

Professor Brögger recognizes two chief bands; the higher marked by *Paradoxides Forchhammeri*, the lower by *P. ölandicus*, *P. Tessini*, *P. Davidis*, etc.

1. Olenellus group, consisting of two thin bands of strata, (b) Phosphate limestone and sandy shale with *Lingulella*, *Acrothele*, etc., (a) Sandy shales passing into sandstone (graywacke-shale) with *Olenellus Kjerulfi*, *Ellipsocephalus Nordenskiöldi*, *Arionellus primævus*, *Hyalolithes*, etc.²⁸

In the Christiania district the lowest stage of the Cambrian series is 90 Norwegian feet thick and is composed of conglomerates, sandstones, and dark shales with limestone. It includes the *Olenellus* zone and that of *Paradoxides*. It is surmounted by an upper stage (150 feet) composed of black slates (alum-shales) and fetid limestone, with *Olenus*, etc. This upper or *Olenus* stage has been grouped by Brögger into the following five members in ascending order: (a) Zone of *Agnostus pisiformis*, *Olenus truncatus*; (b) *Parabolina spinulosa* beds; (c) *Eurycare latum* beds; (d) shales with bands and nodules of limestone, *Peltura scarabæoides*; (e) *Dictyograptus* shales with *Dictyograptus* (*Dictyonema*) *flabelliformis*.²⁹

Though the Scandinavian Cambrian series is so much thinner than that of Wales, it contains the three distinctive life-platforms recognizable in Britain, and appears thus to be a full palæontological and homotaxial equivalent of the much fuller development of sedimentary material in Britain. The Cambrian type of Southern Sweden undergoes considerable modification as it passes eastward, into the Baltic provinces of Russia. The black shales so characteristic

²⁸ S. A. Tullberg, Afhand. Sveriges Geol. Undersökn. ser. C. No. 50, 1882. W. C. Brögger, Geol. För. Stockholm Förhandl. No. 101, vol. viii. 1886, p. 196.

²⁹ For Scandinavian Cambrian rocks see Angelin, "Palæontologica Suecica," 1851-54. Kjerulf, "Geologie des Süd. und Mittl. Norwegen," 1880. Dahll, Vidensk. Selsk. Förhandl. 1867. Nathorst, Kongl. Vet. Akad. Förhandl. 1869, p. 64, and "Sveriges Geologi." Torell, Acta Univers. Lund, 1870, p. 14, Kongl. Vet. Akad. Förhandl. 1871, No. 6. Linnarsson, Svensk. Vet. Akad. Handl. 1876, iii. No. 12: "Om Agnostus-Arterna," etc., Sveriges Geol. Undersökn. ser. C. No. 42, 1880. "De undre Paradoxides lageren vid Andrarum," op. cit. ser. C. No. 54, 1883; Geol. Mag. 1869, p. 393; 1876, p. 145. Tullberg, "Skånes Graptoliter," Sveriges Geol. Undersökn. ser. C. Nos. 50, 55 (1882, 3); Z. Deutsch. Geol. Ges. xxxv, 1883, p. 223. W. C. Brögger, Nyt. Mag. 1876; Geol. Fören. Stockholm Förhandl. 1875-76, 1886, p. 18. "Die Silurischen Etagen 2 und 3 im Kristiania Gebiet, 1882." Lundgren in text to Angelin's Geol. Map of Sweden, N. Jahrb. 1878. Lapworth, Geol. Mag. 1881, p. 260; 1888, p. 484. Marr. Q. J. Geol. Soc. xxxviii. 1882, p. 313. "Classification of the Cambrian and Silurian Rocks," 1883, pp. 72-100.