from the Shakopee formation in Minnesota is of special interest in relation to the genetic history of this genus and in our opinion stands at the opposite end of the series from P. explanator. While in the latter the ectosiphonal wall distinctly consists of the coalesced reflexed margins of the septa (septal necks), Clarke's careful description and figures [*see* fig.25] demonstrate that in P. newton-winchelli the funnels or septal necks are only very short and the siphuncular wall is distinctly formed by a secondary formation, "the annuli".[1] If we adopt Hyatt's fundamental division of the Nautiloidea, we find the genus Piloceras brought under the Holochoanites which are characterized by the extension of the funnels from one septum to the next preceding or beyond. Piloceras newton-winchelli is hence not a member of the genus Piloceras as defined by Hyatt, indeed it has the ectosiphuncular structure of another suborder, the Orthochoanites; or has advanced in the character of its ectosiphuncle from the Cameroceras stage found in the other Piloceras forms, to the later Orthoceras stage. The relation of this form to the typical Piloceras appears to us identical with that of Endoceras burchardii Dewitz to the true Endoceras, the latter being a species which, while retaining the habit of an Endoceras has, as Holm has shown [1897, p.171] the ectosiphuncular structure of an Orthoceras. Holm proposed the genus Baltoceras for this form, a genus which is considered by Hyatt as the first and most primitive of the genera of Orthoceratidae.

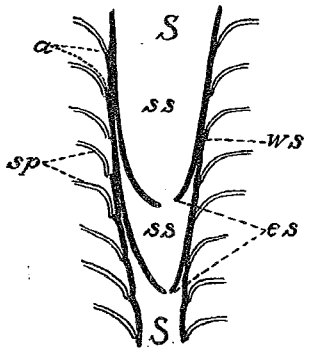

Fig. 25 Clarkoceras newton-winchelli Clarke (sp.). Enlargement of portion of section to show the siphuncle [*S*]; endosiphosheaths [*ss*]; ectosiphuncle [*ws*]; endosiphotube [*es*]; septa [*sp*] and annuli [*a*]. (Copy from Clarke)

[1]It is doubtful whether these annuli or siphuncular segments of the Orthochoanites form a homologue to the continuous "endosipholining" of Cameroceras, as it would appear at first glance. The endosipholining is considered by Hyatt as composed of the upper unresorbed ends of the endosiphosheaths, while the siphuncular segments find their fullest development where, on account of the reduction of the siphuncle, no more endosiphosheaths are formed. Nor is any genetic connection between the segments and the endosiphosheaths apparent in text figure 25.