

The Discovery of a Regional Crush Belt in the Ørje Area, Southeast Norway

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During fieldwork in the summer 1971, a regional crush belt with mylonite gneisses and blastomylonites as the dominant rock types were discovered east of Rødenesjøen in southeast Norway. The crush belt is similar to the well-known mylonite zone further east.

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In the summer of 1970 the author mapped the area north of Ørje between Rødenesjøen and the Swedish border.

During the first summer's fieldwork it had already become clear that the gneisses and the Åmål granite (a quartz-diorite here named by its Swedish name) at least in some zones had been intensely crushed.

The study of thin sections during the following winter and further field observations the next two summers indicated that the crushing was not merely a local one, but that the term 'mylonite zone' may be appropriate. However, the author prefers the term 'crush belt' because real mylonites are uncommon.

In several respects this crush belt is very similar to the great mylonite zone described by Magnusson (1937) further northeast.

The 'new' regional crush belt is situated on the eastern edge of a great biotite gneiss complex which is thought to be old supracrustals filling up a great NNW–SSE running synform (A. Berthelsen 1971, internal report). To the east and northeast of the crush belt an old migmatite complex (in Sweden termed the Pregotian gneiss complex) crops out.

To the north-northwest the crush belt has only been established by the author as far as the lake Øgderen, but according to Berthelsen (pers. comm.) cataclastic deformed rocks are found at Rælingen south of Lillestrøm (Fig. 1). These rocks may very well represent the continuation of the crush belt. In the opposite direction the mylonitic rocks have been found as far south as Aremark where they cross the boundary to Sweden and continue into the Stora Le-Marstrand serie, the northern part of which is described by Larsson (1956), who also describes cataclastic deformed rocks (among them Åmål granite), which in their development seem to be similar to the rocks of the crush belt.

The dominant rock types in the crush belt east of Rødenesjøen are mylonite gneisses (Quensel 1916) and blastomylonites (Sander 1912). Phyllonites (Sander, quoted by Knopf 1931) and hartschiefer (Quensel 1916) are present but only in small amounts.

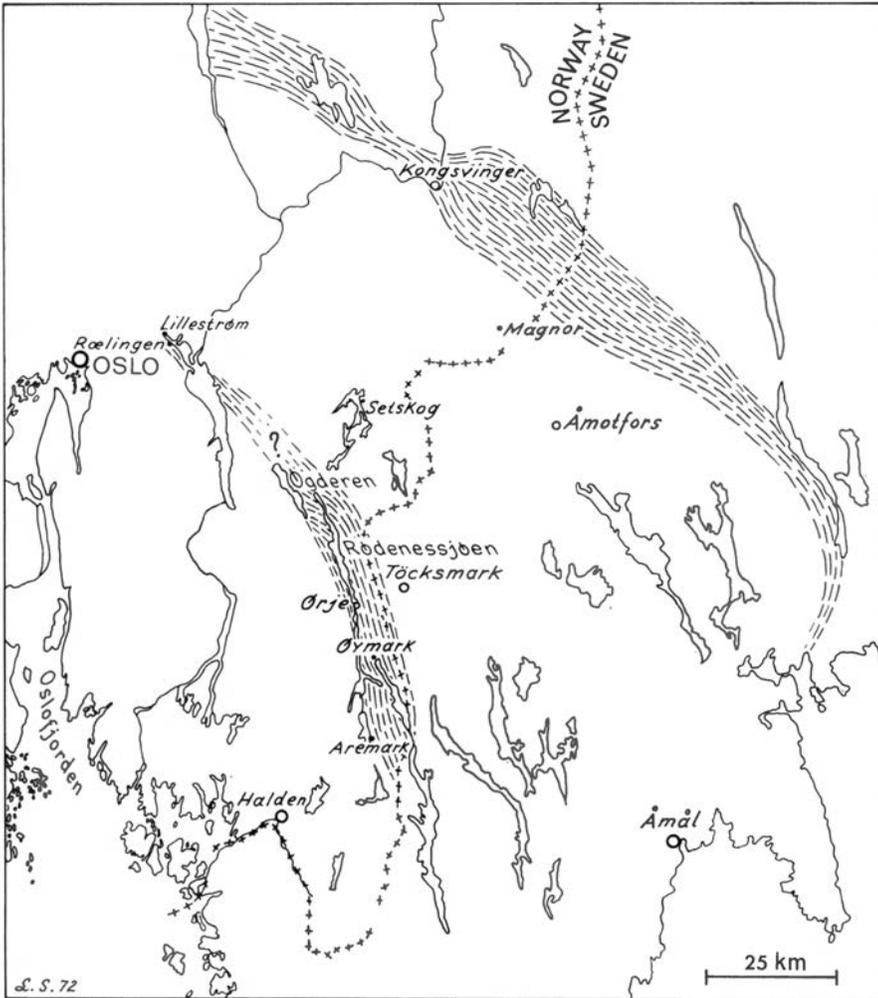


Fig. 1. The southwestern stippled zone shows the location of the newly-discovered crush belt. That to the northeast is Magnusson's 'mylonite zone'. The crossed line is the boundary between Norway and Sweden.

Real mylonites in the sense of Lapworth (1885) may be present but are only subordinate as is also to be expected from the fact that low-grade metamorphism and folding, even double folding, have affected the mylonitic rocks after their mylonitization.

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