Chapter 6
Metamorphic Rocks

Dynamic and thermal metamorphism, and metasomatism have variously affected the rocks of the district. The dynamic effects are dominant in the Bluff Head Formation and Tolo Channel Formation, whereas the thermal effects are most pronounced in the Ma On Shan Formation.

Dynamic Metamorphism

Low grade dynamic metamorphism is present in quartz sandstones of the Bluff Head Formation on the eastern flanks of Ngau Ngak Shan. It is characterised by the development of a weak preferred orientation of partially dissolved quartz grains accompanied by the interstitial growth of chlorite, muscovite, and zeolite.

Slaty cleavage has developed in deformed black mudstone and siltstone of the Tolo Channel Formation. It is best exposed at Nai Chung Pier (4422 3278). The slaty cleavage is characterised by oriented muscovite and chlorite in pelitic interbeds and recrystallised quartz grains forming oriented, layered crystal mosaics in the psammitic interbeds.

Thermal Metamorphism

Thermal metamorphism occurs where granite is in intrusive contact with country rocks. Thermal metamorphism of the Bluff Head Formation has produced hornfels on the western slopes of Ngau Ngak Shan. The hornfels is characterised by extensive recrystallisation of quartz and is cut by iron-mineralised quartz veins derived from the granite (Plate 11). It is most pronounced at the boundary between marble and granite beneath the Ma On Shan reclamation where an extensive metasomatic deposit (iron-mineralised pyroxene-garnet-amphibole-bearing skarn) has developed prior to faulting (see Chapter 5).

Plate 11 - Highly Oxidised Iron-rich Sinter (Limonite) from a Thick Quartz Vein within Devonian Sandstone on the Western Flanks of Ngau Ngak Shan (4270 3035)

Metasomatism

Silica and iron metasomatism of marble adjacent to granite beneath the Ma On Shan reclamation has produced an extensive Fe-rich skarn deposit. In many boreholes along the contact zone, the skarn consists of a dark green, fine-grained, pyroxene-rich rock with associated garnet, epidote, and amphibole.