

- (iii) Metasomatism of the country rocks by emplacement of the Pine Hill Adamellite and associated granitic bodies.
- (i) Basaltic volcanomict conglomerate, lithicwacke and greywacke units of the Basaltic Complex show indications of predepositional alteration and weathering. The basalts appear to have been altered (uralitised, saussuritised, albitised) before being broken up and swept into the depositional basin as slump or turbidite debris (5). Also extensive development of goethite, manganese hydroxides (wad) and iron rich clay minerals occur within sections of the basaltic rocks, even if in contact with relatively unweathered rock (e.g. Costean 1000N and at GAK). The indications are that hydrothermal fluids were actively circulating within the basalt pile as it was extruded. Upon interaction of the fluids with the ground water, sea water in sediments and oxygen, precipitation of amorphous ferric hydroxide particles may have taken place. A programme of whole rock geochemistry would be required to prove or disprove this theory, but it is interesting to note that goethite, iron rich montmorillonite and manganese hydroxides occur on oceanic ridges associated with hydrothermally altered basalts.
- (ii) The serpentinitised ultramafic rocks in the Grid 4 area are extensively sheared, and sections have undergone a form of hydrothermal alteration associated with the serpentinitisation process. Two zones containing pod like bodies of dolomite have been mapped through a series of pits and trenches and costeans (see Plan TAS/2/1480). The dolomites are best exposed south of Colebrook Creek, where they occur as vein like pods which pinch and swell up to two metres in width but generally average less than one metre. They consist of coarse interlocking carbonate crystals, thought to be dolomite with patches of sulphide, hydromuscovite and ? barite. Some consist of dolomite-quartz-talc-serpentine, while others consist of quartz-dolomite-sulphides. Fine grained chromite occurs in the rocks which confirms their serpentinitic origin. The carbonate pods are enveloped by talc-manganese oxide-goethite schistose rocks which pass gradationally into fresh apple green serpentinite. The contact