

Basin-margin mineralisation, Cumbrian coast to Northumberland

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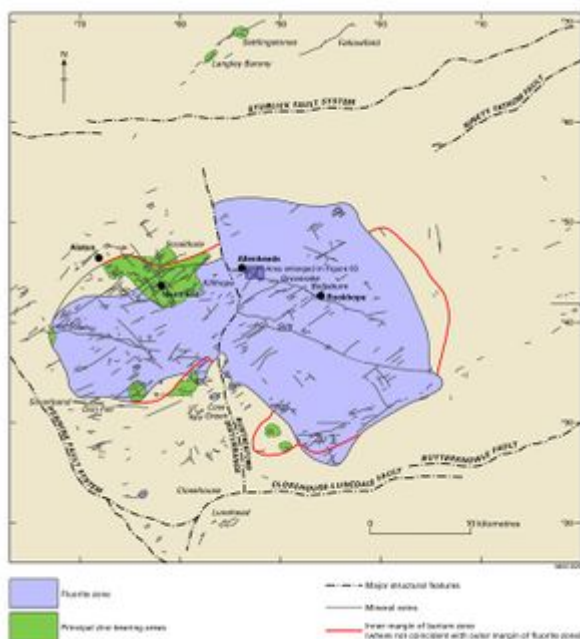
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Maryport-Gilcrux -Stublick-Ninety Fathom Fault Zone



Principal geological features of the Northern Pennine Orefield. Named localities are those mentioned in the text (after Dunham, 1990. Geology of the Northern Pennine Orefield (1). BGS Memoir). P916091.

An en échelon belt of faulting extends from the Cumbrian coast near Maryport to the Northumberland coast at Cullercoats. It includes the Maryport, Gilcrux, Stublick and Ninety Fathom faults, which together define the boundary between the Lake District and North Pennine blocks, and the Solway-Northumberland Trough. Baryte vein mineralisation, locally accompanied by small concentrations of base metals, is common in a belt up to about 4 km wide, associated with the Maryport-Gilcrux Fault Zone, within the Carboniferous rocks on the northern margins of the Lake

District. Concentrations of baryte, accompanied by lead, zinc, copper and locally mercury mineralisation, occur in association with the Stublick Fault in the lower Carboniferous rocks of the Brampton area. Occurrences of barium and lead mineralisation, which lie close to this fault line in the Carboniferous rocks of Northumberland, include the Settlingstones and Fallowfield lead/witherite veins, which have been regarded as peripheral deposits to the Northern Pennine Orefield. Baryte mineralisation is present within the Ninety Fathom Fault in Coal Measures rocks on the Northumberland coast at Cullercoats.

Structural and stratigraphical conditions on the southern margin of the Northumberland- Solway Trough are reminiscent of those that host the base metal deposits of central and Ireland. Hence they invite speculation that similar mineralisation may occur within Lower Carboniferous rocks at depth in northern England. The mineralisation seen at the surface today could then be the product of a partial remobilisation from deeper, concealed deposits. Although some exploration based on this model has been undertaken, no deposit has yet been identified.

Lunedale- Butterknowle Fault Zone

Baryte and lead mineralisation close to or within the Lunedale-Butterknowle Fault Zone, notably at Closehouse Mine, Lunedale ([P916091](#)), appears to be part of the main northern Pennine suite of deposits. Where the fault crosses the Magnesian Limestone outcrop in eastern County Durham, it is associated with a narrow belt of baryte and fluorite mineralisation, and small concentrations of copper minerals occur within the fault near Coxhoe (NZ 320 360). Widespread, but uneconomic, disseminated sulphides have been proved in Coal Measures rocks immediately south of the fault in this area. As with the mineralisation on the northern margin of the block, these occurrences along the southern margin of the Alston Block invite comparison with some of the Irish baryte and base-metal deposits.

East Irish Sea Margin

Deep boreholes in the Sellafield area, drilled as part of an investigation for disposal of low-level radioactive waste, revealed abundant evidence of mineralisation related to the eastern margins of the East Irish Sea Basin. Whereas much of the mineralisation encountered can be matched with that exposed at surface, evidence of hitherto unrecognised mineralisation was revealed, including iron hydroxides, complex Ba-Ca-Mn oxyhydroxides, calcite, pyrite, marcasite, baryte, anhydrite and gypsum — all related to the present-day groundwater system.

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