

unquestionably very closely allied to it, but I am inclined to think that it would be premature to consider them all as congeneric.

Two other fossil genera of Neocrinoids, *Cotylecrinus* and *Eudesicrinus*, both confined to the Lias, are nearly related to *Holopus* and *Cyathidium*, and should in my opinion be placed in the same family. This has been generally done with *Cotylecrinus*, which is perhaps better known by its older name of *Cotylederma*, Quenstedt. But Schlüter denied its relationship to *Cyathidium*,<sup>1</sup> which had been previously pointed out by Roemer<sup>2</sup> and Deslongschamps,<sup>3</sup> on the ground that there are no perforated plates in *Cotylecrinus*. It is true that Quenstedt's original specimens had no radials attached, and were therefore imperforate, as were most of those figured by Deslongschamps; but the latter author also described and figured a fine specimen of *Cotylecrinus docens*, showing the large articular surfaces of the radials, and the openings of their central canals, just as in *Cyathidium*. This must surely have been overlooked by Schlüter, or he could scarcely have questioned the relationship of the two types.

Both in *Cotylecrinus* and in de Loriol's new genus *Eudesicrinus*, the radials rest upon a more or less tubular structure which is slightly expanded below and has been variously described. In the former genus it has been called a stem by Quenstedt and by MM. Deslongschamps,<sup>4</sup> and a top stem-joint by Schlüter.<sup>5</sup> Zittel<sup>6</sup> suggested that the upper part of it, which is marked by crests with intervening fossæ for the reception of the radials, should be considered as composed of anchylosed basals, and that the lower part is a centro-dorsal? De Loriol,<sup>7</sup> however, considers the whole as a centro-dorsal piece, not having been able to find any trace of sutures separating the upper part from the lower. It is sometimes found in an isolated condition, while in other cases the radials still remain in connection with it, and form a perfectly symmetrical whole, no one of them preponderating in size over the others. They have only been seen in *Cotylecrinus docens*, in which they were first figured by Deslongschamps.

As in *Holopus* and in Steenstrup's *Cyathidium*, they correspond to the sides of the pentagon, and the dorsal fossa is greatly reduced. With regard to the so-called centro-dorsal of *Cotylecrinus*, I am decidedly of opinion that the upper portion on which the radials rest represents the basals. The absence of sutures noted by de Loriol is no proof to the contrary, as we know from the condition of the Palæozoic *Allagecrinus* and *Agassizocrinus*, and of the recent *Rhizocrinus* and *Bathycrinus*.<sup>8</sup> This is in fact tacitly admitted by de Loriol himself in the suggestion that the whole of the calyx tube in *Holopus* and *Cyathidium* consists of anchylosed basals.<sup>9</sup>

If then the so-called cupule of *Cotylecrinus*, instead of being a centro-dorsal as its

<sup>1</sup> *Loc. cit.*, p. 53.

<sup>3</sup> Mémoire sur la Couche à Leptaena, *Bull. Soc. Linn. de Normandie*, t. iii. p. 181, pl. v. figs. 5, 6.

<sup>4</sup> *Op. cit.*, pp. 174, 179.

<sup>6</sup> *Palæontologie*, p. 386.

<sup>8</sup> See *Ann. and Mag. Nat. Hist.*, 1883, ser. 5, vol. xi. p. 329.

<sup>2</sup> Neues Jahrbuch für Mineralogie, 1857, p. 817.

<sup>5</sup> *Loc. cit.*, p. 53.

<sup>7</sup> *Paléont. Franç.*, *loc. cit.*, p. 190.

<sup>9</sup> *Paléont. Franç.*, *loc. cit.*, p. 191.