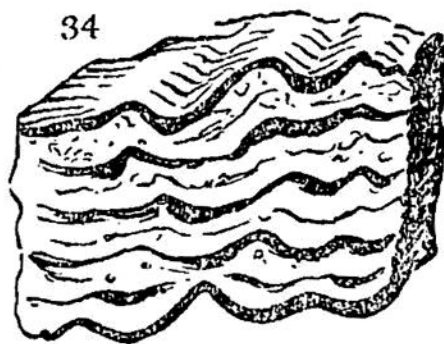


it, and occasionally with clay slate, are also of aqueous production; and the composition of gneiss, &c., completes the evidence wanted to prove that the primary strata analogous to sandstones and clays were formed from the waste of granitic rocks.

The structure of the rocks which compose the gneiss and mica schist system varies considerably, both in relation to lamination and stratification, which depend on the mode of aqueous deposition, and to joints and fissures, which are the result of subsequent agencies.

*Lamination* prevails amongst all the varieties of gneiss, mica schist, chlorite schist, hornblende schist, &c. It is often observable in primary limestone and sometimes in quartz rock. In gneiss, mica schist, and chlorite schist, but especially in the former, the laminæ are usually contorted, sometimes excessively so, indicating a troubled condition of the water from which the ingredients fell, or a source of agitation in the still yielding sediment which seems scarcely ever to have occurred among the secondary and later strata. The only plausible explanation of this remarkable circumstance which has occurred

to us, is the agitation of the sea, or the soft sediment on its bed by heat; exactly as in the bottoms of steam boilers, the calcareous sediment is formed in irregular undulating laminæ, which ap-



appear on a cross section very similar to the flexures in the laminæ of gneiss. It will appear hereafter that this speculation derives some corroboration from other circumstances, tending to show what was the condition, as to heat, of the ocean in which the ancient rocks were formed.

Dr. M'Culloch informs us (Memoir on Map of Scotland, p. 65.), "wherever there are numerous and conspicuous curvatures the gneiss is granitic; and it is the same, with little exception, where the position is angular. It is the same also, almost universally, when the beds are in the vicinity of granite.