when the specimens are quite small, as is usually the case; and in an earlier communication (this Journal for July, 1871), published prior to the discovery of specimens of its operculum, the species was referred by me to that genus. It may be readily distinguished from either of the species of *Hyolithes* found with it by the direction of the surface lines of the shell and its distinctly hollowed dorsal side."

To Mr. Ford's excellent description of this species it may be added that when we find a specimen of *H. impar* with an unusually flattened dorsal side it approaches very closely in form to the more rounded shells of *H. Emmonsi*, in which the dorsal depression is very slight.

Another character observed is one that occurs in *H. communis* and *H. impar.* It is the presence of a transverse diaphragm in the tube towards the apex. This appears to have caused the shell to become deciduous in many instances, and we now find numerous examples show. ing the blunt terminal portion. Some shells show the rounded smooth end without any constriction; others have a narrow concentric constriction just within the termination. The cast of the surface of the septum shows a slight central cicatrix or scar, but no evidence of a perforation in the septum could be observed. The average size of the tube at the point of decollation is 1<sup>mm</sup>. The largest seen is  $1.5^{mm}$  and the smallest  $.75^{mm}$ . When studying the septum, the close similarity between it and the first septum of the species of Orthoceras and Cytoceras, as figured by Barrande (Céphalopodes, Études générales, 1877, pls. 487, 488), was at once brought to mind, and also the interesting question of the relations of these shells to the Cephalopoda.

A paper has been lately received from Mr. G. F. Matthew, in which he states that several of the Hyolithes from the base of the St. John group have distinct septa at the base of the tube. The genus and species are not mentioned (Nat. Hist. Soc. N. B., Bull. 10, p. 102, 1885) In the American Journal of Science, vol. xxx, p. 293, 1885, Mr. Matthew describes the genus Diplotheca.

Mr. Matthew quotes, in the former paper, from a letter written by Mr. Alpheus Hyatt, where the latter says: "These fossils, with their dis tinct septa, are startlingly similar to certain forms of Nautiloidea, but there is no suphon. They, however, confirm Von Jhernig's and my opinion that the Orthoceratites and Pteropods have had a common, but as yet undiscovered, ancestor in ancient times."

Mr. Ford speaks of the thick shell, and that it is apparently made up of successive layers of laminæ. Several specimens in the Survey collections show this feature. The shell is formed of three or more layers: first, a thin outer layer, with rather strong even striæ that cross the flattened ventral face nearly direct and arch forward on the dorsal face, the flattened side in this species being the ventral face and not the dorsal, as in most species; the second layer appears to be of a smooth, even character, much like a filling between the outer and inner shell; the inner shell is thin and concentrically striated in a slightly different

138