

Sandstone beds of the dominantly sandstone interval are usually deeply leached in surface outcrops and show a porous, almost entirely quartzose composition, with only remnants of muscovite, feldspar, other labile grains, and a ferruginous clay matrix less than 5%. With less weathering, a range of compositions is evident from quartz sandstone to feldspathic quartzose sandstone. Occasionally labile grain or matrix-rich sandstones occur which have been deposited in lower energy environments compared to the strongly cross-bedded quartz sandstone. Sandstone described from stone quarries at Ross appears to contain little more than 50% quartzose grains, as clayey grains and matrix averages about 30% and porosity about 15% (Sharples *et al.*, 1984). The clay component more commonly consists of illite than kaolinite (Sharples *et al.*, 1984). In drill core the sandstone consists of monocrystalline quartz with overgrowths and quartzite grains (70–80%), with chert, potash feldspar, plagioclase, microcline, muscovite and 5–15% clayey matrix (RG26) [374475]. Graphite is often present in hand specimens, and mud pellets up to boulder size may be locally abundant.

The basal beds of the quartz sandstone sequence are exposed about five kilometres west of Ross. As noted earlier the exposure is inadequate to determine whether some beds near the base show greater affinity to the Cygnet Coal Measures correlate (Pj) or the quartz sandstone sequence (Rp). This problem may be resolvable with detailed mineralogical and provenance studies of the outcropping sandstone beds, or drilling to determine the nature of lutite present. Palaeocurrents of these beds are shown in Figure 9. If the base of the quartz sandstone sequence (Rp) is taken as the base of a medium-grained and coarse-grained sandstone unit with quartz granules and occasional small pebbles, similarity is shown with the basal beds in the Oatlands Quadrangle, where granule horizons are often present. Vertebrate bone fragments were noted above the base [369441] and collected from a younger locality west of White Lagoon [353396].

The sequence base on the Tiers scarp east of Lake Sorell is too poorly exposed to elucidate the stratigraphy, and contact metamorphism and limited sections south of Tunbridge Tier Road do not enable a completely confident recognition of the base, although locally a medium-grained to coarse-grained and coarse-granule sandstone with 10–15% feldspar has been mapped as the basal unit of the sequence.

Granule sandstone and conglomerate overlie a lutite-rich interval south of Lake Crescent [150248]. As no contrary evidence was found, the lutite-rich interval has been depicted as Rp_c but could be the top of the Cygnet Coal Measures correlate. Granule sandstone forms the oldest strata nearby on a spur a few hundred metres to the east-north-east. Granule sandstone exposed east of Dogs Head Tier could also be the basal beds of the quartz sandstone sequence [197325].

Quartz granules dispersed in sandstone or scattered on foreset laminae persist to higher stratigraphic horizons than was recognised in the Oatlands Quadrangle, occurring at horizons interpreted to be many tens of metres above the sequence base both south of Lake Crescent and between the Isis River and Auburn Road.

Lutite-rich intervals occur within the dominantly quartz sandstone interval at some localities, and have been indicated (Rp_c) and mapped out where continuity could be established [290294].

Towards the top of the dominantly sandstone interval there is a tendency for sandstone to be finer grained (very fine-grained to fine-grained), to develop pachydermal jointing, to contain less quartz (60–70%), and more brown matrix, mica and graphite. Some sandstone of this type appears to be less porous and of higher specific gravity than

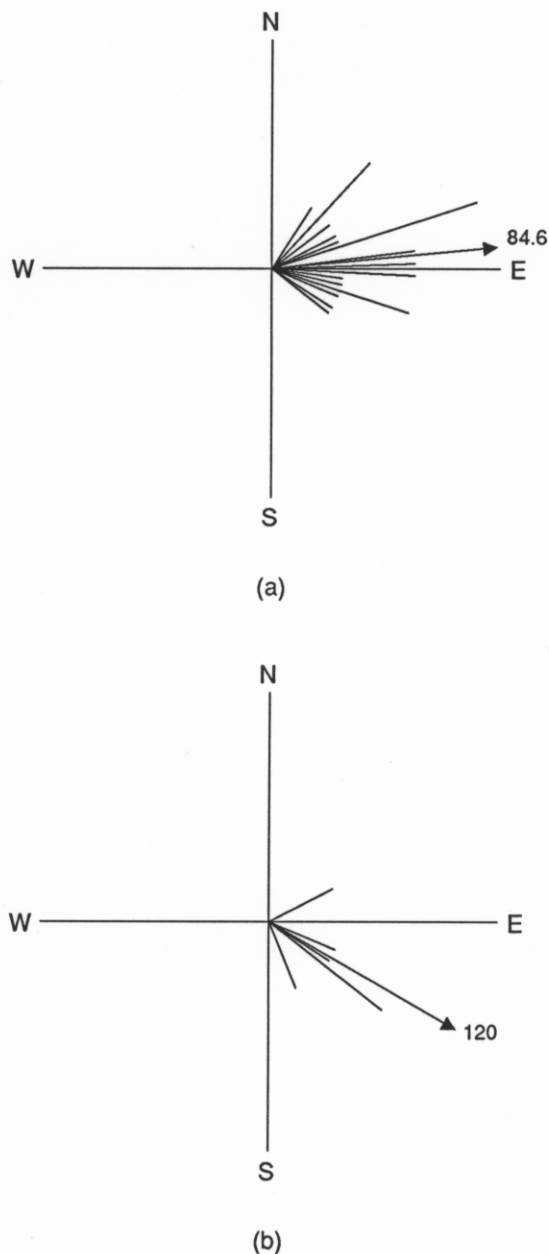


Figure 9. Palaeocurrent vectors for sandstone beds (Rp?, Rp) overlying the Cygnet Coal Measures correlate, Auburn Road area.

(a) Rp?: Mean vector calculated from festoon and tabular cross-bedding, festoon axis, ripple and primary current lineation measurements of relative unit length. N=23, $\theta=84.6^\circ$, MVA=20.84, MVA/N=0.91

(b) Rp: Mean vector calculated from festoon cross-bedding measurements of relative unit magnitude. N=6, $\theta=120^\circ$, MVA=5.30, MVA/N=0.88

is usual, and weathers with a hardened purple rind. Some isolated lutite localities with siltstone and carbonaceous siltstone occur (Rp_c), but at slightly younger horizons lutite appears to be more common than the sandstone layers and an interval of such strata is mappable. In the mapped intervals, the lutite includes carbonaceous beds with occasional sphenosid stems; fissile, richly micaceous beds often associated with thin-bedded sandstone; rare red-purple coloured siltstone; and in places, red to orange iron-stained irregular joints. Initially such intervals appeared to be indistinguishable from lutite intervals lower in the quartz

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