

Merguerian, Charles, 1980a, Metamorphosed manganiferous sediments (coticules) in the Ordovician of southern New England.

Manganiferous garnet-quartz rocks are known as cotiules. They are metamorphic rocks, finely laminated to thinly layered in lower chlorite to sillimanite grade, and are found to be associated with highly deformed eugeosynclinal rocks of the Connecticut Valley Synclinorium. The rocks are red, orange, pink, yellow or tan in color and consists mainly of idiomorphic to subidiomorphic manganese-rich garnet in a mosaic of granoblastic quartz; accessory minerals are numerous. Coticules are believed to me metamorphosed ferro-manganese chert deposits that had originally been formed either near active ridge crests or in deep marine basins as manganiferous sediment. In the former case, protoliths of cotiules may have been formed time-transgressive layers; in deep marine basins they may have formed time-stratigraphic deposits. Fe and Mn deposits also form on the fringes of island arcs or seamounts by halmyrolitic or subaerial weathering processes, or by hydrothermal activity.

Ordovician cotiules in western Massachusetts and Connecticut are intimately associated with strata-bound Fe+Cu±Zn sulfides, Fe oxides (itabirites), amphibolite (meta-basalt), and serpentinite. The mineral deposits are typical of Cyprus-type hydrothermal deposits that form near the layer 1 – layer 2 boundary at modern spreading ridges; this association suggests that the cotiules originated at ancient spreading ridges, and that eugeosynclinal rocks in the region, in part, represent pre-Taconic ocean crusts and its sedimentary cover.

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