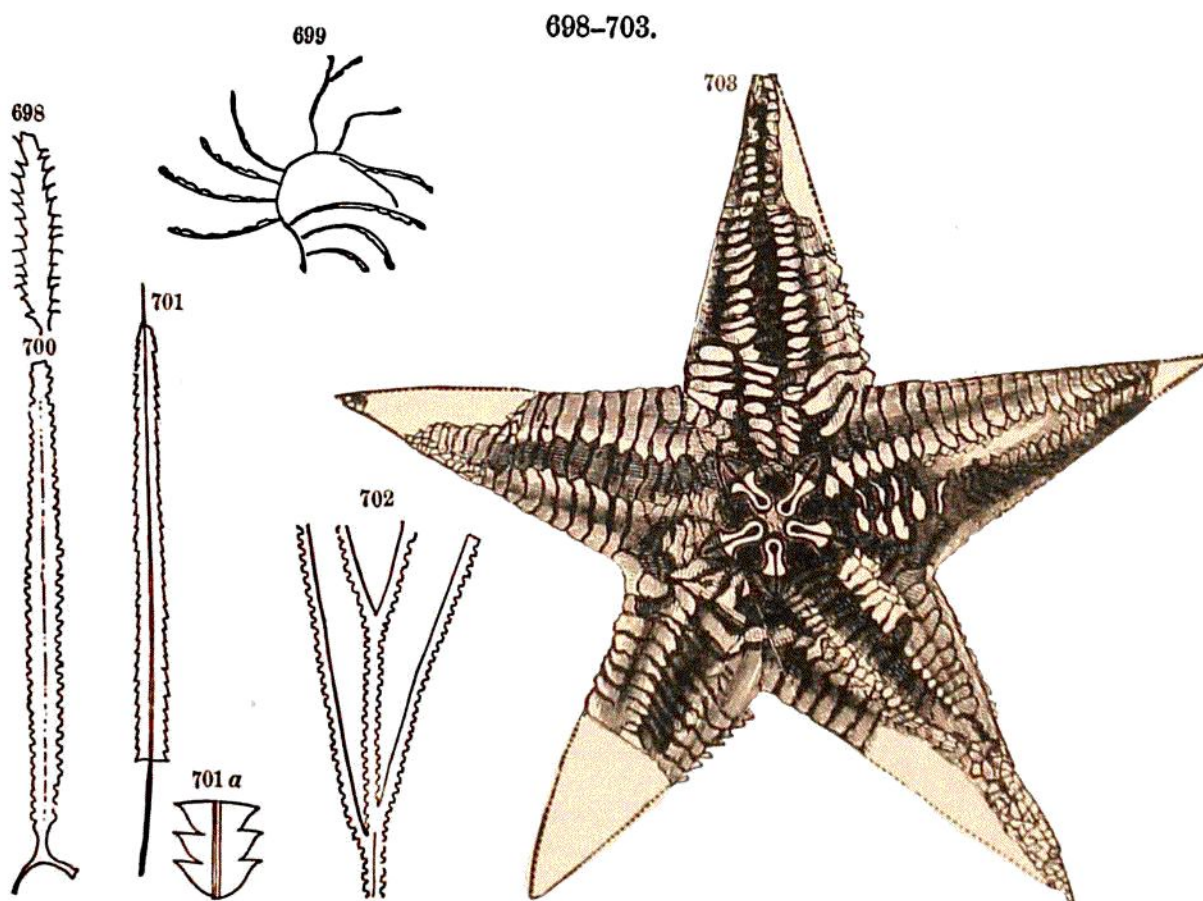


these *plates*, two, represented enlarged in Figs. 695, 695 *a*, are referred to Placoderms (see page 417), the group which comprises the oldest Fishes previously known, those of the Upper Silurian and early Devonian. The *scales*, Fig. 696, have the markings of a typical Ganoid, much like those of the genus *Holoptychius*, a form not found hitherto in beds earlier than the Middle Devonian. Besides these, there are remains (Figs. 697, 697 *a*) of what are supposed to be the ossified sheaths of the notochord of a species of the Shark tribe related to the *Chimæra* (page 416). The beds affording these remains of Fishes contain many other fossils that are referred to the Lower Trenton, and are overlaid by others carrying Upper Trenton fossils.

2. Utica and Hudson Epochs.

Graptolites abound in the shales of the Utica and Hudson groups, especially the former. Thirty species or more have been described from the Utica slate, and some of these are represented in Figs. 698–702.



GRAPTOLITES. — Fig. 698, *Laslograptus* (*Diplograptus*) *mucronatus*; 699, *Cænograptus gracilis*; 700, *Climacograptus bicornis*; 701, 701 *a*, *Diplograptus pristis*; 702, *Dicranograptus ramosus*. ASTERIOID. — Fig. 703, *Palaester Jamesi*. Figs. 698–702 from Hall; 703, J. G. Anthony.

Corals occur of several genera. *Favistella*, Fig. 704, is a massive Coral, with crowded stellate cells. *Halysites*, Fig. 705, grew in vertical plates, intersecting one another; in a transverse section the cells look like the loops of a chain, whence the common name *chain coral*. Another Coral grew in