NOTIS - *NOTE*

LENTICULAR AND LENTICULAR-LIKE BEDDING IN THE PRECAMBRIAN TELEMARK SUITE, SOUTHERN NORWAY: A COMMENT

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In a recent article, I. B. Singh (1968) presented a reinterpretation of a certain lithology occurring near the base of the Seljord Group, a division of the Telemark suite of supracrustal rocks (Dons 1960a). The lithology in question has been described by Dons (1960b) as a strongly deformed quartz- and quartzite-conglomerate. Singh (1968) on the other hand contends that the lithology is a lenticular bedded sequence developed from primary sand lenses and intercallated clayey layers, and ignores the strong deformation typical for this region. The exposures on which Singh bases his pseudoconglomerate contention are to be found in a road-cutting at a point 7.5 km along the main road SW of Seljord and ca. 500 m NE of the small lake Vigdesjå; the locality is called Heggtveit (International Geological Congress, Excursion guide A10, Stop 10, 3rd day — Dons, 1960b). The present writer had the opportunity of discussing the origin of the lithology with the author in the field in 1967 when Singh made his observations. Since that time a road-widening operation (in 1968) has afforded a fine, freshly exposed 100 m-150 m section through this lithology, and it is indeed a pity that Singh has not been able to see these new exposures.

An impression gained from Singh's description is that the lenticles, or pebbles as they will be referred to hereafter, are composed of only one variety of quartzite. A random check by the present writer showed that in fact ca. 90 % of the pebbles are of cream-white quartzite, the remainder comprising pink, reddish-grey, or dark grey quartzite together with minor amounts of meta-arkose, porphyry, and shale material. Petrographic differences in the quartzite pebbles are seen in a varying amount of mica (principally muscovite), uncommon feldspar and, in some cases, piedmontite.

No less significant a feature of this lithology is pebble shape. Again variety is the keyword, particularly when the pebbles are viewed normal to their elongation trend (Figs. 1 and 2). Singh's (1968) illustrations are deceptive in this respect since most of them portray oblique sections through the lithology; this is clear, for example, from his first two figures. From Figs. 1 and 2 of the present note — sections transverse to the elongation direction — it would be difficult to argue against a true conglomerate interpretation, moreso as one can see several fine examples of pressure solution phenomena along pebble contact surfaces. Fig. 1 in particular shows such impression contacts, as well as a variety of pebble shape. A colour photograph of this specimen would show that only two of the pebbles have an identical appearance.

Singh's remarks on foreset laminae in the 'lenticles', and illustrated by his Figs. 6 and 7, are also misleading since such laminae are actually present in only a minority of pebbles. The feature of foreset laminae continuing across concretionary bodies is itself not in doubt here, but again this phenomenon is by no means as common as

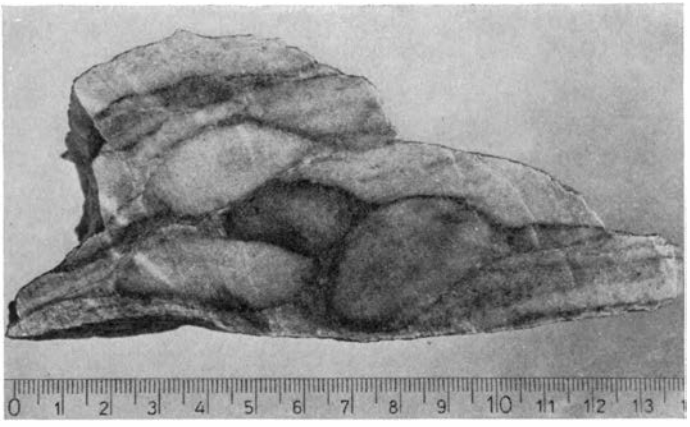

Fig. 1. Hand-specimen of the Heggtveit conglomerate cut normal to the pebble long axes. Note the variety of shape and differences of shade, reflecting colour variations, from pebble to pebble. Pressure solution impression contacts are also well developed.

the author makes it out to be. Another point is that Singh (1968, p. 166) suggests that, in part, minor slumping along clayey layers and, in part, concretionary processes have contributed to the rounding of the ends of 'some of the pebble-like lenticular bodies'. Accepting this without argument for one moment as an explanation for *some* of the pebble-like bodies, one might ask what process Singh envisages for the rounding of the *remaining* 'pebble-like bodies with rounded ends'? On the subject of slumping it is difficult to reconcile this process with the depositional environment advocated by the author, and indeed he makes no further mention of this in the discussion of the origin of 'lenticular bedding' either in the 1968 paper or in a more recent article on primary sedimentary structures in Telemark Precambrian rocks (Singh 1969). In the latter paper, oblique reference to the Heggtveit 'conglomerate' as being derived by 'metamorphism and slight deformation' of a lenticularly bedded succession (Singh 1969, p. 20) is not consistent with the suggestions forwarded in the earlier paper for the origin of this lithology.

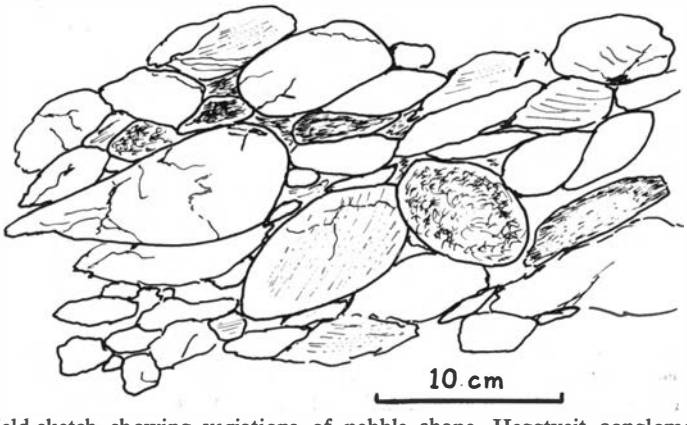

Fig. 2. Field-sketch showing variations of pebble shape, Heggtveit conglomerate. The sketch is from a joint surface trending ca. 10° from the normal to the pebble elongation. 'Foreset laminae' are present in scattered pebbles. Note again the impressed pebble contact surfaces.

Although these various comments collectively serve to repudiate Singh's (1968) thesis of lenticular bedding for the Heggtveit lithology, this does not of course imply that lenticularly bedded units are entirely absent from the Seljord Group. In his later paper the author has described lenticular and flaser bedding and presented convincing illustrations of these primary structures (Singh 1969, pp. 18-21). The disagreement is restricted to the interpretation of the lithology exposed at Heggtveit, and it is of interest here to note that during the autumn of 1967 a party of some 12-14 Norwegian and Swedish geologists visited this locality on an excursion led by Förstekonservator J. A. Dons, who explained Singh's theory in some detail. To the present writer's recollection, the modified lenticular bedding origin was overwhelmingly rejected in favour of the deformed conglomerate interpretation, an interesting fact which, while not in itself refuting Singh's hypothesis, goes a long way towards rejection of his idea.

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THE AGE OF THE PEAK OF THE CALEDONIAN OROGENY IN WEST FINNMARK, NORTH NORWAY

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A recent paper by Sturt et al. (1967) indicates the possible existence of an important early phase of the Caledonian Orogeny in North Norway about 500 m.y. ago, on the basis of K-Ar age determinations on alkaline rocks. The present account presents the preliminary results of an extensive investigation of the Rb-Sr ages and initial Sr^{87}/Sr^{86} ratios from this region. The rock selected for the preliminary work was an aplogranophyre vein in the Hasvik Gabbro from the island of Söröy. The vein has a probable anatectic origin (Sturt 1969). The Hasvik Gabbro was a synorogenic intrusion, emplaced at the peak of the regional metamorphism. Thus it is believed that the Rb-Sr isochron for this vein defines both the time of emplacement of the Hasvik Gabbro and the peak of the regional amphibolite facies metamorphism.

Five whole rock samples from this vein were analysed for rubidium and strontium using standard isotope dilution techniques, the prepared samples being run on an Atlas CH4 mass spectrometer. Sr^{84} spike was used in all strontium runs and the data normalized to give a Sr^{86}/Sr^{88} ratio of 0.1194.