1976/41. Preliminary comments on Early Palaeozoic (Late Ordovician-Early Silurian) rocks and fossils in the Huntley Quadrangle.

P.W. Baillie
M.J. Clarke

This report summarises the stratigraphy and palaeontology of the lower parts of a clastic sequence of rocks which immediately overlies the Ordovician Benjamin Limestone (Corbett and Banks, 1974) in the Florentine Valley and Tiger Range, Huntley Quadrangle, south-west Tasmania. For convenience at this preliminary stage, the clastic sequence is referred to as 'Eldon Group' without implying any strict lithostratigraphic equivalence with sequences in the Zeehan area.

STRATIGRAPHY

Benjamin Limestone

Immediately underlying clastic rocks of the 'Eldon Group', is a sequence of massive, interbedded micrite and dolosiltite with minor bituminous siltstone. Conodonts from near the top of the formation are regarded as Edenian-Maysvillian (Late Ordovician) in age (Burrett, *in* Corbett and Banks, 1974).

'Eldon Group'

The clastic sequence which conformably overlies the Benjamin Limestone is divisible into several mappable lithologic units; only the bottom four are relevant here. The section is summarised below and in Figure 1

		Thickness (m)
TR4	Quartzite with minor siltstone	250
TR3	Cleaved siltstone with minor sandstone	300
TR2	Massive quartzite	130
TR1	Siltstone and sandstone	250

Siltstone and sandstone TR1. This unit crops out and is well exposed on the flanks of the Tiger Range and in the Westfield Quarry area. The lower parts of the unit consist dominantly of siltstone (which is often bioturbated) and very fine, micaceous sandstone. Occasionally the siltstone is finely laminated. Higher in the unit very fine sandstone becomes more common and occasional medium to coarse sandstone also occurs. Herring-bone cross-bedding, observed on Range Road, is indicative of deposition in tidal channels (Conybeare and Crook, 1968). Towards the top of the unit, beds of sandstone up to one metre in thickness occur. Vertical feeding burrows are common and other bioturbation structures are often present. Shelly fossils occur at several levels, sometimes in great abundance.

Massive quartzite TR2. This unit forms the prominent topographic ridge along the eastern edge of the Tiger Range. It consists of beds of hard, grey quartzite ranging in thickness from a few centimetres to over 2 m, but 40-60 cm is characteristic. The tops of beds may be scoured, or show oscillation or interference ripples, indicative of shallow water deposition (Conybeare and Crook, 1968). Bioturbation is often present. Some thin, minor, micaceous and ?carbonaceous shale is interbedded with the quartzite. Towards the top of the unit, siltstone becomes more common and the contact with the overlying unit is gradational over a short stratigraphic interval. The unit is unfossiliferous.

Cleaved siltstone TR3. This unit consists of a uniform sequence of well bedded, buff to grey-green, micaceous siltstone. Bioturbation is usually present. Thin, sandy layers also occur and a tectonic cleavage is present.

Well preserved fossils are present through a thickness of at least 30 m in the middle of the unit.

Quartzite TR4. This unit consists of interbedded, massive quartzite (very fine sandstone) in beds 30-80 cm thick, and grey laminated siltstone in beds 4-15 cm thick. The sandstone beds are not graded and have smooth tops and bottoms. Except for rare fragmentary bryozoans, the unit is unfossiliferous.

PALAEONTOLOGY

Units TR1 and TR3 have yielded well preserved and diagnostic faunas at nine localities (F1-9).

F1 Westfield Road [44477498]*, and F9 Westfield Road below Westfield Quarry [44407500].

Dolerorthis
Onniella
Lepidocyclus
Solitary rugosans - three genera including *?Holophragma* and *?Dalmanophyllum*
Trilobite fragments.

F2 Westfield Quarry [44447501].

Leptograptus
Orthograptus
Bekkeromena
?Cyrtia (incomplete ventral valve)
Hedstroemina
?Lepidocyclus
Onniella
Bumastus
Brongniartella
Encrinurus
Heptabronteus
?Neseuretus - cranidia and pygidia only. Cranidia seems to be closest to *Neseuretus*, but more complete material at locality F3 is *Flexicalymene*.
Trinucleid fragments
Pterinea
Orthodesma
Favositids and other corals, bryozoans, nautiloids, gastropods and ostracods.

F3 Stan Murray Road [43687596].

Bumastus
Flexicalymene
Cf. *Ninkiangolithus*
'Heterorthis' - very close to *Heterorthis*, but specimens are convexo-concave to convexo-plane and not concavo-convex to plano-convex.
Byssonychia and other bivalves.

F4 Range Road [43697569].

Bekkeromena
Hedstroemina
Onniella

F5 Range Road [43687569].

Cyrtia - very abundant in several bands.

*All localities lie within 100 kilometre grid square DN.

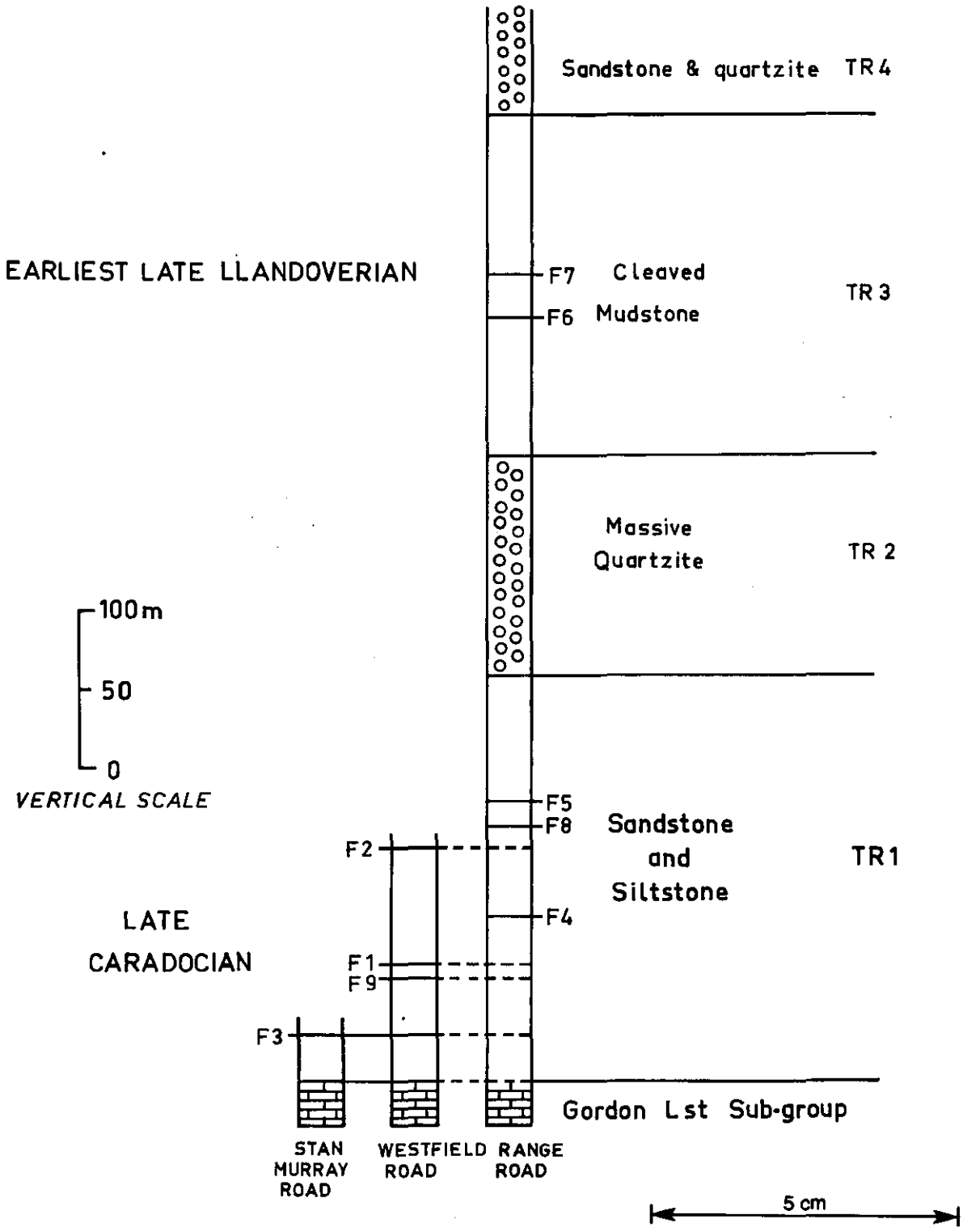

Figure 1. *Sections in Early Palaeozoic rocks in the Huntley Quadrangle.*

F6 Range Road [43657565].

Monograptus sedgwicki (Portlock) - *halli* (Barrande) group
Orthograptus
Leangella ino Öpik
Strophochonetes infantilis (Öpik)
Meifodia tyro (Öpik)
Gillatia
Dalmanites
?Otarion
Solitary rugosans, hyolithids, bryozoans and bivalves.

F7 Range Road [43647570].

As for Locality F6 but graptolites rare and poorly preserved, and an odontopleurid (*?Dicranurus*) and an ophiuroid (*?Hallaster*) are additionally present.

F8 Range Road [43707570]

Bekkeromena
Onniella

The localities can be divided into three categories.

Localities F1-4, 8 and 9. These all occur within the lower 150 m of the lower sandstone and siltstone sequence TR1. The occurrence of forms such as *Bekkeromena, Hedstroemina, 'Heterorthis', Lepidocyclus* and *Onniella, Brongniartella, Flexicalymene, Heptabronteus, ?Neseuretus* and trinucleids (cf *Ninkiangolithus*), together with poorly preserved *Leptograptus* and *Orthograptus*, indicates a definitive Late Ordovician (probable Late Caradocian) age for the lower and middle parts of Unit TR1.

Localities F6 and 7. The occurrence of abundant and well preserved *Monograptus sedgwicki* (Portlock)-*halli* (Barrande) group and poorly preserved diplograptids of *Orthograptus*-type, together with *Leangella ino* Öpik, *Strophochonetes infantilis* (Öpik), *Meifodia tyro* (Öpik) and *Gillatia*, indicates an Early Silurian (earliest Late Llandoverian) age for the middle parts of Unit TR3. A close comparison with the Late Llandoverian *'Illaenus* Band' fauna from the Heathcote area, Victoria (Öpik, 1953) is noteworthy, but the blind bumastid *Thomastus* has not been found.

Locality F5. This fauna, which consists of several beds crowded with the primitive spiriferid *Cyrtia*, presents certain problems. Previously *Cyrtia* has not been found below the Florence Formation (Early Devonian) elsewhere in Tasmania, but clearly this criterion can no longer apply. Even so, a problem still exists since *Cyrtia* is not known to occur before the Llandoverian (Murchison, 1872; Dean, 1964) or even the Late Llandoverian (Pitrat, 1965, p.669). If either of these limits apply to the present occurrence, then it is necessary to postulate a significant break in deposition between localities F5 and 8 (see fig. 1). There is no obvious evidence for this break in the sections examined. It is simpler, therefore, to suggest that *Cyrtia* entered the Tasmanian sequence earlier than elsewhere. This view is supported by the occurrence of a single incomplete ventral valve of a *Cyrtia*-like form in the undoubted Late Caradocian fauna at locality F2. It thus remains possible that the substantial and unfossiliferous interval between localities 5 and 8 may span the latest Ordovician and earliest Silurian without a break.

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