TRETASPIS SHALE AT ØLEÅ BORNHOLM

By

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Abstract

A small, strongly inclined outcrop of indurated grey shale is situated in the rivulet Øleå due east of Billegravgård. Trilobites indicating the *Staurocephalus clavifrons* Zone were collected during the summer 1967. The shale represents the northern boundary of a fault-block which probably contains the Ordovician-Silurian transition.

Upper Cambrian Olenid Shale, either horizontal or with a gentle dip towards the south is seen north of Billegravgård at Øleå. A 500 metres wide stretch without exposures separates the Olenid Shale at Billegravgård from the Llandoverian Rastrites Shale further down the rivulet. As the Rastrites Shale has the same gentle dip as the Cambrian shale GRÖNWALL (in: GRÖNWALL, K. A. & MILTHERS, V., 1916, p. 81) concluded that the intervening stretch was too narrow to accomodate the normal succession. Accordingly, he postulated a down-throw

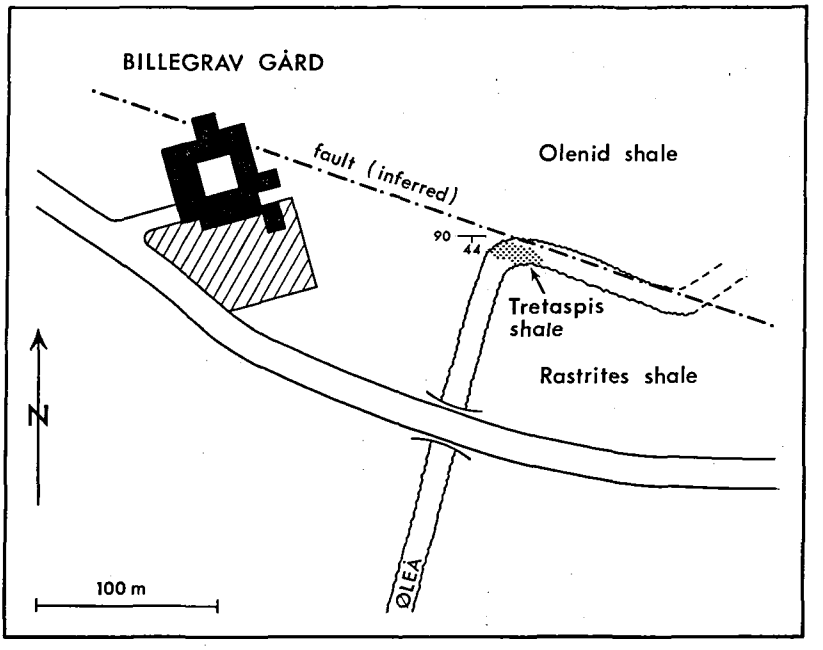

Fig. 1. Sketch-map showing the geology along the rivulet Øleå at Billegravgård, southeastern part of Bornholm.

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of the Silurian shale along a WNW-ESE fault, tentatively placed about 100 metres south of Billegravgård.

Dr. HELGE GRY (Geological Survey of Denmark) some years ago discovered a block of strongly inclined shale in the bottom of Øleå rivulet, at a bend due east of Billegravgård (text-fig.). The stratigraphical position was not known, but the strong inclination suggested a drag against the fault separating the Cambrian from the Silurian shales, and consequently the fault had to be situated about 100 metres further to the north than suggested by GRÖNWALL. The position of the fault is shown on a map in an excursion guide (GRY, 1960).

The bottom of Øleå was exposed in many places during the unusually dry summer 1967, and thus the few metres long and wide outcrop of inclined shale was made accessible. The measured strike is about 90° and the dip about 44° towards the south. The notably micaceous shale is light-grey in colour with a thin rust-brown coating on weathered surfaces.

The fragmentary, or otherwise imperfectly preserved fossils collected by Mrs. MERETE SJØRRING and the author comprise brachiopods and trilobites. Among the trilobites following species are represented: *Trinodus tardus* (BARRANDE), cephalon; *Opsimasaphus jaanussoni* KIELAN, pygidium; *Microparia speciosa* HAWLE & CORDA, pygidium; *Zbirovia longifrons* (OLIN), cephalon; *Zdicella* cf. *bornholmiensis* KIELAN, pygidium; *Liocnemis recurvus* (LINNARSSON), pygidium; *Tretaspis granulata* (WAHLENBERG), fringe fragment.

The assemblage is indicative of the *Staurocephalus clavifrons* Zone (see ZOFIA KIELAN, 1959) which forms the upper part of the Tretaspis Shale (Jerrestad Formation).

The normal stratigraphical succession, apart from the probably absent Dalmanitina beds, is most likely found south of the fault, and in an eventual attempt to estimate the total thickness of the Rastrites Shale the structural setting at the fault must be taken into consideration. The decrease in the dip towards the south may be induced by the drag forming a simple flexure, or by eventual additional faults hidden under the Quaternary cover.

Dansk sammendrag

Øst for Billegravgård ved Øleå findes i selve ålejet en svært tilgængelig blotning over et par meter af en grå lerskifer, som hælder ca. 44° mod syd. HELGE GRY, som opdagede forekomsten, har tydet den store hældning som slæb mod den forkastning, der må adskille den kambriske Olenid-skifer fra den silure Rastrites-skifer. I den tørre sommer 1967 blev skiferblokken tilgængelig, og trilobitrester indsamlet af stud. scient. MERETE SJØRRING og forfatteren viser, at det drejer sig om den øvre del af den øvre-ordoviciske Tretaspis-skifer. Det må antages, at den stratigrafiske følge syd for forkastningen rummer overgangen ordovicium til silur, hvad der er af vigtighed for beregning af Rastrites-skiferens mægtighed.

References

GRY, HELGE, 1960. Geology of Bornholm. Guide to excursions A 45 and C 40. – *21. Int. Geol. Congr.*, Norden, 1960. København.

GRÖNWALL, K. A., 1916. In: GRÖNWALL, K. A. & MILTHERS, V.: Beskrivelse til Geologiske Kort over Danmark (1 : 100000). Kortbladet Bornholm. – *Danm. Geol. Unders.*, ser. I, no. 13.

KIELAN, ZOFIA, 1959. Upper Ordovician trilobites from Poland and some related forms from Bohemia and Scandinavia. – *Palaeontologia Polonica*, no. 11. Warszawa.