus Saffordi* Troost, side-view, Keokuk l. The most prolific locality of Crinoids, as yet known, is Burlington, Iowa, where over 350 species, representing over 50 genera, were collected by Mr. C. Wachsmuth, besides 6 Echinoids, 4 Asterioids, and 1 Ophiuroid. Many of them are described by Hall in his Iowa report of 1858. The Keokuk beds of Crawfordsville, Ind., have yielded 50 species. The genera most numerous represented are *Actinocrinus*, *Cyathocrinus*, *Dichocrinus*, *Batocrinus*, *Platycrinus*, *Poteriocrinus*, *Scaphiocrinus*, and *Zeacrinus*.

(c) *Echinoids*. — Fig. 1001, *Archæocidaris Wortheni* H., St. Louis l.; 1002, *A. Shumardana* H., St. Louis l.; 1003, plate of *A. Norwoodi* H., Chester l.; 1005, *Melonites multiporus* O. & N., St. Louis l.; 1004, *Oligoporus nobilis* M. & W., Burlington l. Figs. 1004, 1005 are from Worthen's Report on the Geology and Paleontology of Illinois.

(d) *Asterioids and Ophiuroids*. — Worthen and S. A. Miller have described (in *Ill. Rep.*, vii., 1883), from Illinois, *Compsaster formosus*, Chester limestone; *Cholaster peculiaris*, *ibid.*, and the Ophiuroid *Tremataster disparilis*, *ibid.*

5. **Molluscoids.** — (a) *Bryozoans*. — Fig. 1006, *Archimedes Wortheni* H., being a portion of the spiral axis, with the reticulated expansion of the spiral worn off. Fig. 1007 a, a portion of the reticulated expansion, magnified and showing the upper surface. Fig. 1007 b, the under or cell-bearing side of the same.

(b) *Brachiopods*. — **Kinderhook**: *Spirifer Cooperensis* Swallow; *S. Marionensis*, *Chonetes ornatus* Shum. (Fig. 1015), 1015 a, surface enlarged, Lithographic and Chouteau limestone, Mo.; 1014, *Spirifer biplicatus* H. **Burlington l.**: 1008, *Orthis Michelini* L'Eveille (var. *Burlingtonensis* H.), *Spirifer Meeki*, *S. Logani*, *Productus Flemingi* Sow. **Keokuk l.**: *Actinoconchus planosulcatus* Phill., Ill., *Chonetes planumbonus* M. & W., Iowa, *Camarophoria subtrigona* M. & W., Ill., etc., *Spirifer Keokuk* H. **St. Louis l.**: *Productus scitulus* M. & W., 1011, *Eumetria Verneuilana* H., Warsaw, *Spiriferina spinosa* N. & P., Warsaw, Lower Archimedes, Mo. **Chester l.**: 1010, *Spirifer increbescens* H., Kaskaskia