

disclose the construction of the anal side, but for reasons then stated I expressed the opinion in 1906, in the course of a discussion of the general characters of the Crinoidea Flexibilia (Journal of Geology XIV, p. 502), that they must have possessed the Taxocrinoid anal structure, viz., a tube-like series of anal plates, united to the adjacent rays by perisome, and not by suture. This opinion was confirmed while the paper was in press, by the discovery of the two specimens above mentioned, in each of which the anal side is exposed. Afterward, among some specimens from Ottawa in the Museum of the Geological Survey, sent me for examination by Dr. Whiteaves, I found another small individual in which the same structure is shown. Not only do they possess the Taxocrinoid anal structure, but, as should be expected from their geological position in the lower Ordovician, they have it in its most primitive form, in which the radial is a part of the right posterior ray, and lies directly under the radial—being thus in the same developmental condition as the contemporary Inadunate genus *Dendrocrinus*. This fact becomes of considerable interest in connexion with the discoveries hereinafter discussed under the genus *Cupulocrinus*, showing a probable line of divergence between the orders Inadunata and Flexibilia.

Billings, in describing these two species, gave as the only points of distinction that *levis* 'is shorter, and has only four joints instead of five in the secondary rays.' In six other small specimens from Ottawa considered to be *levis*, since found, the number of secondary brachials is mostly four, sometimes five, and some arms have but three, thus indicating a tendency to the greater shortness on which he relied. In my specimens from Kirkfield, one about the size of the type of *levis* and the other very small, the number of secondary brachials is mostly five, which would suggest their reference to *P. elegans*. But the type, and only known specimen heretofore, of *elegans* has the arms very angular in the lower part, and tending to become flat above, while in the type and other Ottawa specimens of *levis* the arms are evenly rounded throughout. The Kirkfield specimens agree with them in this, and also in being of small size, while the type of *P. elegans* is much larger. Considering how variable the number of secundibrachs is, I am at present inclined to refer the Kirkfield specimens to *P. levis*. For comparison in the discussion later I have figured the Kirkfield specimen showing the anal structures, and another of supposed *P. levis*, from Ottawa (Plate III, figs. 10, 11a, b).