

Analysis of heavy mineral suites and palaeocurrents from Namurian and Westphalian (Millstone Grit and Coal Measures) sandstones at outcrop in eastern Derbyshire reveals four main sources of sediment supply to this part of the Pennine Basin. Three of these are known to have affected the adjacent Yorkshire Coalfield to the north, and were responsible for introducing sediment from distant source areas located in general terms to the north, west and south-east of the Pennine Basin. Northern sediment entered the basin both from the north and the east. The fourth source region was situated not far to the south of the basin, probably in the part of eastern Avalonia that included the Wales–Brabant High. Local sediment from different parts of this area was incorporated into both the westerly and northerly derived supplies at intervals through Namurian and Westphalian times. The northern source dominated through the Namurian and earliest Westphalian, providing the bulk of the Millstone Grit and lowest Coal Measures, but its influence waned in the early Langsettian, earlier in east Derbyshire than in Yorkshire. Local material, probably derived from the Wales–Brabant High to the south, was added to the northern sediment during the late Namurian and early Westphalian. Sediment from the western source first appeared in east Derbyshire in the Wingfield Flags (early Langsettian) and dominated Coal Measures deposition from the Kilburn Coal through to about the level of the Aegiranum Marine Band (i.e. from mid-Langsettian to end-Duckmantian). Sediment containing garnets of distinctive composition, and inferred to be of local southern origin in the Wales-Brabant High or a comparable region farther west, was apparently added to the western sediment through much of this period. A marked change took place at about the level of the Aegiranum Marine Band, with the incoming in early Bolsovian times of material from the Variscan orogen to the south-east. In Yorkshire, this transition took place earlier, at about the level of the Maltby Marine Band (late Duckmantian).