

from Kentucky; Figs. 646, 646 a, *Prasopora lycoperdon*; *Halysites catenulatus* or related, Galena limestone, and in Canada; *Tetradium columnare* H., Tennessee.

3. **Hydrozoans.** — Fig. 647, *Diplograptus amplexicaulis* H., New York and Tennessee; 647 a, enlarged; *Climacograptus*; *Stromatocerium pustulosum* Saff., Tennessee. *Solenopora compacta* B., Canada, eastern New York, Kentucky, looks like a pebble, and a limestone made largely of them resembles a conglomerate. It occurs abundantly at Pleasant Valley, in Dutchess County, N. Y. (Dwight).

4. **Echinoderms.** — Fig. 648, *Palæaster matutinus* H., of the Trenton; 649, *Tæniaster spinosus* B.; the Crinoids, *Taxocrinus elegans* B. (Fig. 650), *Agelacrinus Billingsi* Chapman, *Glyptocrinus decadactylus* H., Kentucky, *Schizocrinus nodosus* H., *Heterocrinus Canadensis* B.; also species of genera *Hybocrinus*, *Porocrinus*, *Palæocrinus*; and the Cystoids, *Comarocystites Shumardi* M. & W., Missouri, *C. punctatus* B., Canada; *Dendrocrinus retractilis* Walc., Trenton Falls, *Calceocrinus Barrandei* Walc., *ibid.*; *Merocrinus typus* Walc., *ibid.*, *Iocrinus crassus* H., *ibid.*; Fig. 651, *Pleurocystites filitextus* B., *Amygdalocystites*, Kentucky.

5. **Molluscoids.** — (a) *Bryozoans.* — Species of *Stictopora* and *Ptilodictya* (related to Figs. 629, 630) are common; *Clathropora flabellata* H.; *Stomatopora arachnoidea* H.

(b) *Brachiopods.* — Figs. 656, 657, *Orthis biforata* Schl.; 658, *O. occidentalis* H.; 659, *O. testudinaria* Dalm.; 660, *O. tricenaria* Con., *O. disparilis* H., *O. subquadrata* H., and others; 661, *Leptaena (Plectambonites) sericea* Sow.; 662, *Leptaena rhomboidalis* Wilc.; 663, *Strophomena (Rafinesquina) alternata* Con., *S. incrassata* H.; 664–666, *Rhynchonella capax* Con.; 667, 667 a, *Cyclospira bisulcata* Emm.; *Zygospira modesta* Say; 668, *Schizocrania filosa* H.; *Crania scabiosa* H., Galena limestone; 669, *Lingula quadrata* Eichw., and other species; also species of *Orbiculoidea*, *Trematis*, etc.

6. **Mollusks.** — (a) *Lamellibranchs.* — *Tellinomya alta* H., Wisconsin, etc.; *Ambonychia attenuata* H., Wisconsin, and others; *Conocardium immaturum* B., Black River limestone, Ottawa; *Modiolopsis faba* H., *M. superba* Bill., Wisconsin, etc.; *Cypricardites Niota* H., Wisconsin, *C. rectirostris*.

(b) *Gastropods.* — Fig. 673, *Raphistoma lenticulare* Emm., very common; *Pleurotomaria subconica* H., and other species; 674, *Murchisonia Milleri*; 675, *M. bellicincta* H., often 4 inches long, *M. gracilis* H., *M. tricarinata* H.; 676, *Helicotoma planulata* Salter, Canada, *Cyclonema bilix* Con., *Ophileta Owenana* M. & W., Galena limestone; 677, *Bellerophon bilobatus* Sow., common; 678, same, side view; 679, *Cyrtolites compressus* Con.; 680, 681, *Cyrtolites (?) Trentonensis* Con.; species of *Metoptoma*, a genus which began in the Cambrian, *Holopea*, *Trochonema*, *Eunema*, *Subulites*, etc. *Maclurea magna* (Fig. 634), Trenton of middle Tennessee (Safford); *Chiton Canadensis* B. is a *Metoptoma*, Black River limestone, Canada.

(c) *Pteropods.* — Pteropods were represented by the earliest known of the straight, slender shells called *Tentaculites*; *T. incurvus* of Shumard is from Trenton beds in Missouri and *T. Sterlingensis* and *Oswegoensis* of M. & Worthen and *T. Richmondensis* of Miller, from the Cincinnati group. There were also *Conulariæ*, and species of the *Theca* family. Fig. 682, *Conularia Trentonensis* H.; *Pterotheca attenuata* H.; *Theca parviuscula* H., Wisconsin; *Hyolithes*, frequently having septa within in the smaller extremity.

(d) *Cephalopods.* — Fig. 683, *Orthoceras junceum* H.; *O. anellum* Conr., (*Cycloceras anellum* of Hyatt); 684, *O. olorus* H.; 685, *Actinoceras Bigsbyi* of Bronn is *Ormoceras tenuifilum* of Hall, from the Black River limestone; good specimens show a transverse row of foramina in each of the subdivisions of the beaded siphuncle, common in the Black River limestone; *Endoceras proteiforme* H., *Goniceras anceps* H. *Endoceras* (κέρας, horn, and ἔσδον, within) has a concentric structure of cone within cone in the siphuncle. Fig. 686, *Cyrtoceras subannulatum* D'Orb.; a, a transverse section; Fig. 687, *Trocholites undatus* Hyatt = *Lituities undatus* Hall, from the Black River limestone, referred to