

Abstract

The geology of approximately 65 sq. km. of the southwestern Blue Mountains has been mapped and described.

The oldest rocks are dominantly ~~quartzo-feldspathic~~ schists of probable Palaeozoic age of the Westphalia Schist Group which are regionally metamorphosed up to amphibolite facies. Tight mesoscopic folds strike north-south. These are separated from marbles and tremolite/actinolite-epidote greenschists of probable Jurassic-Lower Cretaceous age (Mount Hibernia Schists) to the northeast by the Blue Mountain Fault zone. Meso- and macroscopic F_1 folds in the greenschists are overturned towards the south-west. These schists are overlain by sheared volcanics which separate them from load metamorphosed eugeosynclinal Lower Cretaceous rocks of the Blue Mountain Volcanic Group.

Gently-folded, dominantly clastic rocks of Maastrichtian age unconformably overlie the Blue Mountain Volcanic Group and show a vertical and lateral transition from subaerial to marine deposition.

?Paleocene-Lower ~~Eocene~~ flysch type sediments of the Richmond Group were deposited in the fault bounded Wagwater Trough, the Chepstow Limestone forming near the paleo-Blue Mountain shoreline. Instability in the Trough caused local emergence and slump folding.

Carbonates of Early Miocene age of the Upper White Limestone Group were deposited unconformably on this sequence.

Post-Cretaceous rocks are deformed with northwest striking parallel open folds.

Serpentinised lherzolite was intruded in mid-Cretaceous times as a marginally sheared solid. Granodiorite and minor felsic to mafic bodies were emplaced during the late Maastrichtian.

The succession in the area is interpreted as representing eugeosynclinal Jurassic-Lower Cretaceous deposition in a proto-Bartlett Trough between two Palaeozoic forelands, followed by compression across the trough, orogenesis, and metamorphism of the basal members of the geosynclinal pile. Later north-south tension across the area was accompanied by upwelling of the mantle beneath the Bartlett Trough and tilting of the marginal blocks, with recent strike-slip movement.