ANTARCTIC DATA SERIES No. 3

VICTORIA UNIVERSITY OF WELLINGTON

# STRATIGRAPHIC SECTIONS OF THE BEACON SUPERGROUP ( DEVONIAN AND OLDER (?) TO JURASSIC ) IN SOUTH VICTORIA LAND

Edited by P. J. Barrett and P. N. Webb

N. Z. ANTARCTIC RESEARCH PROGRAMME
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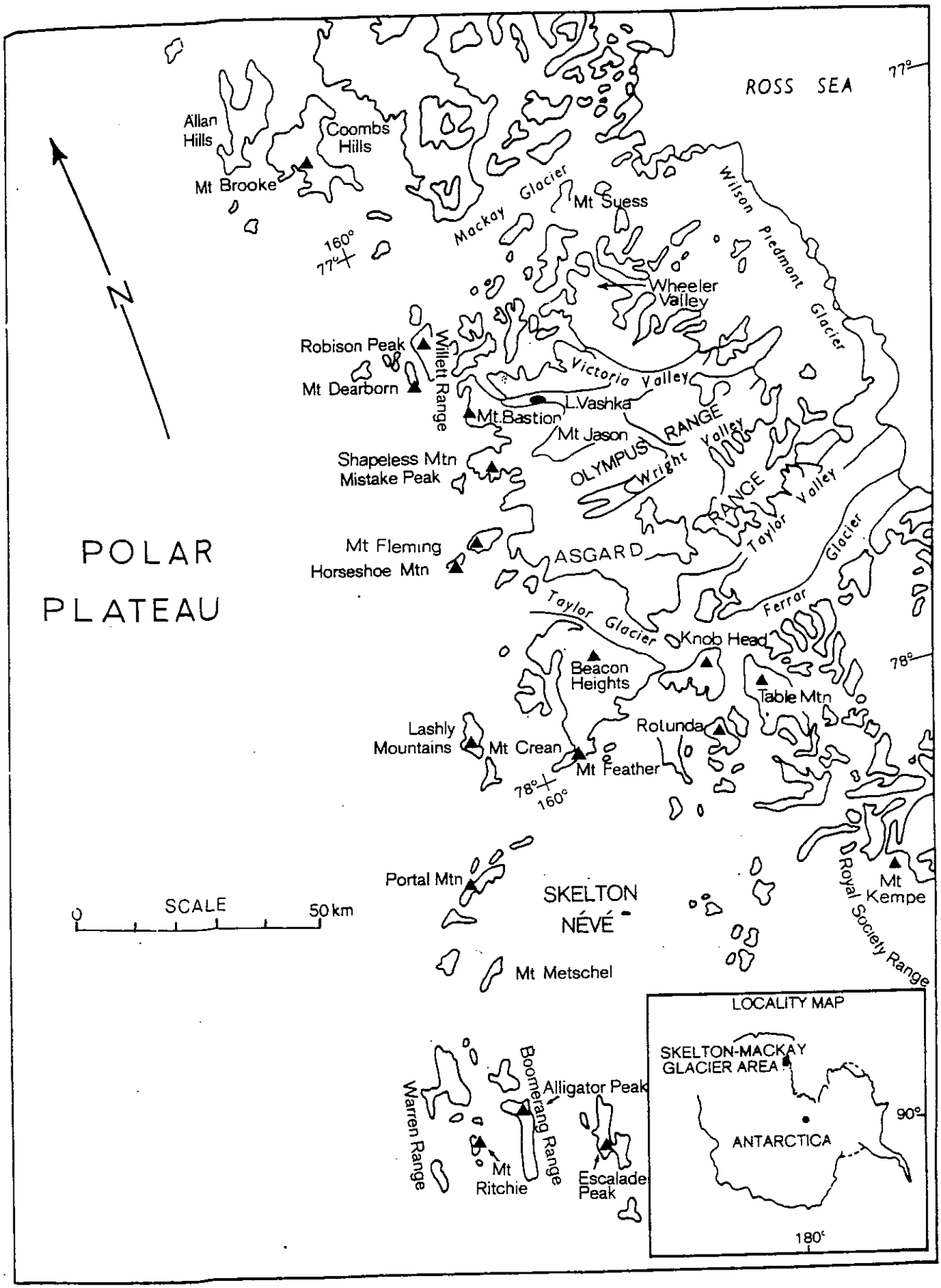
ROSS SEA
77°
Allan Hills
Coombs Hills
Mt Brooke
Mackay Glacier
Mt Suess
Wilson Piedmont Glacier
160°
77°
N
Wheeler Valley
Robison Peak
Willett Range
Mt Dearborn
Victoria Valley
L.Vashka
Mt.Bastion
Mt Jason
RANGE
Wright Valley
Shapeless Mtn
Mistake Peak
OLYMPUS
RANGE
Taylor Valley
POLAR
PLATEAU
Mt Fleming
Horseshoe Mtn
ASGARD
Taylor Glacier
Ferrar Glacier
Knob Head
78°
Beacon Heights
Table Mtn
Lashly Mountains
Mt Crean
Rotunda
Mt Feather
78°
160°
Portal Mtn
SKELTON NÉVÉ
Mt Kempe
Royal Society Range
SCALE
0
50 km
Mt Metschel
LOCALITY MAP
SKELTON-MACKAY GLACIER AREA
90°
ANTARCTICA
180°
Boomerang Range
Alligator Peak
Warren Range
Mt Ritchie
Escalade Peak

STRATIGRAPHIC SECTIONS OF THE BEACON SUPERGROUP IN SOUTH VICTORIA LAND.

PART I - VUWAE 13 (1968-69).



* upper or lower contact not exposed.

PART II - VUWAE 15 (1970-71).

# INTRODUCTION.

The following stratigraphic descriptions were made during the 1968-69, 1970-71 and 1971-72 Antarctic expeditions from Victoria University of Wellington. Other stratigraphic sections from the Darwin Mountains and south Victoria Land have been described by the 1970-71 expedition and were published as Numbers 1 and 2 of this series.

Sections in Part I were measured with the aid of a graduated staff; sections in Parts II and III were measured with a graduated staff 1.5 m long with an attached Abney level, but a few were measured by eyeheights and this is noted in the description. Each section is divided into formations (see table overleaf) and units. The units are numbered from oldest to youngest (left hand column) for each formation. Unit thickness is given in Column A, and cumulative thickness from the base of the formation (or section, if the base of the formation is not exposed) is in column B.

The location of the base and the initials of the measurers of each section are given before each description. Range and azimuth, latitude and longitude, and elevation have been taken from sheets of the U. S. Geological Survey 1:250,000 reconnaissance series.

Rock properties are described in the following order: gross lithology, colour of unweathered surface, weathered colour ("weathers" has been abbreviated to "w/"), grain size, bedding and splitting properties, and then other comments. The colour reference used is the Geological Society of America Rock Colour Chart. Grain size is given in terms of the Wentworth scale, bedding and splitting properties are those defined by McKee and Weir (1953), except for the term "unbedded" which is used for units which lack any visible internal sedimentary structures. The notation ($\lambda$ cm; h cm) is for the wave-length and height of ripple marks.

Sample numbers on the left side of the page are those of the Victoria University of Wellington rock collection. Those on the right side in Parts II and III are field numbers.

P. J. Barrett
Department of Geology,
Victoria University of Wellington,
P. O. Box 196,
WELLINGTON. N. Z.

Table. The Beacon Supergroup of South Victoria Land (after McElroy, 1969; McKelvey et al., 1970; VUWAE 13, 15, 16, unpublished data).

| GROUP | AGE | ROCK UNIT | DESCRIPTION | MAX THICKNESS (METRES) |
|---|---|---|---|---|
| BEACON SUPERGROUP / VICTORIA GROUP | TRIASSIC | Lashly Formation | Arkosic and lithic sandstone, greenish grey and grey siltstone. Roots and stems common in lower part; Dicroidium leaves and stems common in middle part. | 520+ |
| | | Fleming Member | Quartzose sandstone with common pinkish grains, and yellowish-green siltstone. Clearly developed only north of Taylor Glacier. | (100) |
| | | Feather Conglomerate | Conglomerate of rounded white vein quartz pebbles, with interbedded quartzose sandstone and grit. Upper and lower 50 m are mainly ss with scattered white and pinkish quartz pebbles. In the north the unit consists entirely of coarse sandstone. | 220 |
| | PERMIAN | Weller Coal Measures | Quartzose and arkosic sandstone and minor carbonaceous siltstone. Pebbles and boulders scattered and in lenses especially near base. Coal, logs and stems and Glossopteris in upper part. | 250 |
| | | | PYRAMID EROSION SURFACE | |
| | LOWER PERMIAN | Metschel Tillite | Tillite, conglomerate, sandstone, siltstone. Locally slump-folded. A few striated surfaces. Clasts are mainly granitic and up to 1 m across. | 70 |
| | | | MAYA EROSION SURFACE | |
| BEACON / TAYLOR GROUP | MID-UPPER DEVONIAN | Aztec Siltstone | Greyish red, greenish grey and grey siltstone and light coloured sandstone. Fish fossils, plant roots, mudcracks and ripplemarks common. Rare plant stems. | 220 |
| | DEVONIAN | Beacon Heights Orthoquartzite | Orthoquartzite, with occasional quartz grit lenses. Rare lycopod stems. Beaconites trails throughout. | 340 |
| | AND | Arena Sandstone | Yellowish and light greenish grey sandstone. Ferruginous layers, burrows and trails (including Beaconites common). | 360 |
| | ?PREDEVONIAN | Altar Mountain Formation | Sandstone, siltstone, subarkose. Burrows and trails (including Beaconites) | 240 |
| | | Odin Arkose | Arkosic grit and conglomerate | (50) |
| | | | HEIMDALL EROSION SURFACE | |
| | | New Mountain Sandstone | Quartzose sandstone, minor siltstone | 270 |
| | | Boreas Subgrey-wacke | Argillite, sandstone, conglomerate | (20) |
| | | Terra Cotta Siltstone | Shaly siltstone, minor sandstone | 60 |
| | | Windy Gully Sandstone | Pebbly quartzose sandstone | 50 |
| | | | KUKRI SURFACE | |
| | PALEOZOIC TO PRECAMBRIAN | BASEMENT COMPLEX | | |

# PART I.

Stratigraphic sections from the Skelton Neve, Taylor Glacier area, and Asgard and Olympus Ranges.

Measured and described in the 1968-69 season (VUWAE 13) by:-

Dr. B. C. McKelvey, University of New England, Armidale, N. S. W.

Dr. P. N. Webb, N. Z. Geological Survey, Lower Hutt, N. Z.

Mr. M. Gorton, now at Australian National University, Canberra, ACT.

Mr. B. P. Kohn, Geology Department, Victoria University of Wellington.

SECTION 1 - SOUTHERN BOOMERANG RANGE.

Section measured up back wall of large cirque on eastern side of range 4.0 km at 025° from Peak 1689. Measured with staff by PNW, BCMc, BPK, MPG 12/68. Position of base 78° 35.8'S; 158° 45'E. Map elevation 1500 m.

| | A | B |
|---|---|---|
| Dolerite | | |
| AZTEC SILTSTONE (87+ m) | | |
| Nodular green and red mudstone. | 2.7 | 86.76 |
| Cross-bedded sandstone. | 0.9 | 84.06 |
| Cross-bedded sandstone containing pellets. | 0.6 | 83.16 |
| Nodular green and red mudstone | 6.1 | 82.56 |
| Cross-bedded sandstone, base of cycle. | 0.9 | 76.46 |
| Massive siltstone. | 0.6 | 75.56 |
| Green cross-bedded siltstone/mudstone. | 2.1 | 74.96 |
| Cross-bedded sandstone, base of cycle. | 0.6 | 72.86 |
| Finely laminated and cross-bedded silty sandstone. | 0.6 | 72.26 |
| Cross-bedded sandstone, base of cycle. | 0.6 | 71.66 |
| Loss of exposure. | 1.2 | 71.06 |
| Nodular green mudstone. | 2.6 | 69.86 |
| Bored cross-bedded sandstone, base of cycle. | 2.7 | 67.26 |
| Massive green siltstone. | 0.3 | 64.56 |
| White to slightly green sandstone, base of cycle. | 0.9 | 64.26 |
| Platy cross-bedded silty sandstone | 0.6 | 63.36 |
| Dark green sandstone. | 0.2 | 62.76 |
| Sandstone, base of cycle. | 0.3 | 62.56 |
| Platy dark green silty sandstone. | 0.2 | 62.26 |
| Cross-bedded sandstone with abundant green siltstone pellets, many borings, base of cycle. | 2.4 | 62.06 |
| Bored green sandstone. | 0.12 | 59.66 |
| Massive sandstone, base of cycle. | 0.3 | 59.54 |
| Bored green sandstone. | 0.6 | 59.24 |
| Massive sandstone, base of cycle. | 0.9 | 58.64 |
| Bored nodular green siltstone and sandstone. | 7.9 | 57.74 |
| Massive sandstone, base of cycle. | 2.4 | 49.84 |
| Bored nodular green siltstone and sandstone. | 2.1 | 47.44 |
| Platy light green silty sandstone. | 0.1 | 45.34 |
| Massive sandstone with dessication cracks. | 0.9 | 45.24 |
| Bored cross-bedded sandstone, with abundant mudstone pellets, base of cycle. | 3.6 | 44.34 |
| Bored and nodular green siltstone. | 1.5 | 40.74 |
| Bored sandstone, base of cycle. | 0.1 | 39.24 |
| Platy siltstone. | .05 | 39.14 |
| Sandstone with nodular base. | .07 | 39.09 |

| | A | B |
|---|---|---|
| Siltstone. | 0.3 | 39.02 |
| Sandstone. | 0.05 | 38.72 |
| Green siltstone. | 0.03 | 38.67 |
| Sandstone. | 0.03 | 38.64 |
| Green siltstone. | 0.01 | 38.61 |
| Sandstone. | 0.05 | 38.60 |
| Platy siltstone. | 0.15 | 38.55 |
| Sandstone. | 0.07 | 38.40 |
| Siltstone. | 0.03 | 38.33 |
| Cross-bedded sandstone/siltstone interbedded with laminated sandstone/siltstone. | 0.3 | 38.3 |
| Massive sandstone with undulating base, base of cycle. | 0.9 | 38.0 |
| Green nodular beds. | 2.4 | 37.1 |
| Interbedded dark purple and light green siltstones. | 0.9 | 34.7 |
| Cross-bedded sandstones containing green mud pellet horizons, base of cycle. | 2.1 | 33.8 |
| Sample 22471 Cream calcareous sandstone. | | |
| Green nodular siltstone/sandstone. | 3.7 | 31.7 |
| Cross-bedded sandstone. | 5.5 | 28.0 |
| Nodular green siltstone. | 1.2 | 22.5 |
| Sandstone with undulating base, base of cycle. | 5.5 | 21.3 |
| Interbedded Black ferruginous sandstone and green silty sandstone. | 1.8 | 15.8 |
| Sandstone, with 0.03 m iron rich band, base of cycle. | 3.0 | 14.0 |
| Siltstone. | 4.9 | 11.0 |
| Sandstone with silty horizons. | 6.1 | 6.1 |

Note: Sample 22472 from Aztec Siltstone.

AZTEC SILTSTONE (87+ m)

- gradational contact -

BEACON HEIGHTS ORTHOQUARTZITE (70+ m)

Massive and cross-bedded white-yellow orthoquartzite, not measured.

Sample 22571 Cemented fine sandstone.

Snow.

SECTION 2 - SOUTHERN BOOMERANG RANGE.

Section measured up eastward-protruding spur 9.5 km at 025° from Peak 1689 and separating two large cirques. Measured with staff by PNW, BCMc 12/68. Position of base 78° 34.4'S; 158° 48'E. Map elevation 1500 m.

| | A | B |
|---|---|---|
| Dolerite sill. | | |
| BEACON HEIGHTS ORTHOQUARTZITE (195+ m) | | |
| Cross-bedded and horizontally bedded ripple marked orthoquartzite, current directions towards east. Thin black green brown sandstone siltstone beds near base of unit. Cliff and ledge forming. Upper part of section not measured. | 110 | 195.3 |
| Cross-bedded and horizontally bedded ripple marked orthoquartzite. Cliff and ledge forming. | 85.3 | 85.3 |
| ARENA FORMATION (61+ m) | | |
| Cross-bedded clayey sandstone passing gradationally up into the overlying unit. Slope forming. | 61 | 61 |
| Moraine. | | |

SECTION 3 - ALLIGATOR PEAK

Section measured up southeast spur of Alligator Peak beginning 2.9 km at 125° from the summit. Measured with staff by PNW, BMc 12/68.
Position of base 78° 29.2'S; 158° 51'E. Map elevation 1600 m.

| | A | B |
|---|---|---|
| Dolerite sill. | | |
| AZTEC SILTSTONE (135+ m) | | |
| Nodular green siltstone passing up to green siltstones. | | |
| Interbedded red and green mudstones. | 3.7 | 135.2 |
| Laminated buff fine-grained sandstone and siltstone with nodules, beds up to 0.6 m thick. | 12.5 | 131.5 |
| Nodular fine-grained sandstone and siltstone, with buff nodules dominant over green and red nodules. | 3.7 | 119.0 |
| Thin-bedded buff sandstone and green siltstone, mostly in beds 0.3 - 0.5 m thick. Nodular beds common. Fossil fish fragments 3.1 m above base of unit. | 7.3 | 115.3 |
| MS 241 | - | |
| Massive nodular siltstone. | 1.8 | 108.0 |
| Nodular green and red mudstone/siltstone. | 1.8 | 106.2 |
| Green and red mudstones. | 1.8 | 104.4 |
| Laminated green-buff siltstones. | 1.2 | 102.6 |
| Red mudstones with some green variegated horizons. | 7.3 | 101.4 |
| Nodular beds, distinct transitional contact with underlying and overlying units. | 0.9 | 94.1 |
| Cycles of cross-bedded and/or laminated sandstones and green and red siltstones. Sandstones constitute thickest part of each cycle. Sandstone portion up to 0.8 m in thickness. | 2.4 | 93.2 |
| Laminated green siltstone, fossil fish fragments near base. | 0.9 | 90.8 |
| Nodular green sediments | 5.5 | 89.9 |
| Bored mottled green sandstone and siltstone. | 0.6 | 84.4 |
| Green siltstones. | 0.9 | 83.8 |
| Interbedded cross-bedded buff sandstones (up to 0.9 m thick) and green sandstones (up to 1.2 m thick). Greensands become less prominent towards top of unit. Fossil fish fragments 1.5 m above base of unit. | 3.7 | 82.9 |
| MS 240 | | |
| Laminated pale green and dark green siltstones. | 0.9 | 79.2 |
| Interbedded red and green siltstones passing gradationally upward to sandier sediments with nodules. | 2.7 | 78.3 |
| White sandstones interbedded with 0.05 m green siltstone. | 1.5 | 75.6 |
| Interbedded sandstone and green siltstone with sharp lower and upper contacts. | 1.8 | 74.1 |
| Sandstone with mudstone chips. | 0.6 | 72.3 |
| Green and red siltstones. | 4.3 | 71.7 |

| | A | B |
|---|---|---|
| Sandstone<br>Greensand<br>Sandstone } contacts transitional | 1.8 | 67.4 |
| Variegated red and green siltstone. | 3.0 | 65.6 |
| Nodular green siltstone. | 0.6 | 62.6 |
| Laminated green siltstones. | 0.8 | 62.0 |
| Sandstone. | 0.6 | 61.2 |
| Laminated light green siltstones. | 0.5 | 60.6 |
| Variegated green siltstones. | 5.5 | 60.1 |
| Massive green siltstone with sparse nodules. | 3.7 | 54.6 |
| Green siltstone. | 3.7 | 50.9 |
| Massive green siltstone. | 1.8 | 47.2 |
| Red mudstones. | 1.8 | 45.4 |
| Laminated green siltstones, scattered fossil fish fragments. | 3.7 | 43.6 |
| Mudstone, overlying 5.5 m sandstone unit with distinctly sharp contact. | 2.1 | 39.9 |
| Sandstone with mudstone chips. | 5.5 | 37.8 |
| Sandstone with fish fragments. | 0.3 | 32.3 |
| Variegated green siltstone, laminated at base and passing gradationally upwards into massive siltstone with nodules. | 3.0 | 32.0 |
| Sandstone. | 1.5 | 29.0 |
| Mudstone, laminated and with sharp basal contact. | 5.5 | 27.5 |
| Sandstone with sharp basal contact. | 0.3 | 22.0 |
| Green siltstone, massive at base, but with nodules at higher levels, top of unit exhibits dessication polygons up to 0.5 m diameter. | 4.9 | 21.7 |
| Sandstone. | 2.1 | 16.8 |
| Siltstone | 0.6 | 14.7 |
| Sandstone | 6.1 | 14.1 |
| Siltstone. | 3.7 | 8.0 |
| Sandstone. | 3.7 | 4.3 |
| Ferruginous sandstone grading up into green/khaki siltstone. Gradational contact with underlying formation. | 0.6 | 0.6 |
| AZTEC SILTSTONE (135+ m) | | |
| BEACON HEIGHTS ORTHOQUARTZITE (105+ m) | | |
| Sandstone, with minor green sandstone bands up to 0.05 m thick, and siltstone pellets up to 0.08 m diameter. | 7.3 | 105.0 |
| Green sandstone. | 0.9 | 97.7 |
| Sandstone, grading up into overlying unit. | 0.6 | 96.8 |
| Bored green sandstone, becoming green-black at top. | 1.8 | 96.2 |
| White saccharoidal sandstone. | 2.4 | 94.4 |
| Sample 22573 Quartzose sandstone. | | |

| | A | B |
|---|---|---|
| White orthoquartzite grading up into green/khaki sandstone | 0.6 | 92.0 |
| White orthoquartzite, horizontally bedded in units of 0.08 m. Some thin interbeds of khaki/green/brown sandstone and siltstone up to 0.05 m, ferruginous weathering prominent, borings and tracks common. | 91.4+ | 91.4 |

BEACON HEIGHTS ORTHOQUARTZITE (105+ m)

Snow.

SECTION 4 - ALLIGATOR PEAK.

Section measured up eastern spur of Alligator Peak beginning 2.6 km at 087° from the summit. Measured with staff by BCMc, BPK 12/68.
Position of base 78° 28.3'S; 158° 52'E. Map elevation 1600 m.

| | A | B |
|---|---|---|
| Dolerite sill. | | |
| AZTEC SILTSTONE (91+ m) | | |
| Green mudstone. | 0.9 | 91.4 |
| Cross-bedded, honeycomb weathered orthoquartzite. | 0.8 | 90.5 |
| Laminated green/blue siltstone. | 0.1 | 89.7 |
| Sandstone. | 0.4 | 89.6 |
| - section continued in cirque to south of ridge - | | |
| White sandstone. | 4.6 | 89.2 |
| Massive gren siltstones with nodules. | 6.4 | 84.6 |
| Laminated green flaggy siltstones. | 0.5 | 78.2 |
| Mottled light green/dark green massive mudstone with nodules and/or vertical borings. Veins of calcite. | 5.5 | 77.7 |
| Blue/green siltstones with nodular concretions. | 0.6 | 72.2 |
| Massive blue/grey siltstone. | 0.3 | 71.6 |
| Laminated green mudstones and siltstones with fossil fish fragments. | 1.5 | 71.3 |
| MS 238<br>?MS 239<br>?MS 1 & 2<br>(Gunn and Warren, 1962). | | |
| Orthoquartzite. Slight loss of exposure towards the top of this unit. | 1.8 | 69.8 |
| Fine green sandstone exhibiting dessication cracks infilled by mud. | 1.8 | 68.0 |
| Sample 22475 Fine sandstone. | | |
| Coarse white sandstone. Contains a few mudstone blocks and balls up to 0.2 m diameter, and subrounded chips. Beds well jointed and laminated towards top. Passes gradationally into overlying sandstone. | 1.8 | 66.2 |
| Green mudstone and siltstone, contains rare small concretions. | 3.4 | 64.4 |
| Greenish but mainly white fine-grained sandstone, exhibits well developed jointing and is markedly laminated in places. | 3.4 | 61.0 |
| Interbedded blue/green siltstones and fine-grained sandstone with abundant concretions. Abundance of concretions increase upwards - 3.7 m above base of this unit the concretions are rust coloured and have partly or wholly weathered out giving this part of the unit a honeycomb appearance. | 5.2 | 57.6 |
| Massive green (finer than underlying unit) clayey sandstone, exhibits no obvious internal bedding. Grades up into overlying unit. | 4.3 | 52.4 |
| White laminated sandstone with small ferruginous spots. Undulating (0.6 m) basal content. | 0.9 | 48.1 |
| Interbedded white sandstone, green siltstone, and laminated mudstone. Mudstone broken by dessication cracks which have been infilled with sand. Current ripple marks also common in mudstones. | 1.2 | 47.2 |

| | A | B |
|---|---|---|
| Coarse sandstone. Contains strongly developed cross bedding indicating current directions to northeast. Each cross-bedded unit is up to 0.8 m thick. Grain size decreases upwards and also passes from pale brown-buff near base to white in upper part. Mudstone blocks and chips up to 0.08 m long are occasionally present at the base of this unit. | 13.4 | 46.0 |
| Buff-yellowish-green orthoquartzites grading up into green and yellow siltstones. | 0.4 | 32.6 |
| Massive orthoquartzite. | 0.4 | 32.2 |
| Orthoquartzite with greenish to buff yellow beds towards the top of cycle. | 1.4 | 31.8 |
| Fine greenish siltstone } (cycle) | 0.1 | 30.4 |
| Orthoquartzite } | 0.2 | 30.3 |
| Sample 22575 Fine quartz sandstone. | | |
| Interbedded buff and green-black sandstones. | 0.3 | 30.1 |
| Orthoquartzite. | 0.4 | 29.8 |
| Sample 22573 Fine quartz sandstone. | | |
| Buff yellow shales. | 0.2 | 29.4 |
| Dark green to black shales. | 0.1 | 29.2 |
| Black ferruginous shale, seen as a distinctive black band from a distance. | 0.6 | 29.1 |
| Sample 22470 Black shale. | | |
| - sharp contact - | | |
| Well laminated dark green and flaggy siltstones. | 0.5 | 28.5 |
| Dark carbonaceous slate, passing gradationally into overlying unit. | 3.4 | 28.0 |
| Greensand grading upwards to green flaggy hard siltstones. | 0.3 | 24.6 |
| Orthoquartzites, concretions absent. Cross-bedding well developed, indicating currents to east and southeast. Base of cross-sets are coarser grained. Some scour and fill throughout unit. | 14.6 | 24.3 |
| Orthoquartzites, with low angle cross-stratification, indicating currents to east and south-east. | 0.9 | 9.7 |
| Orthoquartzite. Buff-brown on surface, numerous small ferruginous concretions. Some cross-stratification. | 3.7 | 8.8 |
| Orthoquartzite, massive or cross-bedded in beds up to 0.6 m thick. Laminated or low angle in cross-stratification; general current direction towards northeast. | 2.4 | 5.1 |
| Fine green sandstone, low angle cross lamination in 0.05 - 0.1 m beds. Overlies older transitional unit with some erosional scour relief of 0.02 - 0.05 m. | 0.9 | 2.7 |
| Sandstone, similar to sediments below but darker (more ferruginous) in colour. Density of colour increases upwards to brown-buff. Gradational contact with underlying formation. | 1.8 | 1.8 |

AZTEC SILTSTONE (91+ m)

| | A | B |
|---|---|---|
| BEACON HEIGHTS ORTHOQUARTZITE (120+ m) | | |
| Orthoquartzites, horizontal or moderately low angle cross-bedding in units 0.05 - 0.5 m thick. Short near vertical worm borings. Cliff forming unit. | 12.0 | 12.0 |
| Moraine. | | |

SECTION 5 - ALLIGATOR PEAK.

Section measured up backwall of large cirque beginning 2.3 km at 023° from the summit. Measured with staff by BCMc, BPK 12/68.
Position of base 78° 27.2'S; 158° 47.5'E. Map elevation 1600 m.

| | A | B |
|---|---|---|
| Dolerite, easterly dipping sheet which forms the main serrated ridge. | | |
| AZTEC SILTSTONE (43+ m). | | |
| Sandstone, obscured beneath scree. | 1.8 | 42.6 |
| Buff-green and green siltstones with nodules. The dominant buff siltstones are hard, well laminated, fine-grained and cross-bedded. Some bands of pebble or thin conglomerates, up to 0.2 m in thickness. | 5.5 | 40.8 |
| Massive green mudstones with scattered concretions. Transitional into overlying unit. | 3.0 | 35.3 |
| Interbedded green and light green laminated mudstones, with ripple marks, borings and nodules in the softer green sediments. Nodules arranged along bedding planes. Minor red blotches. | 5.5 | 32.3 |
| Current ripple and laminated green micaceous mudstones. | 7.3 | 26.8 |
| Interbedded fine conglomerate, buff sandstones, green honeycomb siltstone, and siltstones and mudstones. Passes gradationally into overlying unit. Grain size decreases upwards within unit, incidence of green sediments also increases upwards. Cross-bedding in fine sandstones, also blocks of mudstone and siltstone up to 0.1 m diameter. | 5.5 | 19.5 |
| Massive green mudstone with scattered nodules aligned with bedding. | 2.4 | 14.0 |
| Cross-bedded orthoquartzite. | 4.3 | 11.6 |
| Loss of exposure, probably mudstones. | 1.8 | 7.3 |
| Cross-bedded sandstones. | 1.8 | 5.5 |
| Massive and low-angle cross-bedded green and grey mudstone/siltstone. Fossil fish occur in interbedded blue grey and green black mudstones and shales. Some sand lenses in mudstones, mudstone beds up to 0.08 m thick. | 3.7 | 3.7 |
| MS237 | | |
| BEACON HEIGHTS ORTHOQUARTZITE (10+ m). | | |
| Cross-bedded yellow-buff orthoquartzites, base not exposed. | 10 | 10 |
| Moraine. | | |

SECTION 6 - ALLIGATOR PEAK.

Section measured up eastern tip of northwest spur of Alligator Peak beginning at glacier edge 3.3 km at 335° from the summit. Measured with staff by PNW, BCMc 12/68.
Position of base 78° 26.6'S; 158°40.5'E. Map elevation 1800 m.

| | A | B |
|---|---|---|
| Dolerite sill. | | |
| WELLER COAL MEASURES (48+ m). | | |
| Pale greenish-white flaky well-bedded fine silty sandstone, with occasional grit bands. Grades into underlying beds. | 6.1 | 48.0 |
| Well bedded (laminated) sandstone, gritty in places, contains fine siltstone bands. | 2.1 | 41.9 |
| Overlying beds grade down into fine poorly cemented quartzose grits. Rare thin greenish mudstone beds and lenses are present. Occasional conglomerate bands are also found in this unit; these contain quartz pebbles up to 0.15 m diameter and rarer granitic pebbles. The grits tend to be coarser above the conglomerate bands. | 10.1 | 39.8 |
| Massive white sandstone. | 1.2 | 29.7 |
| Overlying beds grade into fine sandstone. | 0.2 | 28.5 |
| Overlying fine sandstone grades down into fine well bedded sandstone. In places this sandstone is susceptible to exfoliation weathering. Basal 6.1 m of this unit is very coarse and gritty and contains odd pebbles of quartzite. | 6.1<br>21.3 | 28.3<br>22.2 |
| Coarse conglomerate, containing very weathered coarse granitic, gneissic quartzitic and assorted meta-sediments, clasts up to 0.3 m diameter. Clasts are set in a very coarse gritty rust coloured matrix. Clastic material in this conglomerate may well be derived from underlying tillite. | 0.9 | 0.9 |
| - Pyramid Erosion Surface - | | |
| METSCHEL TILLITE (0 - 2.4 m). | | |
| Massive sandstone containing occasional granitic and gneissic clasts. | 2.4 | 2.4 |
| Sample 22617 Pebbly tillite.<br>22618 Pebbly tillite. | | |
| - Maya Erosion Surface - | | |
| AZTEC SILTSTONE (58+ m). | | |
| Very dark green and black argillite. | 1.2 | 58.4 |
| Fine, poorly cemented white sandstone, micaceous in parts. Cross-bedded (with laminae being outlined in green) towards base. | 0.9 | 57.2 |
| Poorly exposed dark green argillite. | 0.9 | 56.3 |
| Overlying unit grades down into green/pale green to grey/pale green siltstone. | 0.2 | 55.4 |
| Prominent interbedded light grey sandstones and siltstones. Siltstones contain fossil fish fragments. | 0.3 | 55.2 |

| | A | B |
|---|---|---|
| Well-bedded siltstones and argillites; siltstones are pale greenish grey in colour, grading through purplish grey to maroon argillites. | 1.5 | 54.9 |
| Poorly exposed buff (yellow-brown) siltstone. | 0.3 | 53.4 |
| Well cemented quartzose sandstone exposed as a prominent ledge and cliff. Two fossil fish beds separated by 0.05 m of massive sandstone occur near top of unit. Each fossil bearing bed is about 0.08 - 0.1 m thick, the fossil material occurring as plate fragments or impression of same. Dessication cracks occur just above the uppermost fossil pavement. Beneath the pavement the sandstone is cross-bedded or massive and contains some borings and muddy patches. | 2.4 | 53.1 |
| MS 236 | | |
| Current-bedded orthoquartzite, contains holes of weathered-out mud pellets. | 1.2 | 50.7 |
| Well cemented pale greenish-grey siltstone with irregular upper surface. | 1.5 | 49.5 |
| Overlying unit grades down into a well cemented fine sandstone which is greenish towards the base. | 0.2 | 48.0 |
| Pale greenish grey siltstone band containing numerous pale brown nodules. | 0.3 | 47.8 |
| The overlying unit grades down into a grey-green siltstone. | 0.5 | 47.5 |
| Massive grey siltstone. | 0.3 | 47.0 |
| Grey siltstone containing fine grit bands. | 0.5 | 46.7 |
| The overlying unit grades down into a sandstone which is cross-bedded in places, contains irregular fine grit and greenish siltstone bands. Dark brown blotching common towards the base of unit. | 1.8<br>1.8 | 46.2<br>46.2 |
| Poorly exposed, massive, hard green mudstone. Sharp contact with overlying sandstone. In its lower part this unit grades down through steel blue grey into a red-brown mudstone. | 1.8 | 44.4 |
| Micaceous, well laminated pale green fine siltstone. | 1.2 | 42.6 |
| Poorly exposed, very flaky variegated (maroon, green and steel blue grey colours) mudstones, maroon colours being dominant. | 0.9 | 41.4 |
| Poorly exposed, well bedded pale green siltstone. | 0.6 | 40.5 |
| Overlying unit grades down into green mudstone. | 0.6 | 39.9 |
| Massive variegated red brown-maroon mudstone containing yellow-brown grit particles. This unit also contains some purple-grey bands up to 0.3 m thick which occur as lenses or veins. | 4.6 | 39.3 |
| Note: From the base of this unit to the base of the 2.4 m fossil-horizon sandstone higher in the section occasional fossil fish were noted in the red and green mudstones. | | |
| Fine sandy-siltstone, very nodular at the top, and containing greenish siltstone bands towards its base. | 0.9 | 34.7 |

| | A | B |
|---|---|---|
| Variegated mudstones and siltstones. The uppermost 3.1 m of this unit contain interbedded reddish-maroon and green mudstones, the maroon beds being up to 0.3 m thick and green beds up to 0.08 m thick; this upper 3.1 m contains massive red-brown mudstones with irregular steel blue-grey to purplish lenses. The red-brown beds contain pale yellow-brown nodules and many calcite veins. Towards the base of this unit the flaky red-brown mudstones pass into richly nodular purplish-grey beds. | 12.2 | 33.8 |
| Sample 22463 Greyish red siltstone. | | |
| Well bedded fine green siltstone. | 0.6 | 21.6 |
| Massive buff-brown siltstone overlying units | 0.3 | 21.0 |
| Fine well-bedded siltstone passing from green at the top to grey at the base. | 0.3 | 20.7 |
| Red-brown-maroon mudstone, nodular at the top. Unit contains old steel blue-grey bands and occasional irregular greenish siltstone bands. | 3.0 | 20.4 |
| Greenish silty mudstone. | 0.3 | 17.4 |
| Massive, well cemented sandstone, calcareous in places, generally pale pink in colour. Contains many small holes which are probably a weathering feature, and some greenish mud blebs and borings. | 0.5 | 17.1 |
| Sample 22473 Pink fine sandstone. | | |
| Flinty concretionary lensoidal bed. | 0.2 | 16.6 |
| Maroon to green silty mudstone with occasional thin grey beds present. Maroon beds contain nodules (concretions). Towards the top of this unit beds pass gradationally to coarser green silty mudstones. | 2.4 | 16.4 |
| Irregular green-grey siltstone slightly coarser than overlying unit. | 0.3 | 14.0 |
| Maroon to red brown flaky mudstone with nodules. Unit contains rare green bands. | 2.4 | 13.7 |
| Green nodular silty mudstone band. | 0.6 | 11.3 |
| Maroon mudstone with minor green blotches, nodular in places. | 1.2 | 10.7 |
| Greenish-grey siltstone, containing numerous borings. | 0.9 | 9.5 |
| Sample 22464 Greenish grey bored siltstone. | | |
| Red-brown mudstone up to 0.4 m thick with numerous greenish and greyish beds up to 0.08 m thick. | 1.2 | 8.6 |
| Well-bedded green siltstone beds up to 0.2 m thick interbedded with maroon mudstone beds up to 0.1 m thick, siltstone predominates and contains borings. Siltstones often become sandy in local lenses. | 1.2 | 7.4 |
| Pale grey siltstone bed. | 0.5 | 6.2 |
| Pale grey-white sandstone weathering to a pinkish brown. This unit is well cemented, ledge-forming in part, and contains fossil fish fragments at its base. | 0.2 | 5.7 |

| | A | B |
|---|---|---|
| Green well-bedded green siltstone passing down to a paler green sandstone. Irregular areas of red-brown-maroon siltstone occur within the green siltstone, as do fish fragments. The sandstone at the base of this unit ranges up to 0.4 m thick, is well-cemented and contains abundant derived mudstone pellets. | 1.8 | 5.5 |
| Red-brown mudstone with numerous borings and nodules. A prominent 0.3 m grey band 1.2 m above base and an 0.2 m to 0.5 m blue-green band near top. | 3.7 | 3.7 |

AZTEC SILTSTONE (58+ m)

Snow.

Note: Sample 22465 Nodular green siltstone
22466
22474 Dark green hard siltstone
22498 Grey siltstone.
22604 Pyrite in siltstone
} all from Aztec Siltstone.

SECTION 7 - NORTHERN BOOMERANG RANGE.

Section measured up central ridge on eastern face of the nunatak just north of Alligator Peak 4.9 km at 342° from the summit. Measured with staff by BPK, MPG 12/68. Remeasured as A2 by VUWAE 15 (Ant. Data Ser. 2). Position of base 78° 25.7'S; 158° 40.5'E. Map elevation 1650 m.

| | A | B |
|---|---|---|
| WELLER COAL MEASURES (60+ m) | | |
| Laminated siltstone passing down to thin bedded sandstone. | 12.8 | 60.3 |
| Coarse cross-bedded sandstone containing chert and quartzite pebbles, also mudstone chips. Scour and fill bedding contacts common. | 11.3 | 47.5 |
| Coarse quartz sandstone passing down into cross-bedded quartzose sandstone 9.1 m below top. | 13.7 | 36.2 |
| Overlying unit passes down into laminated siltstone, then into a fine sandstone. Massive, with minor current ripples and green mudstone chips. | 13.4 | 22.5 |
| Sandstone becoming very coarse at base. Unit contains a few reworked plutonic clasts, quartzites, cherts and concretions. Undulating base, erosional on underlying beds. | 9.1 | 9.1 |

Note: Sample 22500 Fine to medium sandstone
22504 Coarse sandstone
22517 Medium sandstone
22534 Contact of silt and sandstone
} all from Weller Coal Measures.

- Pyramid Erosion Surface -

| | | |
|---|---|---|
| METSCHEL TILLITE (38 m) | | |
| Boulder clay, 80% matrix, small varied plutonic, quartzite and chert clasts. No obvious bedding present. Average size of clasts about 1.5 mm. | 38.4 | 38.4 |

Sample 22623 Siltstone.
22615 Very fine sandstone.

- Maya Erosion Surface -

| | | |
|---|---|---|
| AZTEC SILTSTONE (25+ m) | | |
| Platy shales. | 3.7 | 25.3 |
| Platy siltstone, slates, and channel sands. | 1.8 | 21.6 |
| Plutonic and quartzitic boulders, up to 0.45 m diameter. | 0.6 | 19.8 |
| Mottled green siltstone, no obvious bedding. | 1.2 | 19.2 |
| Green silty-sandy shale, some vertical borings. | 2.1 | 18.0 |
| Green siltstone, some red horizons which are not laterally persistent, some cross-bedding on a small scale. | 3.7 | 15.9 |
| Predominantly maroon shales with green blotches and some thin (0.05 m) green siltstone beds. | 2.1 | 12.2 |
| Green platy siltstone. | 0.6 | 10.1 |
| Maroon platy siltstone. Contacts with underlying and overlying siltstone units sharply gradational. | 0.6 | 9.5 |
| Green siltstone. | 0.9 | 8.9 |
| Maroon siltstone, green along joints, fossil fish. | 3.0 | 8.0 |

MS 235

| | A | B |
|---|---|---|
| Green siltstones with borings and thin maroon interbeds. | 0.3 | 5.0 |
| Red siltstone with concretions and borings. Contact with underlying green siltstone is gradational through purple siltstone. | 2.1 | 4.7 |
| Cross-bedded and thin interbedded buff sandstone, overlain by green siltstone. | 2.6 | 2.6 |

AZTEC SILTSTONE (25+ m)

Snow.

SECTION 8 - NORTHEAST WARREN RANGE.

Section measured up steep southeast-facing slope 6.7 km at 012° from the summit of Mount Warren. Measured with staff by BCMc, PNW, BPK, MPG 12/68. Position of base 78° 22.0'S; 158° 20'E. Map elevation 2000 m.

| | A | B |
|---|---|---|
| Dolerite sill. | | |
| WELLER COAL MEASURES (15+ m) | | |
| Orthoquartzite in cross-bedded units up to 2 m thick scour channels common with abundant siltstone chips derived from the underlying unit. Base of unit has an irregular relief of up to 0.6 m. Some pebbly horizons, but only a few boulders present. | 7.6 | 15.1 |
| - disconformity - | | |
| Interbedded carbonaceous shales and fine quartzose sandstones, ratio of sandstone to siltstone about 10:1. Sandstones are lensoidal, ranging in thickness between 0 to 30 cm. Abundant plant material (Gangamopteris) in carbonaceous shales. Entire unit wedge shaped and thinning to the south. Upper boundary irregular and eroded by overlying unit. Thickness at point of maximum development. | 2.4 | 7.5 |
| | 2.4 | 7.5 |
| MS 243. | | |
| - disconformity - | | |
| Cross-bedded fine to coarse quartz sandstones, some pebble lenses, impersistent carbonaceous lenses, aligned siltstone pellets, scour and fill structures. Thickness at point of maximum development. | 4.5 | 5.1 |
| Poorly sorted conglomerate containing boulders of fine-grained quartzites and weathered acid plutonics. Boulders similar in composition to those in underlying tillite. | 0.6 | 0.6 |
| - Pyramid Erosion Surface - | | |
| METSCHEL TILLITE (24 m) | | |
| Boulder siltstone/clay. Clastics evenly distributed and comprising 80-90% of unit. Boulders smooth, rounded to sub-rounded, unweathered, predominantly crystalline plutonics, fine-grained metasediments and meta-quartzites. Spheroidal concretions aligned in planes but clastic material shows no alignment. Bedding not apparent in matrix. At base of unit laminated siltstones (with micro beds of 1.3 mm thickness or less) pass gradationally up into the overlying "boulder clay". Laminated beds possess occasional clasts up to 0.75 mm. Laminae are laterally persistent, ripple laminated, micro-faulted and show compaction structures. Entire unit broken into at least two major slump masses which are separated by grey siltstones or pink arkoses. Top of unit has an irregular relief. | 23.6 | 23.6 |
| Sample 22548 Tillite.<br>22547 Tillite.<br>22545 Tillite.<br>22540 Tillite.<br>22539 Tillite. | | |
| Loss of exposure. | 9.1 | 9.1 |
| - Maya Erosion Surface - | | |

| | A | B |
|---|---|---|
| AZTEC SILTSTONE (14+ m) | | |
| Interbedded red and green variegated mudstones 0.2 to 0.6 m overlain by 0.6 m of sandstone. All contacts abruptly transitional. | 1.4 | 14.1 |
| Interbedded cross-bedded buff sandstones and green siltstones. Red blotches present in green siltstones. Fossil fish fragments present in siltstones. | 3.6 | 12.7 |
| MS 234. | | |
| Sample 22499 Red and grey siltstone. | | |
| Loss of exposure. | 5.5 | 9.1 |
| Interbedded purple, green and buff finely ripple-laminated siltstones. Beds cut by borings and infilled by purple siltstone. Dessication cracks. Whole unit developed in a series large scale cross-bedded units. | 3.6 | 3.6 |
| Cross-bedded medium grained sandstone with thin green siltstone slivers and pellets. Vertical borings infilled by light purple medium sandstone and siltstone. Base of unit obscured. | | |

Note: Sample 22485 Siltstone.
22486 Siltstone.
22487 Siltstone.
22488 Hard fine sandstone.
} all from Aztec Siltstone.

Moraine.

SECTION 9 - MOUNT METSCHEL.

Section measured up southeast ridge at east end of nunatak. Measured with staff by PNW, BCMc, BPK, MPG 12/68. Remeasured as M1 by VUWAE 15 (Ant. Data Ser. 2).
Position of base 78° 17.2'S; 159° 01'E. Map elevation 1700 m.

| | A | B |
|---|---|---|
| Dolerite sill. | | |
| WELLER COAL MEASURES (8+ m) | | |
| Coarse cross-bedded sandstone overlying tillite disconformably with very little relief at the contact. Reworked and weathered clasts of boulder clay occur in the base of this unit. Cross-bedded sandstone beds 0.6 - 0.9 m thick become more quartzose above the basal conglomerate. Cross-bedding suggests paleo-currents flowing towards Worcester Range. | 7.6 | 7.6 |
| - Pyramid Erosion Surface - | | |
| METSCHEL TILLITE (27 m) | | |
| Green boulder clay. Clastic material constitutes 1 to 15% of unit and includes porphyritic granites 0.03 - 0.05 m in diameter but rounded boulders up to 0.8 m also occur. Basal 1.8 m comprises a maroon-purple siltstone with scattered clasts which passes gradationally up into the more characteristic green siltstone. Some stratification of tillite noted. The basal 8 m of Metschel Tillite appears to form a gradation with the underlying Aztec Siltstone, although large scale deformation structures were noted at several points along the contact. | 27.4 | 27.4 |
| Sample 22625 Siltstone.<br>22624 Siltstone.<br>22616 Purple tillite.<br>22538 Greenish tillite. | | |
| - ? disconformity (Maya Erosion Surface) - | | |
| AZTEC SILTSTONE (42+ m) | | |
| Variegated siltstones, thin sandstones and nodular beds. The upper 9.1 m comprise dark purple-violet-maroon massive siltstones and mudstones. White borings are common in this part of the succession. Contact with the Metschel Tillite indicated by the appearance of dispersed clastic material and a gradational change to the more characteristic green matrix of the tillite. In at least one locality the topmost 3.7 m of this unit is deformed to large scale folds. Well preserved fish crop out through this unit, particularly in the lower parts. | 27.4 | 41.5 |
| MS 233. | | |
| Green siltstones and sandstones interbedded with variegated purple-green siltstones. Nodular concretions present in the purple lithologies. | 3.0 | 14.1 |
| Cross-bedded buff sandstone with occasional mottling. The sandstone grades up into thin (0.15 m) interbedded green siltstone and sandstone, and variegated purple-green-white siltstones. The latter contain abundant near vertical borings and also some concretions. This whole unit lenses into a sandstone to the south. | 0.8 | 11.1 |
| Green-grey fine sandstone-siltstone overlain by variegated maroon-green mudstones. These beds contain white sand-filled borings. A green mudstone forms the uppermost sediments in this cycle. Disconformable contact with the overlying unit. | 3.0 | 10.3 |

| | A | B |
|---|---|---|
| Interbedded sandstones and silty-sandstones. | 3.7 | 7.3 |
| Cross-bedded quartzose sandstone which contain numerous mudstone chips. Erosional contact with the underlying unit. | 1.8 | 3.6 |
| Thin-bedded green-grey siltstone and cross-bedded sandstone. Base of unit not exposed but at least 9.1 m of variegated maroon-green mudstones are hidden by scree and underlie the 1.8 m measured. | 1.8 | 1.8 |

Note: Sample 22489 Nodular sandstone.
22492 Nodular green siltstone.
22493 Fish plates.
22494 Nodular green siltstone.
22495 Nodular green siltstone.
22496 Nodular red siltstone.
22497 Hard ?limestone.
} all from Aztec Siltstone.

AZTEC SILTSTONE (42+ m).

Moraine.

SECTION 10 - PORTAL MOUNTAIN.

Section measured up south facing spur at eastern extremity of Portal Mountain. Base of section 8.3 km at 110° from summit. Measured with staff by PNW, BCMc, BPK 12/68.
Position of base 78° 7.2'S; 159° 23.5'E. Map elevation 1700 m.

| | A | B |
|---|---|---|
| Dolerite sill. | | |
| WELLER COAL MEASURES (35.3 m) | | |
| Green grey slaty mudstone. | 1.8 | 35.3 |
| Fine quartzose conglomerate, pebbles up to 0.05 m diameter. | 0.1 | 33.5 |
| Greenish-white sandstone, occasional ferruginous nodules. Basal 0.3 m of this unit is a quartzose conglomerate. | 1.8 | 33.4 |
| Cross-bedded platy green sandstone, subordinate feldspar. | 2.4 | 31.6 |
| Black-blue ?carbonaceous siltstone. | 0.5 | 29.2 |
| Loss of exposure. | 3.7 | 28.7 |
| Cross-bedded to horizontally bedded quartz sandstone, sometimes pebbly, with thin inter-laminae of cross-bedded green siltstone. | 0.9 | 25.0 |
| Loss of exposure in scree. | 4.6 | 24.1 |
| Well cemented pebbly cross-bedded sandstone with thin intercalations of green siltstone (as in the unit above) - slightly arkosic. | 2.4 | 19.5 |
| Loss of exposure. | 4.6 | 17.1 |
| Cross-bedded sandstone, slightly concretionary. | 2.4 | 12.5 |
| Poorly exposed (partly dolerite obscured) black shale. | 4.6 | 10.1 |
| Quartz pebble sandstone with thin intercalations of siltstone and carbonaceous matter. Pebble stringers run through this unit - some pebbles up to 0.08 - 0.1 m. | 3.4 | 5.5 |
| Cross-bedded fine-grained sandstone with concentration of quartzite pebbles and derived pellets of siltstone up to 0.05 mm diameter. Base of unit could represent Aztec Siltstone - Weller Coal Measure contact. Section poorly exposed at this level. | 2.1 | 2.1 |
| Note: Sample 22501 Medium sandstone.<br>22511 Black calcareous fine sandstone. | | |
| - ? disconformity (Maya Erosion Surface) - | | |
| AZTEC SILTSTONE (97.8 m). | | |
| Poorly exposed maroon siltstones largely obscured by scree. | 6.1 | 97.8 |
| Green siltstones, interbedded with thinner sandstones and maroon siltstones. Base of this unit is largely composed of a finely ripple-laminated sandstone. Poorly exposed. | 6.1 | 91.7 |
| Green and maroon shales, oscillation ripples in green shales. Upper contact sharply truncated by overlying unit. | 4.9 | 85.6 |
| Fine-grained green sandstone, bored and ripple marked. | 0.5 | 80.7 |
| Massive fine grained sandstone containing irregular green ferruginous patches. A cliff-forming sandstone, with shallow cross-beds and green mud pebble stringers. | 3.7 | 80.2 |
| Variegated red and green siltstones with occasional blue-grey colours. | 1.2 | 76.5 |

| | A | B |
|---|---|---|
| Cross-bedded green siltstones with abundant borings sub-parallel to bedding, lenses laterally to an 0.1 m shaly siltstone. | 0.8 | 75.3 |
| Same lithologies as unit above, individual beds up to 0.9 m thick. | 3.7 | 74.5 |
| Variegated maroon and subordinate green siltstone, no borings apparent, fish fossils found in green siltstone. | 0.9 | 70.8 |
| Cross-bedded green sandstone with resistant borings. Borings decrease downwards in unit. | 1.2 | 69.9 |
| Interbedded green siltstone and sandstone, wedge shaped. Sharp basal contact. | 0.6 | 68.7 |
| Maroon and green siltstone exposed either as distinct alternating colour beds or as a blotchy variegated mixture of two. Some nodules. Beds dip to west at about 3-4°. Some sandstone wedges up to 0.9 m thick. Sandstone wedge thickens to the east. | 6.1 | 68.1 |
| Cross-bedded green-brown sandstone. | 3.7 | 62.0 |
| Nodular green siltstone, with maroon blotches. | 4.6 | 58.3 |
| Horizontally bedded grey siltstone, some maroon patches and borings. | 0.6 | 53.7 |
| Maroon shaly siltstone. | 2.4 | 53.1 |
| Bored green sandstone. | 0.6 | 50.7 |
| Interbedded maroon grey platy and subordinate green siltstone. Abundant fish remains about 0.9 m below overlying sandstone. Some nodules in the lower part of this unit. | 10.1 | 50.1 |

MS 232

Sample 22491 Nodules.
22490 Fish plates.

| | | | |
|---|---|---|---|
| Massive green siltstone and sandstone with abundant concretions. | | 1.2 | 37.9 |
| Loss of exposure. | | 1.2 | 37.9 |
| Massive green sandstone and siltstone with concretions and borings. | | 3.7 | 36.7 |
| Platy green siltstone. | | 1.8 | 33.0 |
| Lensoidal nodular bed with borings, unit coarsening towards its base. | | 0.6 | 31.2 |
| Siltstone and nodular lensoidal sandstone. | | 3.7 | 30.6 |
| Lensoidal nodular sandstone bed. | | 0.6 | 26.9 |
| Laminated siltstone. | | 1.8 | 26.3 |
| Cross-bedded quartzite with abundant mud chips. Current directions to northeast. | | 2.7 | 24.5 |
| Green siltstones. Slight loss of exposure at top of unit. | 0.6 - 1.2 | | 21.8 |
| Lensoidal quartzose sandstones. Tilting in these beds and those below possible due to nearby dolerite sills. | | 0.6 | 20.6 |
| Massive green silty-sandstone with borings. | | 2.1 | 20.0 |
| Laminated and cross-bedded quartzose sandstones, no borings. | | 0.8 | 17.9 |

| | A | B |
|---|---|---|
| Siltstone, passing gradationally up to overlying sandstones, oscillation ripples. | 0.3 | 17.1 |
| Sandstone with oscillation ripples. | 0.5 | 16.8 |
| Lensing siltstone. | 0.2 | 16.3 |
| Loss of exposure. | 15.2 | 16.1 |
| The base of the section consists of quartzose sandstones and fine khaki siltstones. Sandstones become coarser downwards. Beds tilted to the east. | 0.9 | 0.9 |

Note: Sample 22622 Siltstone.
22621 Mottled siltstone. } from the Aztec Siltstone.

AZTEC SILTSTONE (97.8 m).

Snow.

SECTION 11 - TABLE MOUNTAIN.

Section measured up south west facing slope to summit. Base of section in a valley 0.5 km south of summit. Measured with staff by BCMc, BPK 1/69. Position of base 77° 58.7'S; 161° 58.5'E. Map elevation 1600 m.

| | A | B |
|---|---|---|
| Dolerite - summit of Table Mountain. | | |
| NEW MOUNTAIN SANDSTONE (183+ m). | | |
| Greyish-white rather massive sandstones profusely bored. (Vertical pipes). Occasional ferruginous concretions. Several thin (0.3 m) green siltstone interbeds. | 38.8 | 182.7 |
| Laminated green and maroon silty sands. | 0.6 | 143.9 |
| Greyish-white rather massive sandstones profusely bored. (Vertical pipes). Occasional ferruginous concretions. Several thin (0.3 m) green siltstone interbeds. | 6.0 | 143.3 |
| Laminated green and subordinate maroon silty sands. Thin white or pink sandstone bands. | 1.2 | 137.3 |
| Striking white silty sandstone. Massive in appearance with rounded ("soapy") outcrop. | 1.8 | 136.1 |
| Spectacular planar cross-stratified orthoquartzites. Paleo-currents to the west and southwest. Some single beds exceed 2 m in thickness. Interbedded massive units contain abundant borings. Concretions plentiful. Scour and fill common. | 109.0 | 134.3 |
| Massive (some cross-stratification) sandstones with abundant concretions up to 1 m diameter. Weathering with "ashtray" effect. | 16.0 | 25.3 |
| Well-cemented cliff forming sandstones. Beds up to 2 m thick. Concretions not obvious. Thin silty bands near base. Thickness not noted, probably circa | 9.0 | 9.3 |
| Striking white silty sandstone, with rounded "soapy" outcrop. Contains green laminae (0.01 m). Base sharp. | 0.3 | 0.3 |
| TERRA COTTA SILTSTONE (58 m). | | |
| Note: Top of cyclothem 3. | | |
| Green sandy siltstones, mudcracked. | 0.1 | 58.3 |
| Maroon and reddish siltstones and mudstones (paper shales). | 3.3 | 58.2 |
| Green and maroon interbedded silts and muds. Variegation prominent along bedding and joints. | 3.3 | 54.9 |
| Well laminated green siltstones. Deep green especially at base of this unit. Intraformational deformation. | 20.6 | 51.6 |
| Interbedded green and maroon mudcracked siltstones and muds. | 8.8 | 31.0 |
| Variegated lensoidal mudstones. | 0.3 | 22.2 |
| Pinkish sandstone. Appears lensoidal. Base abrupt. | 0.2 | 21.9 |
| Note: Top of cyclothem 2. | | |
| Maroon and grey-green siltstones with some slate grey beds. Diagenetic "blebs" or mottling. Extensive intraformational deformation. Base of this unit consists of interbedded maroon siltstones and pink sandstones. | 16.0 | 21.7 |
| Ripple marked sandstone. Lacks internal features. Base sharp. | 0.9 | 5.7 |

| | A | B |
|---|---|---|
| Note: Top of cyclothem 1. | | |
| Thin bedded maroon siltstones and white-pink fine sands. Deformation common (intraformational). Unit generally fines upwards. | 4.8 | 4.8 |
| WINDY GULLY SANDSTONE (48 m). | | |
| White sandstone. Planar cross-stratified. Many worm borings. | 14.2 | 47.5 |
| Loss of exposure. | 33.3 | 33.3 |

- ? disconformity (Kukri Surface) -

Dolerite sill and/or basement.

Note: Sample 22596 Dyke.
22598 Pegmatite dolerite.
22599 Granite.
22600 Granite.
22605 Dyke.

Moraine.

SECTION 12 - MT. HANDSLEY.

Section measured from cirque floor up northeastern ridge of Mt. Handsley. Base of section 3.3 km at 102° from summit of Knobhead. Measured with staff by PNW, MPG 1/69.
Position of base 77° 55.1'S; 161° 40.5'E. Map elevation 1200 m.

| | A | B |
|---|---|---|
| Dolerite sill. | | |
| ARENA SANDSTONE (100+ m). | | |
| Not exposed. | 6.1 | 99.7 |
| Pure white current-bedded sandstone. | 6.1 | 93.6 |
| Alternating beds of green and white sandstone, white beds approximately 0.9 m thick, green beds 0.3 m thick. | 7.6 | 87.5 |
| Alternating white and pale green siltstone. | 4.6 | 79.9 |
| Cross-bedded white sandstone, coarser towards base of unit, each bed about 0.3 - 0.5 m thick. Some green beds 0.1 - 0.3 m thick interbedded with white beds, the green beds having well defined tops. Finer-grained sediments are darker green, the sandier are paler. Small concretions and worm borings present. Cliff forming unit. | 15.2 | 75.3 |
| Pale green to yellow-green intensely worm-bored siltstone with a few coarser beds. Poorly exposed. | 36.6 | 60.10 |
| Cross-bedded and horizontally bedded pale green sandstone, gritty in places, concretions and ripple marks; the better cemented beds form ledges. | 22.9 | 23.5 |
| Green-black sandstone and siltstone with ferruginous concretions, unit has an undulating base, tracks on bedding surfaces. | 0.6 | 0.6 |
| ALTAR MOUNTAIN FORMATION (131 m). | | |
| Pale green small scale cross-bedded sandstone alternating with green coarser and finer grained sandstones. Whole unit becomes finer grained towards the top. Some beds concretionary and up to 0.15 m thick. Small concretions and borings common. Ledges formed where sediment is well cemented. | 33.5 | 130.8 |
| Alternating fine white sandstone and green siltstone. Sandstone is both cross and horizontally bedded and contains gritty horizons with clasts up to 0.01 m diameter. Green siltstones are thin but laterally persistent, lensing up to 0.1 m and following contour of cross-bedded sandstones. Thin persistent siltstones exhibit dessication cracks infilled by white sandstone. Maroon blotches occur in green siltstone beds. Siltstones constitute about 5% of this unit. Whole unit forms a prominent cliff. | 29.0 | 97.3 |
| Alternating maroon sandy siltstone with striking vertical infilled borings and white-pinkish cross-bedded sandstone, also with borings. White sandstones contain subordinate pink-orange feldspar. Some laminated red-maroon claystone, this often being reworked into sandstone beds as elongate pellets. Proportion of sandstone to maroon siltstone increases downwards in this unit. Tops of maroon siltstones are sharply truncated by the interbedded cross-bedded sandstones. Top of this 29.0 m unit abruptly overlain by a thin iron-stained sandstone in which minor interbedded maroon siltstone occurs. Entire unit exposed as series of three cliffs separated by wide ledges. At the base this unit is underlain by a pale green-white cross-bedded sandstone. | 29.0 | 68.3 |

| | A | B |
|---|---|---|
| ODIN ARKOSE MEMBER (39 m). | | |
| Small scale cross-bedded and horizontally bedded feldspathic grits with angular to subrounded clasts, many scour channels, dense worm boring, ferruginous spherical concretion and concretionary beds. Unit passing gradationally over 6.1 m into underlying unit. | 33.5 | 33.5 |
| - ? disconformity (Heimdall Erosion Surface) - | | |
| NEW MOUNTAIN SANDSTONE (161 m). | | |
| Fine-grained horizontally bedded sandstone with subordinate interbedded fine sandstone and gritty beds in uppermost part of unit. Passes down into large scale platy cross-bedded sandstone with dense worm borings and ferruginous concretions up to 0.15 m. Some minor thin khaki-green siltstone up to 0.05 m thick. Lowermost beds are large scale cross-bedded feldspathic sandstones 2.1 m with clasts up to 0.01 m, ferruginous concretions, and tracks. Lower contact sharp, perhaps disconformable on underlying white sandstone. | 158.5 | 161.1 |
| Bright white non calcareous sandstone with small scale cross-beds, some minor pinkish feldspathic beds. Distinct upper and lower contacts. | 2.6 | 2.6 |
| TERRA COTTA SILTSTONE (36 m). | | |
| Purple-black-green-maroon shales with slab concretions. Alternates with minor green and purple sandstones. Shales are frequently contorted. | 21.3 | 36.2 |
| White-pink-grey variegated sandstone, some green blotches. | 1.2 | 14.9 |
| Red-green-purple shaly siltstone. | 13.7 | 13.7 |
| WINDY GULLY SANDSTONE (24+ m). | | |
| Variegated brick-red-purple sandstone passing down into white large-scale cross-bedded sandstone. Variegated beds exhibit thin dessication cracks in green siltstone beds. Sandstones contain abundant pellets and dense worm borings. | 24.4 | 24.4 |
| Scree. | | |
| Dolerite sill, with upper and lower contact poorly exposed. | | |
| Igneous basement. | | |

SECTION 13 - KNOBHEAD.

Section measured up steep southern face of Knobhead on northern wall of cirque. Base of section 1.6 km at 150° from summit. Measured with staff by PNW, MPG 1/69.
Position of base 77° 55.5'S; 161° 34.5'E. Map elevation 1500 m.

| | A | B |
|---|---|---|
| ALTAR MOUNTAIN FORMATION (114+ m) | | |
| Small scale cross-bedded and horizontally bedded sandstones interbedded with thin green sandstone/siltstone beds (up to 0.1 m). Sandstones bear ferruginous spotting and are pitted and cavernously weathered. The greater part of the unit is horizontally bedded with cross-bedding common at the lower and upper levels. Green sediments are thicker in the lower part of the unit. Vertical borings up to 0.005 m diameter are common in these latter beds. Occasional scour channels of grit. Distinct basal contact with underlying variegated sediments. | 34.1 | 113.7 |
| Alternating white and variegated maroon sandstones and siltstones, all laterally persistent. White often gritty sandstones are developed in scour channels, and are commonly feldspathic with floating pellets of maroon siltstone. Red siltstone/sandstones are normally developed in horizontal beds but cross-bedded units are also present. Dense colonies of vertical white sandstone casts penetrate the maroon sandstones and siltstones. Occasional small (0.01 m) ferruginous concretions. | 33.8 | 79.6 |
| ORDIN ARKOSE MEMBER (46 m). | | |
| Cross-bedded sandstone, interbedded with finer grained silty sandstone. Green concretions up to 0.8 m common in white sandstones. Organic borings absent or rare compared with those of the overlying unit. Grit lenses up to 2.0 m across. Unit passes gradationally into underlying unit. | 10.4 | 45.8 |
| Small scale current-bedded grits with well rounded clasts up to 0.03 m. Each cross-bedded unit is graded and often capped by green siltstone. Ferruginous spotting (0.005 m) and concretions up to 0.05 m common. | 35.4 | 35.4 |
| - ? disconformity (Heimdall Erosion Surface) - | | |
| NEW MOUNTAIN SANDSTONE (69+ m). | | |
| Medium-fine grained horizontally bedded sandstone with dense colonies of vertical sand tubes. Some interbedded black green concretionary sandstone beds. Concretions (up to 0.05 m) and minute ferruginous species scattered through lighter coloured sandstones. Sediments in upper part of unit appear to pass gradationally down in to low angle platy cross-bedded sandstones. | 17.1 | 68.9 |
| Exceptionally large scale platy cross-bedded sandstone, with each unit steeply dipping and truncating other units by as much as 30°. Each unit consists of hundreds of small scale sandstone-siltstone cycles. Some thin greenish shaly siltstones in which dessication cracks may be present. Bedding orientation indicates currents towards the west. | 51.8 | 51.8 |

SECTION 14 - KNOBHEAD.

Section measured up eastern face to near summit of Knobhead. Base of section 2.9 km at 85° from summit. Measured with staff by PNW, MPG 1/69. Position of base 77° 54.6'S; 161° 39'E. Map elevation 1300 m.

| | A | B |
|---|---|---|
| Dolerite sill, capping Knobhead Mountain. | | |
| BEACON HEIGHTS ORTHOQUARTZITE (100 m). | | |
| Cliff-forming orthoquartzites, white in colour but commonly stained with a yellow-brown weathering crust. Ledge-forming or cliffed depending on state of cementation. | 300 | 300 |
| ARENA SANDSTONE (157 m). | | |
| Large and small scale cross-bedded and horizontally bedded rust-coloured orthoquartzite in which green ferruginous spotting and organic boring structures are common. Exhibits cavernous weathering. Ledge forming. | 62.5 | 157.0 |
| Fine-grained, friable to moderately well cemented khaki-green sandstone with a high clay content. Abundant organic borings. Slope forming unit. | 42.7 | 94.5 |
| Khaki-yellow platy occasionally feldspathic sandstone with abundant small ferruginous concretions. Occasional pebble beds with clasts up to 0.03 m. Proportion of siltstone to sandstone decreases downward. Lower part of unit is a green-grey large scale cross-bedded sandstone with abundant concretions which passes gradationally into the underlying unit. Ledge forming unit. | 51.8 | 51.8 |
| ALTAR MOUNTAIN FORMATION (38+ m). | | |
| Green-brown horizontally bedded siltstones. Abundant organic borings. Unit passes gradationally down into underlying maroon variegated sediments. | 15.2 | 38.1 |
| Interbedded maroon/white sandstones and siltstones. See identical sediments in upper part of section 13. | 22.9 | 22.9 |

SECTION 15 - KNOBHEAD.

Section measured up cliff face on the northeast ridge of Knobhead 3.5 km at 062° from summit. Measured with staff by PNW, MPG 1/69.
Position of base 77° 53.7'S; 161° 40'E. Map elevation 1200 m.

| | A | B |
|---|---|---|
| Dolerite sill. | | |
| NEW MOUNTAIN SANDSTONE (131+ m). | | |
| White to buff sandstone exposed in cliffs and ledges, large scale cross-bedding, cavernous weathering, dense boring, ferruginous concretions, some green siltstone and pink arkose lenses. | 128.0 | 131.0 |
| Very coarse grained arkosic sandstone with shale lenses. | 3.0 | 3.0 |
| TERRA COTTA SILTSTONE (55 m). | | |
| Lensing dark green siltstone shale. | 0.2 | 55.1 |
| Pink arkosic sandstone with well rounded clasts up to 0.012 m in diameter, reworked chips of siltstone as angular and sub-rounded fragments, abundant ferruginous blotches up to 0.05 m diameter, small scale cross-bedding. | 1.2 | 54.9 |
| Pale green lensing platy sandstone, darker at base of unit. | 1.2 | 53.7 |
| Purple shales. | 5.2 | 52.5 |
| Interbedded purple green slates with wavy lamination, organic traces, clay pellets, purple only near base. | 9.4 | 47.3 |
| Green slates with fine wavy bedding, abundant organic traces, purple slates near top of unit. | 12.1 | 37.9 |
| Green slate with minor amounts of purple slate at base of unit. Green sediments tend to sandier grades, purple to mud/silt grades, organic traces in green sediments. Unit becomes totally green near the top. | 4.6 | 25.8 |
| Interbedded purple-green slates, purple slates predominant in lower part of unit. Purple slates have green blotches and upward pass gradationally into green slate. | 18.6 | 21.1 |
| Green slaty sandstone passing upward into dark purple siltstone. | 1.8 | 2.6 |
| Interbedded white and green sandstones, platy bedding, white sandstone bored. | 0.8 | 0.8 |
| WINDY GULLY SANDSTONE (between 32 and 54 m). | | |
| Well cemented green sandstone, interbedded with sandstones and shales of overlying unit. | 1.2 | 31.7 |
| Weathered white sandstone, cross-bedded and horizontally bedded, bored with abundant tubes normal and parallel to the bedding. Some interbedded pale greenish sandstone, friable near base, better cemented at higher levels, very even grained, non-arkosic, iron stained in places, abundant cavernous weathering. | 30.5 | 30.5 |
| - ? disconformity (Kukri Surface) - | | |
| Non exposed interval - covered by dolerite scree and mudflows. | 22.3 | 22.3 |
| Porphyritic granite basement, contact with overlying sediments not exposed. | | |

SECTION 16 - WINDY GULLY.

Section measured up western side of gully from Ferrar Glacier surface with base 3.1 km due east of the summit of New Mountain. Modified after Zeller, Angino and Turner, 1961, Geol. Soc. Amer. Bull. 72, 781-786.
Position of base 77° 54.9'S; 161° 15'E. Map elevation 1200 m.

| | A | B |
|---|---|---|
| NEW MOUNTAIN SANDSTONE (197+ m). | | |
| Alternating soft and hard, thin to massively bedded, buff sandstone. | 74.7 | 196.5 |
| Soft sandstone with vertical concretionary forms. | 3.0 | 121.8 |
| Soft, light-coloured sandstone. | 1.5 | 118.3 |
| Hard, massive buff sandstone. Lower 12.2 m thin-bedded, with some thick beds. Many of the thin beds are green. | 37.5 | 117.3 |
| Thin diabase sill. | 0.6 | 79.8 |
| Quartzite bed. | 1.5 | 79.2 |
| Dolerite sill (292.6 m). | | |
| White to buff fine-grained sandstone with occasional bands of conglomerate. Upper 0.2 m altered to quartzite. Abundant fucoids 3.0 - 4.9 m above base, cross-bedding 22.9 m above base. Thin sill at 33.8 m and an 0.5 m sill at 35 m. | 77.7 | 77.7 |
| TERRA COTTA SILTSTONE (32 m). | | |
| Dark-reddish purple silty shale, laminated at base and blocky at top. | 0.9 | 32.1 |
| Thinly laminated siltstone and shale, with occasional thinly laminated grey dolomitic limestones. Colour varies from dark purple at bottom to greenish grey at top. | 3.8 | 31.2 |
| Thinly laminated, dark-greenish-grey siltstones with white nodules of calcite. | 1.8 | 27.4 |
| Greenish-grey, hard laminated shale. Lower 0.4 m is nodular and irregularly bedded; prominent mud cracks are visible. | 2.1 | 25.6 |
| Dark purplish silty shales interbedded with greenish-grey bands of silty shale. | 5.9 | 23.4 |
| Thin-bedded, dark-purplish shale, the lower 0.2 m wavy-bedded greenish siltstone with mud cracks. | 2.0 | 17.5 |
| Dark-greenish to purple clayey sandstone interbedded with light-pinkish siltstones. | 1.4 | 15.5 |
| Purplish to dark-green shale, 0.1 m greenish-brown sandstone at the base. | 1.1 | 14.1 |
| Reddish-purple thin-bedded shale. | 0.9 | 13.0 |
| Green to brown, very thin-bedded sandstone. | 0.5 | 12.1 |
| Purple shale and sandstone. | 0.2 | 11.6 |
| Brownish sandstone. | 0.2 | 11.4 |
| Purple shale. | 0.5 | 11.2 |
| Greenish, silty very thinly cross-bedded sandstone. | 0.4 | 10.7 |

| | A | B |
|---|---|---|
| Thin interbedded purple shale and white sandstone. | 0.7 | 10.3 |
| Light-pink, thinly bedded kaolinitic sandstone; abundant fucoids in top 1.2 m. | 2.7 | 9.6 |
| Alternating thin-bedded reddish-purple shale and white sandstone. | 1.1 | 6.9 |
| Light-pink, very thin-bedded sandstone with a few dark-green shale partings. | 1.1 | 5.8 |
| Light- to dark-green sandy and silty, finely laminated shale, occasional thin stringers of white sandstone. | 1.0 | 4.7 |
| White to very light buff, fine-grained kaolinitic sandstone. Lower 0.9 m contains glauconitic pellets; upper 2.7 m coarse-grained and cross-bedded. | 3.7 | 3.7 |
| WINDY GULLY SANDSTONE (2 to 31 m). | | |
| Lower 22.9 m is a brownish to light tan sandstone; upper 6.1 m, where present, is a light buff sandstone with fucoids. | 1.5-30.5 | 30.7 |
| Thin discontinuous conglomerate, grading to sandstone at top. | 0.2 | 0.2 |
| - Kukri Surface - | | |
| Dark coarse-grained gneisses. | | |

SECTION 17 - AZTEC MOUNTAIN.

Section measured from wide platform 1.9 km at 125° from summit of Aztec Mountain to dolerite-capped knoll 300 m north on extremity of ridge east of Aztec Mountain. Measured with staff by PNW, BPK 1/69.
Position of base 77° 48.9'S; 160° 35'E. Map elevation 1600 m.

| | A | B |
|---|---|---|
| Dolerite sill, capping knoll. | | |
| WELLER COAL MEASURES (12+ m). | | |
| Lowermost sediments deposited disconformably on Aztec Siltstone and locally on Metschel Tillite. Relief along disconformity up to 0.8 m. Basal sediments comprise a conglomerate which ranges up to 0.4 m in depressions and wedges out on highs. Clastic material in the conglomerate consists predominantly of well rounded quartzite and green siltstone pebbles. Both are derived from the underlying Metschel Tillite. Conglomerate overlain by cross-bedded grits and sandstone in which carbonaceous matter is disseminated. Scour channel features common. | 12.2 | 12.2 |
| Sample 22528 Feldspathic grit.<br>22527 Feldspathic grit. | | |
| - Pyramid Erosion Surface - | | |
| METSCHEL TILLITE (1.5 m). | | |
| Green siltstone with a low proportion (5%) of granite, gneiss and quartzite boulders. Gneiss and granite boulders tend to oval shapes, quartzite to spherical. Possible crescentic chatter marks up to 0.05 m long on quartzite boulders. All clastic material unweathered. Metschel Tillite crops out only as erosion remnants preserved in depressions in the surface of Aztec Siltstone. Carbonaceous flecks in the upper 0.6 - 0.9 m of tillite. Overlies and wedges out to west against an erosion surface on the Aztec Siltstone. | 1.5 | 1.5 |
| Sample 22542 Tillite.<br>22537 Tillite. | | |
| - Maya Erosion Surface - | | |
| AZTEC SILTSTONE (36+ m). | | |
| Massive orthoquartzite with minor green coloured cross-bedded grit at base. Upper surface of unit erodes to a relief of at least 3.7 m. Upper surface bears NW-SE oriented groove channelling on which an 0.05 - 0.08 m micro relief is developed. Grooved surface stained a deep rust brown. | 2.7 | 36.4 |
| Green siltstone with fossil fish. | 0.6 | 33.7 |
| Green siltstone with fossil fish. | 0.6 | 33.1 |
| Sandstone. | 0.3 | 32.5 |
| Lensing siltstone, contorted in upper layers, fossil fish present. | 1.2 | 32.2 |
| Banded green siltstone/sandstone, sandstone an iron brown in colour. Brown concretionary horizons contain well preserved fossil fish, particularly in the uppermost and lowermost brown bed. | 50.9 | 31.0 |
| Alternating green-brown sandstone/siltstone with many dessication crack horizons and well preserved fossil fish. | 49.1 | 29.2 |
| Green sandstone/siltstone and minor black shales in cycles, well preserved fossil fish. | 46.4 | 26.5 |

| | A | B |
|---|---|---|
| Alternating white and green sandstone/siltstone, the white sandstone containing green siltstone pellets. Fine siltstones exhibit dessication cracks up to 0.6 m in diameter and finely laminated wavy bedding. This unit concludes at its base with a thick cross-bedded sandstone which forms a ledge. | 44.7 | 24.8 |
| Green siltstone with sandy sandstone base, developed as a cycle. | 33.1 | 13.2 |
| Green siltstone with sandy sandstone base, developed as a cycle. | 31.3 | 11.4 |
| Green siltstone with sandy sandstone base, developed as a cycle. | 29.9 | 10.0 |
| Light green siltstone (0.9 m) passing down into buff-green siltstone with fossil fish (1.5 m), red-green siltstone (0.9 m) and lower to maroon siltstone with green in thin stringers (5.2 m). Calcareous nodules abundant. | 28.8 | 8.9 |
| Bored green siltstone. | 0.1 | 0.4 |
| Pink sandstone. | 0.1 | 0.3 |
| Variegated green-red siltstone with nodules. | 0.2 | 0.2 |

Fine-grained sandstone interbedded with green siltstones. A cliff forming unit.

AZTEC SILTSTONE (32+ m).

CTION 18 - AZTEC MOUNTAIN.

ction measured from Beacon Valley floor up cirque southeast of Aztec Mountain, 7 km at 130° from summit of Aztec Mountain through main cirque to wide platform ridge running east from summit. Measured with staff by PNW, BPK 1/69. sition of base 77° 49.2'S; 160° 36.5'E. Map elevation 1350 m.

| | A | B |
|---|---|---|
| AZTEC SILTSTONE (32+ m). | | |
| Pale green, massive sandy siltstone, coinciding with very extensive plateau. | 0.9 | 31.5 |
| Note: Correlate with points in other two Aztec Mountain sections. | | |
| Cross-bedded white sandstone and green siltstone; this unit overlies thick variegated beds below with a distinct break. | 1.8 | 30.6 |
| Variegated maroon/green siltstone. Partly obscured by scree. See Aztec Mountain east section for full and identical details. | 8.5 | 28.8 |
| Cross-bedded whitish sandstone with green sandstone lenses exposed on a ledge. | 2.1 | 20.3 |
| Ledge sandstone in large scale cross beds, obvious channel scour with fine to coarse grained grits, weathering rust colours. Base of unit sharply truncates underlying unit. | 2.7 | 18.2 |
| Pale green to green siltstone. | 1.5 | 15.5 |
| Pale green to darker green contorted shales in upper 1.8 m of unit; lower part of unit comprises a red-maroon green poorly exposed and contorted white sandstone with greenish coloured bands and dessication cracks. | 7.3 | 14.0 |
| Alternating fine and medium grained cross-bedded sandstone and horizontally bedded green slates; mud pellets occur in sandstones. Basal sandstone in this unit forms a prominent ledge (0.6 m). Gradational into underlying formation. | 6.7 | 6.7 |
| BEACON HEIGHTS ORTHOQUARTZITE (191+ m). | | |
| Cross-bedded and iron stained orthoquartzite. | 53.6 | 190.8 |
| Dolerite sill (exposed on cirque floor above Beacon Valley), 82 m thick. | | |
| Cross-bedded and horizontally bedded orthoquartzite with occasional grit beds, weathering to pale yellow to rust. | 137.2 | 137.2 |
| Moraine on valley floor. | | |

SECTION 19 - AZTEC MOUNTAIN.

Section extends from wide platform 1.3 km due east of summit of Aztec Mountain to summit. Measured with staff by PNW, BPK 1/69.
Position of base 77° 48.4'S; 160° 39.5'E. Map elevation 1600 m.

| | A | B |
|---|---|---|
| Dolerite sill. | | |
| WELLER COAL MEASURES (138+ m). | | |
| Coarse gritty cross-bedded quartzose sandstone with fine carbonaceous laminae and occasional thicker beds lensing up to 0.8 m. Carbonaceous siltstones are ripple laminated. Base of cross-bedded sandstones carry abundant siltstone pellets, upper parts of these beds vary from coarse to fine sandstone. At base of unit, lensoidal quartz pebble beds, with clasts up to 0.03 m but occasionally with angular clasts up to 0.1 m. Matrix of sediments rich in mica and carbonaceous material. | 12.2 | 137.9 |
| Cross-bedded sandstones. | 6.1 | 125.7 |
| 18.3 m from top of unit: Cyclic beds up to 1.8 m thick arranged in the following upward sequence: (1) carbonaceous shales; (2) cross-bedded fine sandstone; (3) pebbly sandstone with carbonaceous remains, very irregular in thickness; (4) carbonaceous shales; (5) cross-bedded fine sandstone with carbonaceous remains. | 4.6 | 119.6 |
| Sample 22531 Carbonaceous fine sandstone.<br>22530 Feldspathic grit.<br>22529 Feldspathic grit. | | |
| 22.9 m from top of unit: cyclic bedding ceases on uppermost platform. Large scale cross-bedded sandstone alternating with lensing shales (up to 0.3 m thick). Base of sandstone beds contain pebble conglomerate up to 0.15 m thick. Shales contain good Glossopteris flora. Large siliceous concretions occur. Distinct base to this unit. | 15.8 | 115.0 |
| Fine-grained white large scale scross-bedded sandstone with carbonaceous stringers. Basal contact with underlying shales irregular. | 2.1 | 99.2 |
| Dark carbonaceous shales with parallel and ripple lamination. | 2.1 | 97.1 |
| Interbedded lenses of white sandstone with carbonaceous streaks and dark lensing shales. Slump structures common. | 3.7 | 95.0 |
| Dolerite sill. | 2.0 | 91.3 |
| Very white cross-bedded sandstone with fine carbonaceous laminations interbedded with dark shales. | 2.3 | 89.3 |
| Cross-bedded white sandstone (with carbonaceous stringers and pebbly quartzose lenses) alternating with carbonaceous ripple laminated siltstones in laterally persistent cycles up to 0.9 m thick. Rounded green siltstone pellets, wood fragments and siliceous concretions common in the basal coarser beds of each cycle. Unit exposed as a small scale cliff and ledge topography. | 38.1 | 87.0 |
| White or grey arkosic grits and carbonaceous sandstone alternating with thin carbonaceous siltstone in cyclic fashion. Where the basal sandstones in each cycle are developed in large scale cross-beds the amount of reworked carbonaceous matter tends to be greater and the colour of the sandstone a darker grey. Fine sandstone also contain an abundance of small pellets of green siltstone. The black siltstones at the top of each cycle are normally sharply truncated by the overlying | 48.7 | 48.9 |

| | A | B |
|---|---|---|
| sandstones. The proportion of siltstone to sandstone in each cycle decreases down the succession. Towards the base of this unit quartzose grits, some arkosic, are more common. | | |
| Sample 22527 Feldspathic grit. | | |
| Yellow stained weathered conglomerate with clasts of white and black quartzites up to 0.1 m diameter and green siltstone pellets. Yellow weathered conglomerate is succeeded upward by about 0.6 m of green siltstone pellet arkose. | 0.2 | 0.2 |
| - Pyramid Erosion Surface - | | |
| AZTEC SILTSTONE (9+ m). | | |
| Alternating horizontally and cross-bedded beds of sandstone and siltstone, light green for upper 1.8 m but becoming darker at lower levels. | 4.3 | 8.7 |
| White, fine-grained, cross-bedded sandstone. | 1.8 | 4.4 |
| Interbedded pale green sandstone and slightly darker siltstone. | 0.8 | 2.6 |
| Cross-bedded white sandstone alternating with thinner green siltstone. Siltstone has maximum thickness of 0.1 m and exhibits ripple marks. Numerous alternations of sandstone and siltstone with siltstone proportion decreasing downward until becoming thin lenses. Reworked green siltstone pellets are present in the thicker sandstone. Rare fossil fish fragments. | 1.8 | 1.8 |
| Base of section on wide platform. | | |

SECTION 20 - MAYA MOUNTAIN.

Section measured from flat area 2.3 km at 55° from Aztec Mountain up southeast and east slopes to summit. Measured with staff by PNW, SPK 1/69. Position of base 77° 47.6'S; 160° 36.5'E. Map elevation 1800 m.

| | A | B |
|---|---|---|
| Dolerite sill, capping peak. | | |
| WELLER COAL MEASURES (151+ m) | | |
| Poorly exposed interval with contorted shales, upper contact baked. | 2.44 | 150.6 |
| Sample 22524 Light grey siltstone. | | |
| Cross-bedded gritty sandstone and pebble beds (up to 0.12 m) alternating with cross-bedded and wavy laminated carbonaceous siltstones (up to 4.6 m) in several cycles. Basal coarser parts of each cycle contain abundant disseminated carbonaceous matter and carbonised wood. The larger quartz clastics are well rounded, gneisses rounded but deeply etched. Slump structures up to 0.08 m common in coarser units. | 36.58 | 148.2 |
| Sample 22520 Coarse sandstone.<br>22521 Fine sandstone.<br>22522 Medium sandstone.<br>22523 Medium sandstone. | | |
| Cross-bedded carbonaceous sandstone with abundant slump structures. | 4.88 | 111.6 |
| Carbonaceous and micaceous shales with Glossopteris alternating with leached non carbonaceous arkose. Abundant scour features in the coarser units. | 10.3 | 106.7 |
| Coal horizon with poorly preserved plant material. | 0.8 | 96.4 |
| Cross-bedded sandstone with disseminated carbonaceous matter. | 3.7 | 95.6 |
| Lens of carbonaceous shale. | 0.5 | 91.9 |
| Horizontal or cross-bedded sandy and micaceous shales developed in cycles. Some thin coaly beds. Some oblong siliceous concretions 1.2 m present. | 70.0 | 91.4 |
| Cycle of sandstone (4.6 m) overlain by black fissile shale (4.6 m). | 9.1 | 21.4 |
| Arkosic grit (0.3 m) overlain by black contorted shales. | | |
| Coarse ledge-forming grit with carbonaceous stringers overlain by black contorted shales. | 0.7 | 11.5 |
| Feldspathic-grit with coal stringers. | 0.2 | 10.8 |
| Feldspathic grit with green siltstone pellets. | 2.0 | 10.6 |
| Lensing coaly sandstone (1.8 - 3.7 m). | 0.4 | 8.6 |
| Cross-bedded feldspathic grit. | 2.7 | 8.2 |
| Cross-bedded coarse grit with shale fragments (derived from Aztec Siltstone or Metschel Tillite), with 0.1 m boulder horizon at base. | 5.5 | 5.5 |

Note: Sample 22525 Coarse sandstone.
Sample 22526 Coarse sandstone. } from Weller Coal Measures.

- Pyramid Erosion Surface -

| | A | B |
|---|---|---|
| METSCHEL TILLITE ( 3 m). | | |
| Green siltstone with a low proportion of granite, gneiss and quartz boulders, some folding and shearing evident. Upper surface has a relief of 0.1 - 0.5 m. At Maya Mountain exposed only as a remnant on the southern ridge where it rests on a flat surface of brown stained cross-bedded Beacon Heights Orthoquartzite. On the eastern face of Maya Mountain Metschel Tillite is missing and Weller Coal Measures rest directly upon Aztec Siltstone. | 3.0 | 3.0 |
| Sample 22546 Tillite. | | |
| 22536 Tillite. | | |
| 22535 Tillite. | | |
| - Maya Erosion Surface - | | |
| AZTEC SILTSTONE (42 m). | | |
| Yellow stained siltstone with dessication cracks. | 0.2 | 41.9 |
| Green-maroon-black-brown contorted paper shales and interbedded white green sandstone. | 5.8 | 41.7 |
| Ruse and cavernously weathered white sandstone, forming distinct ledge. | 2.4 | 35.9 |
| Green massive silty sandstone, khaki in colour near base. | 4.6 | 33.5 |
| Whitish sandstone, pinkish near base, greenish in places. | 2.1 | 28.9 |
| Poorly exposed red-green nodular sandy siltstones and contorted maroon-green shales, predominantly green near top of unit (see notes for similar horizon in Aztec Mountain sections). | 9.8 | 26.8 |
| White cross-bedded sandstone with thin interbedded green sandstones. | 1.5 | 17.0 |
| Maroon-green siltstones with nodules and dessication cracks. | 1.2 | 15.5 |
| Cross-bedded sandstone. | 0.6 | 14.3 |
| Alternating green-maroon siltstone. | 4.0 | 13.7 |
| Cross-bedded sandstone. | 0.3 | 9.7 |
| Maroon-green siltstones. | 0.6 | 9.4 |
| White cross-bedded sandstone. | 4.6 | 8.8 |
| Maroon green siltstone with dessication cracks infilled by green siltstone. | 1.4 | 4.2 |
| White cross-bedded sandstone. | 1.1 | 2.8 |
| Maroon-green contorted siltstone, gradational into underlying formation. | 1.7 | 1.7 |
| BEACON HEIGHTS ORTHOQUARTZITE (100 + m). | | |
| Rust weathered white orthoquartzite. | 100 | 100 |
| Sample 22597 Dyke in sandstone. | | |

SECTION 21 - KENNAR VALLEY.

Lowermost 120 m of section measured at mouth of Kennar Valley on northwest side. Rest of section measured on west side of median spur towards head of valley beginning at 2.2 km at 125° from Peak 2090. Measured with staff by BCMc, MPG 1/69.
Position of base 77° 46.3'S; 160° 21.5'E. Map elevation 1600 m.

| | A | B |
|---|---|---|
| Dolerite sill. | | |
| FEATHER CONGLOMERATE (12+ m). | | |
| Well sorted pebble conglomerate. Quartzite and chert framework. Abundance of material derived from this unit covers valley floor. | 0.6 | 11.6 |
| White well washed sandstones with some pebble lenses. No apparent plant debris. Cross-bedded. | 11.0 | 11.0 |
| Sample 22514 Medium sandstone. | | |
| WELLER COAL MEASURES (72 m). | | |
| Carbonaceous sandstones and shales. Abundant plant debris. | 32.0 | 71.7 |
| Sample 22606 Calcareous breccia. | | |
| Massive silty grey-green sands. Abundant carbonaceous material. | 7.2 | 39.7 |
| Sample 22515 Sandstone.<br>22607 Sandstone. | | |
| Green or brown silty sandstones. Numerous coaly lenses or rather very carbonaceous shales. Mudstone (shale) breccias common. | 12.0 | 32.5 |
| Sub-bituminous coals and carbonaceous shales. | 4.5 | 20.5 |
| Sample 22533 Coal.<br>22532 Coal. | | |
| Sandstones, well washed. | 2.0 | 16.0 |
| Coal. | 0.3 | 14.0 |
| "Carbonaceous arkose". | 1.0 | 13.7 |
| Sample 22512 Gritty sandstone. | | |
| Sandstones (coarse) with numerous carbonaceous layers. Cross-stratified. Scour and fill uniquitous. Small concretions. | 12.7 | 12.7 |
| Sample 22509 Coarse sandstone.<br>22505 Medium sandstone. | | |
| - Pyramid Erosion Surface - | | |
| METSCHEL TILLITE (11 m). | | |
| Paraconglomeratic tillite. (Highly deformed glacial and fluvioglacial sequences occur along strike). | 11.2 | 11.2 |

Sample 22569 Fine sandstone.
22568 Fine sandstone.
22544 Concretion.
22543 Tillite

22619, 22614, 22613, 22612, 22611 } Varvoid very fine sandstone.

- ? disconformity (Maya Erosion Surface) -

| | A | B |
|---|---|---|
| AZTEC SILTSTONE (47 m). | | |
| Sandy siltstones. | 2.7 | 46.5 |
| Green, maroon and black siltstone. | 15.4 | 43.8 |
| Green-white sandstones. Beds up to 1.2 m thick. | 1.2 | 28.4 |
| Sample 22567 Fine quartz sandstone. | | |
| Dark green siltstones. | 6.0 | 27.2 |
| White cross-stratified sandstones. | 1.0 | 21.2 |
| Sample 22566 Fine quartz sandstone. | | |
| Loss of exposure (bottom of median spur section). | | |
| Sandstones, overlain by dolerite. | 15.1 | 20.2 |
| Sample 22603 Black siltstone. | | |
| Shales. | 5.1 | 5.1 |
| Note: Sample 22609 Dark grey siltstone. From Aztec Siltstone. | | |
| BEACON HEIGHTS ORTHOQUARTZITE (97 + m). | | |
| Sandstones. | 21.8 | 97.2 |
| Clean sands, dark sands and some shale. | 2.4 | 75.4 |
| Silty sands with very thin con | 4.9 | 73.0 |
| Green silty shale. | 0.9 | 68.1 |
| Sandstone with minor shale. | 18.3 | 67.2 |
| Shale. | 0.3 | 48.9 |
| Sandstone. | 2.7 | 48.6 |
| Shale-green to slate grey. | 6.7 | 45.9 |
| Sandstones with one 1.2 m shale horizon cross-bedding orientation indicating currents to east or northeast: | 28.3 | 39.2 |
| Shales - yellow green. | 1.8 | 10.9 |
| Sandstones. | 9.1 | 9.1 |
| Loss of exposure - assume all typical B.H.O. from here down. | | |

SECTION 22 - MOUNT ODIN.

Section measured on northern face Mount Odin, southern wall of Wright Valley, with base at 1.7 km at 350° from summit (Mount Odin). Measured with staff by PNW, BPK 2/69.
Position of base 77° 33.9'S; 161° 38'E. Map elevation 1300 m.

| | A | B |
|---|---|---|
| Dolerite sill, capping Mount Odin. | | |
| ALTAR MOUNTAIN FORMATION (65+ m). | | |
| White quartzose cross-bedded sandstone, platy in places, bedding emphasised by green mineralisation, also ferruginous green lenses. | 16.5 | 65.2 |
| Ferruginous dark brown and black medium to fine sandstone. | 7.3 | 48.7 |
| White platy cross-bedded sandstone with subordinate feldspar. | 5.5 | 41.4 |
| Green-yellow cross-bedded ferruginous sandstone. | 1.8 | 35.9 |
| Cross-bedded platy medium to fine-grained sandstone with minor feldspar, and ferruginous coloration in some beds. | 7.3 | 34.1 |
| Cross-bedded platy medium to fine-grained brown sandstone with subarkose laminae and occasional ferruginous concretions up to 0.05 m diameter. | 1.8 | 26.8 |
| White platy quartzose sandstone with minor cross-bedded gritty feldspar horizons. | 1.8 | 25.0 |
| Odin Arkose Member (23 m). | | |
| Coarse arkosic grits in small scale cross-bedded units. Quartz up to 0.02 m and feldspar up to 0.01 m. Some interbedded greenish white shales. | 23.2 | 23.2 |
| Sample 22555 Gritty arkose.<br>22554 Gritty arkose. | | |
| - Heimdall Erosion Surface - | | |
| NEW MOUNTAIN SANDSTONE (88 m). | | |
| Cross-bedded medium to fine grained white-green sandstone, occasionally green-brown in colour. Unit becomes reddish-brown towards base. | 78.6 | 87.8 |
| Loss of exposure. | 9.2 | 9.2 |
| - Kukri Surface - | | |
| Dais Granite with Vanda Lamprophyre and Porphyry Dykes. | | |

SECTION 23 - ST. PAULS MOUNTAIN.

Section measured up southern wall of Wright Valley to top of sandstone plateau at north end of long ridge running north from St. Pauls Mountain. Base of section 6.5 km at 064° from peak 2410. Measured with staff by PNW, BPK 1/69. Position of base 77° 35.1'S; 161° 17.5'E. Map elevation 1100 m.

| | A | B |
|---|---|---|
| ALTAR MOUNTAIN FORMATION (150+ m). | | |
| Horizontally bedded quartzose sandstones with some ferruginous green lenses and concretions. Vertical pipes common. Top of unit coincides with wide resistant platform. | 36.6 | 150.0 |
| Cross-bedded and horizontally bedded green ferruginous sandstone with concretions. Some gritty beds with feldspar. | 39.6 | 113.4 |
| White cross-bedded sandstone, poorly exposed. | 21.9 | 73.8 |
| White cross-bedded sandstone and subordinate cross-bedded feldspathic grits, borings and nobbly weathering structures common. | 11.6 | 51.9 |
| Green ferruginous lenses up to 6.1 m in length. | 3.7 | 40.3 |
| Pink feldspathic grits. | 8.5 | 36.6 |
| Odin Arkose Member (28 m). | | |
| Large scale cross-bedded grits with abundant borings. Individual beds are 0.1 - 0.15 m thick with feldspar pebbles up to 0.15 m at the base of each bed. | 7.9 | 28.1 |
| Ferruginous green-brown concretions in feldspathic sandstone. | 3.7 | 20.2 |
| Small scale cross-bedded graded feldspathic grits with abundant scour features. Lowermost 1.5 m exhibits small green-khaki siltstone bands and lenses up to 0.08 m thick. | 16.5 | 16.5 |
| Conglomerate of rounded to sub-rounded quartzite, quartzite pebbles up to 0.03 m in diameter and lithic fragments up to 0.06 m. A few lithic fragments up to 0.15 m. Conglomerate stained a ferruginous brown at base. | | |
| - Heimdall Erosion Surface - | | |
| NEW MOUNTAIN SANDSTONE (134 m). | | |
| Large scale well cross-bedded horizontally bedded and well bored fine-medium grained quartzose sandstone. Microrelief of 0.3 - 0.5 m on upper surface of this unit. Beds have a pronounced platy bedding and cross beds dip up to 10° to the west and southwest. Bedding planes have no surface features. Induration of beds below the Heimdall Erosion Surface is greater than in the beds above. Borings prominent 29.3 m below top of unit where platy bedding is not as prominent as higher up in this unit. Cavernous weathering and minor thin muddy intercalations also present at 29.3 m level. Occasional feldspathic lenses occur in small scale cross-bedded units at around 58.5 m below top. At 58.5 m level there is a trend from large-scale platy cross-bedding to small-scale cross-bedding and green ferruginous lenses. Parallel track markings apparent in the lowermost 2.4 m of unit. | 61.0 | 133.2 |
| Horizontally bedded and cross-bedded white quartzose sandstone, poorly cemented and containing occasional feldspar grains. Some boring apparent. | 16.5 | 72.2 |

| | A | B |
|---|---|---|
| Fine-grained cross-bedded sandstone alternating with green shales - passing up into buff and maroon shales (compare with Terra Cotta Member of Knobhead area). | 5.2 | 55.7 |
| Bored white-green, cross-bedded quartzose sandstone with occasional feldspathic grains present. | 3.7 | 50.5 |
| Rusty-brown iron-stained, ledge-forming sandstone. | 0.9 | 46.8 |
| Cross-bedded gritty to fine feldspathic and fine quartzose sandstone. Vertical pipes and bedding plane borings common. | 3.7 | 45.9 |
| Bored lensing green sandstone. | 0.2 | 42.2 |
| White fine-grained quartzose sandstone, very densely bored (vertical-pipes). | 0.6 | 42.0 |
| Fine clean white quartzose sandstone, minor cross-bedding in the lower part. Densely bored at 22 m above base. Towards the top of this sequence a massive well-cemented ledge sandstone with cavernous borings occurs. | 34.1 | 41.4 |
| Thin fine-grained black lamprophyre dyke (0.6 m). | | |
| Obscured in part, mainly quartzose sandstone with some feldspathic sandstone blocks in scree. | 7.3 | 7.3 |

NEW MOUNTAIN SANDSTONE (134 m).

- Kukri Surface -

Dais Granite, fairly cataclasized and quite weathered.

SECTION 24 - MOUNT HEIMDALL

Base of section measured from a point 5.2 km at 072° from peak 2410 (Mount Heimdall). Section continues across to eastern side of northeast ridge and towards summit. Measured with staff by BPK, PNW 1/69.
Position of base 77° 35.8'S; 161° 15'E. Map elevation 1600 m.

| | A | B |
|---|---|---|
| BEACON HEIGHTS ORTHOQUARTZITE (150+ m). | | |
| White cliff-forming sandstone. Occasional ferruginous lensoidal bands and concretions in lowermost 12 m of unit. Small-scale cross-bedding also common low in unit. | 150+ | |
| Note: A check by helicopter altimeter (BPK, PJB 11/70) gave the following thicknesses:- | | |
| Summit dolerite 140 m<br>Beacon Heights Orthoquartzite 330 m<br>Area Sandstone / Altar Mountain Formation 290 m | | |
| Ferruginous gritty green sandstone, mainly quartz and minor amounts of feldspar. Some cross-bedding towards the top of unit. | 1.8 | 35.9 |
| White quartzitic sandstone with abundant vertical pipes. Some thin green and khaki siltstones up to 1 m thick interbedded with sandstone towards top of unit. | 25.6 | 34.1 |
| Ferruginous green sandstone. | 3.0 | 8.5 |
| Quartzose sandstone with occasional ferruginous lenses. Whole unit is densely bored with vertical pipes, also abundant Beaconites antarcticus present 3.6 m above base of unit. | 5.5 | 5.5 |
| ALTAR MOUNTAIN FORMATION (92 m). | | |
| Prominent sandstone ledge. | 0.5 | 92.4 |
| Green-khaki siltstone. | 0.1 | 91.9 |
| White quartzose sandstone, well bored. | 4.3 | 91.8 |
| Ferruginous green sandstone, slightly gritty. | 1.8 | 87.5 |
| Cyclic ferruginous and white quartzose sandstones becoming more gritty and feldspathic towards base of unit. | 61.9 | 85.7 |
| 80.6 m above base of unit - densely bored sandstone | | |
| 70.5 m above base of unit - 0.1 m green shale (lensoidal) interbedded with cross-bedded sandstone | | |
| 40.7 m above base of unit - prominent concretions up to 0.5 m diameter in cross-bedded sandstones. | | |
| 42.2 m above base of unit - white medium grained quartz sandstone interbedded with ferruginous concretionary sandstone. Minor grits. | | |
| 37.5 m above base of unit - minor grit bands interbedded with cross-bedded sandstones | | |
| 22.4 m above base of unit - white fine-grained fine sandstone in large scale cross bedding. Thin ferruginous sandstones up to 20 ft. across. | | |
| Odin Arkose Member (24 m). | | |
| 0 - 18.7 m above base of unit - cross-bedded coarse feldspathic grits. Some organic borings. Uppermost sediments in unit are gritty ferruginous sandstones. | 18.7 | 23.8 |

| | A | B |
|---|---|---|
| Green siltstone. | 0.1 | 5.1 |
| Feldspathic sandstone. | 0.3 | 5.0 |
| Green siltstone. | 0.1 | 4.7 |
| Small scale cross-bedded feldspathic grits with feldspar pebbles up to 0.1 m diameter. Green siltstone with chips common. | 3.7 | 4.6 |
| Rusty iron stained conglomerate of quartzose pebbles and less common lithic fragments up to 0.2 m diameter. Unconformable contact at base of this unit exhibits only mild relief. | 0.9 | 0.9 |
| - Heimdall Erosion Surface - | | |
| NEW MOUNTAIN SANDSTONE (60 m). | | |
| Yellow-brown friable sandstone with abundant vertical pipes and track markings. Large scale platy cross-beds with fewer organic structures more characteristic of higher horizons of this unit. | 60.0 | 60.0 |
| TERRA COTTA SILTSTONE (10 m). | | |
| Clean white sandstone with occasional khaki-green sandstone-siltstone lenses. At some horizons medium to coarse grained cross-bedded arkoses alternate with the finer grained white quartzose sandstones. | 7.9 | 9.6 |
| Interbedded medium fine white feldspathic sandstone and fine ripple laminated green siltstones, basal 0.2 m of this unit consists of poorly bedded green sandstone. This unit is sharply interbedded or gradational with the underlying maroon siltstones and has a sharply gradational contact with the overlying white sandstone. Contact with overlying white sandstone exposed 150 m laterally. | 0.8 | 1.7 |
| Maroon shaly siltstones and mudstones, lower part of unit obscured. | 0.9 | 0.9 |
| Moraine. | | |

SECTION 25 - MOUNT BALDR-THOR.

Section measured up southern wall of Wright Valley and up northern face of a small peak below Mount Thor, with base of section 8.8 km at 298° from peak 2410 (Mount Heimdall). Measured with staff by BPK, PNW 1/69.
Position of base 77° 34.4'S; 160° 44'E. Map elevation 1200 m.

| | A | B |
|---|---|---|
| Dolerite sill. | | |
| BEACON HEIGHTS ORTHOQUARTZITE (137+ m). | | |
| White well-cemented, cliff-forming orthoquartzite. Basal 6.1 m contains a few ferruginous concretions (up to 0.9 m across) and lenses. A thin siliceous ledge 0.15 m wide occurs at the base of this formation. | 137.2+ | |
| Sample 22572 6 m Medium sandstone. | | |
| ARENA SANDSTONE (236 m). | | |
| Poorly exposed khaki-coloured sandstone, horizontally bedded, some large scale cross-bedding present. Occasional borings towards top of these beds. Upper part of these beds passes gradationally into the overlying Benson Heights Orthoquartzite. | 57.9 | 235.8 |
| Sample 22580 Ferruginous fine sandstone.<br>22579 Fine to medium sandstone.<br>22551 Fine to medium sandstone. | | |
| Clayey yellow-brown, cross-bedded sandstone, containing brown ferruginous concretions and lenses. Borings and Beaconites antarcticus common. Cavernous weathering present, some parts of these beds are very friable. | 98.8 | 177.9 |
| Loss of exposure. | 20.1 | 79.1 |
| Whitish sandstone with large-scale cross-bedding. Borings common. | 16.5 | 59.0 |
| Dark rust-brown ferruginous sandstone, khaki coloured towards the top. Contains few borings, has large-scale cross-bedding and contains large clasts of quartz and feldspar. | 1.8 | 42.5 |
| Well-cemented and well-bored quartzose sandstone. | 0.4 | 40.7 |
| Massive white orthoquartzite, densely bored with vertical pipes weathering out, especially in upper 9.1 m. Ferruginous concretions and lenses present, especially in upper parts of this unit. Orthoquartzite is superficially weathered to a rust-brown colour. Well cemented ledges are common. Occasional feldspar clasts are present. | 36.6 | 40.3 |
| Poorly exposed or unexposed feldspathic-poor sandstone. Abundant organic structures. This unit marks a gradational boundary between feldspathic sandstones lower and clayey sandstones higher in section. Gradational change occurs through about 12.2 m of section. Organic borings, pipes and traces more abundant in clayey sandstones. | 3.7 | 3.7 |
| ALTAR MOUNTAIN FORMATION (78 m). | | |
| Fine-grained white sandstones alternating with shale beds. The slightly feldspathic sandstones occur in small-scale cross-beds 0.3 - 0.6 m thick. Tracks of Beaconites antarcticus prominent. Upper part of each cycle consists of green, khaki | 8.5 | 77.61 |

| | A | B |
|---|---|---|
| and red shale units up to 0.15 m thick. The top of shale units are scoured by overlying sandstones and are commonly contorted. Exposed on prominent ledge. | | |
| Loss of exposure. | 4.3 | 69.11 |
| Green siltstone, well laminated. | 0.03 | 64.81 |
| Medium to coarse grained feldspathic sandstone, contains a few borings. | 0.05 | 64.78 |
| Bored green siltstone. | 0.05 | 64.73 |
| Medium to fine feldspathic sandstone clasts becoming a little more prominent. Base of this bed has borings. Two minor green sandy siltstone beds present in this unit, which have borings filled with arkosic sandstone. | 0.8 | 64.68 |
| Well laminated green siltstone. | 0.05 | 63.88 |
| White feldspathic sandstone which fines upwards. Feldspar quite common but not as profuse as in beds below. | 0.6 | 63.83 |
| Fine sandstone with minor feldspar. | 0.06 | 63.23 |
| Laminated green siltstone. | 0.05 | 63.17 |
| White, medium grained, cross-bedded feldspathic sandstone. | 0.5 | 63.12 |
| Green siltstone, with subordinate feldspar. | 0.2 | 62.62 |
| Fine-grained feldspathic sandstone. | 0.3 | 62.42 |
| Rust-brown arkose - small-scale cross-beds. Unit capped by 0.05 m of fine-grained green feldspathic sandstone. | 0.9 | 62.12 |
| Lensing green siltstone, upper surface irregular. | 0.03 | 61.22 |
| Medium-grained cross-bedded feldspathic sandstone. | 0.05 | 61.19 |
| Lensing green sand, no obvious arkose. | 0.08 | 61.14 |
| Lensing medium to coarse-grained feldspathic sandstone with well rounded feldspars. | 0.05 | 61.06 |
| Green siltstone to fine sandstone. Irregular upper surface due to scouring by overlying feldspathic sandstone lenses. | 0.03 | 61.01 |
| Odin Arkose Member (61 m). | | |
| Well developed gritty feldspathic sandstone, cross-bedded on a small scale. | 0.5 | 60.98 |
| Medium to coarse arkose, with erosion channels at base which cut into underlying beds. | 0.08 | 60.48 |
| Sample 22552 Gritty arkose. | | |
| Buff to green massive sandstone, contains pockets of gritty feldspathic sandstone in very small-scale cross-beds. Faint internal deformation structures apparent. | 0.8 | 60.4 |
| Sample 22553 Greenish fine sandstone. | | |
| Medium to coarse cross-bedded arkose. Coarsest grains of feldspar generally occur in middle of each cross-bedded unit. Feldspar grains sometimes are scattered throughout each cross-bed. Cross-bedding always small scale. No borings. | 4.6 | 59.6 |

| | A | B |
|---|---|---|
| Loss of exposure in scree. Scree slope contains an abundance of feldspathic rocks (some conglomeratic). | 55.0 | 55.0 |
| - ? disconformity (Heimdall Erosion Surface) - | | |
| NEW MOUNTAIN SANDSTONE (81 m). | | |
| Loss of exposure. | 9.0 | 81.2 |
| White planar horizontally-bedded and cross-bedded quartzose sandstone. Shows laminations and contains some thin siltstone units. Sandstone is well cemented and appears to be more massive towards the top, where ledging effects are prominent. The prominent cross-bedding gives this unit a platy-shaly appearance. Current directions to the west, north-west and south-west. | 12.20 | 72.2 |
| Loss of exposure. | 60.0 | 60.0 |
| Dolerite sill. | | |

SECTION 26 - MOUNT FLEMING.

Section measured up ridge bounding the southern side of main cirque east of Mount Fleming. Base located 6.1 km at 080° from summit of Mount Fleming. Measured with staff by BCMc, PNW, BPK, MPG 1/69.
Position of base 77° 32.8'S; 160° 21'E. Map elevation 1800 m.

| | A | B |
|---|---|---|
| Dolerite, capping peak. | | |
| FEATHER CONGLOMERATE (16+ m). | | |
| Coarse orthoquartzite and pebble grade conglomerate. Cross-beds up to 1.2 m thick. No carbonaceous material. | 15.5 | 15.5 |
| Sample 22508 Quartz pebble conglomerate. | | |
| WELLER COAL MEASURES (98 m). | | |
| Poorly exposed interbedded sands (0.3 m) and carbonaceous shales. | 6.7 | 98.3 |
| Thin-bedded grey sands with carbonaceous lenses, laminae and specks. Some pebble conglomerate lenses. | 19.8 | 91.6 |
| Cross-bedded grey quartz sandstone with abundant carbonaceous bands or laminae. Arkosic sediments common in basal 2.7 m. Beds of limited lateral extent due to scour and fill structures. Irregular shaped greyish concretions up to 1.5 m. | 21.0 | 71.8 |
| Sample 22510 Quartz grit. | | |
| Arkosic sandstones and interbedded carbonaceous shales, the latter up to 4.6 m thick. | 38.7 | 50.8 |
| Cross-bedded arkosic sands with subordinate carbonaceous material. Seat earths up to 0.9 m thick. A few coal seams preserved in scour depressions. | 9.1 | 12.1 |
| Coal seam passing up into carbonaceous shales. | 0.6 | 3.0 |
| Arkosic sands with conglomeratic sands at base. Wood fragments up to 1.8 m long by 0.8 m wide. | 2.4 | 2.4 |

Note: Sample 22502 Micaceous siltstone.
22503 Medium sandstone.
22506 Coarse sandstone.
} all from Weller Coal Measures.

- Pyramid Erosion Surface -

| | | |
|---|---|---|
| METSCHEL TILLITE (0 - 25 m). | | |
| Green pebbly siltstone with granite and quartzite clasts constituting less than 1% of rock. Wedges out laterally so that Weller Coal Measures commonly directly overlie Aztec Siltstone. | 0 - 25 | 0 - 25 |
| Sample 22541 Sandy tillite. | | |

- Maya Erosion Surface -

| | | |
|---|---|---|
| AZTEC SILTSTONE (92 m). | | |
| Orthoquartzite with undulating and rust-brown upper surface (erosion surface). | 0.9 | 91.5 |
| Cross-bedded brown-green sandstone, exposed on prominent wide platform. Unit disconformable on underlying siltstone unit. | 5.5 | 90.6 |
| Green-brown siltstone. | 0.8 | 85.1 |
| Thick sandstone-thin shale cycle. | 0.9 | 84.3 |

| | A | B |
|---|---|---|
| Red-brown cross-bedded cliff-forming orthoquartzite. Shale flakes and conglomerate lenses near base. | 11.6 | 83.4 |
| Lensing shale breccia. | 0.9 | 71.8 |
| Lensing sandstone with minor siltstone pebbles. | 0.8 | 70.9 |
| Alternating platy sandstones and black and green siltstones and claystone. The latter contain calcareous concretions, dessication cracks, organic tracks and fossil fish. | 25.3 | 70.1 |
| Horizontally bedded sandstone with knobbly weathering structures. | 1.5 | 44.8 |
| Light green claystone. | 1.8 | 43.3 |
| Interbedded sandstone and claystone with fossil fish. | 0.5 | 41.5 |
| Green claystone and fine sandstone passing down into shale. Fossil fish. | 0.6 | 41.0 |
| Black fissile shale with poorly preserved fish scattered throughout. | 7.9 | 40.4 |
| MS 229. | | |
| Small-scale cross-bedded white-rust coloured sandstone. | 0.9 | 32.5 |
| Interbedded white/green sandstone 0.6 m passing up into green siltstone with dessication cracks. Unit truncated at top. | 1.5 | 31.6 |
| Cross-bedded sandstone 1.8 m with minor green sandstone/siltstone lenses passing up into green siltstone (0.9 m). Unit truncated at top. | 2.7 | 30.1 |
| Massive green siltstone with borings, truncated at top. | 0.5 | 27.4 |
| Cross-bedded sandstone with minor green siltstone lenses. | 2.6 | 26.9 |
| White cross-bedded sandstone (1.2 m) passing up to green lensing siltstone/claystone (1.2 m). | 2.4 | 24.3 |
| Alternating white/green sandstone and green siltstone and claystone. Claystone exhibits ripple marks, dessication cracks, ferruginous concretions (3-4 mm) and calcareous concretions. Unit sharply truncated by overlying unit. | 11.9 | 21.9 |
| Green claystone with irregularly truncated top. | 0.3 | 10.0 |
| Small-scale cross-bedded coarse grained sandstone. | 1.8 | 9.7 |
| Interbedded fine-grained white sandstone and ripple marked claystone. | 6.0 | 7.9 |
| Green claystone. | .05 | 1.9 |
| Lensing contorted white sandstone. | .05 | 1.85 |
| Fine-grained orthoquartzite grading to conglomerate at base. Thin green-red claystone also present. | 1.8 | 1.8 |
| BEACON HEIGHTS ORTHOQUARTZITE (75 m). | | |
| Fine to coarse-grained horizontally and cross-bedded orthoquartzite with minor conglomerate bands. Abundant small green silt pellets. | 75 | 75 |

MS 228 (near top of Beacon Heights Orthoquartzite; collected in situ near back of cirque).

SECTION 28 - MOUNT ELECTRA.

Section measured up northern wall of Wright Valley and southern slopes of Mount Electra, with base of section 2.9 km at 180° from Mount Electra summit. Measured with staff by BCMc, MPG 1/69.
Position of base 77° 31.3'S; 160° 53'E. Map elevation 1200 m.

| | A | B |
|---|---|---|
| BEACON HEIGHTS ORTHOQUARTZITE. | | |
| Unmeasured thickness of B.H.O., forms vertical cliffs at least 100 m high - pure white orthoquartzite. | 100+ | |
| ARENA SANDSTONE (197 m). | | |
| Interbedded B.H.O. and creamy yellow sandstone. | 9.1 | 196.9 |
| Yellow or white creamy sandstone, a few dark "specks" (2-3 mm across), transitional contact with B.H.O., junction corresponds with break in slope. | 82.3 | 187.8 |
| Pale yellow cross-bedded sandstones, no specks. | 60.4 | 105.5 |
| Yellow silty sandstones, poorly sorted; a few borings, thick beds, occasional concretions, speckled. | 45.1 | 45.1 |
| ALTAR MOUNTAIN FORMATION (132 m). | | |
| Drab, cross-bedded sandstones, interbedded with green ferruginous sandstones (0.6 m). | 7.3 | 132.2 |
| Cross-bedded quartzites, numerous borings, a few green siltstones. | 27.4 | 124.9 |
| Silicified sandstones with borings, interbedded with creamy silty sandstones (speckled) and rare green shales. | 16.5 | 97.5 |
| Creamy sandstones grading up into white, cross-bedded sandstones. | 46.3 | 81.0 |
| Odin Arkose Member (35 m). | | |
| Clayey, creamy sandstones, gritty towards the base (18.3 m), interbedded with thin (0.03 m) green or purple shales. Strongly cross-bedded throughout with distinctive pink quartz grains. Erosion surface overlain by a thin (0.05 m) pebble band (plutonics, cherts, sandstones) and exposed as a prominent terrace (up to 12.2 m wide). Surface flat but dipping gently westwards. | 34.7 | 34.7 |
| - Heimdall Erosion Surface - | | |
| NEW MOUNTAIN SANDSTONE (150 m). | | |
| Hard platy quartzites, strongly cross-bedded towards the top. | 30.5 | 149.6 |
| Coarse sandstones interbedded with fine grits and rare thin shales, occasional pebbles up to 0.05 m. | 38.1 | 119.1 |
| Well bedded quartzites with some pebbly grits towards the base. | 60.0 | 81.0 |
| Cross-bedded quartzites and grits with rare green siltstones. Passing gradationally into underlying member. | 12.5 | 21.0 |
| Boreas Subgreywacke Member (9 m). | | |
| Poorly exposed subgreywacke (sandstones, dark argillites, angular pebbles) resting non-conformably upon a greenish granite. Some erosional relief noted. | 8.5 | 8.5 |

| | | |
|---|---|---|
| Sample | 22585 | Coarse sandstone. |
| | 22584 | Grey grit. |
| | 27583 | Grey grit. |
| | 22582 | Grey grit. |
| | 22581 | Grey grit. |
| | 22561 | Grey grit. |

- Kukri Surface -

NEW MOUNTAIN SANDSTONE (150 m).

Igneous basement.

Dolerite sill ("peneplain").

SECTION 29 - MOUNT BOREAS.

Section measured up southern wall of McKelvey Valley and northwestern slopes of Mount Boreas with base of section located at 2.2 km due north of the summit. Measured with staff by BCMc, MPG 1/69. Remeasured by VUWAE 15 as section BS, this volume.
Position of base 77° 27.8'S; 161° 06.5'E. Map elevation 1300 m.

| | A | B |
|---|---|---|
| BEACON HEIGHTS ORTHOQUARTZITE (100+ m). | | |
| Unmeasured thickness of B.H.O. forming vertical cliffs, probably at least 100 m thick. Massive white orthoquartzite. | 100 | 100 |
| ARENA SANDSTONE (229 m). | | |
| Interbedded Beacon Heights Orthoquartzite and Arena Sandstone, B.H.O. often scours out the underlying yellow bed. | 12.2 | 229.2 |
| Yellow sandstones, better bedded and rather softer than Beacon Heights Orthoquartzite. Forms ridges rather than cliffs. Upper 152.4 m "speckled". Festoon cross-bedded with large 1.8 m beds and a few concretions. Trace fossils, worm borings etc. are much less common than in lower units. | 217.0 | 217.0 |
| Sample 22576 Fine sandstone.<br>22574 Fine sandstone. | | |
| ALTAR MOUNTAIN FORMATION (119 m). | | |
| Yellowish sandstones well bedded, quite soft, spectacularly worm bored in places, not speckled, becoming paler downwards. Occasional green shales towards the top of unit, very ferruginous towards the base. | 34.7 | 119.2 |
| Interbedded sandstones and dark ferruginous beds. Ferruginous beds are massive sandstones, typically 0.3 - 0.6 m thick and often bored. | 11.0 | 84.5 |
| Sample 22608 Ferruginous sandstone. | | |
| Rather clayey platy sandstone with well developed cross-bedding, often low angle and up to 6.1 m thick. Less platy towards the top, current directions variable. | 31.1 | 73.5 |
| Sample 22565 Coarse sandstone. | | |
| Green siltstones interbedded with platy or thin bedded quartzites, cavernous weathering, borings and a few grits. | 12.2 | 42.4 |
| Odin Arkose Member (30 m). | | |
| Coarse feldspathic sandstones, some grit and fine conglomerate bands, interbedded throughout with green-khaki shales. Grits less common towards the top. Occasionally feldspathic in the basal sections where scour and fill is common and grading is present. Small black concretions (spherical) up to 0.15 m across are common near the base of the unit. | 29.3 | 30.2 |
| Sample 22601 Black concretions.<br>22559 Feldspathic grit.<br>22558 Feldspathic grit. | | |
| Thin conglomerate (0.05 m), locally thickening to 0.6 - 0.9 m and consisting of plutonics, cherts and slabs of red weathered sandstone. Conglomerate deposited on an erosion surface which is moderately flat but has a relief of 15.2 m over a lateral distance of 61.0 m at one locality. Underlying disconformity exposed as a wide terrace. | 0.9 | 0.9 |
| Sample 23557 Conglomerate.<br>22556 Conglomerate. | | |

| | A | B |
|---|---|---|
| - Heimdall Erosion Surface - | | |
| NEW MOUNTAIN SANDSTONE (49 m). | | |
| Hard white orthoquartzites, cross-bedded in part, rare grit bands near base. | 15.2 | 48.7 |
| Boreas Subgreywacke Member (34 m). | | |
| White quartzites interbedded with green-brown siltstones. | 6.1 | 33.5 |
| Sample 22593 Fine quartz sandstone.<br>22592 Fine quartz sandstone. | | |
| Brown sandstones, grading up into paler sandstones interbedded with black "argillites". Beds contain white angular fragments, especially in darker sediments - giving rocks a "porphyritic" appearance. | 9.1 | 27.4 |
| Sample 22636<br>22635<br>22595 Gritty sandstone.<br>22594 Fine quartz sandstone.<br>22591 Fine quartz sandstone. | | |
| Hard white orthoquartzites interbedded with brown and black conglomerates. | 6.1 | 18.3 |
| Sample 22590<br>22589<br>22588 | | |
| Brown and black conglomerate with clasts aligned in well defined bands, probably parallel to bedding. | 4.6 | 12.2 |
| Black banded ?sediments. | 4.6 | 3.0 |
| Loss of exposure, a few basement boulders. | 3.0 | 3.0 |
| - Kukri Surface - | | |
| Igenous basement. | | |
| Dolerite sill ("peneplain"). | | |

Note: Sample 22560 Grey metasediment.
22563 Brown grit.
22564 Quartzite.
} all from Boreas Member nearby.

# PART II.

Stratigraphic sections from the Victoria Dry Valley area.

Measured and described in the 1970-71 season (VUWAE 15) by:-

Mr. B.P. Kohn
Mr. J.G. McPherson
Geology Department, Victoria University of Wellington.

SECTION BS - MT. BOREAS

Section measured up southern wall of McKelvey Valley and northwestern slopes of Mt. Boreas. Measured with staff and level BPK JGMcP 2/71. Position of base 77° 28.4' S; 161° 4.9' E. Map elevation 1500 m.

| Unit | | A | B |
|---|---|---|---|
| | BEACON HEIGHTS ORTHOQUARTZITE (est. 200+ m) | | |
| 1 | Sandstone, light grey, medium, quartzose, massive. Large scale trough cross-bedding dips to the east and southeast. As base of unit the orthoquartzite often fills scour in the underlying Arena Sandstone. Cliff-former. | | |
| | Sample 23814 6.0 m Sandstone. BS-24<br>23813 2.0 m Sandstone. BS-23 | | |
| | - sharp irregular contact - | | |
| | ARENA SANDSTONE (250 m) | | |
| 2 | Sandstone, yellow-brown, medium with occasional coarse lenses, flat-lying, well-bedded and platy in part, but generally massive. Mainly slope-former. At 12 m sandstone is dark yellow-brown for 2 m and contains ferruginous concretions up to 15 cm across; Beaconites antarcticus trails are common. From 25 to 30 m beds are more massive, soft and clayey. At 38 m ferruginous speckles and pyrite cubes are common. At 83 m rare quartz pebbles up to 2 cm across occur and at 116 m trough cross-beds (units up to 30 cm thick) dip to the southeast. Platy sandstone units up to 0.2 m occur at this level and pyrite cubes have become rare. Beaconites antarcticus tracks are common in firmer more massive sandstone at 126 m and 208 m. From 140 to 160 m beds are more massive and slabby and there are occasional ferruginous beds and lenses containing pyrite cubes and ferruginous concretions up to 1 m across. At 181 m yellow-brown sandstone is markedly ferruginous, soft and forms a prominent massive unit. | 215.8 | 249.6 |
| | Sample 23812 163.8 m Sandstone. BS-22<br>23815 140. m Sandstone containing pyrite cubes.<br>23811 80.6 m Sandstone. BS-21<br>23810 37.7 m Sandstone. BS-25<br>23809 2.6 m Sandstone. BS-20 | | |
| | - sharp regular contact - | | |
| 1 | Sandstone, light grey, medium, massive to slabby. Interbedded khaki papery shales up to 0.2 m thick. Beaconites antarcticus trails and dense vertical borings (stalagmitic) are common especially at 18 m and 30 m. Very ferruginous lenses are common throughout the unit and concretions up to 2 m across occur. At 17 m trough cross-beds up to 1.5 m thick comprising platy, medium, light grey sandstone dip to the northwest. Towards the top of the unit the ferruginous beds become gritty. | 33.8 | 33.8 |
| | ARENA SANDSTONE (250 m) | | |
| | - gradational contact - | | |

| Unit | | A | B |
|---|---|---|---|
| | ALTAR MOUNTAIN FORMATION (151 m) | | |
| 5 | Sandstone, light grey, medium, well-bedded, quite soft. Ferruginous beds become common towards the top of the unit with large concretions up to 3 m across and dark green to black ferruginous lenses being common in the upper 16 m of the unit. Thin khaki papery shales up to 0.6 m thick are present at 9 and 28.2 m. Vertical stalagmitic borings in ferruginous and light grey quartzose beds are abundant at 10 and 44 m. Ferruginous grit beds occur at 35 m. | 51.9 | 150.7 |
| | Sample 23808 35.0 m Gritty sandstone. BS-19<br>23807 32.4 m Sandstone. BS-18 | | |
| | - scree-covered contact - | | |
| 4 | Sandstone, light grey, medium, platy to flaggy and well-bedded. Less ferruginous than unit above. Beaconites antarcticus borings are common at the base of the unit. Occasional quartz grit lenses occur at 7 and 13 m lenses up to 0.2 m thick. Unit becomes paler and less ferruginous downwards. Low angle ($3^{\circ}$) trough cross-bedding (units up to 6 m thick) dips to the northwest. These beds are prominent at 13 m. | 39.1 | 98.8 |
| | Sample 23806 13.0 m Sandstone. BS-17 | | |
| | - sharp regular contact - | | |
| 3 | Sandstone, light grey, medium, slabby-platy, well-bedded, with interbedded yellowish ferruginous beds up to 2 m thick. Occasional grit beds and lenses up to 5 cm thick, especially towards the top of the unit. Rare vertical stalagmitic borings were noted at 4 m and 13 m. Rare green siltstones are interbedded with platy to slabby sandstones towards the base of unit. | 19.5 | 59.7 |
| | Sample 23805 6.5 m Sandstone. BS-16<br>23804 0.7 m Sandstone. BS-15 | | |
| | - gradational contact - | | |
| | Odin Arkose Member (40 m) | | |
| 2 | Sandstone, coarse, feldspathic. Some grit and fine conglomerate bands, interbedded throughout with thin olive grey shale. Grits less common towards the top. Occasionally feldspathic in the basal part of the section where scour and fill is common and grading is present. Small spherical black grit concretions up to 0.15 m across are common near base of unit. Trough cross-bedding with units up to 25 cm thick dips to the south and southwest. Rare cross-beds dip west. | 39.3 | 40.2 |
| | Sample 23803 37.7 m Gritty sandstone. BS-14<br>23802 15.6 m Gritty sandstone. BS-13<br>23801 3.9 m Ferruginous gritty concretion. BS-12 | | |
| | - sharp regular contact - | | |
| 1 | Conglomerate 0.05 m thick locally thickening to 0.6 to 0.9 m. Consists of plutonics, chert and slabs of red weathered sandstone. Conglomerate deposited on an erosion surface which is moderately flat but has a relief of 15 m over a lateral distance of 61 m at one locality. | 0.9 | 0.9 |
| | - sharp irregular contact exposed as wide terrace (Heimdall Erosion Surface - | | |

| Unit | | A | B |
|---|---|---|---|
| | NEW MOUNTAIN SANDSTONE (47 m). | | |
| 4 | Sandstone, light greenish grey, medium, platy to flaggy. Pebbly quartzose grit beds and lenses with quartz up to 5 cm across. Occasionally interbedded with white softer massive sandstone up to 1 m thick and khaki papery shales in lenses up to 0.3 m thick. Rare trough cross-bedding, not well-exposed. Some horizontal borings on bedding planes at top of unit. | 29.9 | 46.8 |

| | | | |
|---|---|---|---|
| Sample 23800 | 29.8 m | Sandstone. | BS-11 |
| 23799 | 18.2 m | Sandstone. | BS-10 |
| 23798 | 0.2 m | Gritty sandstone. | BS-09 |
| 23798a | 0.2 m | Sandstone. | BS-09a |

- gradational contact -

Boreas Subgreywacke Member (17 m)

| | | | | | |
|---|---|---|---|---|---|
| 3 | Sandstone, brown, interbedded with black 'argillite'. Beds contain white angular fragments, especially in darker sediments - giving rocks a 'porphyritic' appearance. Vuwae 13 place the top of the Boreas Subgreywacke Member at 34 m from the base of the formation; the difference in thickness being due to their placing quartzose sandstone interbedded with conglomerates in the Boreas, whereas Vuwae 15 place the upper limit of the member where quartzose sandstone becomes the dominant lithology. in both cases the upper contact is gradational. | | | 9.1 | 16.9 |

| | | | |
|---|---|---|---|
| Sample 23797 | 6.5 m | 'Porphyritic' subgreywacke. | BS-08 |
| 23796 | 3.9 m | Subgreywacke. | BS-07 |
| 23796a | 3.9 m | Conglomerate. | BS-07a |
| 23795 | 2.6 m | Conglomeratic sandstone. | BS-06 |
| 23794 | 0.1 m | Sandstone. | BS-05 |
| 23794a | 0.1 m | Conglomerate. | BS-06a |

- gradational contact -

| | | | | |
|---|---|---|---|---|
| 2 | Orthoquartzite, white, hard, interbedded with brown and black conglomerate with clasts aligned in well defined bands probably parallel to bedding. | | 5.8 | 7.8 |
| | Sample 23793 | 3.2 m Ferruginous subgreywacke. | BS-04 | |

- gradational contact -

| | | | | |
|---|---|---|---|---|
| 1 | Black banded ?sediments. | | 2.0 | 2.0 |
| | Sample 23792 | 2.0 m ?Sandstone. | BS-04 | |

NEW MOUNTAIN SANDSTONE (47 m).

- Kukri Erosion Surface poorly exposed in scree -

Igneous Basement - relief on basement ranges from 0 to 11.7 m, so in some parts Beacon immediately overlies dolerite.

| | | | |
|---|---|---|---|
| Sample 23791 | | Lamprophyre Dyke. | BS-03 |
| 23791a | | Granite gneiss immediately under Beacon. | BS-01a |
| 23790 | 7.8 m | Granite gneiss. | BS-02 |
| 23790a | 2.6 m | Granite gneiss. | BS-01 |
| 23790b | | Lamprophyre Dyke. | BS-00 |

- sharp irregular contact -

Dolerite sill forms vertical walls on southern side of McKelvey Valley.

SECTION BM - BALHAM VALLEY

Section measured towards southwestern end of Balham Valley and on the north wall. The base of the section overlies an exposure of basement granite and schist which extends into Balham Valley. Measured with staff and level by BPK JGMcP 1/71.
Position of base 77° 25.8' S; 160° 50' E. Ma elevation 1000 m.

| Unit | | A | B |
|---|---|---|---|
| | Dolerite sill | | |
| | - sharp regular contact - | | |
| | ARENA SANDSTONE (est 198 m) | | |
| 2 | Sandstone, light grey, medium, well-bedded, massive to slabby. Some thin flaggy to platy medium to fine 'friable-clayey' light grey sandstone beds. Ferruginous beds and lenses and small rare ferruginous concretions present. Upper 120 m of unit is estimated and beds were not examined; some of the uppermost cliff-forming sandstone may belong to the Beacon Heights Orthoquartzite. | 179.8 | 198.0 |
| | - sharp regular contact - | | |
| 1 | Sandstone, light grey, medium. Ferruginous beds and ferruginous concretions up to 1 m across. Pyrite cubes quite common. Large scale trough cross-beds dip to east and southeast. This unit is probably equivalent to the uppermost beds described by Allen (1962, p 293, section 5). Slope-former. | 18.2 | |
| | - gradational contact - | | |
| | ALTAR MOUNTAIN FORMATION (166 m) | | |
| 3 | Sandstone, light yellow brown for basal 15 m (best exposed) and rest is light grey, medium. Exposure is good again from 60 m onwards, where unit forms a prominent bluff. The basal 15 m of the unit has fine ferruginous laminae and large-scale trough cross-beds. The unit mainly comprises massive bluff-forming beds up to 4 m thick with minor interbedded flaggy beds of 'softer' sandstone. From 65 m onwards the beds form a prominent cliff, comprising flaggy-slabby, well-bedded, medium sandstone with occasional interbedded shale. At 61 m large-scale trough cross-bedded light grey grits are exposed over 1 m. At 65 m dark greenish grey papery to platy shales, forming lenses up to 0.3 m thick, alternates with thicker medium light grey (superficially yellow rusty brown) quartzose, platy to flaggy, parallel-bedded bluff-forming sandstone. Occasional grit beds up to 0.8 m thick also occur. At 73 m ferruginous-coloured grits in beds up to 1.5 m thick containing large quartz grains up to 7 cm across. These beds are generally flat-lying. At 77 m fine ferruginous platy sandstone occurs, while at 79 m vertical 'stalagmitic' borings occur over 1 m. At 86 m some massive medium sandstone units contain small-scale trough cross-bedded units which dip to the southeast. Softer, finer sandstone forms indentations and consist of platy to flaggy beds. At 101 m ferruginous sandstone lenses, contain some vertical borings and small-scale trough cross-beds that dip to the north. At 103 m horizontal borings on bedding surfaces are common. At 112 m sandstone is flaggy, well-bedded and pancake-like | 148.2 | 166.4 |

| Unit | | A | B |
|---|---|---|---|

and has some pyrite cubes. Trough cross-beds in platy to flaggy units up to 1.5 m thick dip to the southeast and east. The upper 8 m of the unit become increasingly ferruginous and the top of the unit is a large platform.

| | | | |
|---|---|---|---|
| Sample 23789 | 111.8 m | Sandstone. | BM-03 |
| 23788 | 85.8 m | Sandstone. | BM-02 |
| 23787 | 72.8 m | Gritty sandstone. | BM-01 |
| 23786 | 14.3 m | Sandstone. | BM-04 |

- sharp regular contact -

| | | | | |
|---|---|---|---|---|
| 2 | Sandstone, light greenish grey, medium, platy, speckled, Slope-former. | | 7.8 | 18.2 |
| | Sample 23785 | 2.0 m Sandstone. | BM-05 | |

- sharp regular contact -

Odin Arkose Member (10 m)

| | | | | |
|---|---|---|---|---|
| 1 | Typical Odin arkosic grits, interbedded with fine light grey platy sandstone and light grey green and khaki papery shales up to 0.5 m thick, but usually about 0.2 m. These beds form indentations in the cliff-like arkosic grits, especially in the upper part. Vigorous trough cross-bedding with units up to 20 cm thick is common, and dips southwest. Light greenish grey shale is common at the base of beds where there are small irregularities and swales on the basement; these shales form 0.5 m thick papery to platy lenses. The contact with the basement is poorly exposed at one site. | | 10.4 | 10.4 |

| | | | |
|---|---|---|---|
| Sample 23784 | 10.3 m | Gritty sandstone. | BM-06 |
| 23783 | 5.2 m | Gritty sandstone (ferruginous). | BM-07 |
| 23782 | 2.5 m | Gritty sandstone. | BM-08 |
| 23781 | 1.5 m | Gritty sandstone. | BM-11 |
| 23780 | 1.3 m | Gritty sandstone. | BM-10a |
| 23779 | 0.8 m | Arkosic conglomerate and grit. | BM-10 |
| 23778 | 0.3 m | Shale. | BM-09 |

ALTAR MOUNTAIN FORMATION (166 m)

- Heimdall Erosion Surface with relief of up to 1.5 m -

Basement - schists, granite and gneiss forming cliff in Balham Valley.

SECTION J - MT. JASON

Section measured up northwest ridge of Mt. Jason. Base of section 2 km northwest of Mt. Jason on eastern side of ridge. Measured with staff and level BPK JGMcP 1/71.
Position of base 77° 27.6' S; 161° 30' E. Map elevation 1500 m.

| Unit | | A | B |
|---|---|---|---|
| | ALTAR MOUNTAIN FORMATION (75 m) | | |
| 2 | Sandstone, light grey, medium, quartzose, massive. Basal 8 m is cliff; upper part of formation, which forms the summit of Mt. Jason, is more a slope-former, and massive to slabby with units up to 2 m thick. In the basal 8 m ferruginous laminae and thin lenses are common. Rare slabby beds are also present. The top 32 m of this unit were not examined close up, and thickness was estimated. | 40.0 | 74.5 |
| | Sample 23777 0.1 m Sandstone. J-11 | | |
| | - sharp regular contact - | | |
| | Odin Arkose Member (35 m) | | |
| 1 | Typical Odin grits and conglomerates, abundant in quartz pebbles, often pink in colour and well rounded. Also quartzite and sandstone pebbles up to 10 cm across at base. Trough cross-bedding with units up to 25 cm thick is very common, and beds dip to the southwest. 'Lag' pavements of quartz pebbles up to 5 cm across are common, especially at 8 m. Vertical 'stalagmitic' worm tubes are common from 10 to 14 m, and the massive sandstone contains ferruginous concretions up to 15 cm across, and is partly stained brown. At 14 m ferruginous medium sandstone alternates with khaki fine platy sandstone and grey green papery shales. At 17 m flaggy medium sandstone contains occasional quartz pebbles, and gritty beds up to 0.2 m thick, sometimes lensing. Trough cross-bedding in the grits dips west and southwest. | 34.5 | 34.5 |
| | Sample 23776 26.0 m Sandstone. J-10<br>23775 11.7 m Gritty sandstone. J-09<br>23774 0.1 m Gritty sandstone. J-08 | | |
| | - Heimdall Erosion Surface with relief up to 0.5 m - | | |
| | NEW MOUNTAIN SANDSTONE (267 m) | | |
| 2 | Sandstone, light grey, medium, quartzose, usually interbedded with thin grits especially towards the base of the unit. Flaggy to platy trough cross-beds with units up to 2.5 m thick are common, and in the basal 10 m of the unit they dip to the northwest. At 12 m ferruginous beds up to 0.3 m thick and cavernous type borings appear. From 23 m ferruginous beds, some of which are very gritty are interbedded with the fine to medium sandstone. Trough cross-beds dip northwest at 29 m. At 34 m well-developed worm borings, especially stalagmitic but also horizontal, common. Grits are still common at this level in lenses up to 0.5 m thick and these alternate with more common light grey or ferruginous medium sandstone. At 39 m platy sandstone with interbedded grit has trough cross-beds dipping northwest. At 47 m more vertical and horizontal borings extend for 1.3 m. Base of borings is ferruginous. Ferruginous laminae still occur in grits interbedded with thicker flaggy to slabby sandstone. At 69 m large-scale trough cross-beds are common and ferruginous beds occur. At 78 m vertical worm tubes are | 192.5 | 266.6 |

| Unit | | A | B |
|---|---|---|---|

common for 0.7 m. At 83 m trough cross-beds dip west. in platy to flaggy units up to 3.0 m thick. At 103 m a large platform contains large-scale trough cross-beds which dip to the west and southwest. Ripple-marks strike northwest ( 4 cm). At 108 m the platform continues with prominent large-scale trough cross-bedding dipping southwest. At 160 m and 173 m ferruginous, platy, trough cross-bedded sandstone containing ferruginous concretions dips southwest. Cross-beds up to 4 m thick at 189 m cross-beds 3 m thick dip northeast and are overlain by parallel-bedded platy medium sandstone 0.3 m thick.

| | | | |
|---|---|---|---|
| Sample 23773 | 183.4 m | Sandstone. | J-13 |
| 23772 | 153.3 m | Sandstone. | J-12 |
| 23771 | 68.9 m | Sandstone. | J-07 |
| 23770 | 31.2 m | Sandstone. | J-06 |
| 23769 | 0.2 m | Gritty sandstone. | J-05 |

- sharp regular contact -

| | | | |
|---|---|---|---|
| 1 | Sandstone, light grey, medium, massive to slabby, quartzose, well-bedded. Basal 26 m poorly exposed. Some ferruginous beds up to 0.5 m thick and gritty beds with quartz pebbles. Odd beds of ferruginous greenish grey very platy shales with rare mudcracks. At 27 m cavernous borings and occasional gritty beds up to 0.5 m thick appear. Some thin beds of ferruginous fine sandstone. Ferruginous beds often form plateaux. Small-scale trough cross-beds dip west at 30 m and 39 m, and contain some very gritty units up to 0.7 m thick. At 50 m beds become more massive and are interbedded with thinner beds of platy fine to medium sandstone. At 56 m fine dark green brown laminae, and ferruginous bands and lenses occur. Grits still occur occasionally and there are also platy to papery purple shales interbedded. Grits are generally interbedded with medium sandstone in large-scale trough cross-beds towards the top of the unit, contrasting markedly with the smaller-scale vigorous massive cross-bedding of the Odin Arkose. At 69 m purple, khaki and greenish grey papery shale occurs, and near the top of the unit occasional ferruginous medium sandstone beds appear. (Beds poorly exposed in scree from 62 to 68 m). | 74.1 | 74.1 |

| | | | |
|---|---|---|---|
| Sample 23768 | 55.9 m | Shale. | J-04 |
| 23767 | 50.3 m | Sandstone. | J-03 |
| 23766 | 26.5 m | Sandstone. | J-02 |
| 23765 | 26.0 m | Ferruginous gritty sandstone. | J-01 |

NEW MOUNTAIN SANDSTONE (267 m)

- sharp contact -

Dolerite sill to floor of McKelvey Valley.

SECTION NV - VASHKA CRAG

Section in cirque on western side of Vashka Crag. Top of section ends in dolerite at Vashka Crag. Measured with staff and level BPK JGMcP 1/71. Position of base 77° 19.9' S; 161° 2' E. Map elevation 1500 m.

| Unit | | A | B |
|---|---|---|---|
| | BEACON HEIGHTS ORTHOQUARTZITE (183 m) | | |
| | Sandstone, like unit 1. Exposed on ridge extending northwards from Vashka Crag. | 45 (est) | 182.8 |
| 1 | Sandstone, light grey, medium, quartzose. Cliff-former. Ferruginous lenses, beds up to 10 cm thick and concretions are present in the basal 8 m. Some flaggy to slabby trough cross-bedding up to 25 cm thick dips north and north northwest. Beds in the unit often comprise up to 15 m of massive interbedded with up to 1.5 m of slabby to flaggy beds which may contain cross-bedding. Trough cross-bedding in units up to 20 cm thick at 42 m and 70 m and 111 m. Rare pyrite cubes are present up to 70 m where beds are massive. At 111 m sparse quartz pebbles up to 5 cm across are present. At 124 m white clayey lenses up to 1 cm thick and 6 cm long appear. In the lower parts of the unit rare mudcracks and some greenish speckles and blobs occur. | 137.8 | 137.8 |

| | | | |
|---|---|---|---|
| Sample 23764 | 122.2 m | Sandstone. | NV-14 |
| 23763 | 96.2 m | Sandstone. | NV-13 |
| 23762 | 70.2 m | Sandstone. | NV-12 |
| 23761 | 41.6 m | Sandstone. | NV-11 |
| 23760 | 15.6 m | Sandstone. | NV-10 |

- sharp regular contact -

| | | | |
|---|---|---|---|
| | ARENA SANDSTONE (114 m) | | |
| 4 | Sandstone, light grey, medium, well-bedded. Cliff-former. Contains sulphur lenses and 'patches'. Ferruginous laminae and bands up to 0.2 m thick are common. Dark green laminae and pyrite-bearing sandstone commonly alternate with medium quartzose sandstone. Beaconites antarcticus was noted at 10 m, and at this level greenish well-bedded ferruginous beds and laminae alternate with massive sandstone beds up to 3 m thick. At 16 m the last ferruginous laminae bearing beds are up to 5 m thick. Above this massive sandstone is common, and at 31 m forms the main lithology of the unit. At 17 m minor greenish grey and khaki papery shale lenses up to 5 cm thick are interbedded with platy fine sandstone. Pyrite, and ferruginous laminae and beds are rare and thin towards the top of the unit. | 36.4 | 114.1 |

| | | | |
|---|---|---|---|
| Sample 23759 | 31.2 m | Sandstone. | NV-09 |
| 23758 | 15.6 m | Sandstone. | NV-08 |

- sharp regular contact -

| | | | |
|---|---|---|---|
| 3 | Sandstone, light grey, medium, well-bedded, platy to flaggy. Trough cross-bedding dips north. Pyrite cubes common. Beaconites antarcticus at 10 m. Slope-former. | 26.5 | 77.7 |

| | | | |
|---|---|---|---|
| Sample 23757 | 18.2 m | Sandstone. | NV-07 |

- sharp regular contact -

| Unit | | A | B |
|---|---|---|---|
| 2 | Sandstone, light grey, medium, well-bedded, massive. Rare Beaconites antarcticus and vertical borings. Rare pyrite nodules from 1 to 5 mm across. Basal 2 m has trough cross-beds up to 1.8 m thick and dipping north. The next m is flaggy sandstone with vertical borings. These are overlain by cliff-forming beds which make up the rest of the unit. Some fine to medium sandstone beds up to 0.7 m thick form indentations in the cliff. Such beds are platy, often friable, and lighter in colour than the cliff beds, which usually have a rusty-brown coating. Flaggy to slabby trough cross-beds up to 1 m thick dip north. Ferruginous concretions up to 15 cm across appear, as do odd brown ferruginous patches which are slightly coarser than the surrounding sandstone and contain abundant pyrite cubes. Vertical borings occur from 15 to 20 m, and 'cavernous' weathering is also present. At 23 m ferruginous parts of concretions also contain odd patches of sulphur and weathered-looking white, red and yellow clayey patches. Ferruginous lenses and beds up to 1 m thick and green to dark green 'blotches' also occur. | 35.1 | 51.2 |

| | | | |
|---|---|---|---|
| Sample 23756 | 31.2 m | Sandstone. | NV-06 |
| 23755 | 28.6 m | Sandstone. | NV-06a |
| 23754 | 23.4 m | Ferruginous sandstone. | NV-05 |
| 23753 | 15.6 m | Sandstone. | NV-04 |

- sharp regular contact -

| | | | | |
|---|---|---|---|---|
| 1 | Sandstone, light grey, medium, thick-bedded, platy to flaggy. Horizontal borings on bedding planes. At 9 m a slight ferruginous colouring and sparse pyrite cubes appear. Vertical borings at 11.7 m. At 12 m flaggy trough cross-bedding in units up to 0.7 m thick dip north northwest. At 16 m ferruginous concretions up to 20 cm in diameter occur. | 16.1 | 16.1 |

| | | | |
|---|---|---|---|
| Sample 23752 | 12.3 m | Sandstone. | NV-03 |
| 23751 | 0.1 m | Sandstone. | NV-02 |

- loss of exposure in scree for 5.5 m -

Dolerite sill.

SECTION EV - VASHKA CRAG AREA

South-facing ridge of peak 0.75 km east of Peak 1660± and 1.5 km east of Vashka Crag. Base of section begins at first appearance of Beacon sediments overlying basement on western side of a stream which drains into Lake Vashka from the northwest. Dolerite overlies the first appearance of Beacon sediments and the section then continues from the top of the dolerite up a long ridge as described above Measured with staff and level by BPK JGMcP 1/71.
Position of base 77° 20.2' S; 161° 8' E. Position of base of Beacon section at top of dolerite (unit 2 of NMS) 77° 18.9' S; 161° 10' E. Map elevation 1350 m.

| Unit | | A | B |
|---|---|---|---|
| | Dolerite sill | | |
| | - sharp contact - | | |
| | ALTAR MOUNTAIN FORMATION (111+ m) | | |
| 2 | Sandstone, medium light grey, quartzose. At 5 m sandstone is slightly ferruginous with horizontal borings on bedding planes, not vigorously trough cross-bedded as below, but cross-beds on a large scale (units up to 2 m thick) dip to the northwest. Unit is slope-former. At 9 m large-scale trough cross-beds dip to the northwest. Interbeds of light greenish grey fine sandstone contain small-scale trough cross-beds. Ferruginous concretions up to 30 cm across at 12 m. Now only occasional quartz grit beds up to 7 cm thick. Rare Beaconites antarcticus. Large scale trough cross-bedding dips northwest. Ripple marks at 25 m. Trough cross-beds in flaggy-slabby units, ferruginous concretions and lenses up to 10 cm thick, and sparse quartz pebbles 1 to 2 cm across in 10-cm-thick lenses at 26 m. At 34 m flaggy trough cross-beds (up to 1 m thick dip northwest. At 38 m abundant horizontal worm burrows and 'pits' on surface of bedding planes (resembling cavernous weathering), and small ferruginous concretions and thin laminae occur. Gritty units up to 20 cm thick and abundant horizontal borings which are up to 48 cm long and 3 cm wide are infilled with ferruginous sediment at 40 m. At 42 m sandstone becomes more massive and at 43 m ferruginous lenses with rarer grits occur. At 47 m borings of a vertical type (stalagmite) and horizontal type are common. Vertical type borings often occur where cavernous-like weathering pits join. At 52 m greenish grey, platy, fine sandstone and rarer bluish grey units up to 0.5 m thick are common over the next 10 m. At 62 m ferruginous, massive-slabby sandstone beds containing sparse quartz up to 2 cm across appear. Pyrite cubes are common, and weather out to leave a brown 'smear'. Vertical borings and cavernous weathering also common. Between 52 and 62 m trough cross-bedded units from 5 to 15 cm thick and grading from coarse grits at base of a unit to fine sandstone dip to north northwest. Near top of unit worm borings, ferruginous concretions and abundant pyrite cubes occur. The uppermost 0.5 m of the unit comprises poorly exposed papery greenish grey shale. | 74.8 | 111.2 |

| | | | |
|---|---|---|---|
| Sample 23750 | 60.4 m | Sandstone. | EV-14 |
| 23749 | 50.0 m | Sandstone (fine). | EV-14a |
| 23748 | 39.6 m | Sandstone. | EV-13 |
| 23747 | 24.0 m | Sandstone. | EV-12 |
| 23746 | 7.1 m | Sandstone. | EV-11 |

- gradational contact -

| Unit | | A | B |
|---|---|---|---|

Odin Arkose Member (36 m)

| | | | |
|---|---|---|---|
| 1 | Basal conglomerate of sandstone fragments, quartzite, black fine-grained igneous rocks, greenish grey siltstone chips. Largest of all rock types noted is 18 cm across; siltstone chips are up to 7 cm across. Grits overlying the basal beds comprise 8 m of massive to slabby, cliff-forming vigorous trough cross-beds up to 20 cm thick and dipping southwest. In cross-beds basal coarse grit passes up into medium sandstone which contains sparse small quartz fragments. At 5 m grit becomes ferruginous in part and is interbedded with fine light greenish grey sandstone and khaki platy shale beds up to 1 m thick. From 8 to 14 m trough cross-beds dip southeast, but at 16 m trough cross-beds up to 25 cm dip southwest. At 9 m very small scale trough cross-bedded grit separates finer grit and medium sandstone. The basal layer of these cross-beds also comprises grits, but small greenish grey siltstone chips also occur at this level and at odd intervals to the top of the unit. Medium sandstone has scattered quartz pebbles from 28 to 32 m. These beds are light brown, massive and comprise units up to 0.5 m thick which are interbedded with grit in beds up to 0.3 m thick. Vertical borings occur in the medium sandstone beds. At 34 m the sandstone contains ferruginous laminae and at 36 m sandstone is fine to medium, massive to slabby, with gritty beds containing ferruginous lenses up to 0.3 m thick. | 36.4 | 36.4 |

| | | | |
|---|---|---|---|
| Sample | 23745 | 31.2 m | Sandstone. EV-10 |
| | 23744 | 15.6 m | Gritty sandstone. EV-09 |
| | 23743 | 0.1 m | Gritty sandstone. EV-09 |

- Heimdall Erosion Surface with relief up to 1.2 m forms platform 7 m wide -

NEW MOUNTAIN SANDSTONE (65 m).

| | | | |
|---|---|---|---|
| 2 | Sandstone, light grey, medium, well-bedded, slabby quartzose. Trough cross-beds up to 2.5 m thick dip northwest. In basal part of the unit 'onion-scale' weathering is not uncommon. Massive sandstone beds and lenses occur between conspicuous large-scale cross-beds. Ferruginous lenses and fine to medium flaggy sandstone lenses up to 1 m thick, at 20 m, often as trough cross-beds. Ferruginous grit beds up to 0.2 m thick and containing quartz pebbles are common between 25 and 29 m. Massive, greenish grey sandstone up to 1 m thick at 35 m. At 36 m flaggy trough cross-beds dip northwest. At 39 m a 0.3-m-thick bed with red sandstone fragments completely unlike typical Beacon sandstone plus small quartz fragments occurs; trough cross-bedding at this level dips northwest. At 42 m, 1 m of yellow-brown papery shale and interbedded dark greenish brown medium sandstone often contorted occurs. Ferruginous concretions up to 10 cm across appear at 41 m. Upper 1.3 m of unit comprises fine, greenish grey platy sandstone, interbedded with greenish grey papery shale lenses and fine white platy sandstone. | 44.8 | 64.8 |

| | | | |
|---|---|---|---|
| Sample | 23742 | 44.2 m | Sandstone. EV-07 |
| | 23741 | 39.0 m | Sandstone with red sandstone fragments. EV-06 |
| | 23740 | 41.6 m | Sandstone. EV-05 |
| | 23739 | 35.1 m | Sandstone. EV-04 |
| | 23738 | 20.0 m | Sandstone. EV-03 |
| | 23737 | 19.5 m | Sandstone. EV-02 |
| | 23736 | 6.5 m | Sandstone. EV-01 |

| Unit | | A | B |
|---|---|---|---|
| | - loss of exposure in scree for 4 m - | | |
| | Dolerite sill. | | |
| | - sharp contact - | | |
| 1 | Sandstone, medium, slabby-massive, quartzose, light grey but superficially varnished a rusty colour. Horizontal trails are common on bedding planes. Occasional trough cross-bedding dips northwest. Basal 15 m unit lost in scree. | 20.0 | 20.0 |
| | Sample 23735 15.1 m Sandstone. NV-01 | | |
| | - contact obscured by scree - | | |
| | Basement, granite and gneiss forming vertical walls on north side of Barwick Valley (in Lake Vashka area). | | |

SECTION SV - LAKE VASHKA AREA

Cliffs exposing Beacon sediments 1.3 km south of Lake Vashka, Barwick Valley. Base of section three-quarters up the valley wall, overlying a steep outcrop of basement granite. Measured with staff and level by BPK JGMcP 1/71. Position of base 77° 20' S; 161° 10' E. Map elevation 800 m.

| Unit | | A | B |
|---|---|---|---|
| | Dolerite sill | | |
| | - sharp contact - | | |
| | ALTAR MOUNTAIN FORMATION (52+ m) | | |
| | Odin Arkose Member. | | |
| 6 | Grits interbedded with thinner beds of medium sandstone, greenish grey fine sandstone and khaki shale. Sandstone up to 0.2 m and shale up to 0.3 m thick. Grits become coarser upwards and form massive bluffs; finer beds form indentations. Grit beds are usually from 0.3 to 0.5 m thick and reach a maximum of 3 m. Trough cross-bedding is not as vigorous as in units below, but where present it dips south southwest. | 19.5 | 52.0 |
| | Sample 23734 8.0 m Sandstone. SV-08a<br>23733 8.0 m Gritty sandstone containing pyrite. SV-08<br>23732 6.5 m Sandstone. SV-04 | | |
| | - gradational regular contact - | | |
| 5 | Sandstone, light grey, medium, flaggy, quartzose. Trough cross-bedding up to 20 cm thick dips south to southwest. | 3.1 | 32.5 |
| | - contact obscured by scree - | | |
| 4 | Sandstone, light grey, medium, massive, quartzose. Some greenish grey fine sandstone and shaly beds up to 0.2 m thick. Flaggy to slabby trough cross-beds dip west. Pyrite common in all lithologies. Cliff-former. | 13.2 | 29.4 |
| | - sharp regular contact - | | |
| 3 | Sandstone, light grey, fine, quartzose, alternating with greenish grey platy shale beds up to 0.2 m thick. At base sandstone contains scattered quartz pebbles up to 5 cm across. | 1.4 | 16.2 |
| | Sample 23731 1.0 m Shale. SV-03 | | |
| | - sharp regular contact - | | |
| 2 | Sandstone, light grey, medium, massive, quartzose. Cliff-former. Ferruginous stains and laminations and occasional concretions. Some flaggy to p laty units present. Pyrite cubes common throughout unit especially above 3 m level. In easternmost section examined unit 1 is missing and at the base of unit 2 there is a 1 m thick bed of grit with boulders up to 0.9 m across basement schist. Trough cross-beds up to 1.2 m thick dip west. At one locality this unit appears to dip at 20° to the southwest; this probably reflects paleoslope of erosion surface on basement. | 13.0 | 14.8 |
| | Sample 23730 1.1 m Sandstone. SV-02<br>23729 0.1 m Gritty sandstone. SV-01 | | |
| | - sharp regular contact - | | |

| Unit | | A | B |
|---|---|---|---|
| 1 | Conglomerate, conspicuous in western section examined, probably eroded away in easterly section where some thin lenses remain. Quartz, quartzite and rare granite pebbles comprise the white-looking gritty conglomerate. Base of unit is rarely well exposed. The unit has a platy and 'baked' appearance. | 1.8 | 1.8 |

Sample 23728 0.1 m Conglomerate. SV-05

- Heimdall Erosion Surface -

Basement - granite and schist. Relief on basement at easterly section up to 25 m over a horizontal distance of 45 m. At westerly section base of Beacon rests on a flat basement surface (granite); at easterly section Beacon rests on schist, steeply dipping southwest.

Sample 23727 Volcanic-looking rock underlying conglomerate of unit 1. SV-06
23726 Granite. SV-07

SECTION SP - VASHKA CRAG AREA

Section measured on northeast-facing slope of Peak 1660 in Vashka Crag area. Base of section is 1.5 km northeast of Vashka Crag at the head of an ice-free valley. Measured with staff and level by BPK JGMcP 1/71. Position of base 77° 18' S; 161° 8' E. Map elevation 1300 m.

| Unit | | A | B |
|---|---|---|---|
| | Dolerite sill | | |
| | - sharp contact - | | |
| | ALTAR MOUNTAIN FORMATION (45+ m) | | |
| 3 | Sandstone, light grey, medium, flaggy and occasionally platy, quartzose. Platy beds are fine sandstone. Beaconites antarcticus tracks are common throughout unit, especially towards base. Ferruginous concretions and lenses up to 1.5 m x 0.5 m at 5.6 m and 7.8 m ferruginous banding and laminae in the sandstone becomes common. Some small concretions up to 20 cm in diameter are also present as are small gritty bands up to 10 cm thick. The unit commonly contains large-scale trough cross-bedding dipping west and northwest. Beds are usually platy to slabby. The sandstone is often 'cavernously' weathered and vertical and horizontal-type borings are common. Occasional greenish grey shale up to 30 cm thick may be interbedded with sandstone especially towards the top of the unit where white fine platy sandstone beds up to 20 cm thick are also common. | 11.7 | 45.4 |
| | Sample 23725 7.8 m Sandstone with ferruginous laminae. SP-10<br>23724 3.9 m Sandstone (fine, platy). SP-09a<br>23723 3.9 m Sandstone (medium, flaggy). SP-09 | | |
| | - sharp regular contact - | | |
| | Odin Arkose Member (34 m) | | |
| 2 | Typical Odin arkose conglomerate and grit. Grits not so concentrated for basal 0.3 m. Trough cross-bedding up to 25 cm thick dips west. Near top of unit odd shale and fine sandstone beds up to 25 cm thick are common. Bluff-former. | 10.4 | 33.7 |
| | Sample 23722 7.8 m Gritty sandstone. SP-08 | | |
| | - sharp regular contact - | | |
| 1 | Grit and conglomerate, massive. Slope-former. Base poorly exposed. Mainly massive medium sandstone with sparse quartz pebbles up to 3 cm across above 4 m. Occasional greenish grey shale is also present. Sandstone contains quartz pebbles up to 5 cm across at 8 m. The upper 0.3 m of the unit comprises greenish grey shale. | 23.4 | 23.4 |
| | Sample 23721 23.2 m Shale. SP-07<br>23720 7.8 m Sandstone. SP-06<br>23719 0.1 m Gritty sandstone. SP-05 | | |
| | - Heimdall Erosion Surface - | | |
| | NEW MOUNTAIN SANDSTONE (18 m) | | |
| 2 | Shale and fine sandstone. Shales are greenish grey and platy, and sandstone beds contain quartz pebbles up to 1 cm across. A dyke cuts the unit and has assimilated some of the adjacent sediments and also caused some beds to become contorted (they stand upright at different angles). | 4.6 | 18.2 |

| Unit | | | | | A | B |
|---|---|---|---|---|---|---|
| | Sample 23718 | 2.3 m | Assimilated sandstone. | SP-04 | | |
| | 23717 | 0.1 m | Sandstone. | SP-03 | | |
| | | | - contact poorly exposed - | | | |
| 1 | Sandstone, light grey, medium, massive to slabby in lower part, quartzose. At 6.5 m unit becomes flaggy to platy with occasional very fine sandstone. At 11.7 m trough cross-beds up to 1.5 m thick dip west and southwest. | | | | 13.6 | 13.6 |
| | Sample 23716 | 11.7 m | Sandstone. | SP-02 | | |
| | - Kukri Erosion Surface poorly exposed and with up to 2 m relief - | | | | | |
| | Basement | | | | | |
| | Sample 23715 | 1.0 m | below Kukri Erosion Surface - gneiss. | SP-01 | | |
| | - contact obscured by scree with abundant dolerite blocks - | | | | | |

SECTION WH - WHEELER VALLEY

Section measured on southeast wall of Wheeler Valley, only locality of Beacon exposure on this side of the valley. Base of section is two-thirds up valley wall at the top of a prominent exposure of granite basement. Measured with staff and level by BPK JGMcP 1/71.
Position of base 77° 12.2' S; 161° 39' E. Map elevation 1400 m.

| Unit | | A | B |
|---|---|---|---|
| | Dolerite sill | | |
| | - sharp contact - | | |
| | ALTAR MOUNTAIN FORMATION (49+ m) | | |
| | Odin Arkose Member | | |
| 3 | Sandstone, medium, well varnished, slope-former, tends to break into 'platy columns' due to proximity of overlying dolerite sill. Quartzose, with grit bands at most levels up to 30 cm thick. Prominent grit with lithic fragments at 14.2 m extends for 2.3 m. | 22.6 | 48.5 |
| | Sample 23714 22.6 m Sandstone. WH-18<br>23713 21.8 m Sandstone (type that separates gritty bands). WH-17<br>23712 14.2 m Gritty sandstone. WH-19 | | |
| | - loss of exposure in scree for 1 m - | | |
| 2 | Typical Odin arkosic grit, massive, cliff-former. Trough cross-bedding up to 25 cm thick dips southwest. | 14.9 | 25.9 |
| | Sample 23711 10.0 m Gritty sandstone. WH-16<br>23710 0.1 m Gritty sandstone. WH-15 | | |
| | - sharp irregular contact - | | |
| 1 | Grit and coarse sandstone with minor shale and fine sandstone beds up to 25 cm thick. Shale is platy to papery, the papery shales generally being light green and light greenish grey and the platy and coarser shales being khaki in colour. The thickness of 11.0 m is the maximum thickness observed, the minimum being 2.0 m. The basal part of the unit in the areas where maximum thickness is obtained is very poorly exposed, and at these localities only very small exposure of the unit is seen. Grits get slightly finer towards the top of this unit. Near the base of the unit the grits dip steeply (75-85°) towards the southwest. | 11.0 | 11.0 |
| | Sample 23709 9.0 m Gritty sandstone. WH-14b<br>23708 4.0 m Gritty sandstone. WH-14a<br>23707 3.6 m Gritty sandstone (darker coloured grits). WH-14<br>23706 2.0 m Fine khaki sandstone. WH-13<br>23705 0.1 m Conglomerate. WH-12 | | |
| | - Heimdall Erosion Surface with relief up to 9.0 m - | | |
| | Basement - approximately 62 m well exposed granite. At one place at top of granite, beds dip at 70° to the southwest. | | |
| | Sample 23704 Granite (0.3 m under Kukri Erosion Surface). WH-11<br>23703 Granite (10 m under Kukri Erosion Surface). WH-10 | | |
| | Scree - for approximately 29 m comprising large granite boulders and occasional Beacon sediment boulders. | | |
| | Ice. | | |

SECTION WHA - WHEELER VALLEY

Most westerly section of Beacon Supergroup on northwest wall of Wheeler Valley. Base of section is halfway up valley wall at the top of a scree slope. Measured with staff and level by BPK JGMcP 1/71.
Position of base 77° 12' S; 161° 38' E. Map elevation 1400 m.

| Unit | | A | B |
|---|---|---|---|
| | Dolerite sill | | |
| | - sharp contact - | | |
| | ALTAR MOUNTAIN FORMATION (71+ m) | | |
| 4 | Grit alternating with thinner light greenish-grey, medium sandstone, flaggy to platy in nature, especially near top of unit where sediments have been 'baked' by overlying dolerite. A conglomerate is poorly exposed near base. | 6.5 | 71.3 |
| | Sample 23702 0.2 m Conglomerate. WH-07 | | |
| | - contact obscured by snow-covered scree - | | |
| 3 | Sandstone, light grey, medium, platy to slabby, quartzose. Some platy units of very soft crumbly sandstone up to 0.4 m thick, well-bedded in parts. Poorly exposed trough cross-bedding dips north. Loss of exposure from 16.9 to 19.5 m and above 22 m. | 24.7 | 64.8 |
| | Sample 23701 19.6 m Sandstone. WH-06<br>23816 0.1 m Sandstone. WH-05 | | |
| | - contact obscured by snow-covered scree - | | |
| | Odin Arkose Member (40+ m) | | |
| 2 | Arkosic grit, rusty coloured superficially. Cliff-former. Typically trough cross-beds are 20 cm thick and dip south southwest. At 25 m the beds become less gritty, and at 27 m trough cross-bedding becomes less common. The uppermost 2 m of the unit is in snow-covered scree. | 29.0 | 40.1 |
| | Sample 23700a 20.8 m Sandstone. WH-04<br>23700 10.4 m Gritty sandstone. WH-03<br>23699 0.1 m Gritty sandstone. WH-02 | | |
| | - contact obscured by scree and snow - | | |
| 1 | Sandstone, light grey, medium, quartzose, with some quartz pebbles and ferruginous patches. Flaggy to platy with occasional cavernous weathering. Trough cross-bedding dips southeast. Scree from 0.7 to 1.0 m. Khaki, papery siltstone 20 cm thick at 2 m. Largest pebbles in unit appear in upper 0.6 m and at this level trough cross-bedding 20 cm thick dips east. Upper 6.5 m is mostly obscured by scree and snow. | 11.1 | 11.1 |
| | Sample 23698 0.1 m Sandstone. WH-01 | | |
| | Scree. | | |

SECTION SU - MT. SUESS

Section on south face of Mt. Suess. Base of section is on eastern side of scree covering western part of the exposure of Beacon sediments, and overlying some 200 m of granite basement. Measured with staff and level by BPK JGMcP 1/71.
Position of base 77° 2.2' S; 161° 42' E. Map elevation 850 m.

| Unit | | A | B |
|---|---|---|---|
| | Dolerite sill forms summit of Mt. Suess | | |
| | - sharp contact - | | |
| | ALTAR MOUNTAIN FORMATION (120 m) | | |
| 5 | Sandstone, light grey (rusty varnish coats part of the unit), medium, massive to slabby, well-bedded in parts, quartzose. Some cavernous weathering. Rare medium scale trough cross-bedding dips to the southwest. Upper 15 m of unit are columnar-jointed, due to baking by overlying sill. | 80.6 | 119.9 |
| | Sample 23697 28.6 m Sandstone. SU-16<br>23696 14.3 m Sandstone. SU-15<br>23695 0.2 m Sandstone. SU-14 | | |
| | - sharp regular contact - | | |
| | Odin Arkose Member (39 m) | | |
| 4 | Arkosic grit, light grey. Pebbles, mainly quartz, up to 5 cm across. Trough cross-bed up to 15 cm thick dip west and southwest. Slope-former. | 13.2 | 39.3 |
| | Sample 23694 10.4 m Gritty sandstone. SU-13<br>23693 0.1 m Gritty sandstone. SU-12 | | |
| | - sharp regular contact - | | |
| 3 | Arkosic grit, light grey with clasts up to 15 cm across in lenses up to 20 cm thick. Clasts are ignimbrite, rhyolite, quartzite and rare granite and sandstone. Trough cross-beds up to 15 cm thick dip southwest. Uppermost 0.6 m of unit comprises fine, greenish grey platy sandstone. | 5.4 | 26.1 |
| | Sample 23692 1.3 m Gritty sandstone - typical Odin Arkose. SU-11 | | |
| | - sharp regular contact - | | |
| 2 | Conglomerate, alternating with thinner grit beds. Grits are up to 0.2 m thick and form ledges; conglomerate beds are up to 0.35 m thick and form indentations. Boulders in conglomerate are well rounded, up to 25 cm across and consist mainly of quartzite and sandstone with rare ignimbrite and rhyolite fragments. Cliff-former. | 11.1 | 20.7 |
| | Sample 23691 0.1 m Grit. SU-10 | | |
| | - sharp regular contact - | | |
| 1 | Sandstone, light grey, coarse and gritty, massive and superficially 'smooth'. Towards base of unit fragments of sandstone and quartzite up to 10 cm across are noticeable; upwards they pass into lenses of boulders up to 15 cm thick, with boulders mainly quartzite up to 20 cm across. Trough cross-beds up to 15 cm thick dip south southwest. Los of exposure from 9.1 to 9.4 m. Grits at top of unit contain occasional pebbles. | 9.6 | 9.6 |
| | Sample 23691a 0.1 m Grit. SU-09 | | |
| | - Heimdall erosion surface - | | |

| Unit | | A | B |
|---|---|---|---|
| | NEW MOUNTAIN SANDSTONE (46 m) | | |
| 4 | Sandstone, light grey, medium with some coarser beds up to 10 cm thick, flaggy to platy, quartzose. Planar cross-bedded units up to 1 m thick dip northwest. Horizontal borings from 5 to 7 m. Cavernous weathering also present. From 10 to 20 m beds are well bedded and sediments are slightly coarser. Beds become more platy in part, and contain some darker, probably ferruginous lenses up to 5 cm thick. Planar cross-beds dip northwest, and are common at 22 m. Uppermost 2 m of unit is conspicuously massive. | 28.6 | 46.3 |
| | Sample 23690 20.8 m Sandstone. SU-08<br>23689 10.4 m Sandstone. SU-07 | | |
| | - regular sharp contact - | | |
| 3 | Sandstone, light grey, medium, massive to slabby, quartzose. Cliff-former. | 3.7 | 17.7 |
| | Sample 23688 2.4 m Sandstone. SU-06 | | |
| | - regular sharp contact - | | |
| 2 | Sandstone, light pinkish grey, medium to coarse (with occasional quartz pebbles up to 2 cm across, well-bedded, flaggy to platy, quartzose. Planar cross-beds dip northwest. Slope-former. | 9.0 | 14.0 |
| | Sample 23687 0.5 m Sandstone. SU-02 | | |
| | - irregular sharp contact - | | |
| 1 | Sandstone, maroon to greenish grey to light greenish grey (colours are mottled on a large scale up to 20 cm across), medium, platy, quartzose. Quite crumbly. Basal m obscured by scree. | 5.0 | 5.0 |
| | Sample 23686 4.5 m Sandstone. SU-01 | | |
| | - Kukri erosion surface with relief of 12 m - | | |
| | Granite (basement) for 200+ m. | | |
| | Samples 23685 Ignimbrite sample from Mt. Suess scree. SU-05<br>23684 Granite. SU-20<br>23683 Granite. SU-17<br>23682 Top of granite 2 m below Kukri Erosion Surface. SU-04<br>23681 Porphyry on high part of basement at contact with Beacon SU-03<br>23832 Granite near base of basements outcrop. SU-21<br>23684a Granite. SU-18<br>23684b Porphyry from scree. SU-19 | | |

# PART III.

Stratigraphic sections from the Shapeless Mountain area and around the Skelton Neve.

Measured and described by:-


| | |
|---|---|
| Dr. P.J. Barrett<br>Mrs. R.A. Kyle<br>Mr. D.A. Bamford<br>Mr. D.V. Bright | Geology Department, Victoria University of Wellington. |
| Mr. A.N. Chinn | Antarctic Division, D.S.I.R. |

SECTION A6 - SOUTHERN WARREN RANGE

Section measured up eastern face of south ridge from the main dolerite massif of Warren Range. Base of section 3.3 km at 176° from Mount Warren. Measured with staff and level by DAB, DVB (upper part) RAA, DAB, DVB, AC (lower part) 1/72.
Position of base 78° 27.3' S; 158° 15.6' E. Map elevation 1950 m.

| Unit | | A | B |
|---|---|---|---|
| | Dolerite scree to top of dolerite capped ridge. | | |
| | WELLER COAL MEASURES (85+ m) | | |
| 20 | Sandstone, like unit 19, but finely laminated and shaly to platy. | 3.2 | 85.2 |
| 19 | Sandstone, yellowish grey [5Y 8/1] (w/same, light brown [5YR 6/4], pale brown [5YR 5/2] and light olive grey [5Y 5/2]), fine-medium, unbedded, massive. | 7.5 | 82.0 |
| | Sample 25079 1.0 m Fine sandstone. A6-29 | | |
| 18 | Sandstone, light grey to light olive grey [5Y 5/2] (w/same and light brown [5YR 6/4]), fine to medium, finely parallel-laminated, platy. Some small-scale cross-bedding. | 3.2 | 74.5 |
| 17 | Sandstone, light to dark grey (w/same and light brown [5YR 6/4]), very fine to fine, very finely laminated, platy to massive. Occasional fine carbonaceous laminae. Large-scale trough cross-bedding above 2.1 m. Horizon of concretionary ferruginous laminae in vein network at 4.5 m and above. Carbonaceous laminae network from 7.5 to 7.6 m. Trough cross-bedding and carbonaceous laminae at 24 m. Scour channel containing coarse sandstone at 24.2 m. Flaky to platy weathering with indistinct small-scale cross-bedding from 27 to 29 m. | 33.5 | 71.3 |
| | Sample 25078 21.1 m Fine sandstone. A6-28<br>25077 0.1 m Very fine sandstone. A6-27 | | |
| 16 | Coarse siltstone to very fine sandstone, like unit 7 with occasional lenses of very light grey sandstone. | 2.0 | 37.8 |
| 15 | Sandstone, like unit 5, with large quartz pebbles up to 10 cm across. | 0.4 | 35.8 |
| 14 | Fine sandstone, like unit 7. | 0.8 | 35.4 |
| 13 | Fine sandstone like unit 7, with interbeds up to 20 cm thick of finely laminated light grey sandstone. | 1.0 | 34.6 |
| 12 | Fine sandstone, like unit 7. | 3.5 | 33.6 |
| 11 | Sandstone, like unit 5, with quartz pebbles 2 cm across. | 0.8 | 30.1 |
| 10 | Sandstone, like unit 7. | 4.7 | 29.3 |
| 9 | Sandstone, like unit 5. Medium grained up to 2 m and gritty above, with occasional quartz pebbles 1 to 1.5 cm across. | 2.6 | 24.6 |
| | Sample 25076 0.8 m Medium sandstone. A6-26 | | |
| 8 | Sandstone, like unit 6, light grey with abundant carbonaceous laminae above 0.8 m. | 4.4 | 22.0 |
| | Dolerite sill 0.3 m thick at 2.8 m. | | |

| Unit | | A | B |
|---|---|---|---|
| 7 | Siltstone to fine sandstone, dark grey to black (w/same), finely laminated, papery to shaly, micaceous. | 3.5 | 17.6 |
| | Sample 25075 0.2 m Fine sandstone. A6-25 | | |
| 6 | Sandstone, light to dark grey (w/same and light brown [5YR 6/4]), fine to medium, finely laminated, shaly to platy and massive. Abundant carbonaceous laminae up to 1 cm thick and 40 cm long. | 1.9 | 14.1 |
| | Sample 25074 0.2 m Fine sandstone. A6-24 | | |
| 5 | Sandstone, white (w/same and light brown [5YR 6/4]), medium to predominantly gritty, unbedded, massive. Grades into a medium sandstone at 4.0 m, with carbonaceous laminae, 1 x 30 cm, and gritty lenses, 0.5 m x 4 m. | 10.7 | 12.2 |
| | Sample 25073 3.0 m Coarse sandstone. A6-23 | | |
| 4 | Sandstone, like unit 2. | 0.3 | 1.5 |
| 3 | Sandstone, like unit 1. | 0.1 | 1.2 |
| 2 | Sandstone, dark grey (w/same), fine, finely laminated, shaly to platy. | 0.3 | 1.1 |
| 1 | Sandstone, white (w/same and light brown [5YR 6/4]), medium, unbedded, massive. | 0.8 | 0.8 |
| | WELLER COAL MEASURES (85+ m) | | |
| | Snow slope and dolerite scree. | | |
| | Note: Section is transposed to the top of ridge 200 metres further south. Lower part of Weller Coal Measures forms prominent bluffs. | | |
| | AZTEC SILTSTONE (115+ m) | | |
| 31 | Siltstone, medium grey (w/same), fine, unbedded, massive. Creamish nodular network throughout. Becomes light grey above 4 m and loses nodules. | 7.5 | 114.7 |
| | Sample 25072 5.1 m Light grey siltstone. A6-22<br>25071 0.4 m Medium grey siltstone. A6-21 | | |
| | - gradational contact - | | |
| 30 | Siltstone, greenish grey [5G 6/1] grading to greyish purple [5P 4/2] above 0.4 m (w/same), coarse, indistinctly laminated to unbedded, flaky and massive. Above 4 m the unit becomes mottled with greyish red [10R 4/2] and a little medium grey. Creamish (very pale orange [10YR 8/2]) fine network and small nodules (up to 5 mm) throughout. Bed of fine sandstone, very pale orange [10YR 8/2] (w/light brown [5YR 6/4]) from 7.5 to 7.6 m. | 12.6 | 107.2 |
| | Sample 25070 12.3 m Red siltstone. A6-20<br>25069 7.0 m Grey siltstone. A6-19 | | |
| | - sharp contact - | | |
| 29 | Sandstone, greyish orange pink [10R 8/2] and light greenish grey [5GY 8/1] (w/same), fine to medium, laminated and unbedded, shaly but mainly massive with some knobbly weathering. Some trough cross-bedding. | 3.5 | 94.6 |
| | - erosional contact - | | |

| Unit | | A | B |
|---|---|---|---|
| 28 | Siltstone, fine to coarse, and very fine sandstone, greyish purple [5P 4/2], greenish grey [5GY 6/1] and a little greyish red [10R 4/2] (w/same), laminated to very thin bedded but upper 0.5 m unbedded, massive. Very small burrows. | 1.9 | 91.1 |
| | - snow-covered contact - | | |
| 27 | Siltstone, greyish red [10R 4/2] and some greyish purple [5P 4/2] (w/same), fine to coarse, unbedded, flaky and massive. Pale yellowish orange [10YR 8/4] nodules throughout. Lenses of laminated greyish purple siltstone from 6.9 to 7.5 m and 9.0 to 9.3 m. Beds of fine to medium very pale orange [10YR 8/2] sandstone up to 10 cm thick above 8 m. | 12.5 | 89.2 |
| | Sample 25068 0.2 m Red siltstone. A6-18 | | |
| | - gradational contact - | | |
| 26 | Sandstone, greyish orange pink [10R 8/2] and light greenish grey to greenish grey [5GY 8/1-6/1] (w/same and light brown [5YR 6/4]), fine, laminated to thick-bedded, flaky to slabby. A few fish plates. | 1.1 | 76.7 |
| | Sample 25067 0.1 m Fine sandstone. A6-17 | | |
| | - sharp contact - | | |
| 25 | Sandstone, like unit 23. | 1.7 | 75.6 |
| | - gradational contact - | | |
| 24 | Sandstone, like unit 19. | 0.7 | 73.9 |
| | - sharp contact - | | |
| 23 | Sandstone, greenish grey [5GY 6/1] (w/same, light olive grey [5Y 5/2], greyish purple [5P 4/2] and light brown [5YR 5/6]), very fine, unbedded, massive. Nodules of very pale orange [10YR 8/2]. | 3.0 | 73.2 |
| | Sample 25066 2.8 m Very fine sandstone with nodules. A6-16 | | |
| | - sharp contact - | | |
| 22 | Sandstone, greenish grey [5GY 7/1] (w/same, light brown [5YR 6/4], and moderate yellowish brown [10YR 5/4]), fine, laminated, slabby. Small lenses of radiating zeolites in sandstone from 0.9 to 1.3 m. | 1.3 | 70.2 |
| | - gradational contact - | | |
| 21 | Sandstone, like unit 19. Bluff-former. | 2.1 | 68.9 |
| | - erosional contact - | | |
| 20 | Coarse siltstone and very fine sandstone, greenish grey [5GY-5G 6/1] (w/same, light brown [5YR 6/4] and moderate to dark yellowish brown [10YR 5/4-4/2]), very thin bedded, unbedded in upper part, slabby to massive. Vein network from upper surface. | 3.2 | 66.8 |
| | - scree-covered contact - | | |

| Unit | | A | B |
|---|---|---|---|
| 19 | Sandstone, greyish orange pink [10R 8/2] and very pale orange [10YR 8/2] (w/same and pale reddish brown [10R 5/4]), fine to medium, indistinctly laminated and unbedded, massive. Thin lenses up to 10 cm thick of greenish grey [5GY 6/1] siltstone and thin beds of siltstone fragments 2 to 10 cm across. Also horizons of very coarse quartz grit. Bluff-former. | 8.0 | 63.6 |
| | Sample 25065 0.8 m Medium sandstone. A6-15 | | |
| | - erosional contact - | | |
| 18 | Interbedded fine siltstone and fine sandstone with individual beds up to 0.3 m thick. Siltstone is greenish grey [5G 6/1] (w/same and moderate yellowish brown [10YR 5/4]), laminated, flaky. Sandstone is yellowish grey [5Y 8/1] to greyish orange pink [10R 8/2] (w/same), laminated to very thin bedded, slabby. | 1.2 | 55.6 |
| 17 | Scree slope, with greenish grey [5GY 6/1] siltstone. | 7.5 | 54.4 |
| 16 | Siltstone, greyish red [10R 4/2] (w/same), veined and mottled with greyish purple [5P 4/2], fine, unbedded, flaky. | 3.0 | 46.9 |
| | - gradational contact - | | |
| 15 | Siltstone, greenish grey [5GY-G 6/1] (w/same and light brown [5YR 6/4-5/6]), coarse, unbedded, shaly but mainly massive. Vein network. | 1.7 | 43.9 |
| | - gradational contact - | | |
| 14 | Coarse siltstone and very fine sandstone, mottled greyish red [10R 4/2], greenish grey [5G-5GY 6/1], greyish purple [5P 4/2], and pale red [10R 6/2] (w/same), very thin to thin-bedded, massive. Nodules throughout. | 3.5 | 42.2 |
| | - gradational contact - | | |
| 13 | Siltstone, greyish red [10R 4/2] mottled with greyish purple [5P 4/2] and pale red [10R 6/2] (w/same), fine to coarse, unbedded, massive. Nodular network as unit 5. Greyish purple mottled with greenish grey [5G 6/1] from 3.1 to 3.6 m, also with greenish grey nodules with white centres. Above 3.6 m siltstone grades to very fine sandstone, pale red [5R 6/2] (w/same and light greenish grey [5GY 8/1] in vein network. | 4.7 | 38.7 |
| | Sample 25064 3.4 m Purple siltstone. A6-14 | | |
| | - interfingering contact - | | |
| 12 | Siltstone, greyish red [10R 4/2] mottled and veined with greyish orange pink [5YR 7/2], greenish grey [5GY 7/1], and greyish purple [5P 4/2] (w/same), coarse, unbedded, massive. Scattered small nodules 1 cm across increase to nodules up to 30 cm long of greenish grey bordered by pink and greyish purple. | 7.5 | 34.0 |
| | Sample 25063 7.5 m Very fine sandstone. A6-13<br>25062 0.8 m Coarse siltstone with green epidote on weathered surface. A6-12 | | |
| | - gradational contact - | | |
| 11 | Sandstone, greenish grey [5GY 6/1] (w/same, light brown [5YR 6/4], pale and dark yellowish brown [10YR 6/2-4/2]), very fine to fine, very thin bedded, massive. Well preserved fish plates, and burrows throughout. | 1.4 | 26.5 |

| Unit | | A | B |
|---|---|---|---|
| | - gradational contact - | | |
| 10 | Fine to coarse siltstone and very fine sandstone, in alternating very thin beds of greyish red [10R 4/2], greenish grey [5GY 6/1], greyish purple [5P 4/2] siltstone and greyish orange pink [10R 8/2] sandstone. Burrows and vein network throughout. Abundant fish plates. | 4.2 | 25.1 |
| | - sharp contact - | | |
| 9 | Siltstone, mottled greyish red [10R 4/2] and light olive grey [5Y 6/2] (w/same), fine to coarse, unbedded, massive. Scattered nodules as in unit 5.<br>Sample 25061 0.2 m Olive grey siltstone. A6-11 | 1.4 | 20.9 |
| | - sharp contact - | | |
| 8 | Sandstone, greyish orange pink [10R 8/2] (w/same and pale yellowish brown [10YR 6/2]), very fine, unbedded, massive. Subvertical sinuous columns 0.5 x 40 cm branch upwards (soil structure?) and are infilled with light greenish grey [5GY 8/1]. Bluff-former.<br>Sample 25060 0.1 m Fine sandstone. A6-10 | 0.8 | 19.5 |
| | - sharp contact - | | |
| 7 | Siltstone, greyish red [10R 4/2] in lower 0.7 m, greenish grey [5GY 6/1] above 1.3 m (w/same), fine to coarse, unbedded, flaky to platy and massive. Fine greyish orange pink [10R 8/2] (w/same) sandstone, from 0.7 to 1.3 m with nodules as in unit 5 and abundant fish plates. From 1.5 to 2.2 m the greenish grey develops a vein network of greyish red. Upper part of unit is greenish grey siltstone (also w/light brown [5YR 6/4] and dark yellowish brown [10YR 3/4]), with a few moderately preserved fish plates in upper 0.5 m. Upper 2 m is bluff-former.<br>Sample 25059 1.1 m Fine sandstone. A6-09<br>25058 0.5 m Red siltstone. A6-08<br>25057 0.1 m Green siltstone. A6-07 | 3.4 | 18.7 |
| | - sharp contact - | | |
| 6 | Sandstone, light olive grey [5Y 6/1] to greenish grey [5GY 6/1] (w/same, light brown [5YR 6/4-5/6], and dark yellowish orange [10YR 6/6]), very fine, parallel and ripple laminated, flaky but mostly massive. Abundant moderately-preserved fish plates in lenses 0.6 m thick filling scours at base. Long concretionary structures 0.1 m thick with very fine spongy weathering at 2.3 m and 3.2 m. Subvertical to oblique burrows from upper surface. Upper surface is ripple-marked (ripples face in several different directions). Bluff-former.<br>Sample 25056 3.2 m Concretionary sandstone. A6-06<br>25055 0.8 m Very fine sandstone. A6-05 | 4.2 | 15.3 |
| | - erosional contact over 0.5 m - | | |
| 5 | Siltstone, greyish red [10R 4/2] (w/same) mottled with greenish grey [5GY 6/1] (w/same and moderate yellowish brown [10YR 5/4]) surrounding greyish orange [10YR 7/4] to very pale orange [10YR 8/2] nodules, coarse, unbedded, massive. Upper 0.1 m is greenish grey.<br>Sample 25054 0.6 m Green siltstone. A6-04<br>25053 0.5 m Red siltstone with nodules. A6-03 | 0.6 | 11.1 |

| Unit | | A | B |
|---|---|---|---|
| 4 | Rubble slope, with small outcrops of siltstone as in unit 2. | 4.0 | 10.5 |
| 3 | Siltstone, greyish red [10R 4/2] and greenish grey [5GY 6/1] (w/same), fine to coarse, very thin to thin-bedded (alternating green and red), laminated, massive. Green beds are ripple-laminated as in unit 2. Light bluish grey [5B 7/1] net-veining through red siltstone. | 1.5 | 6.5 |
| | Sample 25052 0.5 m Coarse green siltstone. A6-02 | | |
| | - gradational contact - | | |
| 2 | Siltstone, greenish grey [5GY 6/1] (w/same and moderate yellowish brown [10YR 5/4]), fine to coarse, ripple laminated and unbedded, massive. | 2.1 | 5.0 |
| | - gradational contact - | | |
| 1 | Poorly exposed in scree. Siltstone, greyish red [10R 4/2] (w/same) with small mottles of greenish grey [5GY 6/1] and greyish purple [5P 4/2], fine, very thin bedded and unbedded, massive. | 2.9 | 2.9 |
| | Sample 25051 1.0 m Red siltstone. A6-01 | | |
| | AZTEC SILTSTONE (115+ m) | | |
| | About 15 m of rubble-covered slope. | | |
| | Moraine. | | |

SECTION C1 - ESCALADE PEAK

Section measured on the south-east ridge of Escalade Peak, with the base 1.0 km at 125° from the summit. Measured with staff and level by RAA, DAB (lower part) and DVB, AC (upper part) 1/72.
Position of base 78° 38.1'S; 159° 25'E. Map elevation 1600 m.

| Unit | | A | B |
|---|---|---|---|
| | Dolerite sill capping Escalade Peak. | | |
| | BEACON HEIGHTS ORTHOQUARTZITE (169+ m) | | |
| 1 | Sandstone, white to yellowish grey [5Y 8/1] (w/same, light brown [5YR 6/4-5/6] and occasionally moderate reddish orange [10R 6/6]), medium to gritty, finely laminated to unbedded, slabby to massive and occasionally platy. Trough cross-bedded in places. Bluff-former. Erosion surface of 0.1 m relief at 1.1 m. Large-scale trough cross-beds between 7.4 and 8.4 m. Bed from 10.8 to 12.4 m of gritty sandstone with quartz pebbles 1 to 2.5 cm across. This bed has cavernous weathering, and similar beds and irregular intervals occur through unit. Erosion surface at 22 m with quartz pebbles. Quartz grit lens at 25.5 m with angular to subangular pebbles up to 1 cm across. Medium to coarse sandstone and quartz grit from 30 to 31.4 m continuing abundant large rounded quartz pebbles mostly 1 to 12 cm and averaging 7 cm across. Erosion surface at 36 m forms platform with deep pitting and striations 0.5 cm wide and deep and 0.5 m long, in two directions crossing each other at 80°. Vertical burrows at 44 m are 0.6 cm wide and 6 cm deep. Greenish grey [5GY 6/1] fine sandstone bed, from 48.1 to 48.2 m. Erosion surface forms platform at 51 m. Undulating erosion surface with a relief of 0.5 m at 75 m. Interval with vertical burrows 1 cm wide and 5 cm deep at 76 m. Finely laminated fine sandstone from 90 to 90.7 m. Above 124.5 m shaly laminated medium sandstone is interbedded with finer and more massive sandstone with cavernous weathering. | 168.5 | 168.5 |
| | Dolerite sill 0.9 m thick at 135.6 m. | | |
| | Ferruginous greyish red purple [5RP 4/2] and pale olive [10Y 6/2] (w/same, light brown [5YR 5/6]) sandstone bed from 136.3 to 138 m. Ferruginous greyish olive [10Y 4/2] and olive grey [5Y 3/2] (w/same and light brown [5YR 6/4]) sandstone from 144.3 to 145 m. Erosion surface at 152.2 m with white angular to subangular quartz pebbles mostly 0.5 to 1 cm and up to 2 cm across. | | |

| | | | |
|---|---|---|---|
| Sample | 25035 | 168.4 m | Medium to coarse sandstone. C1-34 |
| | 25034 | 163.2 m | Medium to coarse sandstone. C1-33 |
| | 25033 | 144.8 m | Ferruginous sandstone. C1-32 |
| | 25032 | 139.4 m | Medium to coarse sandstone. C1-31 |
| | 25031 | 137.5 m | Ferruginous sandstone. C1-30 |
| | 25030 | 120.1 m | Medium to coarse sandstone. C1-29 |
| | 25029 | 100.2 m | Medium to coarse sandstone. C1-28 |
| | 25028 | 84.0 m | Medium sandstone. C1-27 |
| | 25027 | 60.5 m | Medium sandstone. C1-26 |
| | 25026 | 43.1 m | Medium sandstone. C1-25 |
| | 25025 | 19.5 m | Medium sandstone. C1-24 |
| | 25024 | 0.8 m | Medium sandstone. C1-23 |

BEACON HEIGHTS ORTHOQUARTZITE (169+ m)

- sharp contact -

| Unit | | A | B |
|---|---|---|---|
| | ARENA SANDSTONE (284 m) | | |
| 7 | Sandstone, moderate reddish brown [10R 4/6] and moderate olive brown [5R 4/4] (w/same and dark reddish brown [10R 3/4]), medium to very fine in upper 0.4 m, unbedded, blocky and massive. Ferruginous. | 2.1 | 283.9 |
| | - sharp contact - | | |
| 6 | Sandstone, white, yellowish grey [5Y 8/1], very pale orange [10YR 8/2] (w/same, light brown [5YR 6/4-5/6] and greyish orange [10YR 7/4]), medium and occasionally coarse, indistinctly laminated to thick bedded, slabby to massive. Trough cross-bedding, generally up to 0.4 m thick. Occasional burrows, 1 x 5 cm. Minor pebble-covered surfaces at irregular intervals. Surfaces are frequently pitted and burrowed. Cavernous weathering from 15 to 17 m and from 19.5 to 22 m. Fine sandstone from 28.5 to 28.6 m, weathering to a platform with pitted (burrowed?) surface. | 38.0 | 281.8 |
| | Sample 25023 19.6 m Medium sandstone. C1-21<br>25022 1.0 m Medium sandstone. C1-20 | | |
| | - gradational contact - | | |
| 5 | Sandstone, yellowish grey [5Y 8/1] (w/same, yellowish grey [5Y 7/2] and light brown [5YR 5/6]), fine to medium, hard, quartzose, laminated to thick bedded, slabby to massive. Occasional black grainy weathering. Some trough cross-bedding. A few trails and burrows. Very light grey to pink round blotches 0.5 cm across between 8 and 22 m. | 41.3 | 243.8 |
| | Sample 25021 25.5 m Fine sandstone. C1-11<br>25020 8.8 m Fine sandstone. C1-10 | | |
| 4 | Slope of sandstone rubble. | 10.7 | 202.5 |
| | Dolerite sill, 40.2 m thick. | | |
| 3 | Sandstone, yellowish grey [5Y 8/1] (w/same to yellowish grey [5Y 7/2], dusky yellow [5Y 6/4] and a little light brown [5YR 6/4-5/6]), fine to medium, hard, quartzose, very thin bedded to thick bedded, slabby to massive. Trough cross-bedded. Occasional horizons os laminated to very thin bedded platy sandstone. Very abundant burrowing and animal trails on surfaces. Vertical burrows are up to 0.5 cm wide, rarely to 1 cm. Horizontal burrows and trails are very variable: straight simple grooves 1 cm wide, double grooves 0.5 to 2 cms wide, sinuous simple grooves 1 cm wide, and Beaconites up to 5 cms wide. Occasional scattered round moderate reddish brown [10R 4/6] to black concretions up to 1 cm across. These increase in size to 2 cm above 100 m. Above 39 m weathering colour is more commonly a yellowish grey and light brown [5YR 5/6]. | 138.4 | 191.8 |
| | Sample 25019 137.8 m Fine sandstone. C1-09<br>25018 121.6 m Fine sandstone. C1-08<br>25017 100.9 m Fine sandstone. C1-07<br>25016 79.4 m Fine sandstone. C1-06<br>25015 62.1 m Fine sandstone. C1-05<br>25014 40.4 m Fine sandstone. C1-04<br>25013 21.5 m Fine sandstone. C1-03<br>25012 5.2 m Fine sandstone. C1-02 | | |
| 2 | Scree slope, with sandstone rubble. | 42.8 | 53.4 |

| Unit | | A | B |
|---|---|---|---|
| | Dolerite sill 1.1 m thick. | | |
| 1 | Sandstone, yellowish grey [5Y 8/1] (w/same, yellowish grey [5Y 7/2] to dusky yellow [5Y 6/4] and moderate yellowish brown [10YR 5/4]), fine to medium, hard, quartzose, thick bedded to unbedded, blocky to massive. | 10.6 | 10.6 |
| | Sample 25011 3.3 m Fine sandstone. C1-01 | | |
| | Dolerite sill 10 m thick. | | |
| | Snow slope. | | |

SECTION C2 - EAST NUNATAK OF SWARTZ NUNATAK GROUP.

Section measured up south-east ridge of eastern nunatak of Swartz Nunatak Group. Base of section 0.25 km at 187° from summit platform. Measured with staff and level by RAA, DVB 1/72.
Position of base 78° 39.3'S; 161° 02'E. Map elevation 1500 m.

| Unit | | A | B |
|---|---|---|---|
| | WINDY GULLY SANDSTONE (84+ m)? | | |
| | Top of ridge. | | |
| 3 | Sandstone, like unit 1. Ferruginous band as in unit 1 from 0.0 to 0.1 m. | 12.0 | 83.5 |
| | Sample 25043 12.0 m Medium sandstone. C2-08<br>25042 0.0 m Ferruginous sandstone. C2-07 | | |
| | - sharp contact -<br>(gradational contact if ferruginous bed not included) | | |
| 2 | Quartz pebble conglomerate. Pebbles are white and light grey vein quartz, subrounded, up to 6 cm, few quartzite pebbles up to 2 cm, and rare siltstone up to 2 cm. Matrix is sandstone, yellowish grey [5Y 8/1] to very light grey, medium to gritty, massive. Pebbles decrease in number towards top. | 2.9 | 71.5 |
| | Sample 25041 0.2 m Quartz conglomerate. C2-06 | | |
| | - sharp contact - | | |
| 1 | Sandstone, yellowish grey [5Y 8/1] to very light grey (w/same, light brown [5YR 6/4] and moderate yellowish brown [10YR 5/4]), medium to coarse, hard, quartzose, very thin bedded to thick bedded, slabby to massive. Some trough cross-bedding. Scattered lenses 5 to 10 cm thick of light olive grey [5Y 6/1] (w/same and dark yellowish brown [10YR 4/2]) coarse siltstone fragments 10 to 15 cm long from 0.8 to 1.2 m, and at 3.7, 4.5, 12.6, 16.0, 16.0, 21.6, 27.8 m, etc. up through unit. Mudcracked surface at 2.8 m. Ferruginous laminated lenses (w/moderate brown [5YR 4/4-3/4] and black) from 7.1 to 7.3 m and 27.5 to 27.6 m. Scattered bands of subvertical burrows (up to 1 x 20 cm) and at 20 and 24 m are surfaces of resistant weathered-up burrow infillings. Abundant burrowed horizons between 32 and 50 m. Quartz grit lens from 10.5 to 11.6 m with few scattered small subangular white vein quartz pebbles (0.5 to 1 cm) and light olive grey [5Y 6/1] siltstone fragments (up to 10 cm). These lenses also at 13.5 and 13.8 m, 16.7 to 16.9 m, etc. but fewer up through unit, all with sharp or erosional lower contacts and gradational upper contacts. The quartz pebble content of the grits increases upwards and the siltstone fragments are no larger than 2 cm. Light olive grey [5Y 6/1] (w/moderate reddish brown [10R 4/6] and light olive grey [5Y 5/2] medium to coarse sandstone lens with white quartz and quartzite pebbles (0.5 to 1 cm) from 18.0 to 18.1 m and 58.5 to 58.6 m. | 68.6 | 68.6 |
| | Sample 25040 60.0 m Medium to coarse sandstone. C2-05<br>25039 39.6 m Medium sandstone. C2-04<br>25038 20.3 m Medium to gritty sandstone. C2-03<br>25037 13.5 m Quartz grit. C1-02<br>25036 0.3 m Medium sandstone. C1-01 | | |
| | Snow slope. | | |

SECTION K1 - MT. KEMPE

Section measured on the north face of Mt. Kempe, 0.5 km due north of summit. Measured with rod and level by RAA, DAB, DVB, AC 1/72. Position of base 78° 19.1'S; 162° 42.5'E. Map elevation 2600 m.

| Unit | | A | B |
|---|---|---|---|
| | Dolerite sill to summit of Mt. Kempe. | | |
| | TERRA COTTA SILTSTONE (80+ m) | | |
| 1 | Siltstone, blackish red [5R 2/2] (w/same), medium, finely laminated to laminated, flaky and platy and occasionally slabby. Lensing interbeds above 8.5 m of sandstone, light grey (w/same and light brown [5YR 6/4]), mediu, finely laminated to thick-bedded, slabby to massive, with sharp lower and upper contacts, average 1 m long, and 0.1 to 0.3 m thick every 1 to 1.5 m. Sandstone at 7.1 m grades down to an 0.1 m thick greenish siltstone and up to a 0.1 m thick greenish bed. Lenses of greenish siltstone throughout the unit above 7 m. Nodular light olive grey [5Y 6/1] and pinkish red sandstone structures and laminae occur above 5.5 m but become rare above 13 m. | 80 | 80 |
| | Sample 25008 17.1 m Greenish siltstone. K1-08<br>25007 6.7 m Blackish red siltstone with sandstone nodular structure. K1-07<br>25006 2.4 m Light grey sandstone. K1-06<br>25005 2.4 m Blackish red siltstone. K1-05<br>25004 1.6 m ? siltstone. K1-04 | | |
| | Note: The total thickness of this unit was estimated due to the steep, shaly and icy nature of the slope. | | |
| | - gradational contact over 2.7 m - | | |
| | WINDY GULLY SANDSTONE (42+ m) | | |
| 2 | Sandstone, white to yellowish grey [5Y 8/1] (w/same and light brown [5YR 6/4]), mainly medium, with small lenses of grit, indistinctly laminated and unbedded, slabby to massive. Upper part is thinly laminated to laminated and interbedded with Terra Cotta Siltstone over 2.7 m Bluff-former. | 21.6 | 41.6 |
| | Sample 25003 7.0 m Sandstone. K1-03 | | |
| | - gradational contact - | | |
| 1 | Sandstone, greyish orange pink [5YR 7/2], very pale orange [10YR 8/2] mainly in lower 4 m and yellowish grey [5Y 8/1] (w/same and light brown [5YR 6/4-5/6]), mainly medium to gritty, indistinctly laminated and unbedded, slabby to massive. Gritty sandstone is generally in small lenses up to 0.1 m thick and 0.5 m long. Lower 0.1 m is basement conglomerate, dark coloured, generally very dark grey and dark brown. The conglomerate grades into the sandstone and in the basal 4 m forms common scattered regular and irregular lenses up to 0.5 m thick. Above 4 m they become less common but also less lensoid and more continuous as thin beds up to 10 cm thick. Clasts in basal 0.1 m mostly range from 0.5 to 10 cm across and rarely up to 30 cm. Clasts are:- white vein quartz, with ferruginous discolouration in fractures, subangular to subrounded, 0.5 to 10 cm; white and pinkish quartz pebble conglomerate 5 to 9 cm across; yellowish grey [5Y 8/1] white marble 2 to 5 cm across; mica schist, frequently | 20 | 20.0 |

quartzose, grey, light olive grey [5Y 5/2] and light brown [5YR 6/4], 1 to 30 cm across; quartzose gneiss, very dark grey with fairly indistinct foliation, 0.5 to 15 cm across; and gneissic conglomerate fragments, with gneiss as described above and light brown mica schist fragments.

| | | | |
|---|---|---|---|
| Sample 25002 | 13.2 m | Sandstone. | K1-02 |
| 25001 | 0.7 m | Sandstone. | K1-01 |

WINDY GULLY SANDSTONE (42+ m)

Scree and snow slope.

Note: Contact with basement is probably about 2 m below the base of unit 1. The Windy Gully Sandstone can be seen to rest directly on gneiss with a prominent bed of white marble dipping to the southeast at 60° about 400 m east of the base of the section.

SECTION R1 - ROTUNDA

Section measured up eastern face of the north ridge of Rotunda, to dolerite sill, then continued above the sill up the north ridge to the base of the summit butte. The butte was measured up a chimney on the south side. Base of section is 1.0 km at 42° from summit butte. Measured with staff and level by RAA, DAB, DVB, AC 1/72.
Position of base 78° 00' S; 161° 34' E. Map elevation 1300 m.

| Unit | | A | B |
|---|---|---|---|
| | ARENA SANDSTONE ( 234+ m) | | |
| 5 | Sandstone, interbedded white (w/same) and white to yellowish grey [5Y 8/1] (w/same, light olive grey [5Y 5/2] and light brown [5YR 6/4]), medium, finely laminated to unbedded, slabby and massive. This unit forms the upper part of a prominent butte with sheer bluffs. Between 0 and 9 m, there are interbedded trough cross-beds, parallel-bedded and unbedded sandstone as in unit 4. Trough cross-beds from 18 to 21 m and at 23.3 m. Burrows 0.5 cm wide and 10 cm long abundant throughout but especially from 14.3 to 17.9 m, and from 20.8 to 22.3 m in white sandstone (w/same, light olive grey [5Y 5/2] to pale olive [10Y 6/2]). Scattered light olive grey [5Y 5/2] to pale olive [10Y 6/2] siltstone fragments at 3.3 m. Dark ferruginous greyish red [10R 4/2] to dark reddish brown [10R 3/4] to dark grey (w/same) bands occur between 11.5 and 20.8 m. Parallel-laminated from 25 m to top of unit. | 28.8 | 233.5 |
| | - gradational contact - | | |
| 4 | Sandstone, mainly white and a little yellowish grey [5Y 8/1] (w/same, and light brown [5YR 6/4]), medium, finely laminated to unbedded, slabby and massive. Forms the lower part of sheer bluffs of the butte. Abundant burrowed horizons throughout, and numerous ferruginous lenses above 7.5 m, most about 2 cm thick and several metres long with some up to 0.5 m thick. Bed of light olive grey [5Y 5/2] (w/same and dark reddish brown [10R 3/4]) with 2-cm-thick black weathered borders) ferruginous concretions 0.5 m long at 7.5 m. Ferruginous band of this material at 14 m. Ferruginous? dark grey to black (w/same and light brown [5YR 5/6]) bed at 19 m. Units of trough cross-bedded, parallel-bedded and unbedded sandstone 0.2 to 0.3 m thick alternate above 16 m. | 19.2 | 204.7 |
| | - gradational contact - | | |
| 3 | Sandstone, white (w/same and light brown [5YR 6/4]), medium, finely laminated to unbedded, platy to slabby, rarely massive. Greenish interbeds as in unit 2 from 5 m to top of unit. These form platforms with rounded projecting nodules 5 cm across on their surfaces. Irregular diffuse bands of occasionally ferruginous, still medium sandstone, light olive grey [5Y 5/2] (w/same, light brown [5YR 6/4 - 5/6], moderate to dark reddish brown [10R 4/6 - 3/4]), above 14 m. Slope-former. Weathers as series of sloping platforms and ledges with flaky surfaces. | 25.4 | 185.5 |
| | Sample 25109 1.0 m Sandstone. R1-45 | | |
| | - gradational contact - | | |

| Unit | | A | B |
|---|---|---|---|
| 2 | Sandstone, white and yellowish grey [5Y 8/1] (w/same, light brown [5YR 6/4 - 5/6], moderate reddish orange [10R 6/6] and moderate reddish brown [10R 4/6]), medium, finely laminated to unbedded, platy to slabby and massive. Forms extensive platform at base of unit and debris-covered slope. Very abundant, moderate yellowish brown [10YR 5/4] and moderate brown [5YR 3/4] (w/same and light brown [5YR 5/6] concretions. Above 30.5 m the white sandstone is interbedded with white to light grey (w/same), medium, unbedded, massive sandstone. The greyish sandstone weathers more easily than the white and forms deep concavities beneath ferruginous ledges of the latter. The white sandstone interbeds are 0.4 to 0.7 m thick and the greyish interbeds are 2.0 to 4.5 m thick. Between 64.6 and 65.1 m there are prominent interbeds of light olive grey [5Y 5/2] and greyish olive [10Y 4/2] (w/same and light brown [5YR 6/4]), medium, finely laminated to unbedded, massive sandstone. This greenish sandstone also occurs above 65.1 m as streaks and lenses up to 0.1 m thick and 0.7 m long. The larger lenses have vertical burrows 0.7 m x 10 cm. Above 58 m the white weathering sandstone predominates over the light brown weathering sandstone which forms platy to slabby ledges. | 100.1 | 160.1 |

| | | | |
|---|---|---|---|
| Sample 25108 | 75.2 m | Green and white fine sandstone. | R1-44 |
| 25107 | 56.4 m | White medium sandstone. | R1-43 |
| | | Not collected. | R1-42 |
| 25105 | 30.6 m | ?Greyish medium sandstone. | R1-41 |
| 25104 | 18.0 m | White medium sandstone. | R1-40 |
| 25103 | 3.5 m | Fine sandstone. | R1-27 |

- gradational contact -

| | | | |
|---|---|---|---|
| 1 | Sandstone, white to very light grey (w/same, light brown [5YR 6/4 - 5/6], moderate yellowish brown [10YR 5/4] and a little brownish black [5YR 2/1]), fine to medium, indistinctly laminated to thick bedded, blocky to massive. Above 2 m diffuse lenses and beds up to 10 cm thick have gradational lower contacts and sharper upper contacts; some are colour differences, but others are light to medium grey and dark greenish grey [5G 5/1] to medium bluish grey [5B 6/1] fine sandstone to coarse siltstone. Scattered burrowed beds occur throughout but are more distinct in the grey bands. Some quartz and arkosic grit stringers throughout the unit. Some trough cross-bedding. Horizons of light olive grey [5Y 5/2] to dark yellowish brown [10YR 4/2] concretionary structures up to 3 cm long. Above 30 m the concretions are light olive grey to greenish grey [5GY 6/1] in the centres with greyish orange pink [10R 8/2] to white borders. They are round, 1 to 2 cm across and up to 5 cm long. | 60.0 | 60.0 |

| | | | |
|---|---|---|---|
| Sample 25102 | 31.5 m | Fine to medium sandstone | R1-26 |
| 25101 | 3.7 m | Medium sandstone. | R1-25 |

ARENA SANDSTONE (234+ m)

Dolerite sill 150 m thick.

| Unit | | A | B |
|---|---|---|---|
| | ALTAR MOUNTAIN FORMATION (116 m) | | |
| 10 | Sandstone, like unit 8, with only 10% purplish dark grey. | 6.2 | 115 |
| | - gradational contact - | | |
| 9 | Sandstone, light greenish grey [5GY 8/1] (w/same to light greenish grey [5G 8/1], light brown [5YR 6/4-5/6]), fine, unbedded, massive. Oval greenish grey [5G 6/1] to moderate reddish brown [10R 4/6] concretionary structures, up to 12 cm long at 1.5 m. Scattered vertical burrows 0.5 x 5 cm, often with greyish orange pink [10R 8/2] and greenish grey [5G 6/1] infillings. | 11.4 | 109. |
| | Sample 25100 0.7 m Fine sandstone. R1-20 | | |
| | - gradational contact - | | |
| 8 | Sandstone and siltstone like unit 6. Lower 0.3 m is dark grey siltstone like unit 4. Only 10% of lower part of the unit is purplish dark grey, but this increases upwards. Abundant vertical burrows. Between 21 and 25.5 m 80% is greenish grey [5G 6/1], interbedded with purplish dark grey with abundant green infilled burrows. | 28.7 | 98. |
| | - gradational contact - | | |
| 7 | Interbedded sandstone beds up to 0.6 m thick, greyish orange pink [10R 8/2] (w/same mottled with moderate orange pink [10R 7/4], a little moderate reddish orange [10R 6/6]), fine, unbedded; and sandstone beds up to 0.4 m thick, light greenish grey [5G 8/1] (w/same and greenish grey [5G 6/1]), very fine to fine, indistinctly laminated. Interbeds grade into each other. Greenish beds contain round to elongate greenish grey [5G 6/1] concretions 1 to 5 cm across and with dark borders. Pink beds occasionally contain dark reddish brown [10R 3/4] to greenish grey [5G 6/1] concretions. | 4.3 | 69.4 |
| | Sample 25099 1.9 m Fine sandstone. R1-19 | | |
| | - erosional contact - | | |
| 6 | Interbedded sandstone, greyish orange pink [10R 8/2] (w/same, light brown [5YR 6/4 - 5/6], moderate pink [5R 7/4]), fine, laminated; and very fine sandstone to coarse siltstone, light greenish grey [5G 8/1] (w/same), with laminae of purplish dark grey to greyish black; and siltstone, purplish dark grey to greyish black (w/same), fine to coarse, with light greenish grey [5G 8/1] laminae, papery to occasionally flaky. The unit is massive and a bluff former. Interbeds are mostly 0.1 to 0.3 m but up to 0.6 m thick. | 7.3 | 65.1 |
| | Sample 25098 1.7 m Fine pink sandstone. R1-18 | | |
| | - gradational contact - | | |
| 5 | Sandstone, white (w/same, light brown [5YR 6/4], moderate yellowish brown [10YR 5/4] and light greenish grey [5GY 8/1]), medium to gritty, laminated to thin-bedded, massive. Trough cross-bedded. | 1.5 | 57.8 |
| | - sharp contact - | | |

| Unit | | A | B |
|---|---|---|---|
| 4 | Siltstone, dark grey (w/same, brownish grey [5YR 4/1] and olive grey [5Y 4/1]), fine, laminated, shaly to flaky and blocky. A very few light olive grey [5Y 5/2] thin lenses up to 1 cm thick. Upper 2 cm is light olive grey with subvertical veining extending down from the upper contact for 10 cm. Veining is often infilled with medium to gritty sandstone of the overlying unit. | 0.9 | 56.3 |
| | Sample 25097 0.3 m Dark grey siltstone. R1-17 | | |
| | - gradational contact - | | |
| 3 | Fine sandstone and fine to coarse siltstone. Sandstone is white (w/same), and the siltstone is greenish grey [5GY 6/1] to light olive grey [5Y 5/2] (w/same to moderate olive brown [5Y 4/4]). Lenses in and out throughout unit, laminated, flaky to platy. Upper 0.3 m is papery to flaky green siltstone. | 0.7 | 55.4 |
| | - gradational contact - | | |
| | Odin Arkose Member (55 m) | | |
| 2 | Sandstone, white to yellowish grey [5Y 8/1] (w/same to yellowish grey [5Y 7/2] and light brown [5YR 6/4 - 5/6]), medium to gritty, indistinctly laminated, slabby to massive. Some light to medium dark grey weathered beds. Grits contain quartz and feldspar pebbles up to 1 cm across. A few burrowed horizons. Flaky very fine sandstone bed from 0.9 to 1.1 m (w/olive grey [5Y 4/1], moderate olive brown [5Y 4/4] and brownish black [5YR 2/1]). Ferruginous concretions as in unit 1 (of New Mtn. Ss.) up to 8 cm across, and as in unit 3 (of New Mtn. Ss.) up to 10 cm across. These are scattered through unit and are abundant above 16 m. Siltstone fragments from 14.5 to 15.6 m are moderate olive brown [5Y 4/4] to medium grey and 5 to 8 cm across. Beds of diffuse greenish grey [5GY - G 6/1] colour up to 0.2 m thick from 18 to 25 m. | 35.7 | 54.7 |
| | Sample 25096 31.5 m Medium sandstone. R1-16<br>25095 1.7 m Medium sandstone. R1-15 | | |
| | - gradational contact - | | |
| 1 | Sandstone, yellowish grey [5Y 8/1] (w/white to same to yellowish grey [5Y 7/2], light brown [5YR 6/4 - 5/6]), medium to gritty, laminated, platy and massive. Grit lenses are few low in the unit, grading up from the underlying unit. They are up to 0.6 m thick, quartzose and arkosic, white, grey and light brown [5YR 6/4], and have pebbles up to 1 cm across. The lenses become more common and coarser upwards. Scattered ferruginous concretions as in underlying unit. Vertical burrows become less common above 5 m. Large (w/olive black [5Y 2/1] to dark grey) concretionary lenses up to 1 m long at 2.5 m. | 19.0 | 19.0 |
| | Odin Arkose Member (55 m) | | |
| | ALTAR MOUNTAIN SANDSTONE (116 m) | | |
| | - gradational contact - | | |
| | NEW MOUNTAIN SANDSTONE (207 m) | | |
| 3 | Sandstone, yellowish grey [5Y 8/1] (w/white to same to yellowish grey [5Y 7/2] and light brown [5YR 6/4 - 5/6]), medium to coarse, laminated, platy and massive. Trough (planar?) cross-bedded in places. Abundant vertical burrows above 7.5 m, up to 2 cm x 12 cm. Some scattered ferruginous concretions as in unit 1. Horizon at 8.6 m of | 35.0 | 206.8 |

| Unit | | A | B |
|---|---|---|---|
| | round to elongate concretions (w/olive black [5Y 2/1] to dark grey), 5 to 10 cm across. These are scattered and in bands throughout the unit ("ash-tray sandstone"). | | |
| | Sample 25094 16.0 m Medium sandstone. R1-14 | | |
| | - gradational contact - | | |
| 2 | Sandstone, white to very light grey (w/same, light greenish grey [5G 8/1] and a little light brown [5YR 6/4 - 5/6]), medium, laminated and unbedded, platy to massive. Planar cross-bedding. Sandstone contains pink feldspar grains throughout. Interbeds of papery to flaky very fine sandstone to coarse siltstone, light olive grey [5Y 5/2] to greyish olive [5Y 4/2] to dusky yellow green [5GY 5/2] (w/same) very fine sandstone to coarse siltstone. Green laminae and diffuse colour bands up to 4 cm thick are also common. Green beds from 2.5 to 2.7 m, 11.3 to 11.5 m, 26.3 to 26.4 m, 29.8 to 29.9 m, 34.5 to 34.6 m; diffuse very thin beds and streaks from 47 to 48 m. Ferruginous concretions as in unit 1, are less common to rare above 10 m, and present again above 40 m. Occasional diffuse ferruginous (w/dark reddish brown [10R 3/4] and medium grey to dark greenish grey [5GY 4/1]) beds. | 48.0 | 171.8 |
| | Sample 25093 29.5 m Medium sandstone. R1-13<br>25092 7.0 m Medium sandstone. R1-12<br>25091 2.5 m Green siltstone. R1-11 | | |
| | - gradational contact - | | |
| 1 | Sandstone, yellowish grey [5Y 8/1] (w/same to very light grey, greyish orange pink [10R 8/2], light brown [5YR 6/4 - 5/6], moderate reddish brown [10R 4/6], moderate yellowish brown [10YR 5/4]), fine to medium, laminated, massive. Planar cross-bedding. Garnetiferous in lower 3 m. Upwards unit becomes coarse and more slabby with platy horizons. Common grit stringers of pink and grey quartz and feldspar with some subangular pink, white and grey pebbles up to 1 cm across and occasionally light grey siltstone fragments 1 cm across in lower 2 m. Beds coarsest in lower 0.5 m. Grit lenses from 5.0 to 5.5 m. Above 1.5 m there are laminae and diffuse bands up to 8 cm thick of greyish olive [10Y 4/2] to light greenish grey [5G 8/1]. Above 15 m these become very diffuse and only light greenish grey in colour. Above 8 m there are some horizons with very abundant criss-crossing trails and burrows. They become very abundant above 12 m. Above 36 m the gritty lenses become more common, and are very abundant between 37 and 39 m, and at several other horizons. Occasional garnetiferous horizons. Burrows and trails become less common above 45 m and disappear above 65 m. Above 60 m there are occasional scattered round ferruginous light olive grey [10Y 5/2] to greyish olive [10Y 4/2] and dark reddish brown [10R 3/4] concretions, 1 to 5 cm across. These increase in size upwards above 70 m to 8 cm across. | 123.8 | 123.8 |
| | Sample 25090 120.0 m Medium sandstone. R1-10<br>25089 92.9 m Medium sandstone. R1-09<br>25088 60.4 m Medium sandstone. R1-08<br>25087 34.4 m Medium sandstone. R1-07<br>25086 1.3 m Medium sandstone. R1-06 | | |

NEW MOUNTAIN SANDSTONE (207m)

| Unit | | A | B |
|---|---|---|---|
| | Note:- Section line transposed 400 m to south. | | |
| | - rubble-covered contact - | | |
| | TERRA COTTA SILTSTONE (61 m) | | |
| 6 | Rubble, with siltstone debris in lower 2 m and sandstone debris above. | 6.0 | 60.5 |
| 5 | Siltstone, 95% purplish blackish red [5R 3/2] (w/same) with few laminae of medium grey and greenish grey [5GY 6/1], fine, unbedded, papery to flaky. A few very thin beds of very fine sandstone, greenish grey [5GY 6/1]. Greenish grey [5GY-G 6/1] siltstone becomes more common in upper 1 m and forms a vein network in the dark siltstone between 3.5 and 3.6 m. Horizon greyish orange [10YR 7/4] (w/pale orange [10Y 6/2] to dark greenish grey [5GY 4/1]) concretionary structures 2 to 5 cm across at 3.6 m. | 3.9 | 54.5 |
| | - gradational contact - | | |
| 4 | Siltstone, medium dark grey to olive grey [5Y 4/1] and greenish grey [5GY 6/1] (w/same and moderate to dark yellowish brown [10YR 5/4 - 4/2]), fine to coarse, laminated, to thin-bedded, shaly to slabby and massive. Horizons of oval to elongate concretionary structures (w/greyish orange [10YR 7/4] to dark yellowish orange [10YR 6/6] and light brown [5YR 5/6] mostly 3 to 6 cm but up to 10 cm across from 1.3 to 1.8 m. Scattered subvertical structures (burrows?) and occasional mudcracked surfaces. Dark greenish grey [5GY 4/1] coloured weathering patches at 5 m. Occasional very thin beds of very fine sandstone. Horizon between 5 and 9 m of medium dark grey concretions, mostly 2 to 8 cm but up to 15 cm across. From 9 to 10 m there are large oval greenish grey [5G 6/1] to light grey (w/medium grey to moderate reddish brown [10R 4/6]) concretions averaging 8 cm but up to 20 cm long. | 15.2 | 50.6 |
| | Sample 25085 0.4 m Siltstone. R1-05 | | |
| | - sharp contact - | | |
| 3 | Siltstone, medium grey to dark greenish grey [5GY 4/1] and purplish blackish red [5R 3/2] (w/same), fine to coarse, laminated to very thin-bedded, papery to platy. Greenish beds form 60 to 70% of the unit with the purplish beds forming laminae and networks. Occasional very thin beds of fine sandstone, greyish orange pink [10R 8/2] to moderate orange pink [10R 7/4] to yellowish grey [5Y 8/1]. Mostly greenish siltstone from 4 to 5 m. Occasional subvertical structures 1 cm wide in upper 2 m. | 8.6 | 35.4 |
| | - gradational contact - | | |
| 2 | Siltstone, purplish blackish red [5R 3/2] and medium grey (w/same), fine to coarse, indistinctly laminated and unbedded, papery to flaky. Grey siltstone forms 30 to 40% of the unit as laminae, very thin beds, and a vein network. Some mudcracked surfaces. | 6.8 | 26.8 |
| | Sample 25084 1.0 m Purplish siltstone. R1-04 | | |
| 1 | Rubble slope with occasional small outcrops of siltstone like unit 2 in upper part. | 20.0 | 20.0 |

| Unit | | A | B |
|---|---|---|---|
| | Note:- Units 2 to 5 are each slope and bluff-formers. | | |
| | TERRA COTTA SILTSTONE (61 m) | | |
| | - rubble-covered contact - | | |
| | WINDY GULLY SANDSTONE (51 m) | | |
| 1 | Sandstone, white to very light grey (w/same, light brown [5YR 6/4], to moderate brown [5YR 4/4], greyish orange [10YR 7/4] to moderate yellowish brown [10YR 5/4]), medium to coarse, indistinctly laminated to thick-bedded and unbedded, slabby to massive and cavernous weathering. Light to medium grey laminae and beds up to 8 cm thick with merging contacts. Becomes more platy weathering towards the top. Bluff-former. | 50.8 | 50. |
| | Sample 25083 40.5 m Medium sandstone. R1-03<br>25082 24.4 m Medium sandstone. R1-02<br>25081 0.8 m Medium sandstone. R1-01 | | |
| | Scree slope and moraine. | | |
| | Glacier ice. | | |

SECTION F1 - MOUNT FEATHER

Section measured up east spur of northern end of north ridge of Mount Feather from the top of 100 m thick dolerite sill to summit ridge. Base of section 3.8 km at 038° from summit. Measured by rod and level by RAA, ANC (lower part) and DAB, DVB (upper part) 12/71.
Position of base 77° 56.3' S; 160° 25.0' E. Map elevation 2400 m.

| Unit | | A | B |
|---|---|---|---|
| | Dolerite sill capping summit ridge. | | |
| | LASHLY FORMATION (99+ m) | | |
| 7 | Sandstone, like unit 1. | 35.4 | 99.4 |
| | Sample 25136 33.5 m Fine sandstone. F1-28<br>25135 20.6 m Fine sandstone. F1-27 | | |
| 6 | Snow slope. | 1.1 | 64.0 |
| 5 | Sandstone, like unit 1. Carbonaceous fine sandstone laminae from 5.1 to 5.3 m. Grades into siltstone in upper 0.4 m. | 7.1 | 62.9 |
| | - erosional contact - | | |
| 4 | Sandstone, like unit 1. Quartz pebbles and siltstone fragments at base. Grades into coarse siltstone in upper 2 m with stems and white roots and rootlets. | 12.1 | 55.8 |
| | - erosional contact - | | |
| 3 | Sandstone, like unit 1. Grades into coarse siltstone with white roots and abundant calamitid stems in upper m. | 2.9 | 43.7 |
| | Sample 25110 2 m Siltstone with stems. F1-26A | | |
| 2 | Snow slope. | 6.4 | 40.8 |
| 1 | Sandstone, yellowish grey [5Y 8/1] (w/same, light brown [5YR 6/4 - 5/6], and moderate reddish orange [10R 6/6]), fine to medium, indistinctly laminated to thick bedded, platy to massive. Trough cross-bedded. Grades into coarse siltstone, unbedded and massive, in upper m with a few white roots and rootlets. | 34.4 | 34.4 |
| | Sample 25134 5.4 m Sandstone. F1-26 | | |
| | LASHLY FORMATION (99+ m) | | |
| | - gradational contact over 1 m - | | |
| | FEATHER CONGLOMERATE (183 m) | | |
| 13 | Sandstone, like unit 9. Lower m is quartz pebble conglomerate with pebbles 0.5 to 1 cm across. Very fine sandstone from 3.9 to 4 m, and concretionary sandstone as in unit 12 from 6.9 to 7.6 m. | 19.0 | 182.7 |
| | - gradational contact - | | |
| 12 | Sandstone, moderate orange pink [10R 7/4] (w/same), medium to gritty, laminated, massive. | 1.2 | 163.7 |
| | - gradational contact - | | |
| 11 | Fine sandstone, like lenses in unit 2. | 0.5 | 162.5 |
| | - gradational contact - | | |

| Unit | | A | B |
|---|---|---|---|
| 10 | Sandstone, yellowish grey [5Y 8/1] (w/same and light brown [5YR 6/4 - 5/6], fine to gritty, finely laminated, platy to massive. Some trough cross-bedding. Basal scours filled with abundant quartz pebbles mostly 0.5 cm but up to 3 cm across, and siltstone fragments 5 to 12 cm long. Scour channel from 6.1 to 6.5 m filled with quartz pebbles and siltstone fragments 1 cm across. | 10.1 | 162.0 |
| | - erosional contact - | | |
| 9 | Sandstone, yellowish grey [5Y 8/1] (w/same, light brown [5YR 6/4] and light olive grey [5Y 5/2], medium to gritty with occasional fine beds, indistinctly laminated, massive. Some trough cross-bedding. Abundant lenses and cross-beds of gritty sandstone with subangular to rounded quartz pebbles, 0.5 to 1 cm across. Concretionary ferruginous moderate olive brown [5Y 4/4] (w/same and dark reddish brown [10R 3/4], to gritty sandstone from 5.9 to 6.1 m, 33.4 to 33.9 m and 45.9 to 46.1 m. Fairly abundant vertical burrows 4 cm long and 0.5 cm wide between 23 and 24 m. Lens very pale blue [5B 8/2] (w/same and moderately yellowish brown [10YR 5/4]) sandstone from 32.3 to 33.2 m. Very fine sandstone from 46.1 to 46.3 m, light olive grey [5Y 5/2] (w/light brown [5YR 6/4]). Siltstone like unit 3 from 55.1 to 55.3 m. Bluff-former.<br>Sample 25133 45.4 m Fine sandstone. F1-25<br>25132 5.7 m Gritty sandstone. F1-24 | 55.6 | 151.9 |
| | - gradational contact - | | |
| 8 | Quartz pebble conglomerate. Matrix is sandstone, yellowish grey [5Y 8/1] (w/same and moderate yellowish brown [10YR 5/4]), medium to gritty. Most quartz pebbles are 0.5 to 3 cm across with some up to 5 cm. A few irregular medium to gritty sandstone beds. | 20.5 | 96.3 |
| | - gradational contact - | | |
| 7 | Sandstone, like unit 2. | 5.1 | 75.8 |
| | - gradational contact - | | |
| 6 | Quartz pebble conglomerate. Pebbles are mostly 0.5 to 7 cm across with some up to 12 cm. | 4.7 | 70.7 |
| | - gradational contact - | | |
| 5 | Sandstone, like unit 2. Very abundant quartz pebble bands grading in places to a quartz pebble conglomerate. Concretionary ferruginous sandstone with no pebbles from 5.2 to 5.5 m. | 10.0 | 66.0 |
| | - gradational contact - | | |
| 4 | Sandstone, like unit 2. Lower m is concretionary and ferruginous as in unit 2. Pebble beds more abundant above 13 m with quartz pebbles 0.5 to 1 cm across. Pebble bed from 20.5 to 21.4 m with pebbles 0.5 to 2 cm across. Abundant pebbles above this in very thin parallel beds and trough cross-beds. | 23.4 | 56.0 |
| | - gradational contact - | | |

| Unit | | A | B |
|---|---|---|---|
| 3 | Siltstone, yellowish grey [5Y 8/1] (w/same and light brown [5YR 6/4]), coarse, unbedded, massive. | 0.5 | 32.6 |
| | Sample 25131 0.1 m Siltstone F1-23 | | |
| | - gradational contact - | | |
| 2 | Sandstone, yellowish grey [5Y 8/1] to white (w/same and light brown [5YR 6/4]), medium to gritty with some fine lenses, indistinctly laminated, massive. Some trough cross-bedding. Occasional scattered light olive grey [5Y 5/2] siltstone fragments, average 2.5 cm across. Pink, white and grey quartz pebbles in grits. Horizon of light olive grey [5Y 5/2] siltstone fragments 2 to 7 cm across at 1.7 m. Concretionary ferruginous moderate reddish orange [10R 6/6] to dark reddish brown [10R 3/4] bed from 8.0 to 8.2 m. Bluff-former. | 8.2 | 32.1 |
| | Sample 25130 7.1 m Medium to gritty sandstone with pink quartz pebbles. F1-22 | | |
| | - gradational contact - | | |
| 1 | Sandstone yellowish grey [5Y 7/2] to white (w/same and light brown [5YR 6/4]), medium to gritty, mainly unbedded, indistinctly laminated in places, massive. Massive concretionary ferruginous dark reddish brown [10R 3/4] medium to gritty sandstone bed from 2.2 to 2.7 m. Coarse light olive grey [5Y 5/2] (w/same) siltstone from 4.3 to 4.4 m. Ferruginous sandstone from 6.9 to 8.4 m w/light brown [5YR 6/4] to moderate reddish orange [10R 6/6], with indistinct trough cross-bedding. Dark reddish brown [10R 3/4] cross-bedded ferruginous concretionary sandstone also from 9.7 to 10.4 m and from 12.0 to 12.6 m. Sandstone bed from 10.5 to 10.6 m is white (w/same and light brown [5YR 6/4]), finely laminated, platy. These white beds are repeated throughout the unit. Above 13 m sandstone is fine to gritty with scattered quartz pebbles and frequent pebble bands. Bluff-former. | 23.9 | 23.9 |
| | Sample 25129 22.9 m Medium to gritty sandstone. F1-21 | | |
| | FEATHER CONGLOMERATE (183 m) | | |
| | - gradational contact - | | |
| | WELLER COAL MEASURES (224+ m) | | |
| 24 | Very fine sandstone and siltstone, black. Lower 0.2 m is very fine sandstone. This grades up into finely laminated siltstone and then to coaly shale in upper 0.4 m. | 0.9 | 224.4 |
| | - gradational contact - | | |
| 23 | Sandstone, very light grey to yellowish grey [5Y 8/1] (w/same and light brown [5YR 6/4]), medium to gritty, laminated, massive. Trough cross-bedded. Abundant vein quartz pebbles in bands and scattered throughout the unit, angular to subrounded, 0.5 to 1 cm across and up to 2 cm. Occasional carbonaceous laminae 0.7 m long in cross-beds. Occasional siltstone lenses, dark greyish black (w/medium light grey) papery to shaly, 0.2 m thick and up to 5 m long. | 4.7 | 223.5 |
| | Sample 25128 4.7 m Gritty sandstone. F1-20 | | |

| Unit | | A | B |
|---|---|---|---|
| 22 | Scree and snow slope. | 3.4 | 218.8 |
| | Note:- Section below this was measured by RAA, ANC. | | |
| 21 | Scree slope, with sandstone like unit 19 in places. Coal also in scree. | 7.2 | 215.4 |
| | - scree-covered contact - | | |
| 20 | Sandstone, like unit 18. | 2.3 | 208.2 |
| | - scree-covered contact - | | |
| 19 | Sandstone, like unit 14. Poorly exposed in scree. Weathered coal from 1.5 to 1.8 m. | 3.0 | 205.9 |
| | - erosional contact - | | |
| 18 | Sandstone, white to yellowish grey [5Y 8/1] (w/same and light olive grey [5Y 6/1]), fine to coarse with gritty stringers throughout, indistinctly laminated and unbedded, massive. Few coal streaks in lower 1 m and upper 0.6 m. | 4.9 | 202.9 |
| | Sample 25127 3.9 m Fine to medium sandstone. F1-17 | | |
| | - erosional contact - | | |
| 17 | Sandstone, like unit 14. | 1.8 | 198.0 |
| | - erosional contact - | | |
| 16 | Sandstone, white to yellowish grey [5Y 8/1] (w/same and light olive grey [5Y 6/1]), with fine to medium beds 0.6 m thick and coarse to gritty interbeds up to 0.8 m thick, indistinctly laminated and unbedded, massive. Bluff-former. | 9.2 | 196.2 |
| | Sample 25126 6.9 m Medium to coarse sandstone. F1-16 | | |
| 15 | Scree slope. | 1.7 | 187.0 |
| 14 | Sandstone, yellowish grey [5Y 8/1] to light grey (w/same, light olive brown [5Y 6/4], dusky yellow [5Y 6/4], light olive grey [5Y 6/1] and light brown [5YR 6/4]), very fine to fine but medium also in lower part, parallel and ripple-laminated, shaly to flaky. Carbonaceous and coaly laminae, with medium to dark grey beds up to 0.3 m thick. Poorly exposed in scree. | 16.8 | 185.3 |
| | - sharp contact - | | |
| 13 | Sandstone, very light grey to yellowish grey [5Y 8/1] (w/same, light brown [5YR 6/4] and dusky yellow [5Y 6/4]), fine to medium with interbedded medium to coarse, laminated, massive. Trough cross-bedded between 12 and 24 m and above 45 m. Lens of shaly medium to dark grey micaceous coarse siltstone and very fine sandstone with Glossopteris from 0.0 to 0.9 m, and lens of shaly dark grey micaceous fine sandstone from 12.3 to 12.7 m. Pebbles as in unit 12 at 11.1 m. Abundant coal streaks and carbonaceous laminae are common below 15 m, and from 18 to 38 m, dying out at 45 m. A few coal streaks above 57 m. Above 18 m there are many small lenses of pebbles (as in unit 12) and a few pink quartz pebbles 4 cm across with coaly stems and petrified stems up to 5 cm across. Shaly lens of light olive grey [5Y 6/1] fine sandstone from 58.5 to 58.6 m. | 69.9 | 168.5 |
| | Sample 25125 52.7 m Medium sandstone. F1-15<br>25124 38.8 m Fine sandstone. F1-14<br>25123 20.9 m Fine sandstone. F1-13<br>25122 0.4 m Glossopteris leaves and fructification. F1-12 | | |

| Unit | | A | B |
|---|---|---|---|
| | - gradational contact - | | |
| 12 | Sandstone, light grey to very light grey (w/same and light brown [5YR 6/4]), fine to medium, parallel and ripple-laminated to unbedded, massive. Abundant carbonaceous laminae and grit lenses (mostly feldspathic) in lower 7 m. Carbonaceous laminae are rare or absent above 10 m. Unit becomes laminated above 18 m with few carbonaceous laminae. Lens of laminated, massive, medium grey (w/same, light olive grey [5Y 5/2] and moderate yellowish brown [10YR 5/4] siltstone from 1.7 to 1.9 m. Horizon of concretions 0.1 m long and up to 2 m long x 0.6 m thick, (w/dark yellowish brown [10YR 4/2] and light brown [5YR 5/6]) at 7 m. Horizon of pebbles and dark grey siltstone fragments up to 5 cm across at 11.2 m. The pebbles are mainly subrounded to rounded white vein quartz mostly 1 to 2 cm and up to 4 cm across, with few very light grey to white fine sandstone 5 cm across, light grey acid volcanics up to 5 cm across, and coal streaks up to 10 cm long. Pebbles are also scattered or in thin stringers up to 12 m. Lens of coal streaks up to 20 cm long and a few subrounded white to light grey quartz pebbles up to 4 cm across, at 20.8 m. At 21.5 m there are small pebble stringers of subangular to subrounded white and light grey vein quartz mostly 1.3 cm and up to 10 cm across, light grey acid volcanics 1 cm across, quartz mica schist 2 cm across and angular dark grey quartzite 5 cm across. Grit horizons with pebbles up to 1.5 cm across and coal streaks at 25.5 m, 27.6 m (with quartz and acid volcanics up to 10 cm), 32.4 m and 35.8 m. Grit lenses with pebbles as before from 28.2 to 28.5 m. Coarse sandstone lens from 36.0 to 38.2 m. Bluff-former. | 45.6 | 98.6 |
| | Sample 25121 38.9 m Fine to medium sandstone. F1-11<br>25120 27.6 m Pebbles. F1-10<br>25119 18.3 m Fine to medium sandstone. F1-09<br>25118 0.8 m Fine sandstone. F1-08 | | |
| | - gradational and erosional contact - | | |
| 11 | Sandstone, light to medium dark grey (w/same, light olive grey [5Y 5/2] and light brown [5YR 5/6]), fine, unbedded and indistinctly laminated, massive. Above 1.3 m the unit becomes more flaky weathered. Occasional light grey weathered medium sandstone to gritty lenses up to 0.2 m thick. A few dark grey siltstone beds up to 2 cm thick. Lenses of abundant moderately-preserved stems. Concretionary lens from 7.2 to 7.5 m of hard siliceous light brownish grey [5YR 6/1] and moderate to dark yellowish orange [10YR 7/6 - 5/5] weathering sandstone including petrified wood. | 7.7 | 53.0 |
| | Sample 25117 4.9 m Coarse siltstone to very fine sandstone. F1-07 | | |
| | - gradational contact - | | |
| 10 | Sandstone, like unit 3. | 0.5 | 45.3 |
| | - gradational contact - | | |
| 9 | Sandstone, light grey (w/same, light brown [5YR 6/4] and light olive grey [5Y 5/2]), fine to medium, indistinctly parallel and ripple-laminated, flaky to massive. Fairly common quartz and pink and white feldspathic grit stringers and thin lenses. Also scattered grains of white weathered feldspar up to 1 cm across. Carbonaceous laminae common. | 1.7 | 44.8 |
| | Sample 25116 1.5 m Medium to gritty sandstone. F1-06 | | |

| Unit | | A | B |
|---|---|---|---|
| | - gradational contact - | | |
| 8 | Sandstone, medium grey to black (w/same, moderate to dark yellowish brown [10YR 5/4 - 4/2]), very fine to coarse, parallel and ripple-laminated, shaly to flaky and platy. Coal from 0.9 to 1.2 m. Few poorly-preserved stems below coal. | 1.7 | 43.1 |
| | Sample 25115 1.1 m Coal. F1-05 | | |
| | - gradational contact - | | |
| 7 | Sandstone, light to medium grey (w/light grey and moderate to dark yellowish brown [10YR 5/4 - 4/2]), very fine to fine, ripple-laminated, massive. | 0.8 | 41.4 |
| | - sharp contact - | | |
| 6 | Sandstone, like unit 3. | 4.8 | 40.6 |
| | Sample 25114 1.5 m Very fine sandstone. F1-04 | | |
| | - gradational contact - | | |
| 5 | Sandstone, light grey (w/same to very light grey, light olive grey [5Y 6/1], light brown [5YR 5/6] and moderate to dark yellowish brown [10YR 5/4 - 4/2]), fine, ripple-laminated, massive. Carbonaceous laminae fairly common. Streaks and small lenses of medium grey siltstone fragments 1 to 3 cm across. | 1.8 | 35.8 |
| | Sample 25113 0.9 m Fine sandstone. F1-03 | | |
| | - sharp contact - | | |
| 4 | Sandstone, dark grey (w/same to medium light grey, light olive grey [5Y 5/2], light brown [5YR 5/6] and moderate yellowish brown [10YR 5/4]), very fine to fine, indistinctly laminated and unbedded, flaky and massive. | 1.5 | 34.0 |
| | - gradational contact - | | |
| 3 | Sandstone, light to dark grey (w/same to very light grey, light olive grey to olive grey [5Y 6/1 - 4/1], and light brown [5YR 5/6]), very fine to fine, micaceous, parallel-laminated, shaly to flaky. Becomes ripple-laminated above 4.5 m with carbonaceous laminae in the lighter grey sandstone. | 12.7 | 32.5 |
| | - gradational contact - | | |
| 2 | Sandstone, light grey (w/same, light brown [5YR 5/6], moderate to dark yellowish brown [10YR 5/4 - 4/2]), coarse to gritty, laminated to very thin bedded, platy and mainly massive. Trough cross-bedded. Grit contains quartz, feldspar and abundant biotite grains. Unit fines upwards to medium sandstone. A few fine to medium sandstone interbeds up to 0.3 m thick, and thin lenses of shaly siltstone (w/light olive grey [5Y 6/1]) up to 6 cm thick. Scattered round dark yellowish orange [10YR 6/6] concretions 1 cm across. Lenses of medium to dark grey, fine to medium, parallel-laminated, massive sandstone up to 0.5 m thick, and fragments of light olive grey [5Y 5/2] to dusky yellow [5Y 6/4] coarse siltstone up to 20 cm long above 9 m. Large concretions of fine light grey sandstone (w/moderate yellowish brown [10YR 5/4] and light brown [5YR 5/6]), indistinctly laminated and massive, up to 6 m long and 2 m thick above 13.5 m. Bluff-former. | 18.0 | 19.8 |
| | Sample 25112 13.0 m Fine to medium sandstone. F1-02 | | |
| | - erosional contact - | | |

| Unit | | A | B |
|---|---|---|---|
| 1 | Medium sandstone in beds 0.8 m thick and coarse siltstone in beds 0.3 m thick, light to medium grey (w/same and light brown [5YR 5/6]), parallel- and ripple-laminated, shaly to platy and massive. Bluff-former. | 1.8 | 1.8 |
| | Sample 25111 1.3 m Medium sandstone. F1-01 | | |

Dolerite sill, 200 m thick.

WELLER COAL MEASURES (224+ m)

SECTION H4 - MOUNT FLEMING

Section continued from H5 from top of highest sill on the north-east ridge of Mt. Fleming, 2.5 km at 055° from the summit, to the summit of Mt. Fleming. Measured with staff and level by RAA, DVB 12/71.
Position of base 77° 32.6' S; 160° 11' E. Map elevation 2200 m.

| Unit | | A | B |
|---|---|---|---|
| | LASHLY FORMATION (29+ m) | | |
| | Summit of Mt. Fleming. | | |
| 11 | Sandstone, like unit 6. | 2.6 | 29.0 |
| | - erosional contact - | | |
| 10 | Sandstone, light to medium dark grey (w/same, light brown [5YR 5/6], moderate yellowish brown [10YR 5/4]), very fine, laminated, papery to flaky. Black papery lens from 0.1 to 0.2 m. Becomes finer above 1.1 m. | 1.6 | 26.4 |
| | - erosional contact - | | |
| 9 | Sandstone, like unit 6. Becomes finer as in unit 6. Scattered stem impressions up to 1 m long. | 2.1 | 24.8 |
| | Sample 25178 0.4 m Fine to medium sandstone. H4-19 | | |
| | - erosional contact - | | |
| 8 | Sandstone, like unit 6. Trough cross-bedded. Becomes finer above 1.8 m. Pebble band at 1.6 m with grey quartz, and white and grey quartzite mostly 1 to 3 cm, but up to 8 cm across. | 2.3 | 22.7 |
| | Sample 25177 2.1 m Siltstone. H4-18 | | |
| | - erosional contact - | | |
| 7 | Sandstone, like unit 6. Scattered siltstone fragments 1 to 5 cm across. Becomes finer above 0.4 m. | 1.4 | 20.4 |
| | - erosional contact - | | |
| 6 | Sandstone, light to medium grey to yellowish grey [5Y 8/1] (w/light olive grey [5Y 6/1] and light brown [5YR 6/4-5/6]), fine, parallel and ripple laminated, flaky to massive. Bed of light olive grey [5Y 5/2] siltstone fragments up to 2 cm across at 0.6 m. Common light olive grey [5Y 5/2] laminae. Becomes finer above 2 m and grades to a coarse siltstone. White roots and rootlets above 3.5 m. | 4.6 | 19.0 |
| | - erosional contact - | | |
| 5 | Very fine sandstone and siltstone, light to medium grey (w/same, light olive grey [5Y 6/1] to greenish grey [5GY 6/1]), parallel and ripple laminated, papery to slabby. Becomes massive in upper 1 m. Scattered white roots and rootlets in upper 1.5 m. | 3.2 | 14.4 |
| | - gradational contact - | | |
| 4 | Sandstone, like unit 3, but fine to medium. Lower 0.1 m contains siltstone fragments up to 15 cm, and pink, white and grey quartz pebbles 1 to 5 cm across. Lenses of white coarse to gritty sandstone in lower 1 m. Scattered round concretions moderate olive brown [5Y 4/4] to moderate reddish brown [10R 4/6] and 1 to 3 cm across. Upper surface is weathered dark reddish brown [10R 3/4] and light olive grey [5Y 5/2]. | 3.2 | 11.2 |
| | Sample 25176 2.4 m Fine sandstone. H4-17 | | |

| Unit | | A | B |
|---|---|---|---|
| | - erosional contact - | | |
| 3 | Sandstone, like unit 1. A few coaly petrified stems 1 x 10 cm and white roots. Becomes finer above 1.5 m and grades to a coarse light to medium grey siltstone. | 5.9 | 8.0 |
| | Sample 25175 5.8 m Coarse siltstone. H4-16 | | |
| 2 | Snow slope. | 1.7 | 2.1 |
| 1 | Sandstone, yellowish grey [5Y 8/1] (w/same, light brown [5YR 6/4], medium light grey, and light olive grey [5Y 6/1]), fine, laminated, flaky to slabby. | 0.4 | 0.4 |
| | LASHLY FORMATION (29+ m) | | |
| | - gradational contact over 1 m - | | |
| | FEATHER CONGLOMERATE (129 m) | | |
| | Fleming Member (42 m) | | |
| 10 | Sandstone, like unit 6, with grit and pink, white and grey quartz pebbles. Becomes finer towards the top and grades to a medium sandstone. Scattered round moderate olive brown [5Y 4/4] concretions 3 to 8 cm across. Bluff-former. | 1.5 | 129.3 |
| | - erosional contact - | | |
| 9 | Sandstone, light olive grey [5Y 6/1] (w/same to light olive grey [5Y 5/2], light brown [5YR 6/4], greyish olive [10Y 4/2]), very fine to fine, unbedded and indistinctly laminated, flaky and massive. | 2.3 | 127.8 |
| | - erosional contact - | | |
| 8 | Sandstone, like unit 6. Lens 0.1 to 0.3 m thick at base with light greenish grey [5GY 8/1] (w/light brown [5YR 6/4]) siltstone fragments 2 to 8 cm across, quartz grit and a band of grey and pink quartz pebbles. Bluff-former. | 1.2 | 125.5 |
| | - erosional contact - | | |
| 7 | Sandstone, white to yellowish grey [5Y 8/1] (w/yellowish grey and pale yellowish brown [10YR 6/2]), medium with a few coarse to gritty lenses up to 0.5 m thick, laminated to very thin bedded, slabby to massive. Trough cross-bedded. Light grey weathered non-carbonaceous laminae. Scattered light greenish grey [5GY 8/1] siltstone fragments up to 2 cm across. | 1.5 | 124.3 |
| | - gradational contact - | | |
| 6 | Sandstone, white to yellowish grey [5Y 8/1] (w/same, light brown [5YR 5/6] to moderate reddish brown [10R 4/6], moderate yellowish orange [10YR 7/6], pale yellowish brown [10YR 6/2], and light olive grey [5Y 5/2] to greyish olive [10Y 4/2] in scattered lenses), medium to gritty, indistinctly laminated, slabby to massive. Trough cross-bedded. A few pebble beds (pebbles as in unit 5), with pebbles mostly 0.5 to 1 cm, but up to 2 cm across, and less common pink quartz. Pink pebbles become common in grits above 6 m. A few horizons of scattered burrows. Occasional scattered fragments and small lenses of light greenish grey [5GY 8/1] siltstone fragments mostly 3 to 5 cm but up to 12 cm across. Lenses of sandstone, light olive grey [5Y 5/2] (w/same to greyish olive [10Y 4/2], dusky yellow [5Y 6/4] and moderate reddish brown | 35.3 | 122.8 |

| Unit | | A | B |
|---|---|---|---|
| | [10R 4/6]), very fine to fine, unbedded, massive and occasionally shaly, with gradational lower and sharp upper contacts from 7.9 to 9.4 m, 17.4 to 17.7, 21.5 to 21.6, and 28.6 to 30.3 m. Lens at 21.5 m is overlain by 0.2 m of greyish olive to reddish brown weathered ferruginous sandstone. Scattered dark grey-bordered concretionary structures up to 20 cm across. Lens of sandstone, yellowish grey [5Y 8/1] (w/same to light greenish grey [5GY 8/1] and light brown [5YR 6/4], fine, flaky to massive, from 32.9 to 34.4 m. | | |
| | Sample 25174 20.6 m Coarse sandstone. H4-15<br>25173 4.1 m Coarse sandstone. H4-14 | | |
| | Fleming Member (42 m) | | |
| | - gradational contact - | | |
| 5 | Sandstone, white (w/same, pale to dark yellowish brown [10YR 6/2-4/2], light brown [5YR 5/6], moderate yellowish orange [10YR 7/6], medium dark grey to black, light olive grey [5Y 5/2]), medium to gritty, indistinctly laminated to very thin bedded and unbedded, slabby to massive. Common beds of quartz pebbles, subangular to subrounded, white, grey and commonly pink, 1 to 3 cm across. Pebble beds from 1.3 to 4 m, and less commonly from 5 m to top of unit, have vertical burrows 1 cm across and 10 cm deep. Trough cross-bedded in places. Horizons of moderate olive brown [5Y 4/4] grains. Lens of light olive grey [5Y 6/1] shaly fine sandstone from 12.8 to 12.9 m. | 16.6 | 87.5 |
| | Sample 25172 0.4 m Gritty sandstone. H4-13 | | |
| | - gradational contact - | | |
| 4 | Sandstone, like unit 2. Black weathered grains, patches, stringers, and borders to concretionary structures. Common conglomerate bands with subangular to rounded white, grey and rare pink quartz pebbles mostly 1 to 2 cm but up to 6 cm across. Bluff-former. | 14.1 | 70.9 |
| | Sample 25171 2.1 m Coarse sandstone. H4-12 | | |
| | - erosional contact - | | |
| 3 | Sandstone, white (w/same, pale yellowish brown [10YR 6/2] and light brown [5YR 5/6]), fine to gritty, laminated, massive. Trough cross-bedded in places. Grit-sized subequal pink and white quartz. Scattered subangular to subrounded pink, white and grey quartz pebbles 1 to 2 cm across, in places concentrated in beds and forming a pebble lens from 12.5 to 13 m. Scattered lenses of light greenish grey [5G 8/1] coarse siltstone fragments mostly 2 to 5 cm but up to 15 cm across. | 19.0 | 56.8 |
| | Sample 25170 2.8 m Gritty sandstone. H4-11 | | |
| | - gradational contact - | | |
| 2 | Sandstone, yellowish grey [5Y 8/1] (w/same, light brown [5YR 5/6] to moderate reddish brown [10R 4/6], dusky yellow [5Y 6/4] to dark yellowish orange [10YR 6/6], pale yellowish brown [10YR 6/2]), medium to gritty, hard, laminated, slabby to massive. Trough cross-bedded. Greyish olive [10Y 4/2] and dark grey grains. Concretions as in unit 1. Platform at 6 m. Bluff-former - forms butte on summit ridge. | 7.5 | 37.8 |
| | Sample 25169 0.2 m Coarse sandstone. H4-10 | | |

| Unit | | A | B |
|---|---|---|---|
| | - gradational contact - | | |
| 1 | Sandstone, white (w/same, light brown [5YR 6/4] and pale yellowish brown [10YR 6/2]), fine to coarse, poorly sorted to well sorted, laminated, platy to massive. Trough cross-beds 0.1 to 0.2 m thick from 0 to 1 m, and 0.1 to 0.4 m thick from 8.5 to 10 m. A few non-concretionary lenses weather moderate greyish olive [10Y 5/2] and moderate reddish brown [10R 4/6]. Common quartz grit stringers. Scattered round concretions 1 to 2 cm across weather greyish olive [10Y 4/2]. Occasional scattered light olive grey [5Y 5/2] coarse siltstone fragments up to 10 cm across. Lenses from 3.6 to 3.7, 4.5 to 4.9 and 13.4 to 13.5 m of greenish grey [5GY 6/1] to light olive grey [5Y 5/2] (w/same and light brown [5YR 5/6]), fine to medium, laminated, massive sandstone, with some scattered grit-sized quartz grains. Lens of light olive grey [5Y 5/2] very fine shaly sandstone from 8.3 to 8.4 m. Greyish olive [10Y 4/2] grains above 15 m. No pink quartz until 21 m, where rare pink pebbles and scattered white and grey quartz pebbles appear. Lens of yellowish grey [5Y 8/1] papery to shaly very fine sandstone from 22.2 to 22.5 m. Horizon of light greenish grey [5GY 8/1] siltstone fragments 2 to 5 cm long at 26.0 m. | 30.3 | 30.3 |

Sample 25168 6.1 m Medium to gritty sandstone. H4-09

Dolerite sill, 70 m thick.

FEATHER CONGLOMERATE (129 m)

SECTION H5 - MOUNT FLEMING

Section measured along north-east ridge of Mt. Fleming. Base of section is platform about 4 m across on upper surface of fine white sandstone (Aztec Siltstone) about 30 m west of northwest-trending dyke 3.8 km at 060° from the summit, and on the north side of the ridge. Top of section is the lower contact of the sill at the ridge crest 2.6 km at 060° from the summit. Measured with staff and level by PJB, AC 12/71.
Position of base 77° 32.1' S; 160° 14' E. Map elevation 2000 m.

| Unit | | A | B |
|---|---|---|---|
| | Dolerite sill, 70 m thick, concordant. | | |
| | FEATHER CONGLOMERATE (129 m from H4) | | |
| 1 | Sandstone, very light grey (w/yellowish grey [5Y 7/2]), fine to very coarse, laminated, massive to slabby. Some coarse lenses have pale pink feldspar grains. Trough cross-beds 0.2 to 0.5 m thick. | 4.2 | 4.2 |
| | Sample 25167 0.8 m Coarse sandstone with pink feldspar. H5-21 | | |
| | 25166 0.7 m Coarse sandstone. H5-20 | | |
| | WELLER COAL MEASURES (186 m) | | |
| 28 | Scree, dolerite and sandstone. | 1.9 | 186.0 |
| 27 | Sandstone, medium grey (w/white to light grey), coarse, very thin-bedded, massive. Quartzose. | 0.7 | 184.1 |
| | - scree-covered contact - | | |
| 26 | Coal, laminated, bright. Poorly exposed under a scree of dolerite and sandstone blocks. | 7.7 | 183.4 |
| | - grades over 0.3 m through light olive grey [5Y 5/2] fine sandstone and then coaly shale - | | |
| 25 | Sandstone, white (w/same and moderate yellowish brown [10YR 5/4]), fine to coarse, laminated, massive. Trough cross-beds 0.2 to 0.5 m across. Poorly sorted with interfingering lenses of fine, medium and coarse sand. | 2.1 | 175.7 |
| | Sample 25165 0.7 m Medium sandstone. H5-19 | | |
| | - slumped contact - | | |
| 24 | Coal, laminated, bright. | 0.7 | 173.6 |
| | - slumped contact - | | |
| 23 | Siltstone and very fine sandstone, like unit 19. | 3.0 | 172.9 |
| | - sharp contact - | | |
| 22 | Coal, laminated, bright. Shaly in lower 0.2 m. | 1.6 | 169.9 |
| | - sharp contact - | | |
| 21 | Sandstone, yellowish grey [5Y 8/1] (w/same, moderate yellowish brown [10YR 5/4] and some dark yellowish orange [10YR 6/6]), medium to coarse, indistinctly bedded, massive. Scattered thin coal streaks. Mainly quartzose, but pale orange feldspar grains common. | 3.3 | 168.3 |
| | Sample 25164 1.2 m Coarse sandstone. H5-18 | | |
| | - erosional contact - | | |
| 20 | Coal, laminated, bright. | 1.1 | 165.0 |

Note: Dolerite dyke trending north and 9 m wide cuts across contact of units 19 and 20, which was seen on both sides of the dyke.

| Unit | | A | B |
|---|---|---|---|
| 19 | Siltstone and very fine sandstone, light grey to black (w/same, yellowish grey to light olive grey [5Y 7/2-5/2]), ripple-laminated, shaly to papery. | 4.2 | 163.9 |
| | - gradational contact - | | |
| 18 | Coal, laminated, bright. | 2.2 | 159.7 |
| | Sample 25163 0.3 m Coal H5-17 | | |
| | - scree-covered contact - | | |
| 17 | Siltstone, dark grey (w/medium grey and light olive grey [5Y 6/1]), laminated, shaly to papery, with abundant thin beds of fine sandstone, like the upper part of unit 16. | 2.6 | 157.5 |
| | - interfingering contact - | | |
| 16 | Sandstone, very light grey [5Y 8/1] and light brown [5YR 5/6]), fine to medium, laminated, massive. Greenish grey laminae abundant and very thin beds and lenses of pebbles common in lower 5 m. Pebbles are mostly 1 to 3 cm and up to 8 cm long though one angular block 15 cm long was noted. Very thin beds and lenses of pebbles are common in the lower 5 m and occur throughout the unit though in the upper part they occur more as thin beds 3 to 5 m apart. Pebbles are mostly white subrounded vein quartz 1 to 3 cm and up to 8 cm across, though one angular block 15 cm long was noted. Other lithologies in the lower 5 m include medium grey quartzite (8 cm), laminated white quartzite (25 cm), acid volcanics (25 cm), and dark grey argillite (6 cm). | 35.3 | 154.9 |
| | Ripple-laminated shaly carbonaceous fine sandstone from 5.7 to 7.2 m. Several lenses about 10 m long and 1 m thick of medium to dark grey shaly to platy siltstone above this. One such lens from 14.0 to 15.5 and about 200 m east of the base of the dolerite at the top of the section has abundant well-preserved Glossopteris up to 40 cm long. Another smaller Glossopteris-bearing lens 30 m east at 17 m. Several silicified stumps in situ at top of ridge. | | |
| | Sample 25162 24.7 m Fine sandstone. H5-16<br>25161 17 m Siltstone with Glossopteris. H5-15A<br>25160 14.0 m Siltstone. H5-15<br>25159 0.1 m Medium sandstone. H5-14 | | |
| | Note: Several resistant well-cemented beds run almost the length of the ridge. The section line was transposed about 500 m to the west to beneath the dolerite spur using one such bed from 11 to 12.5 m. The beds appear to converge and diverge along the ridge, but the error in thickness is probably no more than 2 or 3 m. | | |
| | - erosional contact - | | |
| 15 | Siltstone and some claystone, dark grey (w/medium to dark grey and light olive grey [5Y 6/1-5/2]), indistinctly bedded, massive to flaky. Stems common. Rare Glossopteris in upper 0.5 m. | 6.7 | 119.6 |
| | Sample 25158 6.5 m Siltstone with Glossopteris. H5-13 | | |
| | - gradational contact - | | |

| Unit | | A | B |
|---|---|---|---|
| 14 | Sandstone, medium grey (w/white to yellowish grey [5Y 7/2], light olive grey [5Y 6/1-5/2] and light brown [5YR 6/4]), fine to medium, laminated to very thin-bedded, shaly to platy. Quartzose. Abundant plant stems 1 to 5 cm across. Bedding wavy and irregular in the most carbonaceous parts. | 2.0 | 112.9 |
| | - gradational contact - | | |
| 13 | Sandstone, yellowish grey [5Y 7/2] (w/same and moderate yellowish brown [10YR 5/4]), fine to medium, unbedded, massive. Well-cemented and quartzose. | 1.1 | 110.9 |
| | - gradational contact - | | |
| 12 | Sandstone, very light grey to yellowish grey [5Y 8/1] (w/same and light brown [5YR 6/4]), medium to coarse, laminated, massive. Quartzose. Logs up to 30 cm across and coal streaks common. Trough cross-beds 0.3 to 0.6 m thick. Thin shaly carbonaceous lenses and lenses of very coarse feldspathic grit common. Some broad scours up to 20 m across and 2 m deep. Scattered well-cemented patches (w/light brown [5YR 5/6]) about 1 m thick. Bluff-former. | 11.5 | 109.8 |
| | Sample 25157 2.3 m Medium sandstone. H5-12 | | |
| | - erosional contact - | | |
| 11 | Sandstone light grey to yellowish grey [5Y 7/2] (w/same and light brown [5YR 6/4]), fine to medium, indistinctly laminated, massive. Quartzose. Abundant thin wavy coal streaks in lower 0.3 m, and scattered higher in unit. Very thin beds and scattered lenses mostly in lower 6 and upper 2 m of subrounded white quartz pebbles 1 to 3 cm long. In the lower part of the unit pebbles are up to 8 cm long and include a few light grey quartz, gneiss, and white acid volcanic pebbles. Ripple-laminated shaly carbonaceous very fine sand laminae common above 4.5 m. Lens of laminated very fine sandstone from 11 to 13 m on north face of ridge. Abundant stems, some with flared bases, up to 15 cm across, and lenses of quartz pebbles well exposed on platform at 10 m. Pebbles in upper 2 m are more concentrated and include boulders of white quartz up to 15 cm, very light grey laminated quartzite up to 25 cm, quartz muscovite schist 0.2 x 1 m, and light greenish grey acid volcanics up to 8 cm. However 90% are white vein quartz pebbles 1 to 3 cm long. Lens of coaly shaly siltstone 0.5 m thick caps unit at ridge crest but is cut out to south. | 14.2 | 98.3 |
| | Sample 25156 1.5 m Medium sandstone. H5-11 | | |
| | - erosional contact - | | |
| 10 | Siltstone and very fine sandstone, medium grey to black (w/same and light olive grey [5Y 5/2]), laminated, shaly. Coal streaks and laminae common. | 0.4 | 84.1 |
| | Sample 25155 0.3 m Coaly siltstone. H5-10 | | |
| | - gradational contact - | | |
| 9 | Sandstone, light to medium grey (w/light olive grey [5Y 6/1] and light brown [5YR 5/6]), fine, indistinctly bedded, blocky to massive. Quartz and feldspar grains up to 0.5 cm across scattered and in thin lenses. Thin ripple-laminated shaly sandstone beds every 1 to 2 m. Stems mostly 2 to 5 but up to 15 cm across and 1.2 m long | 15.2 | 83.7 |

| Unit | | A | B |
|---|---|---|---|
| | on bedding plane of fallen block. Block also shows abundant criss-crossing straight burrows 2 mm wide and 2 to 4 cm long in plane of bedding. Both stems and burrows are common on surfaces in upper part of unit. Concretionary beds (w/moderate to dark yellowish brown [10YR 5/4-4/2]) 0.1 m thick and up to 5 m long at several levels. | | |
| | Sample 25154 0.8 m Fine sandstone. H5-09 | | |
| | - gradational contact - | | |
| 8 | Sandstone, light to dark grey (w/light grey, light olive grey [5Y 6/1] and light brown [5YR 6/4]), very fine to fine, ripple-laminated, mainly shaly but locally massive. Carbonaceous siltstone laminae abundant. Coaly shale from 4.1 to 4.5 m. Vertical burrows 0.5 cm across and criss-crossing straight burrows 2 mm wide, 1 mm deep and 2 to 4 cm long, are common on, and penetrating some surfaces of, sandstone laminae. Quartz and feldspar grains up to 0.5 cm across scattered and in laminae from 7 to 8 m. Bed of medium grey (w/moderate to dark yellowish brown [10YR 5/4-4/2] limestone with thick prismatic laminae from 9.0 to 9.1 m. Mainly slope-former. | 13.5 | 68.5 |
| | Sample 25153 9.1 m Grey limestone. H5-08<br>25152 7.5 m Fine sandstone. H5-07<br>25151 Scree Sandstone with burrows. H5-06 | | |
| | - gradational contact - | | |
| 7 | Siltstone, dark grey to black (w/light to dark grey and light olive grey [5Y 5/2]), fine, laminated, papery. Coal bed from 4.0 to 4.2 m. | 5.0 | 55.0 |
| | - sharp contact - | | |
| 6 | Sandstone, medium to dark grey (w/light to dark grey, light olive grey [5Y 5/2-6/1] and dusky yellow [5Y 6/4]), very fine to fine, ripple-laminated, shaly. Dark grey siltstone laminae common. Prominent lenses and tongues of parallel-laminated yellowish grey [5Y 8/1] fine sandstone from 3.1 to 4.5, 6.6 to 7.8 and 12.9 to 13.7 m. Some include a concretionary (w/moderate yellowish brown [10YR 5/4] "core". Very thin ripple-laminated beds of similar sandstone commonly occur every 10 cm through shaly intervals. Some surfaces show vertical burrows 0.5 cm across. | 16.6 | 50.0 |
| | - gradational contact - | | |
| 5 | Sandstone, yellowish grey [5Y 8/1] (w/same, light olive grey [5Y 6/1] and light brown [5YR 6/4]), fine, parallel and ripple-laminated, massive. Intervals up to 0.5 m thick of abundant laminae and angular tabular siltstone fragments as in unit 4. Some are up to 10 cm thick and 1.5 m long and have been slightly plastically deformed. | 8.6 | 33.4 |
| | - gradational contact - | | |
| 4 | Sandstone, yellowish grey [5Y 8/1] (w/same, light brown [5YR 6/4] and dark reddish brown [10R 4/2]), medium, indistinctly laminated, massive. Thin lenticular fragments of light to medium grey (w/light olive grey [5Y 5/2]) siltstone, mostly 1 to 2 cm across, scattered and in thin beds. Upper m is concretionary (w/moderate yellowish brown [10YR 5/4]) and caps bluffs. | 3.5 | 24.8 |
| | Sample 25150 1.6 m Medium sandstone. H5-05 | | |
| | - scree-covered contact - | | |

| Unit | | A | B |
|---|---|---|---|
| 3 | Siltstone, dark grey to black (w/same and olive grey [5Y 3/2]), laminated, papery. | 2.3 | 21.3 |
| | - sharp contact - | | |
| 2 | Sandstone, light to medium grey (w/white to yellowish grey [5Y 8/1], dark yellowish orange [10YR 6/6] and light brown [5YR 6/4]), medium to coarse, laminated to unbedded, massive. White feldspar common. Trough cross-beds 0.2 to 0.5 m thick. Some thin lenses of very coarse and gritty quartzofeldspathic sandstone and carbonaceous shaly siltstone. Beds of carbonaceous, slightly micaceous shaly fine sandstone from 8.7 to 9.4 and 12.8 to 13.2 m. Slope-former. | 16.2 | 19.0 |
| | Sample 25149 16.0 m Very coarse sandstone. H5-04<br>25148 3.8 m Coarse sandstone. H5-03 | | |
| 1 | Scree, covered with sandstone blocks. Carbonaceous shaly siltstone shows through in several places. | 2.8 | 2.8 |
| | WELLER COAL MEASURES (186 m) | | |
| | - scree-covered contact - | | |
| | METSCHEL TILLITE (0-7 m) | | |
| 1 | Sandstone, (tillite), light to medium grey (w/same and light olive grey [5Y 6/1-5/2]), fine and poorly sorted, unbedded, massive. Scattered clasts mainly of weathered granite mostly 10 but up to 15 cm across. Also quartzose sandstone 5 cm across and vein quartz up to 2 cm across. Poorly exposed in patches through scree. | 6.6 | 6.6 |
| | Sample 25147 3.3 m Tillite. H5-02 | | |
| | - scree-covered contact, but upper surface of sandstone has subcircular patches about 10 cm across of either weathered granite or grit - | | |
| | AZTEC SILTSTONE (114 m from H6) | | |
| 1 | Sandstone, yellowish grey [5Y 8/1] (w/same and white), fine, unbedded, quartzose. | 0.1 | 0.1 |
| | Sample 25145 0.1 m Fine sandstone. H5-01 | | |

Note: Section through Aztec Siltstone ends at this level about 50 m to east.

Note: On the southeast side of the ridge just above a thin dolerite sill forming an extensive platform, sandy tillite with scattered, mainly granitic, clasts up to 15 cm across overlies from 0. to 4 m of white quartzose fine sandstone (Aztec Siltstone). The contact is scree-covered. The tillite at the southern end of the exposure consists of two beds - a lower dusky yellow to light olive grey-weathering bed 3 m thick, and a light grey bed 1 m thick. The latter grades up over 30 cm into dark grey to black shaly sandy siltstone with Glossopteris and Gangamopteris leaves (Sample H5-02A - 25146). The siltstone is overlain by coarse feldspathic sandstone as in the nearby measured section (H5).

SECTION H6 - MOUNT FLEMING

Section measured up north-facing slope near end of east ridge of Mt. Fleming. Base is part way up slope at west end of contact with dolerite sheet where it disappears into scree, about 100 m west of where it becomes a north-south-trending dyke 4.2 km at 055° from summit. Section measured along strike, but beds dip west-northwest at about 6°. Measured with staff and level by PJB, AJC 12/71.
Position of base 77° 32.0' S; 160° 14' E. Map elevation 1900 m.

| Unit | | A | B |
|---|---|---|---|
| | - erosion surface (Pyramid Erosion Surface) overlain by quartzofeldspathic coarse sandstone with pebbles, mainly white vein quartz up to 8 cm long (Weller Coal Measures) - | | |
| | Note: Top of H6 is about 60 m east of the base of H5. | | |
| | AZTEC SILTSTONE (114 m) | | |
| 23 | Sandstone, yellowish grey [5Y 8/1] (w/same), fine, laminated, massive to flaggy. Quartzose, friable, trough cross-bedded. | 1.7 | 114.2 |
| | - slumped contact - | | |
| 22 | Sandstone, yellowish grey [5Y 7/2] (w/same, white and light brown [5Y 5/6]), fine, thin-bedded, platy. Quartzose. Several surfaces with linguoid ripples 10 cm across. | 2.7 | 112.5 |
| | - scree-covered contact - | | |
| 21 | Claystone, greenish grey [5GY 6/1] (w/same), flaky to papery. Poorly exposed in scree. | 2.8 | 109.8 |
| | - grades through a m of greenish grey fine sandstone and siltstone - | | |
| 20 | Sandstone, white (w/same, yellowish grey [5Y 8/1-7/2], light brown [5Y 6/4], moderate reddish brown [10R 4/6] and moderate yellowish brown [10YR 5/4]), fine to medium, thin-bedded, massive to platy. Very quartzose. Lenticular greenish grey siltstone fragments up to 8 cm long scattered and in lenses. Trough cross-beds 0.3 to 0.5 m thick. Bluff-former. | 22.5 | 107.0 |
| | Sample 25144 20.5 m Fine sandstone. H6-08<br>25143 0.1 m Medium sandstone. H6-07 | | |
| | - erosional contact with 20 cm of irregular local relief - | | |
| 19 | Sandstone and siltstone, very light grey and light greenish grey [5GY 8/1] (w/same and greenish grey [5GY 6/1]), fine, thin-bedded and unbedded, massive to platy. Sand-filled mudcracks 3 cm thick common. Siltstone is very sandy. | 1.9 | 84.5 |
| | Sample 25142 1.0 m Sandstone from mudcrack. H6-06 | | |
| 18 | Scree, with papery dark grey shale showing through lower part. Line of blocks of ripple-laminated fine yellowish grey [5Y 7/2] sandstone at 8 m. Light to dark grey (w/greenish grey) shaly to flaky siltstone with fish plates and scales shows through from 8 to 10 m. From 10 to 13 m greyish red [5Y 4/2] papery claystone shows through. Above 13 m the sandstone blocks cover mainly greenish grey flaky siltstone. | 19.9 | 82.6 |

| Unit | | A | B |
|---|---|---|---|
| 17 | Siltstone, medium to dark grey (w/light olive grey [5Y 6/1-5/2]), coarse, laminated, shaly to flaggy. Weathers to thin flags up to 0.5 m across.<br><br>Note: Section line offset about 150 m to the east along the platform. | 0.5 | 62.2 |
| | - gradational contact - | | |
| 16 | Sandstone, white to yellowish grey [5Y 8/1] (w/yellowish grey [5Y 7/2], light brown [5Y 6/4], moderate reddish brown [10R 4/6] and moderate yellowish brown [10YR 5/4]), fine to medium, laminated, massive to slabby. Very quartzose. Trough cross-beds 0.2 to 0.5 m thick. Upper m is fine, flaggy, and has many mudcracked surfaces and some ripple marks (λ 2 to 4 cm; h 0.5 cm). Bluff-former. | 5.0 | 62.2 |
| | - erosional contact - | | |
| 15 | Siltstone, greenish grey [5G 6/1] (w/greenish grey [5GY 6/1]), coarse, unbedded, massive to flaky. Poorly exposed in scree in lower 1.5 m. Upper part has scattered irregular yellowish grey [5Y 7/2] nodules up to 2 cm across and subvertical tube structures 0.5 to 1 cm across. | 2.8 | 57.2 |
| | - scree-covered contact - | | |
| 14 | Sandstone, yellowish grey [5Y 7/2] (w/same, very light grey and light brown [5YR 5/6]), fine, laminated to very thin-bedded, massive to flaggy. Very quartzose. Trough cross-beds 0.3 to 0.5 m thick. Lower 0.9 m forms bluffs, upper part slopes.<br><br>Sample 25141 0.8 m Fine sandstone. H6-05 | 1.8 | 54.4 |
| | - sharp contact under ledge - | | |
| 13 | Scree. Lower part underlain by dark grey to olive black [5Y 2/1] papery claystone. Upper 3 m has scattered slabs of light greenish grey and greenish grey [5GY 8/1-6/1] platy siltstone with mudcracks and abundant fish plates. | 11.6 | 52.6 |
| 12 | Sandstone, yellowish grey [5Y 8/1] (w/same, moderate reddish brown [10R 4/6] and blackish red [5R 2/2]), fine, laminated, platy. Ripple-laminated shaly fine beds in lower 0.6 m. Prominent ledge-former.<br><br>Sample 25140 0.2 m Fine sandstone. H6-04 | 1.5 | 41.0 |
| | - gradational contact - | | |
| 11 | Sandstone, yellowish grey [5Y 7/2] (w/same, greenish grey [5GY 6/1] and moderate yellowish brown [10YR 5/4]), fine, indistinctly laminated to unbedded, massive to platy. Irregular tubes, flecks and yellowish-grey-weathering nodules up to 2 cm across.<br><br>Sample 25139 1.3 m Nodular sandstone. H6-03 | 1.6 | 39.5 |
| | - gradational contact - | | |
| 10 | Scree. | 1.5 | 37.9 |
| 9 | Sandstone, like unit 7, but with better-developed tubes (clearly root structures from their irregular downward-branching character). | 0.5 | 36.4 |
| | - sharp contact - | | |

| Unit | | A | B |
|---|---|---|---|
| 8 | Siltstone, greenish grey [5GY 6/1] (w/same), fine, unbedded, shaly. Becomes irregular-weathering and "stalagmitic" in upper 0.2 m. | 0.5 | 35.9 |
| | - gradational contact - | | |
| 7 | Sandstone, yellowish grey [5Y 7/2] (w/same and moderate yellowish brown [10YR 5/4]), very fine, unbedded, massive. Very irregular subvertical tubes 0.2 to 1 cm across, and some thinner interconnecting horizontal tubes. | 0.3 | 35.4 |
| 6 | Scree, with a little shaly to papery light greenish grey [5GY 8/1] (w/greenish grey [5GY 6/1]), very fine sandstone and siltstone showing through. | 18.0 | 35.1 |
| 5 | Sandstone, like unit 2, but coarse and trough cross-bedded at base grading up to very fine and ripple-laminated at 5.2 m where it is cut by a broad scour surface. This is overlain by a medium sandstone with equant greenish grey-weathering siltstone fragments up to 20 cm across at base. A few thin lenses of white quartz grit and pebbles up to 1 cm long. | 9.0 | 17.1 |
| | Sample 25138 0.1 m Medium sandstone. H6-02 | | |
| | - erosional contact - | | |
| 4 | Siltstone and fine sandstone light to medium grey (w/light greenish grey and greenish grey [5GY 8/1-6/1]), laminated, shaly to massive. A few subvertical branching medium grey tubes 0.5 to 1 cm across (roots). Upper 0.1 m is medium grey (w/greenish grey) papery claystone. | 0.7 | 8.1 |
| | - gradational contact - | | |
| 3 | Sandstone, white (w/same, light brown [5YR 6/4], moderate reddish brown [10R 4/6] and yellowish grey [5Y 7/2]), medium to fine, indistinctly bedded, massive. Well sorted and quartzose. A few thin greenish grey siltstone beds. | 3.2 | 7.4 |
| | - erosional contact - | | |
| 2 | Sandstone, light greenish grey and greenish grey (w/same), fine and poorly sorted, unbedded, massive. Subvertical network of veins up to 5 cm across and 10 to 20 cm apart are more sandy and lighter-coloured than the inter-vein material. | 1.0 | 4.2 |
| | - scree-covered contact - | | |
| 1 | Siltstone, medium grey (w/same and greenish grey [5GY 6/1]), fine, laminated, papery. Poorly exposed under scree. | 3.2 | 3.2 |
| | AZTEC SILTSTONE (114 m) | | |
| | - scree-covered contact - | | |
| | BEACON HEIGHTS ORTHOQUARTZITE (10+ m) | | |
| 1 | Sandstone, white (w/same, yellowish grey [5Y 7/2], light brown [5YR 6/4], and moderate reddish brown [10R 4/6]), mediu, unbedded, massive. Well-sorted and quartzose. Some trough cross-bedding. A few quartz pebbles up to 1 cm across. Poorly cemented but locally bluff-former. | 10.1 | 10.1 |
| | Sample 25137 1.2 m Medium sandstone. H6-01 | | |
| | Dolerite sheet. | | |

SECTION S3 - SHAPELESS MOUNTAIN

Base of section beneath sandstone bluffs at westernmost extremity of Shapeless Mountain 3.3 km at 275° from the summit. Measured with staff and level by PJB, DVB 11/71.
Position of base 77° 25.5' S; 160° 16' E. Map elevation 2500 m.

| Unit | | A | B |
|---|---|---|---|
| | LASHLY FORMATION (51+m) | | |
| | Top of bluff. Sequence dips to 265° at 10°. | | |
| 5 | Sandstone, very light grey (w/same, light brown [5YR 5/6] and moderate reddish brown [10R 4/6]), fine to medium, laminated to thick-bedded, massive. Scattered light grey (w/light olive grey [5Y 6/1] siltstone fragments mostly 1 to 3 but up to 50 cm long from 1.7 to 2.2 m. Similar fragments 1 to 4 cm long from 10.6 to 12.6 m, where the sandstone is slightly coarser and overlies an erosion surface. Asymmetrical ripples (λ 5 cm; h 0.2 cm) at 10 m. Planar cross-beds from 14 to 19 m. This interval also includes a few brownish black [5YR 2/1] spheroidal concretionary structures 5 cm across. Lens of light grey siltstone from 35.3 to 35.6 m. Unit is mainly a bluff-former, but is flaggy and ledge forming from 8.7 to 10 m, and forms slopes from 10 to 19 m, 21 to 25 m and 35 to 37 m. | 37.3 | 50.7 |
| | Sample 25201 36.2 m Fine sandstone. S3-07<br>25200 35.6 m Siltstone. S3-06<br>25199 19.1 m Medium sandstone. S3-05<br>25198 0.1 m Medium sandstone. S3-04 | | |
| | - erosional contact with 15 cm of local relief - | | |
| 4 | Coal, laminated, bright. | 0.2 | 13.4 |
| | Sample 25197 0.2 m Coal. S3-03 | | |
| | - sharp contact - | | |
| 3 | Siltstone, medium to dark grey (w/same and light olive grey [5Y 6/1]), finely laminated to thin-bedded, shaly to flaky. Some ripple-lamination. Roots and stems in upper 0.3 m. | 0.9 | 13.2 |
| | Sample 25196 0.6 m Siltstone. S3-02 | | |
| 2 | Snow and scree, with large sandstone blocks. Shaly carbonaceous siltstone exposed at 1 and 1.8 m. | 1.8 | 12.3 |
| 1 | Sandstone, very light grey (w/same and light brown [5YR 5/6]), fine to medium, laminated, shaly to slabby. Abundant ripple lamination. Carbonaceous laminae common in thin beds every 0.3 to 1 m. White vein quartz pebbles 1 cm across at 8 m. Mainly slope-former, but there are bluffs from 7 to 9 m. | 10.5 | 10.5 |
| | Sample 25195 1.0 m Fine sandstone. S3-01 | | |
| | Snow. | | |

SECTION S4 - SHAPELESS MOUNTAIN

Section measured westward from base of sandstone bluff near northeast end of Windscoop below long southwest-trending ridge 1.7 km at 265° from summit of Shapeless Mountain. Section line transposed 500 m to northwest at top of unit 7 (top of ridge). Section ends 2.7 km at 270° from summit. Measured with staff and level by RAA, PJB, DVB 11/71.
Position of base 77° 25.6' S; 160° 20' E. Map elevation 2600 m.

| Unit | | A | B |
|---|---|---|---|
| | MAWSON FORMATION | | |
| | Massive poorly sorted light grey (w/same and light brown [5YR 6/4] breccia with subrounded very fine clasts up to 8 cm across about 1 m thick forms top of section and is in sharp undulating contact with overlying dolerite a few metres thick. A chaotic area of volcanic breccia and sediment blocks has replaced younger Beacon strata above the dolerite and further northwest. | | |
| | Sample 25252 1.8 m above contact Dolerite. S4-21<br>25251 At contact Dolerite. S4-20<br>25250 Breccia. S4-19 | | |
| | LASHLY FORMATION (161 + m) | | |
| 14 | Siltstone and very fine sandstone, like unit 10. | 5.9 | 161.2 |
| | - gradational contact - | | |
| 13 | Sandstone, very light grey and greyish orange [10YR 7/4] (w/same), fine, ripple-laminated, shaly to flaggy. Locally spheroidal nodules less than 1 cm across. | 5.3 | 155.3 |
| | Sample 25249 1.3 m Fine sandstone. S4-18 | | |
| | - gradational contact - | | |
| 12 | Siltstone and very fine sandstone, like unit 10. Siltstone contains calamitid stems, Dicroidium, and other fern-like plants. Unit becomes finer-grained above 6 m. | 8.6 | 150.0 |
| | Sample 25248 2.0 m Siltstone with plants. S4-17 | | |
| | - gradational contact - | | |
| 11 | Sandstone, yellowish grey [5Y 7/2] (w/same and light brown [5YR 6/4]), fine with slightly coarser laminae, laminated to thin-bedded, shaly to platy. Ripple lamination and small-scale cross-bedding. Convolute bedding from 0.5 to 0.7 m. | 1.6 | 141.4 |
| | Sample 25247 Base. Fine sandstone. S4-16 | | |
| | - sharp contact - | | |
| 10 | Siltstone and very fine sandstone, light to medium grey (w/light grey and light brown [5YR 6/4]), laminated to thin-bedded, flaggy to slabby. Ripple marks (λ 8 cm; h 1 cm) strike at 30°. Unit poorly exposed and forms slopes. Coal from 6.0 to 6.1 m. | 11.6 | 139.8 |
| | Sample 25246 6.0 m Coal. S4-15 | | |
| | - gradational contact - | | |
| 9 | Sandstone, light grey (w/moderate to dark reddish brown [10R 4/6-3/4] and light olive grey [5Y 5/2]). | 0.4 | 128.2 |
| | - gradational contact - | | |

| Unit | | A | B |
|---|---|---|---|
| 8 | Siltstone, medium to dark grey (w/light to medium grey), fine and clayey, laminated, shaly to flaky. Vertical sand-filled tubes 4 to 12 mm across but different from those in units 4 and 6. | 2.3 | 127.8 |

- scree-covered contact -

Note: Section line transposed at top of unit 7 500 m northwest from top of ridge.

| | | | |
|---|---|---|---|
| 7 | Sandstone, yellowish grey [5Y 7/2] (w/same and light brown [5YR 6/4]), medium thick- to very thick-bedded, massive. Lower 2 m has blocks of medium grey (w/greenish grey [5GY 6/1]) siltstone up to 60 cm across. Pebble lens up to 40 cm thick at base of unit at east end of bluff has subrounded to rounded pebbles up to 20 cm across, mainly of white vein quartz but also with quartz-mica schist (20 percent) and rare granite and garnet pegmatite. A pebble bed at 9.0 m has white quartz with less common quartz mica schist and pink quartz pebbles mostly 1 to 5 cm across. Another pebble bed from 12.3 to 12.5 m also has mostly white vein quartz with minor grey quartzite, mica schist, pink quartz and light grey acid volcanic pebbles mostly 0.2 to 2 cm but up to 5 cm. Associated light greenish grey siltstone fragments from 3 to 30 cm across.<br><br>Scattered ferruginous concretions 0.5 to 1 m across in lower 4.5 m of unit. Cross-bedding evident above 11 m. Carbonaceous laminae common above 12 m. Unit forms prominent southeast-facing bluffs at top of ridge, and extensive dip slope is developed at top of unit. Upper 2 m has large and small scale trough cross-bedding, and slumped foresets are common, to northwest, where section is continued. | 17.0 | 125.5 |

| | | | |
|---|---|---|---|
| Sample 25245 | 16 m | Fine to medium sandstone. | S4-14 |
| 25244 | 3.6 m | Sandstone. | S4-13 |
| 25243 | Base | Conglomerate. | S4-12 |

- scree-covered contact -

Note: Section line transposed 150 m southwest to foot of sandstone bluffs.

| | | | |
|---|---|---|---|
| 6 | Siltstone, light to medium grey (w/same or lighter and light brown [5YR 6/4]), laminated, platy to slabby. Beds of calamitid stems and scattered root tubes. Lens of laminated sandstone from 6.8 to 8.1 m. Shaly coal from 10.3 to 10.5 m. | 11.2 | 108.5 |

| | | | |
|---|---|---|---|
| Sample 25242 | 10.4 m | Coal. | S4-11 |
| 25241 | 4.8 m | Calamitid stems. | S4-10 |
| 25240 | 1.5 m | Carbonaceous siltstone. | S4-09 |

- sharp contact -

| | | | |
|---|---|---|---|
| 5 | Sandstone, yellowish grey [5Y 8/1] (w/same and light brown [5YR 6/4]) fine to medium, laminated to thick-bedded, massive. Carbonaceous laminae common in lower 2 m. Coal streaks up to 5 cm across scattered throughout. Lenses of light greenish grey siltstone fragments 1 cm long and coal streaks 6 cm long from 5.5 to 7.6 m and from 9.5 to 10.5 m. Similar lenses with siltstone fragments up to 5 cm across from 14.2 to 14.7 and up to 10 cm across from 18.0 to 18.7 m. Ferruginous concretions 5 cm thick and 30 cm across at 11 m. Some carbonaceous laminae. | 20.5 | 97.3 |

| Unit | | A | B |
|---|---|---|---|
| | Unit grades upwards at 15 m from massive to parallel and ripple-laminated shaly to platy sandstone with scattered light greenish grey siltstone fragments up to 30 cm across, and greenish weathering ferruginous stringers. | | |
| | Sample 25239 20.4 m Fine to medium sandstone. S4-08<br>25238 2.5 m Fine to medium sandstone. S4-07 | | |
| | - snow-covered contact - | | |
| 4 | Siltstone, medium grey (w/light grey), laminated, flaky. Rare thin beds and laminae of fine sandstone in lower few m. Plant remains including calamitid stems, ginkos, Dicroidium stems up to 30 cm across and seeds in lower part of unit. Plants excellently preserved on north side of saddle in ridge (S4-05A). Stems up to 3 cm across and vertical root tubes 1 cm across at 6 m. Roots common above this. | 11.0 | 76.8 |
| | Sample 25237 6.0 m Light grey siltstone. S4-06<br>25236 Well-preserved ginkos, Dicroidium. S4-05A<br>25235 0.6 m Light grey siltstone S4-05 | | |
| | - gradational contact - | | |
| 3 | Sandstone, yellowish grey [5Y 7/2] (w/moderate yellowish brown [10YR 5/4] and light brown [5YR 6/4]), medium, laminated to thin-bedded, massive to platy. Parallel and trough cross-bedded. Bluff-former. | 4.0 | 65.8 |
| | Sample 25234 1 m Medium sandstone. S4-04 | | |
| | - gradational contact - | | |
| 2 | Sandstone, yellowish grey [5Y 7/2] (w/same and light brown [5YR 6/4], medium, laminated to thin-bedded, massive. Trough cross-bedding. Greenish grey siltstone fragments and a few rounded white quartz pebbles in lenses up to 10 cm thick at base of unit. Gritty lenses higher up. | 6.0 | 61.8 |
| | - erosion surface - | | |
| 1 | Sandstone, yellowish grey [5Y 7/2] (w/same and light brown [5YR 6/4], fine to medium, laminated to very thin-bedded, massive but locally flaggy. Coal streaks up to 5 cm thick and from 1.5 to 2 m long in lower 5 m. Unit mainly indistinctly parallel-bedded, but some trough cross-bedding. Scour channels, and coal streaks mostly 3 cm but up to 40 cm long, and siltstone fragments up to 10 cm long, from 10 to 13 m. Dusky yellow green [5GY 5/2] (w/moderate reddish brown [10R 4/6]) ferruginous discoidal concretions from 11 to 11.2 m and from 31.1 to 31.5. Coal streaks up to 10 cm across, associated with channelling, occur from 17.8 to 18.5, 31.1 to 31.8 and 34.7 to 40.2 m. Thin beds of coarse quartzose sand and grit in upper 20 m. Unit bluff-former in lower part, but forms steep slopes on upper part. | 55.8 | 55.8 |
| | Sample 25233 40.2 m Medium sandstone. S4-03<br>25232 23.2 m Fine to medium sandstone. S4-02<br>25231 5.0 m Fine to medium sandstone. S4-01 | | |
| | Blue ice and snow at base of prominent bluff. | | |
| | LASHLY FORMATION (161+ m). | | |

SECTION S5 - SHAPELESS MOUNTAIN

Section measured from end of spur along ridge that runs southwest from summit of Shapeless Mountain. Base of section is 1.9 km at 215° from summit. Measured with staff and level by PJB, DVB 11/71.
Position of base 77° 26.5'S; 160° 22' E. Map elevation 2400 m.

| Unit | | A | B |
|---|---|---|---|
| | Snow-capped ridge crest. | | |
| | Dolerite sill 3+ m thick. | | |
| | Sample 25271 1 m Dolerite. S5-19 | | |
| | MAWSON FORMATION (116+ m) | | |
| 6 | Breccia, yellowish grey [5Y 7/2] (w/same, light grey and light brown [5YR 6/4]), poorly sorted with clasts mostly 2 to 5 cm across, unbedded, massive. Dolerite dyke 6 m thick cuts unit on ridge at 16 m. Dolerite tongues at 28 and 33 m are 1 m thick. | 38.5 | 116.4 |
| | Sample 25270 38 m Breccia. S5-18<br>25269 21 m Breccia. S5-17<br>25268 0.7 m Breccia. S5-16 | | |
| | Dolerite dyke, 28 m thick. | | |
| 5 | Breccia, like unit 4, with common fine-grained dolerite clasts mostly 10 to 20 cm but up to 70 cm across. | 26.5 | 77.9 |
| | Sample 25267 19.7 m Breccia. S5-15 | | |
| | Dolerite dike 16 to 22 m thick, with breccia inclusions. | | |
| 4 | Breccia, yellowish grey [5Y 7/2] and light grey (w/same and light brown [5YR 6/4]), poorly sorted with clasts mostly 2 to 5 cm across, unbedded, massive. | 1.5 | 51.4 |
| | - gradational contact - | | |
| 3 | Doleritic basalt, amygdaloidal, apparently concordant, medium-grained, with glassy green crystals (?olivine) scattered through upper part. | 22.5 | 49.9 |
| | Sample 25266 20 m Doleritic basalt with green mineral. S5-14 | | |
| 2 | Basalt, fine-grained and apparently concordant in lower m. Above this basalt forms amygdaloidal subcircular bodies about 1 m across in a matrix of fine-grained breccia. | 16.6 | 27.4 |
| | Sample 25265 3 m Margin of subcircular body (?pillow) S5-13<br>25264 Base Fine-grained ?basalt. S5-12 | | |
| | - sharp bulbous contact - | | |
| 1 | Breccia, yellowish grey [5Y 7/2] (w/same, light to medium grey and light brown [5YR 6/4]), entirely of very fine-grained sandstone or coarse siltstone matrix with evenly scattered fragments mostly 1 to 2 but up to 5 cm across. Mainly unbedded and massive, but laminated near base. | 10.8 | 10.8 |
| | Sample 25263 10 m Very fine sandstone breccia. S5-11<br>25262 Base Fine sandstone S5-10 | | |
| | - erosion surface - | | |

| Unit | LASHLY FORMATION (43m). | A | B |
|---|---|---|---|
| 8 | Sandstone, yellowish grey [5Y 7/2] (w/same and light brown [5YR 6/4]), fine to medium, laminated to thin-bedded, flaggy to massive. Trough cross-bedding 0.2 to 0.4 m thick. Some siltstone fragments. Bluff-former. | 9.0 | 43.0 |
| | Sample 25261 Base Medium sandstone. S5-09 | | |
| | - gradational contact - | | |
| 7 | Sandstone, greyish orange [10YR 7/4] (w/same and light grey), fine to medium, very thick-bedded, massive. Lower 0.2 m has fragments of unit 6 and coarse sandstone lenses with garnet(?) grains. Mainly parallel bedding with indistinct cross-bedding above 5 m. Slope-former. | 9.6 | 34.0 |
| | Sample 25260 0.2 m Coarse sandstone. S5-08 | | |
| | - erosion surface - | | |
| 6 | Sandstone, greyish orange [10YR 7/4] (same, light grey and medium grey) very fine, very thick-bedded, massive. Slope-former. | 1.5 | 24.4 |
| | Sample 25259 1.5 m Very fine sandstone. S5-07 | | |
| | - gradational contact - | | |
| 5 | Sandstone, yellowish grey [5Y 7/2] (w/same and light brown [5YR 5/6]), fine, unbedded, massive. Bluff-former with vertical faces weathered out into vertical "blades" several cm wide. | 1.5 | 22.9 |
| | Sample 25258 0.6 m Fine sandstone. S5-06 | | |
| | - gradational contact - | | |
| 4 | Siltstone, like unit 1. | 2.5 | 21.4 |
| | - sharp contact - | | |
| 3 | Sandstone and minor siltstone, yellowish grey [5Y 7/2] (w/same and light brown [5YR 5/6], but more brown than unit 2), fine to very fine, laminated to thin-bedded, platy to massive. Ripple lamination and convolute bedding. | 2.7 | 18.9 |
| | Sample 25257 1.5 m Fine sandstone. S5-05 | | |
| | - gradational contact over several cm - | | |
| 2 | Siltstone and very fine sandstone, light grey (w/same, yellowish grey [5Y 7/2] and a little light brown [5YR 6/4 - 5/6]), laminated to thin-bedded, massive. Convolutions in lower m. Prominent sandstone bed from 1.9 to 2.6 m. Upper m has subvertical veins and scattered nodules, and upper 20 cm has abundant straight vertical tubes 1 to 2 mm across with horizontal branches. Slope-former. | 4.0 | 16.2 |
| | - gradational contact over 6 cm - | | |
| 1 | Siltstone, light grey (w/same and yellowish grey [5Y 7/2]), indistinctly laminated or unbedded, massive. Lower 2 m poorly exposed as rubble in the snow. Bluff-forming ripple-laminated fine to medium sandstone with siltstone interbeds from 7.5 to 8.3 m. Upper 1.5 m has white subvertical veins up to 3 mm wide and upper 0.5 m has carbonaceous material and scattered coal streaks. Nodules 3 to 10 cm across are associated with the veining. Surface covered with flutes 1 to 5 cm wide and 10 to 20 cm long separated by sharp ridges. Elongation and closure indicate current (Wind) flow to the east. Slope-former. | 12.2 | 12.1 |

| Unit | | | | A | B |
|---|---|---|---|---|---|
| Sample | 25256 | 12.1 m | Siltstone. | S5-04 | |
| | 25255 | 11.6 m | Nodule. | S5-03 | |
| | 25254 | 7.8 m | Fine sandstone. | S5-02 | |
| | 25253 | 6.0 m | Siltstone. | S5-01 | |

Snow

LASHLY FORMATION (43 m)

SECTION S8 - SHAPELESS MOUNTAIN

Section measured from east to west up slope from upper contact of sill in floor of valley 3.8 km at 68° from the summit of Shapeless Mountain. Section dips at 11° to 320°. Measured by eyeheights by PJB, ANC 11/71. Position of base 77° 24.3' S; 160° 26' E. Map elevation 2300 m.

| Unit | | A | B |
|---|---|---|---|
| | Dolerite dyke at crest of ridge strikes at 120°, and cross-cuts to south to include another 15 m of finer massive ripple-laminated sandstone. Overlying sandstone west of the dyke has logs 0.4 m across and 3 m long, and trough crossbeds. Scree slope further west separates section from bluffs of coarse quartzose sandstone (Feather Conglomerate). | | |
| | WELLER COAL MEASURES (65+ m). | | |
| 6 | Sandstone, like unit 4. Trough cross-beds 0.2 to 1 m thick. Finer and ripple-laminated from 14 to 16 m. | 26.1 | 65.0 |
| | Sample 25277 24.4 m Fine sandstone. S8-06<br>25276 0.3 m Fine to medium sandstone. S8-05 | | |
| | - erosional contact - | | |
| 5 | Sandstone, like unit 2. | 3.3 | 38.9 |
| | - erosional contact with 1 m of undulating relief - | | |
| 4 | Sandstone, yellowish grey [5Y 7/2] (w/same and light brown [5YR 6/4]), fine to medium, laminated massive. Thin beds of carbonaceous laminae every 2 or 3 m. Coal streaks and mats up to 0.5 m long in lower 0.4 m. Lens of medium grey (w/very light grey and yellowish grey [5Y 8/1]) siltstone and very fine sandstone fragments mostly 5 to 10 cm but up to 40 cm long from 2 to 2.5 m. Trough cross-beds 1 m thick. | 17.4 | 35.6 |
| | Sample 25275 1.5 m Fine sandstone. S8-04 | | |
| | - erosional contact - | | |
| 3 | Siltstone, medium grey (w/same and light olive grey [5Y 6/1]), unbedded, massive. Scattered dark grey rootlets, and rare stems and "leaves". | 1.6 | 18.2 |
| | Sample 25274 0.2 m Siltstone with "leaves". S8-03 | | |
| | - gradational contact - | | |
| 2 | Sandstone, medium grey (w/light grey and light brown [5YR 6/4]), very fine, laminated, shaly to flaggy. Abundant ripple lamination. A few vertical and horizontal burrows in upper m. Abundant carbonaceous laminae. | 5.4 | 16.6 |
| | - scree-covered contact - | | |
| 1 | Sandstone and siltstone, light and medium grey (w/yellowish grey [5Y 7/2] and light brown [5YR 6/4]), fine to very fine, laminated to thin-bedded, shaly or flaggy to platy. Well developed ripples ( 6 cm; h 0.5 cm) at 2 m. Abundant ripple lamination and thin carbonaceous laminae. Plant stems 2 to 3 cm wide at 9 m. Bed of bright laminated coal 30 cm thick at 10 m. Vertical burrows 1 cm across and 5 cm deep abundant in upper 0.5 m, which is exposed over a large platform. | 11.2 | 11.2 |
| | Sample 25273 10.0 m Coal. S8-02<br>25272 1.0 m Fine sandstone. S8-01 | | |
| | Dolerite sill, irregular, about 30 m above valley floor. | | |
| | Sample 25278 Silicified wood from outcrop on ridge 300 m south-east of base of section. S8-00 | | |

SECTION S9 - SHAPELESS MOUNTAIN

Base of section is at west end of amphitheatre on north side of Shapeless Mountain at lowest part of basin 2.5 km at 15° from the summit. Section line runs northwest to top of unit 4 of Weller Coal Measures. Section was then transposed 400 m south-southwest to near the foot of the north-northwest ridge of Shapeless Mountain. Top of section is dolerite platform 1.3 km at 10° from the summit. Measured with staff and level by RAA, PJB 11/71.
Position of base 77° 25.4'S; 160° 25.5'E. Map elevation 2600 m.

| Unit | | A | B |
|---|---|---|---|
| | Dolerite sill, 15+ m thick, forms northwest dipping platform. | | |
| | FEATHER CONGLOMERATE (141+ m). | | |
| | Fleming Member (48+ m). | | |
| 10 | Sandstone, white (w/same, light brown [5YR 5/6], moderate reddish brown [10R 4/6] and moderate yellowish brown [10YR 5/4], but olive black [5Y 2/1] in lower 3 cm), coarse, indistinctly thin-bedded, mainly massive but some flaggy beds. Beds up to 3.2 m have scattered pink quartz pebbles up to 1 cm across, and light greenish grey [5GY 8/1] siltstone fragments. Above this dusky yellowish green [5GY 5/2] grains are common in the sandstone. | 9.8 | 141.3 |
| | Sample 25313 — Fine conglomerate. S9-33<br>25312 4.7 m Coarse sandstone. S9-32<br>25311 Base Sandstone with olive black material. S9-31 | | |
| | - erosion surface - | | |
| 9 | Sandstone, white (w/same and light brown [5YR 6/4], moderate yellow [5Y 7/6] and moderate yellowish brown [10YR 5/4]), fine to coarse, poorly sorted, indistinctly laminated to thin-bedded, massive. Occasional light greenish grey [5GY 8/1] siltstone fragments up to 10 cm across, and some pink quartz grit and small pebbles. Scattered black-bordered concretionary structures up to 50 cm across. Lenses of flaky siltstone, coloured greyish yellow green [5GY 7/2] (w/dusky yellow [5Y 6/4] and moderate to dark yellowish brown [10YR 5/4-4/2]), from 3.7 to 4.5, 7.6 to 8.2, 9.8 to 10.6, 15.8 to 16.3 and 22.3 to 23.7. Lower contacts are gradational and upper contacts are sharp. Vertical burrows up to 1.5 x 10 cm from 23.7 to 25.2 m. Upper 1.6 m is mottled light olive grey [5Y 5/2] fine sandstone. Bluff-former. | 27.9 | 131.5 |
| | Sample 25310 0.5 m Medium to coarse sandstone. S9-30 | | |
| | - erosion surface - | | |
| 8 | Sandstone, mottled light greenish grey [5GY 8/1], greenish grey [5GY 6/1] and light olive grey [5Y 6/1] (w/greenish grey and dark yellowish brown [10YR 4/2]), fine, unbedded, flaky becoming massive above 1 m. Bed of white medium sandstone from 1.3 to 1.6 m. Upper 0.4 m has subvertical branching yellowish grey [5Y 8/1] vein network. | 2.7 | 103.6 |
| | - gradational contact - | | |
| 7 | Sandstone, like unit 5, but without concretions. Greenish grey [5GY 6/1] medium sandstone lens that grades up into a shaly siltstone from 1.3 to 1.7 m. Trough cross-bedded. | 4.4 | 100.9 |
| | - slumped contact - | | |

| Unit | | A | B |
|---|---|---|---|
| 6 | Siltstone, greyish yellow green [5GY 7/2] (w/dusky yellow [5Y 6/4] and moderate to dark yellowish brown [10 YR 5/4-4/2]) fine, unbedded, flaky. | 3.0 | 96.5 |

Fleming Member (48+ m)

- gradational contact -

| | | | |
|---|---|---|---|
| 5 | Sandstone, like unit 4, but with few concretions. Common grit and pebble lenses. Pebbles are subangular to subrounded, white, light grey, and less commonly pink, quartz mostly from 1 to 2 cm across. Greenish grey [5GY 6/1] siltstone fragments up to 20 cm long at 4 m. Vertical burrows 1 cm across and up to 12 cm long from 4 to 4.5 m. Burrows are larger and very abundant above 22 m. Lens of light olive grey [5Y 5/2] fine sandstone from 44 to 45 m. Prominent conglomerate from 47 to 48 m with pebbles as above though fewer are pink. Trough cross-bedding common in lower part of unit. Bluff-former. | 49.5 | 93.5 |

Sample 25309 49.0 m Medium sandstone. S9-29
Sample 25308 22.7 m Medium to fine sandstone. S9-28

- gradational contact -

| | | | |
|---|---|---|---|
| 4 | Sandstone, white (w/same and moderate yellowish brown [10YR 5/4]), medium to coarse, indistinctly laminated to thin-bedded, massive. Trough cross-beds from 0.1 to 0.3 m thick common. Some greenish grey [5GY 6/1] laminae. Common scattered dark greenish grey [5GY 4/1] concretions 1 to 2 cm across near base of unit but increasing to 5 cm across above 7 m. Above 14 m concretions become fewer and decrease in size to 1 or 2 cm. Above 16 m unit becomes very poorly sorted with laminae and beds ranging from very fine to gritty sandstone. Also vertical burrows up to 1 x 10 cm become common. Bluff-former. | 25.5 | 44.0 |

Sample 25307 14.5 m Medium to coarse sandstone. S9-27

- erosion surface -

| | | | |
|---|---|---|---|
| 3 | Sandstone, like unit 1. Upper 0.5 m is greenish grey [5GY 6/1] (w/same and moderate reddish brown [10R 6/6]. | 3.2 | 18.5 |

- erosion surface -

| | | | |
|---|---|---|---|
| 2 | Sandstone, greenish grey [5GY 6/1] (w/same to greenish grey [5G 6/1]), fine, unbedded, flaky to massive. | 1.5 | 15.3 |

- scree-covered contact -

| | | | |
|---|---|---|---|
| 1 | Sandstone, yellowish grey [5Y 8/1] (w/same and light brown [5YR 6/4]), fine to coarse and poorly sorted, laminated, slabby to massive. Greenish grey [5GY 6/1] laminae common in lower m. Trough cross-beds from 0.1 to 0.3 m thick common. Light greenish grey [5GY 8/1] fine sandstone bed from 2.3 to 2.5 m. Greenish grey laminae common from 2.5 to 3 m, 4.2 to 5.5 m, and above 12 m. Greenish grey siltstone fragments up to 10 cm across at 3, 10 and 13 m. Rare scattered olive grey [5Y 3/2] concretions mostly 1 to 2 but up to 5 cm across above 10 m. They reach 70 cm across at 12 m. Small pink quartz pebbles appear in the upper m. Forms steep slopes or bluffs. | 13.8 | 13.8 |

Sample 25306 0.5 m Coarse sandstone. S9-26

FEATHER CONGLOMERATE (141+ m)

| Unit | | A | B |
|---|---|---|---|
| | - erosion surface - | | |
| | WELLER COAL MEASURES (182 m) | | |
| 27 | Sandstone, medium to dark grey (w/light to dark grey), very fine, laminated, papery to massive. | 0.6 | 182.1 |
| | - gradational contact - | | |
| 26 | Sandstone, like unit 22. | 1.5 | 181.5 |
| | Sample 25305 1.5 m Coarse sandstone. S9-25 | | |
| | - erosion surface - | | |
| 25 | Siltstone and very fine sandstone, like unit 23. | 0.5 | 180.0 |
| | - sharp contact - | | |
| 24 | Sandstone, like unit 22. | 1.5 | 179.5 |
| | - erosion surface - | | |
| 23 | Siltstone and very fine sandstone, medium grey to black (w/same and dark yellowish brown [10YR 5/4]), laminated papery to shaly. Abundant roots and small stems mostly 1 to 2 mm across up to 3 cm long. Coaly in upper m. | 3.6 | 178.0 |
| | Sample 25304 1.5 m Carbonaceous siltstone. S9-24 | | |
| | - sharp contact - | | |
| 22 | Sandstone, like unit 20, but in addition w/light brown [5YR 6/4] and dark yellowish orange [10YR 6/6]. Coal grading up to dark grey to black papery laminated fine sandstone from 1.0 to 1.4 m. | 2.2 | 174.4 |
| 21 | Scree. | 5.8 | 172.2 |
| 20 | Sandstone, light grey (w/white), coarse, indistinctly laminated, massive. Carbonaceous laminae common. Trough cross-beds 0.1 to 0.3 m thick. Light olive grey [5Y 5/2] to dark grey papery laminated fine sandstone from 2.5 to 3.8 m. Bluff-former. | 4.2 | 166.4 |
| | Sample 25303 0.2 m Coarse sandstone. S9-23 | | |
| | - erosion surface - | | |
| 19 | Coal, mainly bright but with dull laminae and a few lenses of light grey siltstone up to 2 cm thick. | 1.3 | 162.2 |
| | Sample 25302 1.0 m Coal. S9-22<br>25301 0.1 m Coal. S9-21 | | |
| 18 | Scree, mainly of dark grey shaly fine siltstone. | 9.0 | 160.9 |
| 17 | Sandstone, light to dark grey (w/same, yellowish grey [5Y 8/1], light olive grey [5Y 5/2] and light brown [5YR 6/4], very fine to fine, ripple-laminated, papery to shaly. Beds up to 15 cm thick of fine bluff-forming sandstone form a third of the unit. Slope-former. | 7.5 | 151.9 |
| 16 | Scree. | 4.1 | 144.4 |
| 15 | Sandstone, light to medium-dark grey (w/light grey, light brown [5YR 5/6] and yellowish grey [5Y 8/1]), fine, ripple-laminated, shaly. Black shale and coal in upper 0.2 m. | 5.0 | 140.3 |
| | - gradational contact - | | |

| Unit | | A | B |
|---|---|---|---|
| 14 | Sandstone, white to medium grey (w/very light to medium grey), fine, laminated to indistinctly bedded, shaly to massive. Concretionary sandstone lenses from 0.3 to 2 m thick and 2 to 5 m long as in unit 9. Scattered ferruginous concretions. Carbonaceous laminae above 4 m. Coal streaks up to 0.8 m long at 4.6 m. Slope-former. | 14.0 | 135.3 |
| | Sample 25300 1.5 m Fine sandstone. S9-20 | | |
| 13 | Scree, with carbonaceous shaly fine sandstone near top. | 9.0 | 121.3 |
| 12 | Sandstone, white to dark grey (w/light to medium grey), very fine to fine, parallel and ripple-laminated, papery to shaly. Slope-former. | 10.3 | 112.3 |
| | Sample 25299 7.6 m Very fine sandstone. S9-19 | | |
| | - scree-covered contact - | | |
| 11 | Sandstone like unit 10, but medium-grained. Light to dark grey shaly very fine sandstone lenses from 4.0 to 5.5, 12.5 to 13.0, 15.0 to 15.3 and 16.5 to 18.0 m. Lenses of hard bluff-forming fine concretionary sandstone like unit 8. Scattered coal streaks up to 5 cm long and carbonaceous siltstone fragments above 13 m. Some trough cross-bedding. | 25.0 | 102.0 |
| | Sample 25298 15.0 m Fine to medium sandstone. S9-18 | | |
| | - erosion surface - | | |
| 10 | Sandstone, like unit 8. | 0.7 | 77.0 |
| | - erosion surface - | | |
| 9 | Sandstone, light to medium grey (w/very light grey), fine to medium, indistinctly thin-bedded, massive. Trough cross-bedded in places. Scattered coal streaks up to 5 cm long, and carbonaceous laminae. Lenses of white and light grey vein quartz pebbles mostly 1 to 2 but up to 4 cm across at 1.7, 3.0 and 8.5 m. Pegmatite pebble 10 cm across at 3 m. Shaly fine sandstone (w/light olive grey [5Y 5/2]) lens from 4.5 to 6.5 and 8.3 to 8.4 m. Log impression 0.8 m across at 8.4 m. Knobbly weathering in upper m. Slope-former. | 11.2 | 76.3 |
| | - gradational contact - | | |
| 8 | Sandstone, very light grey (w/same, light brown [5YR 5/6] and moderate yellowish brown [10YR 5/4]), fine, indistinctly ripple-laminated, blocky with fine knobbly weathering in places. Carbonaceous laminae common. | 1.7 | 65.1 |
| | Sample 25297 0.5 m Fine sandstone. S9-17 | | |
| | - sharp contact - | | |
| 7 | Sandstone, light to medium grey (w/same and light olive grey [5Y 6/1] fine, well laminated, shaly to massive. Rare scattered quartz pebbles. Scouring at 1 m. Becomes more carbonaceous and irregularly bedded above 3 m. | 4.1 | 63.4 |
| | - gradational contact - | | |

| Unit | | A | B |
|---|---|---|---|
| 6 | Sandstone, medium to dark grey (w/light to medium grey and light olive grey [5Y 6/1]), very fine, laminated, shaly to flaky. Lens from 1.7 to 1.9 m. | 2.3 | 59.3 |
| | Sample 25296 1.9 m Calcareous sandstone. S9-16 | | |
| | - sharp contact - | | |
| 5 | Sandstone, light to medium grey (w/very light grey), fine, unbedded, massive. Appears extensively burrowed. | 1.5 | 57.0 |
| | Sample 25295 1.0 m Fine carbonaceous sandstone. S9-15 | | |
| | - scree-covered contact - | | |
| 4 | Sandstone, light grey, fine, interbedded with micaceous siltstone, light to dark grey, coarse, unbedded, shaly. Prominent bluff-forming lenses of slabby to blocky, ripple-laminated, fine quartzose, light grey ( w/same, dark reddish brown [10R 3/4] and moderate yellowish brown [10YR 5/4]) concretionary sandstone from 17.3 to 18.3 and 25.0 to 25.7 m. Trough cross-bedded, coarse, white sandstone lens at 19.5 m. Coaly, shaly, fine siltstone from 22 to 24 m. Fine, light grey sandstone from 25.7 to 27.0 and 32 to 34 m. Shaly siltstone very poorly exposed in scree above 29 m. Slope-former. | 40.5 | 55.5 |
| | Sample 25294 27.0 m Fine sandstone. S9-14<br>25293 18.3 m Fine concretionary sandstone. S9-13 | | |
| | Note: Section transposed by tracing platform developed at base of unit 4, 400 m to south-southwest. The contact of units 3 and 4 can be found here with some confidence but slopes below unit 4 have very little rock in place above the Aztec Siltstone at the base of the slope. | | |
| 4 | Sandstone, light to dark grey (w/light grey, light brown [5YR 6/4] and light olive grey [5Y 5/2]) fine, ripple-laminated to thin-bedded, flaggy to slabby. Ripple marks micaceous laminae and lenses of light to dark grey carbonaceous micaceous shale common. A few lenses contain very poorly preserved stems (mostly striate) and glossopterid leaf fragments. Fine to medium, white sandstone from 6.5 to 7.0 and 7.6 to 8.2 m. Slope-former. Platform covered with dolerite rubble at top of unit. | 14.5 | 29.5 |
| | Sample 25292 8.2 m Fine sandstone. S9-09 | | |
| | - gradational contact - | | |
| 3 | Sandstone, yellowish grey [5Y 8/1] (w/same and light brown [5YR 6/4]), fine to medium, unbedded, massive. A few intervals of ripple-lamination and light olive grey [5Y 5/2] laminated siltstone. Light greenish grey and light grey siltstone fragments up to 5 cm across scattered and in lenses in lower 2 m. Shaly carbonaceous lenses up to 30 cm thick in upper 2 m. Bluff-former. | 9.5 | 15.0 |
| | Sample 25291 0.6 m Fine sandstone. S9-08 | | |
| | - scree-covered contact - | | |
| 2 | Siltstone, dark grey to black (w/same), fine to coarse, laminated, papery, micaceous. Poorly exposed in block-covered scree slope. | 2.7 | 5.5 |
| | - gradational contact - | | |

| Unit | | A | B |
|---|---|---|---|
| 1 | Sandstone, light grey (w/same and a little light brown [5YR 5/6]), coarse, indistinctly very thin-bedded, blocky to massive but flaggy in places. Quartzofeldspathic. Lenses of subangular to subrounded white and light grey quartz grit and pebbles mostly less than 2 cm but up to 12 cm at 0.9 and 2.1 m. Rare quartz mica schist. A few light greenish grey siltstone fragments, coal streaks and fragments up to 4 cm across. Scattered coaly impressions of logs and branching stems up to 15 cm wide and 4 m long at 2.3 m. Trough cross-beds up to 0.5 m thick. Bluff-former. | 2.8 | 2.8 |

Sample 25290 2.2 m Coarse sandstone. S9-07

WELLER COAL MEASURES (182 m)

- erosion surface (Pyramid Erosion Surface) -

METSCHEL TILLITE (4 m)

| | | | |
|---|---|---|---|
| 1 | Sandstone, medium to dark grey (w/light to medium grey and light brown [5YR 5/6]), fine and poorly sorted, laminated to very thin-bedded and shaly in lower 0.5 m to unbedded and massive. Rare scattered white and light grey quartz pebbles up to 5 cm across. Open folds up to 2 m across in lower m. | 3.8 | 3.8 |

Sample 25289 0.8 m Medium grey sandstone. S9-06

- apparently gradational contact over about 1 cm possibly resulting from post-deposition "welding" (Maya Erosion Surface) -

Note: The lower m of the Metschel Tillite and the upper few m of Aztec siltstone are disturbed by folding of low **simuosity.** In addition the strata have been further tilted and folded by dykes up to 1 m wide of Mawson-like volcanobreccia.

Just west of the section line a north-south trending dyke of breccia intrudes Aztec strata, which are pushed up in a steeply north plunging anticline around the end of the intrusion. A lens of breccia of siltstone, sandstone and fine-grained dolerite in a sandstone matrix (25282 S9-11) lies between the intrusion of volcanobreccia proper (25281 S9-10) and the Aztec strata. A dolerite dyke 0.3 m wide (25283 S9-12) cuts across the intrusion. The intrusion can be traced southward for over 50 m.

| Unit | | A | B |
|---|---|---|---|
| | AZTEC SILTSTONE (31+ m) | | |
| 8 | Siltstone, yellowish grey [5Y 8/1] (w/same and light brown [5YR 5/6]), coarse, indistinctly bedded, flaky to massive, in beds 0.7 m thick, interbedded with thinner units of greenish grey [5GY 6/1] shaly to papery siltstone. Slope-former. | 2.0 | 31.1 |
| | - sharp contact - | | |
| 7 | Siltstone, like unit 4. | 1.8 | 29.1 |
| | - scree-covered contact - | | |
| 6 | Sandstone, white (w/same, moderate yellowish brown [10YR 5/4] and light brown [5YR 6/4]), fine, thin-bedded, flaggy. Abundant mudcracks and ripple marks (λ 6 cm; h 1 cm), and some convolute bedding. Thin beds and laminae of light greenish grey fine siltstone. Weathers greenish grey [5GY 6/1] and is more slope-forming above 2.5 m. Bluff-former below 2.5 m. | 3.8 | 27.3 |
| | - gradational contact - | | |
| 5 | Siltstone, light greenish grey to greenish grey [5G 8/1 - 6/1] (w/same and moderate yellowish brown [10YR 5/4]), coarse, laminated to unbedded, shaly to flaky. White (w/same), flaggy, laminated to thin-bedded, fine sandstone from 0.7 to 1.2 and 4.1 to 4.8 m. Mudcracks at 4.3 m. | 8.0 | 23.5 |
| | Sample 25288 0.7 m Fine sandstone. S9-05 | | |
| | - gradational contact - | | |
| 4 | Siltstone, olive grey [5Y 4/1] to black (w/same), laminated, papery. | 2.0 | 15.5 |
| | - scree-covered contact - | | |
| 3 | Sandstone, white (w/same and moderate yellowish brown [10YR 5/4]), fine, very thin-bedded, flaggy. | 1.3 | 13.5 |
| | - erosion surface - | | |
| 2 | Siltstone, light olive grey [5Y 6/1] (w/same), in beds 1 m thick, flaky, and sandstone, white (w/same and moderate yellowish brown [10YR 5/4]), fine, in beds 0.2 to 0.5 m thick, flaky to massive. Siltstone surfaces are mud-cracked and have weathered out vertical tubes. Vertical burrows weathered in and out of sandstone at 3 m. A few ferruginous concretionary structures (w/moderate brown [5YR 4/4] and dark greenish grey [5GY 4/1]) up to 2 m across in sandstone. Fish plates are exposed on platforms on sandstone at 1.5 m and higher, and are abundant in top 0.3 m in greenish grey siltstone. | 8.7 | 12.2 |
| | A subvertical white fine quartz sandstone dyke 1.5 m thick and associated with siltstone breccia strikes at 170° just east of section line. | | |
| | - gradational contact - | | |
| 1 | Sandstone, white (w/same and moderate yellowish brown [10YR 5/4]), fine, very thin-bedded, flaggy to massive. Trough cross-beds 0.3 to 0.5 m thick in lower part, but becomes ripple-laminated above 3 m. | 3.5 | 3.5 |
| | Sample 25287 0.2 m Fine sandstone. S9-04 | | |

Unit A B

Base of section is in rubble-covered topographic basin about 20 m across with poorly exposed greenish grey siltstone. Section begins at base of overlying sandstone.

Another small basin about 10 m across and 50 m south is underlain by similar greenish grey [5G 6/1] (w/same), coarse, laminated, shaly siltstone. This is intruded by breccia with angular fragments of greenish grey siltstone and white fine quartzose sandstone mostly 0.5 to 6 cm but up to 50 cm across. The breccia is in subvertical dykes from 0.5 to 2 m wide that form an irregular network. The matrix is a white fine quartz sand, and in places the dykes appear to consist solely of this material. Locally the adjacent siltstone dips concordantly with the overlying 3 m of white quartzose sandstone - 14° to 020° at this spot.

| | | |
|---|---|---|
| Sample 25286 | Breccia from dyke, with siltstone and sandstone fragments. | S9-03 |
| 25285 | Siltstone intruded by white sandstone. | S9-02 |
| 25284 | Shaly siltstone. | S9-01 |

SECTION S10 - SHAPELESS MOUNTAIN

Section measured on south-facing slope from platform above bluffs of Feather Conglomerate 1.4 km at 160° from summit of Shapeless Mountain. Measured with staff and level by PJB, ANC 11/71.
Position of base 77° 25.4'S; 160° 25.5'E. Map elevation 2600 m.

| Unit | | A | B |
|---|---|---|---|
| | Top of section where beds are upturned against a brecciated dolerite dyke. In only 10 m beds go from horizontal to dips of 51° towards 100°. | | |
| | LASHLY FORMATION (164+ m). | | |
| 40 | Sandstone, greenish grey [5GY 6/1], (w/same and light brown [5YR 6/4] to moderate reddish brown [10R 4/6]), coarse in lower few m but fine to medium higher, thin to medium-bedded, slabby to massive. Trough cross-beds 0.3 to 1 m thick. Vertical tubes 1 to 2 cm across and up to 8 cm deep picked out by colour differences from 1 to 3 m. | 22.0 | 164.4 |
| | Sample 25338 22.0 m Fine sandstone. S10-24<br>25337 2.5 m Coarse sandstone. S10-23 | | |
| | - sharp contact - | | |
| 39 | Sandstone, yellowish grey [5Y 7/2] (w/same, light olive grey [5Y 5/2] and light brown [5YR 6/4]), fine, laminated to thin-bedded, massive. Lower 0.5 m includes clasts of siltstone up to 70 cm across and of less common coarse quartzose sandstone up to 10 cm across. Coal streaks up to 30 cm long. | 3.2 | 142.4 |
| | Sample 25336 2.4 m Fine sandstone. S10-22 | | |
| | - erosion surface with small scours 10 to 20 cm deep and a channel 1.5 m deep - | | |
| 38 | Siltstone, yellowish grey [5Y 7/2] (w/same and light brown [5YR 6/4]), indistinctly laminated to thick-bedded, massive. A few thin very fine sandstone beds. From 1.5 to 3 m siltstone is unbedded and has scattered siltstone fragments mostly less than 1 cm across. | 4.0 | 139.2 |
| | Sample 25335 2.3 m Siltstone. S10-21 | | |
| | - gradational contact - | | |
| 37 | Sandstone, yellowish grey [5Y 7/2] (w/same and light brown [5YR 5/6]), very fine, laminated to very thin-bedded, massive to platy. Scattered white vertical tubes and flecks in upper part, where it is also faintly mottled pale reddish purple. | 1.5 | 135.2 |
| | Sample 25334 1.2 m Very fine sandstone. S10-20 | | |
| | - gradational contact - | | |
| 36 | Siltstone, like unit 26. Irregular vertical columnar structures about 0.4 m apart weather out in upper m. | 4.0 | 133.7 |
| | - gradational contact through knobbly-weathering material 0.5 m thick | | |
| 35 | Sandstone, greenish grey [5GY 6/1] (w/same, light brown [5YR 6/4] and moderate reddish brown [10R 4/6], very fine to fine, ripple-laminated, platy to massive. | 1.5 | 129.7 |
| | - erosional contact with 20 cm relief - | | |
| 34 | Siltstone, like unit 26. | 2.2 | 128.2 |
| | - scree-covered contact - | | |

| Unit | | A | B |
|---|---|---|---|
| 33 | Siltstone and very fine sandstone, yellowish grey [5Y 8/1] (w/same, light olive grey [5Y 6/1] and light brown [5YR 6/4]), indistinctly laminated and very thin-bedded, massive. Scattered irregularly shaped black-rimmed concretionary structures up to 10 cm across. Carbonaceous bed 0.3 m above base. Lower 3 m forms bluffs - remainder slopes. | 9.0 | 126.0 |
| | Sample 25333 2.5 m Nodules. S10-19<br>25332 0.3 m Siltstone. S10-18 | | |
| | - gradational contact - | | |
| 32 | Sandstone, yellowish grey [5Y 8/1] (w/light brown [5YR 6/4]), very fine, indistinctly ripple-laminated, massive. Black-rimmed concretionary nodules with small light coloured crystals inside are up to 20 cm long. Bluff-former. | 0.5 | 117.0 |
| | - erosional contact - | | |
| 31 | Siltstone, like unit 26. Scattered black-rimmed concretions 5 to 10 cm across in lower m. | 3.0 | 116.5 |
| | - gradational contact - | | |
| 30 | Sandstone, like unit 29, but fine and without tubes. Becomes indistinctly ripple-laminated in upper 2 m. Black film in some joints. Trough cross-beds. | 5.2 | 113.5 |
| | - gradational contact - | | |
| 29 | Sandstone, very light grey to greyish orange [10YR 7/4] (w/same and moderate yellowish orange [10YR 7/6]), medium to coarse, very thin to thin-bedded, massive to flaggy. Abundant trough cross-beds. Vertical tubes 1 cm across and up to 6 cm deep marked by colour differences; tubes are normally light grey. | 7.2 | 108.3 |
| | Sample 25331 2.4 m Coarse sandstone. S10-17 | | |
| | - erosional contact with depressions 6 cm deep and 6 cm across - | | |
| 28 | Siltstone, like unit 26. White veins run down into unit 27 for 0.3 m. | 1.5 | 101.1 |
| | - gradational contact - | | |
| 27 | Sandstone, yellowish grey [5Y 8/1] (w/same and light brown [5YR 6/4]), fine, laminated to very thin-bedded, massive to flaggy. Abundant trough cross-beds. Slope-former. | 3.0 | 99.6 |
| | Sample 25330 0.2 m Fine sandstone. S10-16 | | |
| | - erosional contact - | | |
| 26 | Siltstone, yellowish grey to light olive grey [5Y 8/1-6/1] (w/same), fine, unbedded, massive. Wind-fluted. A few scattered white flecks and tubes. Thin subvertical white veins occur throughout but are especially common in the upper 1.5 m. | 3.2 | 96.6 |
| | - gradational contact - | | |
| 25 | Sandstone, light olive grey [5Y 6/1] (w/light brown [5YR 6/4] and moderate yellowish brown [10YR 5/4]), fine, indistinctly laminated, massive. Slope-former. | 1.0 | 93.4 |
| | - erosional contact - | | |

| Unit | | A | B |
|---|---|---|---|
| 24 | Siltstone, light grey (w/light olive grey [5Y 6/1] and light brown [5YR 6/4]), fine, unbedded, massive. Poorly exposed.<br><br>Sample 25329 2.0 m Siltstone. S10-15 | 2.1 | 92.4 |
| | - gradational contact - | | |
| 23 | Sandstone, yellowish grey [5Y 7/2] (w/same and moderate yellowish brown [10YR 5/4] in upper part), fine unbedded, massive. Ripple-laminated in upper 0.5 m. Slope-former. | 1.7 | 90.3 |
| | - gradational contact over 1 m - | | |
| 22 | Sandstone, yellowish grey [5Y 7/2], (w/same), coarse indistinctly very thin-bedded, massive. Quartzose. Slope-former. | 4.3 | 88.6 |
| | - gradational contact - | | |
| 21 | Sandstone, light olive brown [5Y 6/4] (w/light olive grey [5Y 6/1], light brown [5YR 6/4] and much moderate reddish brown [10R 4/6]), medium with common coarse lenses, indistinctly thin-bedded, massive. Coal streaks up to 10 cm long in lower 0.5 m. Indistinct trough cross-bedding 0.2 to 0.5 m thick. Lens of light greenish grey coarse siltstone from 6.8 to 7.1 m. Prominent bluff-former, but ledge from 8 to 14 m.<br><br>Sample 25328 20.2 m Coarse sandstone. S10-14<br>25327 1.0 m Medium sandstone. S10-13 | 20.3 | 84.3 |
| | - erosional contact - | | |
| 20 | Siltstone, light to medium grey (w/light greenish and grey [5GY 8/1-6/1]), fine, unbedded, massive. Wind-fluted. White tubes and flecks common in lower part. Thin subvertical white veins occur throughout but are especially common in the upper part. A little pale red purple [5RP 6/1] mottling in the upper 0.5 m.<br><br>Sample 25326 2.6 m Siltstone. S10-12 | 3.0 | 64.0 |
| | - gradational contact - | | |
| 19 | Sandstone, yellowish grey and light olive grey [5Y 8/1-6/1], (w/same, dark yellowish orange and light brown [5YR 6/4]), very fine, laminated to very thin-bedded, massive to flaggy. A few white tubes. Siltstone fragments up to 15 cm across in fine sandstone in lower 0.4 m. | 1.3 | 61.0 |
| | - erosional contact - | | |
| 18 | Sandstone, yellowish grey [5Y 7/2] and pinkish grey [5YR 8/1] (w/same and light brown [5YR 6/4]), fine and medium, indistinctly laminated to very thin-bedded, massive. Trough cross-beds common. Lens of coarse quartzose sandstone from 3 to 4 m with coal streaks 20 cm long and 1 cm thick, and light olive grey [5Y 5/2] siltstone fragments mostly 5 but up to 20 cm across. Upper m has open slump folds 0.1 to 1 m high with axes trending 140° and with some tops truncated. Rare stems up to 10 cm across.<br><br>Sample 25325 3.0 m Medium sandstone. S10-11 | 7.1 | 59.7 |
| | - erosional contact - | | |

| Unit | | A | B |
|---|---|---|---|
| 17 | Siltstone and very fine sandstone, light grey and greyish pink (w/same, greyish yellow green [5GY 7/2] and light brown [5YR 5/6]), laminated to thin-bedded, massive to platy. Scattered white tubes and flecks at several levels. Sandstone forms about 10% of unit. Upper 0.6 m has thin white subvertical veins. | 3.2 | 52.6 |
| | Sample 25324 1.3 m Very fine sandstone. S10-10<br>25323 0.8 m Siltstone. S10-09 | | |
| | - gradational contact - | | |
| 16 | Siltstone, light grey (w/greyish yellow green [5GY 7/2] coarse, unbedded, massive. White tubes and flecks common. | 4.6 | 49.4 |
| | - gradational contact - | | |
| 15 | Sandstone, yellowish grey to light olive grey [5Y 8/1-6/1] (w/same and light brown [5YR 6/4]), very fine and fine, ripple-laminated, shaly to platy. | 1.4 | 44.8 |
| | - sharp contact - | | |
| 14 | Sandstone, yellowish grey [5Y 8/1] (w/same and moderate yellowish brown [10YR 5/4]), fine to medium, indistinctly bedded, massive. Scattered greenish grey siltstone fragments up to 10 cm across. | 0-0.5 | 43.4 |
| | - erosional contact - | | |
| 13 | Sandstone, like unit 11. White tubes and flecks common in upper part. | 2.7 | 42.9 |
| | - interfingering contact - | | |
| 12 | Sandstone, greyish orange [10YR 7/4] (w/same, yellowish grey [5Y 7/2], light brown [5YR 6/4] and moderate reddish brown [10R 4/6]), fine and medium, indistinctly laminated, massive. Trough cross-beds. Bluff-former. Finer in upper 4 m. | 13.8 | 40.2 |
| | Sample 25322 0.4 m Medium sandstone. S10-08 | | |
| | - erosional contact - | | |
| 11 | Sandstone, like unit 10, but more massive and wind-sculpted into long flutes 1 to 2 cm across. | 2.4 | 28.8 |
| | - erosional contact - | | |
| 10 | Sandstone, yellowish grey [5Y 8/1] (w/same and moderate yellowish brown [10YR 5/4]), very fine, laminated to very thin-bedded, flaggy to platy. Some logs up to 20 cm across in lower m. | 2.8 | 26.4 |
| | Sample 25321 1.0 m Very fine sandstone. S10-07 | | |
| | - sharp contact - | | |
| 9 | Sandstone, pinkish grey [5YR 8/1] (w/same and light brown [5YR 6/4]), fine and medium, indistinctly laminated to thin-bedded, massive. Bluff-former. | 5.9 | 23.6 |
| | Sample 25320 0.3 m Fine sandstone. S10-06 | | |
| | - sharp contact - | | |
| 8 | Siltstone, like unit 6. White tubes and flecks common. | 1.2 | 17.7 |
| | - gradational contact - | | |

| Unit | | A | B |
|---|---|---|---|
| 7 | Siltstone and very fine sandstone, yellowish grey [5Y 7/2] (w/same, light brown [5YR 6/4] and moderate yellowish brown [10YR 5/4]), well-laminated to thin-bedded, massive, but weathers into narrow ledges. Sandstone in beds 5 to 10 cm thick forms about 20% of sequence. Rare thin carbonaceous beds. Scattered white tubes and flecks. | 3.5 | 16.5 |
| | Sample 25319 0.3 m Siltstone with stems. S10-05 | | |
| | - snow-covered contact - | | |
| 6 | Siltstone, medium grey (w/light olive grey [5Y 6/1] and light brown [5YR 6/4]), fine, indistinctly laminated, massive to flaky. White tubes and flecks common above 2 m. | 4.4 | 13.0 |
| | Sample 25318 0.5 m Siltstone. S10-04 | | |
| 5 | Snow and scree. | 1.4 | 8.6 |
| 4 | Siltstone and very fine sandstone, light to medium grey (w/light olive grey [5Y 6/1-5/2] and light brown [5YR 6/4]), mostly unbedded, massive but locally fissile. Abundant vertical white tubes 0.5 cm across and white flecks. | 1.4 | 7.2 |
| | - gradational contact - | | |
| 3 | Sandstone, yellowish grey [5Y 7/2] and light grey (w/light olive grey [5Y 6/1] and light brown [5YR 6/4]), very fine to fine, ripple-laminated, shaly to massive. A few thin beds of greenish grey siltstone. Scattered rootholes. | 1.6 | 5.8 |
| | - sharp contact - | | |
| 2 | Sandstone, pinkish grey [5YR 8/1] (w/same and light brown [5YR 6/4]), fine to medium, indistinctly bedded, massive. | 1.3 | 4.2 |
| | Sample 25317 0.3 m Medium sandstone. S10-03 | | |
| | - erosional contact - | | |
| 1 | Siltstone, medium grey (w/light olive grey [5Y 6/1-5/2]), coarse, very thin-bedded, massive to flaky. | 2.9 | 2.9 |
| | Sample 25316 0.3 m Siltstone. S10-02 | | |
| | LASHLY FORMATION (164+ m) | | |
| | - sharp contact with 2 m of wavy relief over 50 m - | | |
| | FEATHER CONGLOMERATE (50+ m) | | |
| 1 | Sandstone, yellowish grey [5Y 8/1] (w/same, light brown [5YR 6/4] and moderate reddish brown [10R 4/6]), fine to coarse, with common very coarse and gritty lenses, laminated to very thin-bedded, massive to blocky. Parallel and low angle cross-beds. Scour channels filled with coarse sand containing greyish yellow green siltstone fragments mostly 2 to 6 but up to 15 cm across from -3.7 to -2.7 m and in upper 0.8 m. Prominent bluff-former. | 50 | 50 |
| | Sample 25315 -1.8 m Coarse sandstone. S10-01 | | |
| | Snow. | | |

SECTION S11 - SHAPELESS MOUNTAIN

Section measured westward from south side of ridge running west from Mistake Peak beginning 3.8 km at 293° from the summit of Shapeless Mountain. The section line runs along the crest of the ridge to a dolerite sill across a scree slope to an isolated sandstone bluff, which is assumed to be in place. The section is continued from the top of the same sandstone where it reappears at the head of the windscoop on the north face of Mistake Peak and ends near the summit. The above-mentioned sandstone extends further north to form an extensive platform. Lashly Formation measured with staff and level by RAA, ANC 11/71. Mawson Formation measured with staff and level by PJB 11/71.
Position of base 77° 25.4' S; 160° 25.5'E. Map elevation 2600 m.

| Unit | | A | B |
|---|---|---|---|
| | North ridge leading to summit of Mistake Peak. | | |
| | MAWSON FORMATION (123+ m) | | |
| 6 | Breccia, like unit 4. Top of unit is platform parallel to bedding that runs close to the ridge line and dips to 200° at 18°. There is probably no more than 10 more m of Mawson in the summit area, for the slope leading to the summit on the west side appears to be a syncline plunging west at 15°. No dolerite pods were seen in the unit, but there were several blocks of rafted breccia up to 2 m across. Sample 25366 12 m Breccia. S11-26 | 12 | 123 |
| 5 | Snow | 3 | 111 |
| 4 | Breccia, light grey to yellowish grey [5Y 8/1] (w/same and light olive grey [5Y 6/1-5/2]), poorly sorted, unbedded, massive. Clasts mainly light olive grey [5Y 6/1] siltstone with some very light grey sandstone and a few dolerite and basalt boulders. Most are 2 to 10 cm but a few, particularly the basalt clasts, are up to 60 cm across. Sills like the 8 m one below and about 2 m thick occur at 2 and 4 m. Above this there are 'pods' of dolerite. A vertical fine hard dolerite dyke 20 cm wide cuts the unit at about 15 m. Sample 25365 15 m Dolerite dyke S11-27<br>25364 42 m Breccia. S11-25<br>25363 0.8 m Breccia. S11-24<br>25362 Contact Breccia. S11-23 | 45 | 108 |
| | - contact with sill sharp. Lower 0.4 m of overlying breccia forms low bluff in contrast with the slopes of the rest of the unit. Contact probably intrusive, certainly concordant - | | |
| | Dolerite sill, light grey (w/olive grey [5Y 4/1½]), flaky. 8 m thick. Sample 25361 0.3 m Dolerite. S11-22 | | |
| | - scree-covered contact - | | |
| 3 | Breccia, light to olive grey [5Y 5/2-4/1], (w/same and light brown [5YR 5/6]), poorly sorted, mainly unbedded, massive. Matrix mainly light olive grey silt, but light grey quartzose sand common in lower 2 m. Clasts mainly very fine light olive grey ?dolerite, but a few are finely porphyritic with weathered-out crystals. Most are angular or subangular and from 1 to 5 cm across, but some are up to 60 cm. Subrounded sandstone block 60 cm across in lower m. Clasts from 10 to 30 cm are moderately common throughout the unit and most are light reddish brown weathering amygdaloidal basalt or very fine-grained dolerite. Slight concretions of boulders indicate bedding in a few places. For example at 12 m there are several boulders of fine olive grey dolerite up to 1.3 m across, a light grey siltstone 0.7 m across, and an amygdaloidal basalt 0.4 m across. | 42 | 63 |

| Unit | | A | B |
|---|---|---|---|

From 12 to 30 m the average clast size was estimated every 3 m at 2, 3, 3, 3, 4, and 6 cm. At 24 m a sill of olive grey flaky dolerite 1 m thick with brecciated contacts dips at 45° to 180°.

Above 30 m there seems to be much more variation in sorting and boulder size and concentration. Boulders are no longer aligned. At 35 m a water-sorted lens dips north at 30°. Locally the matrix has much medium quartz sand, especially in the upper 3 m of the unit, and the olive grey clasts stand out clearly, though they still weather back at the same rate as the matrix, a feature of the breccia everywhere. Differences in the grain size and colour of the matrix bring out 'swirly' features in the outcrop.

| | | | |
|---|---|---|---|
| Sample 25360 | 36 m | Vesicular clast. | S11-21 |
| 25359 | 36 m | Silty matrix. | S11-20 |
| 25358 | 36 m | Sandy matrix. | S11-19 |
| 25357 | 15 m | Breccia. | S11-18 |
| 25356 | 12 m | Basalt. | S11-17 |
| 25355 | 12 m | Dolerite. | S11-16 |
| 25354 | 0.3 m | Breccia. | S11-15 |
| 25353 | 0.0 m | Breccia, from 5 cm above S11-13. | S11-14 |

- contact sharp and slightly irregular but concordant. Dips to 190° at 20 to 30° but rises to 60° at one spot -

| | | | | |
|---|---|---|---|---|
| 2 | Sandstone, yellowish grey [5Y 8/1] (w/same, light brown [5YR 5/6] and moderate yellowish brown [10YR 5/4]), fine to medium, indistinctly bedded, massive. Quartzose. | | 7 | 21 |
| | Sample 25352 | 7 m Fine sandstone. S11-13 | | |
| | 25351 | 1 m Medium sandstone. S11-12 | | |
| 1 | Rubble covered slope with a few large boulders of breccia up to 2 m across. Most fragments are of olive grey fine dolerite and breccia 2 to 10 cm across. | | 14 | 14 |
| | MAWSON FORMATION (123+ m) | | | |
| | LASHLY FORMATION (154+ m) | | | |
| 20 | Sandstone, yellowish grey [5Y 7/2] (w/very light grey and light brown [5YR 6/4]), fine, indistinctly laminated, massive. Quartzose and trough cross-bedded. Unit dips to 320° at 10°. | | 3.3 | |
| | Sample 25350 | Medium sandstone. S11-11 | | |
| | Note: Section line transposed to head of windscoop on north face of Mistake Peak. | | | |
| 20 | Sandstone, yellowish grey [5Y 8/1] (w/same, light brown [5YR 5/6], moderate reddish brown [10R 6/6] and moderate yellow [5Y 7/6]), fine to medium, indistinctly very thin-bedded, blocky to massive. Bluff-former. | | 16.6 | 154.4 |
| | Sample 25349 | 10 m Medium sandstone. S11-10 | | |
| 19 | Scree slope. | | 49.5 | 137.8 |
| | Dolerite sill, 15 m thick, with some brecciated contacts. | | | |
| 18 | Sandstone, light grey (w/same, light brown [5YR 6/4] and moderate yellowish brown [10YR 5/4]), fine to very fine, ripple-laminated, shaly to slabby. Carbonaceous laminae common. Fine shaly siltstone interbeds medium grey (w/light grey and light olive grey [5Y 5/2]) siltstone interbeds up to 0.8 m thick. Unit finer-grained towards top. Subvertical burrows from 10.5 to 11 m. | | 11.0 | 88.3 |

| Unit | | A | B |
|---|---|---|---|
| | - gradational contact - | | |
| 17 | Sandstone, yellowish grey [5Y 8/1] (w/same and light brown [5YR 6/4]), fine, laminated to very thin-bedded, massive. Abundant light olive grey [5Y 6/1] siltstone fragments mostly to 5 but up to 15 cm across in lower 0.7 m. | 12.0 | 77.3 |
| | Sample 25348 1.6 m Fine sandstone. S11-09 | | |
| | - erosional contact - | | |
| 16 | Claystone, light to medium grey (w/same and light olive grey [5Y 5/2]), laminated, shaly to flaky. | 0.2 | 65.3 |
| | - sharp contact - | | |
| 15 | Coal. | 0.4 | 65.1 |
| | - sharp contact - | | |
| 14 | Siltstone, light to dark grey (w/light grey, yellowish grey [5Y 7/2] and light brown [5YR 6/4]), fine to coarse, parallel and ripple laminated and unbedded in lower 1 m, shaly to massive. Interbeds of very fine sandstone up to 0.1 m thick. Bright coal from 5.5 to 5.6 m, at 5.9 m (5 cm thick), 6.4 m (5 cm thick) and from 10.1 to 10.2 m. Coal streaks common above 10.2 m. Subvertical burrows with coarser infillings between 7.0 and 10.5 m. Siltstone is more massive above 10.2 m and contains plant fragments. Scattered light olive brown [5Y 5/6] concretions 2 to 3 cm across and stem impressions. | 13.9 | 64.7 |
| | Sample 25347 13.1 m Siltstone. S11-08<br>25346 5.5 m Coal. S11-07 | | |
| | - erosional and locally gradational contact - | | |
| 13 | Coal, bright, grades to black shale in upper 0.2 m | 0.4 | 50.8 |
| | - scree-covered contact - | | |
| 12 | Interbedded sandstone and siltstone. Sandstone, medium light grey (w/light grey, yellowish grey [5Y 8/1], light brown [5YR 6/4-5/6] and moderate yellowish brown [10YR 5/4]), fine, unbedded, massive, in beds 0.1 to 0.7 m thick. Siltstone, light to medium grey (w/light grey, yellowish grey [5Y 8/1] and light brown [5YR 6/4]), fine to coarse, laminated and unbedded, shaly to massive in beds 0.5 to 1.0 m thick. Scattered coaly-stem impressions up to 10 cm wide. Coal from 4.6 to 4.9 m. Vertical and subvertical burrows up to 1 x 5 cm between 6.0 and 6.5 m. Transverse ripples from 5.8 to 6.0 m ($\lambda$ 2 cm; h 0.3 cm). | 7.5 | 50.4 |
| | Sample 25345 2.7 m Siltstone. S11-06<br>25344 0.1 m Fine sandstone. S11-05 | | |
| | - sharp contact - | | |
| 11 | Coal, bright, with veins. | 0.5 m | 42.9 |
| | Sample 25343 0.2 m Coal. S11-04A | | |
| 10 | Rubble, mainly of siltstone, light to medium dark grey, (w/ light grey, yellowish grey [5Y 8/1] and light brown [5YR 6/4]), fine, unbedded, shaly to massive. | 3.5 | 42.4 |

| Unit | | A | B |
|---|---|---|---|
| 9 | Sandstone, light grey (w/same, light brown [5YR 6/4-5/6] and light olive grey [5Y 5/2]), fine, ripple-laminated to parallel-laminated above 2 m, massive to slabby and platy in upper part. Carbonaceous laminae become very common above 2 m, also horizons of scattered coal streaks and siltstone fragments, greenish grey [5GY 6/1] to light olive grey [5Y 5/2] mostly 2 to 5 cm but up to 20 cm across. Bluff-former up to 6 m, but then forms a platform above which interbeds of very fine platy-weathering sandstone appear between 0.1 m thick beds of fine sandstone. | 9.5 | 38.9 |
| | - erosional and locally gradational contact - | | |
| 8 | Sandstone, white (w/same, light brown [5YR 5/6] and pale yellowish brown [10YR 6/2]), coarse, indistinctly very thin bedded, massive. At the base lenses up to 5 cm thick of white and light grey quartz pebbles are mostly 1 to 2 cm, but up to 5 cm across, and rare quartz mica schist mostly 2 cm but up to 10 cm across. Trough cross-bedded. Laminae of abundant siltstone fragments 1 to 3 cm and up to 40 cm long, and some coal streaks up to 20 cm long. | 1.5 m | 29.4 |
| | Sample 25342 1.2 m Coarse sandstone. S11-04 | | |
| | - erosional contact - | | |
| 7 | Siltstone, light to dark grey (w/light to medium grey and a little moderate yellowish brown [10YR 5/4]), fine to coarse, unbedded, papery to massive. | 2.0 | 27.9 |
| | Sample 25341 1.0 m Siltstone. S11-03 | | |
| 6 | Rubble, mainly of shaly carbonaceous siltstone with fine sandstone laminae up to 5 cm thick. | 5.0 | 25.9 |
| 5 | Siltstone, light to medium grey (w/light grey, yellowish grey [5Y 8/1] and moderate yellowish brown [10YR 5/4]), fine, unbedded, flaky to massive. Fine sandstone laminae up to 15 cm thick. Lenses 0.2 to 0.5 m thick of angular siltstone fragments, mostly 1 cm but up to 10 cm across, coal streaks, and siliceous stems, in a fine sandstone matrix. | 1.0 | 20.9 |
| | - erosional contact - | | |
| 4 | Sandstone, yellowish grey [5Y 8/1] (w/same and light brown [5YR 6/4]), fine, unbedded, massive. | 1.9 | 19.9 |
| | - sharp contact - | | |
| 3 | Sandstone, light grey (w/same, yellowish grey [5Y 8/1] and light brown [5YR 6/4]), fine to medium, parallel and ripple-laminated to indistinctly very thin-bedded, flaggy in places, mostly massive with patches of knobbly weathering. Trough cross-bedded. Common carbonaceous laminae, and laminae and scattered coal streaks up to 0.8 m long. Scattered petrified logs, also coaly in places, up to 15 cm across. Bluff-former. | 7.9 | 18.0 |
| | Sample 25340 5.9 m Fine to medium sandstone. S11-02 | | |
| | - sharp contact - | | |
| 2 | Siltstone, light to medium dark grey (w/light grey), coarse, unbedded, shaly to massive. Lensing interbeds up to 0.1 m thick of sandstone, light grey (w/same and light brown [5YR 6/4]), fine to medium. | 1.1 | 10.1 |
| | - gradational contact - | | |

| Unit | | A | B |
|---|---|---|---|
| 1 | Sandstone, light grey and yellowish grey [5Y 8/1] (w/yellowish brown and light brown [5YR 6/4]), fine, laminated to unbedded, flaggy to massive. Trough cross-bedded in places. Patches of knobbly weathering. Some fragments of light greenish grey [5GY 8/1] siltstone fragments up to 5 cm across. Concretionary siltstone lens from 4.9 to 5.3 m is dusky yellow [5Y 6/4] (w/light olive grey [5Y 5/2], moderate brown [5YR 4/4] and moderate reddish brown [10R 4/6]), unbedded, massive, with network of calcite veins running through it. Carbonaceous laminae become common towards top of unit. Lens of very abundant subangular to subrounded light grey siltstone fragments 1 to 5 cm across in sandstone matrix from 7.9 to 8.6 m. | 9.0 | 9.0 |

Sample 25339 4.8 m Fine sandstone. S11-01

Snow slope.

LASHLY FORMATION (154+ m)

SECTION N1 - SKEW PEAK

Section measured up west ridge of Skew Peak from a broad sandstone platform just above a thin sill 1.1 km at 240° from summit to base of sill capping summit. Measured by eyeheights by PJB, DVB (lower part) RAA (upper part) 11/71 during a one hour helicopter visit.
Position of base 77° 13.5'S; 160° 40' E. Map elevation 2400 m.

| Unit | | A | B |
|---|---|---|---|
| | Dolerite sill, about 50 m thick, to top of Skew Peak. | | |
| | LASHLY FORMATION (174+ m) | | |
| 6 | Sandstone, yellowish grey [5Y 8/1] (w/same but mostly moderate yellowish brown [10YR 5/4] in lower 10 m), fine to medium, mostly unbedded but laminated in places, massive. Scattered logs and carbonaceous laminae. Lenses of dusky yellow [5Y 6/4] to medium olive brown [5Y 4/4] shaly sandstone up to 0.1 m thick. Unit above 7.5 m becomes trough cross-bedded and scattered dark yellowish brown [10YR 4/2] spheroidal concretions mostly 0.5 to 2 cm but up to 10 cm across are common. Rock above 10 m is covered with dark yellowish brown flecks 2 or 3 mm across. Scattered vertical 'burrows' 8 cm long and 1 cm wide from 20 to 21 m. Lens of yellowish grey shaly siltstone from 37.5 to 39 m. More vertical 'burrows' up to 5 cm long and 0.5 to 1 cm wide from 55.5 to 56 m. Upper m adjacent to dolerite appears strongly baked. Bluff-former. | 70 | 174 |
| | Sample 25374 60 m Fine sandstone. N1-08<br>25373 20 m Fine to medium sandstone. N1-07 | | |
| | - scree-covered contact - | | |
| 5 | Siltstone, light to dark grey (w/light greenish grey [5GY 8/1]), fine, unbedded, flaky to massive. White roots and rootlets common. Beds of sandstone like unit 4 0.2 to 0.5 m thick. | 20 | 104 |
| | - gradational contact - | | |
| 4 | Sandstone, light grey (w/same, light brown [5YR 6/4]), fine, indistinctly thin-bedded to unbedded, flaggy to massive. Scattered plant stems. Some dark brownish grey [5YR 3/1] laminae. Laminae and thin beds of light greenish grey [5GY 8/1] fine siltstone with white roots and rootlets towards top. Forms platform suitable for helicopter landing. | 6 | 84 |
| 3 | Sandstone, light grey (w/same and light brown [5YR 6/4]), medium, massive. Siltstone fragments mostly 1 cm but up to 15 cm across 1 m above base. Coarse sandstone lens with scattered siltstone fragments from 5 to 6 m. A few stems 1 cm wide and 10 cm long. Unit becomes finer towards top and includes ripple-laminated fine sandstone intervals. | 19 | 78 |
| | Sample 25372 19 m Fine sandstone. N1-06<br>25371 11 m Fine sandstone. N1-05 | | |
| 2 | Siltstone, light grey (w/same and light olive grey [5Y 6/1]), indistinctly bedded, shaly to flaky. Ten cm of shaly coal at 1.7 m and 20 cm of coal at 7 m. Dicroidium and calamitid stems at 5 m. | 10 | 59 |
| | Sample 25370 5 m Dicroidium-bearing siltstone. N1-04<br>25369 2 m Coal. N1-03 | | |
| | - gradational contact - | | |

| Unit | | A | B |
|---|---|---|---|
| 1 | Sandstone, very light grey (w/same, yellowish grey [5Y 7/2] and light brown [5YR 6/4]), fine, indistinctly laminated to thin-bedded, massive. Lower 20 m contains channels with a local relief of 1.3 m with white quartz pebbles mostly 1 to 3 cm but up to 6 cm and fragments of fine sandstone that reach 1 m across in a channel near the base of the unit. Coal streaks 2 cm thick and 30 cm long and stem impressions at 23 m. Fine siltstone lens from 30 to 31 m. Sandstone becomes fine to very fine and ripple-laminated in upper 20 m. Irregular locally transgressive dolerite sills 1 m thick at 7 and 36 m. | 49 | 49 |

Sample 25368 27 m Sandstone. N1-02
25367 Base Sandstone. N1-01

LASHLY FORMATION (174+ m)

Base of section is broad sandstone platform about a third of the way down the ridge from the top of the section to the col.

SECTION N3 - MOUNT BASTION

Section measured from edge of patterned ground on valley floor 4.1 km at 073° from the summit, edging up the valley side to the east end of the dolerite sill at the top of the Feather Conglomerate 3.1 km at 070° from the summit. The section was continued from the top of the Feather 600 m west to the base of the next sill, which forms an extensive platform, and thence from the southwest edge of the platform (1.5 km at 095° from the summit) up to the southeast corner of the massive dolerite cap that forms the summit of Mount Bastion. Measured with staff and level by RAA, PJB, DVB ANC 12/71.
Position of base 77° 18.5' S; 160° 39' E. Map elevation 1050 m.

| Unit | | A | B |
|---|---|---|---|
| | LASHLY FORMATION (524+ m) | | |
| | Note: Summit sill climbs to west so that at the southwest corner of the dolerite cap there are about 10 m of strata younger than those truncated by the sill on the east face. They are light greenish grey indistinctly laminated fine sandstone and siltstone with white flecks similar to those in lower Lashly beds. Similar beds also occur in rafts in the upper part of the sill in the summit area, and appear to total about 20 m in thickness. There are also a few coarse sandstone lenses. | | |
| | Sample 25455 5 m Fine sandstone. N3-75 | | |
| | Dolerite sill, about 100 m thick. Well-developed columnar joints vertical at the base but locally veering strongly off vertical in the upper part. Indistinct thin darker beds every few metres. | | |
| 56 | Sandstone, very light grey to yellowish grey [5Y 7/2] (w/yellowish grey to light olive grey [5Y 7/2-6/1] end patches of dark yellowish orange [10YR 6/6] especially above 30 m), fine to medium but with lenses of very coarse slightly feldspathic sandstone in lower 2 m and at higher levels, very thin-bedded, massive. Trough cross-beds 0.2 to 0.5 m thick. Dark yellowish orange concretions mostly 2 to 5 cm across common. A few scattered lenses of carbonaceous fragments. Mainly slope-former but very coarse sandstone lenses form bluffs, especially from 14 to 18 m. | 62.0 | 513.9 |
| | Broad scour from 36 to 37 m overlain by coarse quartzose sandstone with equant light grey siltstone fragments mostly 10 cm across in lower 0.3 m. Unit becomes finer and more poorly sorted (interlensing fine and coarse) upwards to another influx of very coarse quartz sand at 42 m. From 57 to 58 m there is interlensing very coarse, medium and fine sandstone with coalified stems 40 cm across and scattered siltstone fragments commonly 10 cm across. The upper 4 m of the unit contains interlensing trough cross-bedded fine to coarse sandstone as above (w/light olive grey and dark yellowish orange), with a few large coalified stems and coal streaks. | | |
| | Sample 25454 60.5 m Fine sandstone. N3-74<br>25453 41 m Medium sandstone. N3-73<br>25452 20 m Fine sandstone. N3-72<br>25451 0.2 m Coarse sandstone. N3-71 | | |
| | - erosional contact - | | |
| 55 | Snow and scree, with dark grey shaly siltstone emerging in upper 0.5 m. | 7.5 | 451.9 |

| Unit | | A | B |
|---|---|---|---|
| 54 | Sandstone, yellowish grey to light olive grey [5Y 7/2-6/1] (w/same and dark yellowish orange [10YR 6/6] in patches), fine to medium, laminated to very thin-bedded, massive. Scattered thin coal streaks. Trough cross-beds 0.3 to 0.5 m thick. Becomes slightly finer and ripple-laminated in upper 5 m. Some siltstone laminae as in unit 51. | 17.2 | 444.4 |
| | Sample 25450 0.4 m Medium sandstone. N3-70 | | |
| 53 | Sandstone, yellowish grey to light olive grey [5Y 7/2-6/1] (w/same and a little light brown [5YR 6/4]), fine to medium, indistinctly bedded, massive. Quartzose. Parallel and trough cross-beds. A few lenticular olive grey siltstone fragments up to 8 cm long. Laminae and thin beds of carbonaceous siltstone as in unit 51 from 0.3 to 1.5 m thick especially in upper 6 m. Coal laminae scattered through sandstone in places associated with laminae and patches weathering dark yellowish orange [10YR 6/6] to moderate brown. | 17.6 | 427.2 |
| | Sample 25449 17.0 m Siltstone. N3-69<br>25448 0.3 m Medium sandstone. N3-68A | | |
| | - erosional contact - | | |
| 52 | Siltstone and fine to medium sandstone, dark grey and light olive grey [5Y 6/1] respectively, interlaminated, shaly. | 0.8 | 409.6 |
| | Sample 25447 0.6 m Siltstone. N3-68 | | |
| | - snow-covered contact - | | |
| 51 | Sandstone, light olive grey [5Y 6/1] (w/same), fine to medium, laminated to thin-bedded, massive to platy. Parallel-bedded. Lithic(?). Thin beds of thin lenticular fragments up to 2 cm long and laminae of olive grey to dark grey siltstone common. | 4.5 | 408.8 |
| | Sample 25446 3.0 m Fine to medium sandstone. N3-67 | | |
| 50 | Snow and scree. | 18.0 | 404.3 |
| 49 | Sandstone, yellowish grey to light olive grey [5Y 7/2-6/1] (w/same and some dark yellowish orange [10YR 6/6], very fine, laminated, massive. | 4.0 | 386.3 |
| | Sample 25445 0.5 m Very fine sandstone. N3-66 | | |
| 48 | Snow and scree. | 4.5 | 382.3 |
| 47 | Sandstone, yellowish grey [5Y 7/2] (w/same, a little light brown [5YR 6/4] and dark yellowish brown [10YR 4/2]), medium, indistinctly bedded, massive. Quartzose. Scattered spheroidal concretions from 1 to 5 cm across in lower 40 m. They are pale yellowish orange [10YR 8/6] in lower 5 m but become darker and eventually black rimmed higher up. Sets of trough cross-beds 0.3 to 0.5 m thick every 3 to 5 m. A few patches and thin beds weather dark yellowish orange [10YR 6/6] above 20 m. These become common higher up, and dark spots up to 1 cm across and a few carbonaceous laminae appear above 60 m. Carbonaceous shaly siltstone from 73.3 to 73.5 m. | 76.5 | 377.8 |
| | Sample 25444 74.4 m Medium sandstone. N3-65<br>25443 59.5 m Medium sandstone. N3-64<br>25442 37.5 m Medium sandstone. N3-63<br>25441 20.0 m Concretions. N3-62<br>25440 20.0 m Medium sandstone. N3-61<br>25439 0.2 m Fine sandstone. N3-60 | | |

| Unit | | A | B |
|---|---|---|---|
| | Note: Rock cairn at 1.5 m on bench. Rest of section measured by PJB, ANC. | | |
| | - sharp contact - | | |
| 46 | Sandstone, yellowish grey [5Y 8/1] (w/same and light brown [5YR 6/4-5/6]), fine, indistinctly laminated and unbedded, massive. A few trough cross-beds. Common lenses of quartz grit and white subangular to subrounded pebbles mostly 1 to 3 but up to 10 cm across. Also a few light olive grey siltstone fragments 2 to 8 cm across and quartz mica schist 1 to 2 cm across. Log impressions 20 cm x 2 m at 2.2 m. Bluff-former. | 8.1 | 301.3 |
| | Sample 25438 0.6 m Fine sandstone. N3-58 | | |
| | - erosional contact - | | |
| 45 | Coal, bright. | 0.3 | 293.2 |
| | Sample 25437 0.1 m Coal. N3-57 | | |
| | - gradational contact - | | |
| 44 | Siltstone, coarse, and very fine to fine sandstone, light grey (w/same, yellowish grey [5Y 7/2] and light brown [5YR 6/4]), laminated to very thin-bedded, flaky to slabby. Fine sandstone forms ledges. Carbonaceous laminae common. | 3.1 | 292.9 |
| 43 | Snow slope. | 1.0 | 289.8 |
| 42 | Siltstone, fine to coarse, and very fine sandstone, medium grey to black (w/same, light olive grey to moderate olive brown [5Y 5/2-4/4]), unbedded, papery to flaky. | 2.6 | 288.8 |
| | - snow-covered contact - | | |
| 41 | Siltstone, coarse, and very fine sandstone, light to medium grey (w/yellowish grey [5Y 7/2] and moderate yellowish brown [10YR 5/4]), indistinctly parallel and ripple-laminated, flaky and massive. Carbonaceous laminae common. Some carbonaceous subvertical roots. Ripple marks ($\lambda$ 9 cm; h 1 cm) at 0.7 m. | 1.2 | 286.2 |
| | Sample 25436 0.7 m Very fine sandstone with roots. N3-56 | | |
| 40 | Snow slope with sandstone rubble. | 10.1 | 285.0 |
| 39 | Sandstone, light to dark grey (w/same, light brown [5YR 6/4]), fine to very fine, parallel to ripple-laminated flaky but mainly massive. Some convolute bedding. Lenses of sandstone and siltstone fragments like unit 38 from 4.9 to 5.3 and 6.6 to 6.8 m. Scattered medium grey coarse siltstone lenses. | 17.5 | 274.9 |
| | - snow-covered contact - | | |
| 38 | Sandstone, like unit 37, but with very abundant medium to dark grey siltstone fragments mostly 1 to 4 cm but up to 10 cm across. Fragments are mainly concentrated in lenses. Unit unbedded and massive but becomes laminated in upper 0.6 m. | 2.9 | 257.4 |
| | - gradational contact - | | |
| 37 | Sandstone, light grey, though dark grey in lower m (w/same and light brown [5YR 6/4]), fine to very fine, some parallel and ripple-laminated but mainly unbedded, shaly in lower 1.5 m but rest massive. Carbonaceous laminae, | 13.9 | 254.5 |

| Unit | | A | B |
|---|---|---|---|
| | scattered lenses of siltstone fragments and a few coaly stems. Trough cross-beds above 11 m. | | |
| | Sample 25435 11.5 m Fine sandstone. N3-55 | | |
| | - sharp contact - | | |
| 36 | Coaly, shaly. | 0.7 | 240.6 |
| | Sample 25434 0.3 m Coal. N3-54 | | |
| | - snow-covered contact - | | |
| 35 | Sandstone, very fine, and coarse siltstone, light to dark grey (w/same, light olive grey [5Y 6/1] and light brown [5YR 5/6]), parallel and ripple-laminated, shaly to slabby. Sandstone forms ledges. Stems up to 20 cm across. Poorly preserved Dicroidium, (?)Xylopteris and calamitid stems from 5.4 to 6.1 m. | 8.3 | 239.9 |
| | Sample 25433 5.5 m Siltstone with plants. N3-53 | | |
| | - gradational contact - | | |
| 34 | Sandstone, light grey (w/same and light brown [5YR 6/4-5/6]), medium to coarse, laminated and unbedded, platy but mostly massive. Some carbonaceous laminae and grit lenses throughout unit. Bed of subangular to subrounded white vein quartz pebbles mostly 0.5 to 2 cm but up to 5 cm across at 6.8 m. Also a few light grey quartz and quartz mica schist pebbles 2 to 4 cm across. Pebble beds also at 11.3 and 14.8 m. Laminae of medium to dark grey siltstone fragments at 11 m. Unit poorly exposed above 11 m, though some trough cross-beds from 11 to 12 m. Upper part of unit is extensive platform. | 16.1 | 231.6 |
| | Sample 25432 6.4 m Medium to coarse sandstone. N3-52 | | |
| 33 | Snow slope. | 12.0 | 215.5 |
| 32 | Sandstone, light grey to yellowish grey [5Y 8/1] (w/same, light brown [5YR 6/4]) and moderate yellowish brown [10YR 5/4]), fine to very fine, laminated, mostly massive but some platy. Thin beds and lenses of light to medium grey siltstone and very fine sandstone. Lenses of convolute bedding above 2 m. | 6.5 | 203.5 |
| | Sample 25431 3.9 m Fine sandstone. N3-51<br>25430 0.4 m Very fine sandstone and siltstone. N3-50 | | |
| | - snow-covered contact - | | |
| 31 | Sandstone, light grey (w/very light grey, light olive grey [5Y 6/1], pale to dark yellowish orange [10YR 8/6-6/6], pale reddish brown [10R 5/4] and light brown [5YR 5/6]), fine to medium, with coarse graded lenses in lower m, laminated to unbedded, platy to massive. Some carbonaceous laminae. Light olive grey siltstone fragments, mostly 1 to 3 but up to 10 cm across, and coal streaks in lower 0.1 m. Concretionary lenses up to 10 cm thick (w/moderate to dark reddish brown [10R 4/6-3/4] and light olive grey [5Y 5/2]) and scattered light olive grey siltstone fragments 1 to 5 cm across at 5 m. Lens of carbonaceous laminae and siltstone fragments 1 to 4 cm across from 18.9 to 19.0 m. Ferruginous laminae and streaks up to 1 cm thick (w/dark reddish brown) at 22 m. Persistent lenses of quartz grit and white subangular quartz pebbles 1 to 2 cm across and light olive grey siltstone fragments 0.5 to 1 cm across at 22.6 m. Top of line of bluffs at 23 m. | 56.1 | 197.0 |

| Unit | | A | B |
|---|---|---|---|
| | Above 20 m unit grades up into fine sandstone. Lens of light grey (w/light olive grey) siltstone fragments mostly 2 to 10 cm but up to 30 cm across from 35.3 to 35.5 m. Carbonaceous laminae common from 42 to 44.2 m. Lens of coal streaks up to 5 cm long and siltstone fragments up to 10 cm long at 43.2 m. Similar lens from 43.9 to 44.2 m also has quartz grit and pebbles up to 2 cm across. More carbonaceous laminae and siltstone fragments up to 10 cm long from 50.5 to 50.7 and from 56.4 to 56.6 m. | | |
| | Sample 25429 35.1 m Fine sandstone. N3-49<br>25428 0.0 m Medium sandstone. N3-48 | | |
| | - erosional contact - | | |
| 30 | Sandstone, yellowish grey [5Y 8/1] to light grey (w/same light olive grey [5Y 6/1] and light brown [5YR 6/4]), fine, parallel and ripple-laminated and unbedded, flaggy to massive. Some trough cross-beds and carbonaceous laminae. Bed of white subangular to subrounded quartz pebbles 2 to 5 cm across from 4.5 to 4.9m. Thin quartz grit and fine pebble lenses higher. Lens of light olive grey siltstone fragments mostly 1 to 8 cm across from 14.3 to 14.5 m. Concretionary lens of very fine sandstone (w/moderate olive brown [5Y 4/4] and moderate brown [5YR 4/4]) from 16.7 to 16.9 m. Coal streaks up to 4 cm long from 36.3 to 36.7 m. Lens of light greenish grey [5GY 8/1] siltstone fragments up to 10 cm long from 35.2 to 35.5 m. Bluff-former. | 63.0 | 140.9 |
| | Sample 25427 61.0 m Fine sandstone. N3-47<br>25426 34.5 m Fine sandstone. N3-46<br>25425 21.4 m Fine sandstone. N3-45<br>25424 0.5 m Fine sandstone. N3-44 | | |
| | - erosional contact - | | |
| 29 | Siltstone, like unit 25, with fine sandstone laminae. White roots and rootlets. | 1.1 | 77.9 |
| | - gradational contact - | | |
| 28 | Sandstone, light grey (w/same, light greenish grey [5GY 8/1], light olive grey [5Y 6/1], moderate yellowish brown [10YR 5/4] and a little light brown [5YR 6/4]), fine and very fine, parallel and ripple-laminated, shaly to massive. Trough cross-beds in places. Becomes finer towards top. | 9.9 | 76.8 |
| | - gradational contact - | | |
| 27 | Siltstone, like unit 25. Fine sandstone interbeds up to 4 cm thick from 3.9 to 4.1 m. Very poorly exposed in scree. | 7.2 | 66.9 |
| | - gradational contact - | | |
| 26 | Sandstone, light grey (w/same, light brown [5YR 6/4] and light greenish grey [5GY 8/1]), fine, laminated, massive. Trough cross-bedded. Greenish grey [5GY 6/1] and olive grey [5Y 4/1] siltstone fragments up to 10 cm across at base and scattered through unit contain white flecks. | 1.1 | 59.7 |
| | - erosional contact - | | |

| Unit | | A | B |
|---|---|---|---|
| 25 | Siltstone, light grey (w/light greenish grey [5GY 8/1], moderate yellowish brown [10YR 5/4] and olive grey [5Y 4/1]), coarse, indistinctly laminated and unbedded, massive. Lens of fine ripple-laminated sandstone from 1.0 to 1.3 m. Abundant white roots and rootlets. | 2.7 | 58.6 |
| | - gradational contact - | | |
| 24 | Sandstone, light grey (w/light greenish grey [5GY 8/1] and a little light brown [5YR 6/4]), fine, laminated, flaky to massive. Trough cross-bedded. | 3.3 | 55.9 |
| | - gradational contact - | | |
| 23 | Siltstone, light grey (w/same, light greenish grey [5GY 8/1] and moderate yellowish brown [10YR 5/4]), coarse, indistinctly ripple-laminated, unbedded, massive. White roots and rootlets. | 3.6 | 52.6 |
| | Sample 25423 2.7 m Siltstone. N3-43 | | |
| | - gradational contact - | | |
| 22 | Sandstone, light grey (w/same and light brown [5YR 6/4]), very fine, laminated, shaly and massive. | 1.4 | 49.0 |
| | - snow-covered contact - | | |
| 21 | Sandstone, like unit 19 but very light grey. Becomes finer towards top. Grades into coarse siltstone from 3.2 to 3.4 m and then grades back into very fine sandstone. Upper 0.3 m is a concretionary lens (w/dusky brown [10YR 2/2]). | 3.8 | 47.6 |
| | - snow-covered contact - | | |
| 20 | Sandstone, like unit 5. | 0.6 | 43.8 |
| | - sharp contact - | | |
| 19 | Sandstone, light grey to yellowish grey [5Y 8/1] (w/light brown [5YR 5/6] to yellowish grey), very fine to fine, indistinctly laminated, platy to massive. Becomes finer above 1.1 m, and upper 0.5 m is coarse siltstone with white roots and rootlets. | 1.6 | 43.2 |
| | Sample 25422 0.3 m Fine sandstone. N3-42 | | |
| | - erosional contact - | | |
| 18 | Sandstone, light grey (w/same and light brown [5YR 6/4]), fine, ripple-laminated, platy to massive. Becomes finer towards top, and upper 0.2 m is light greenish grey [5GY 7/1] siltstone. | 6.2 | 41.6 |
| | Note: Section transposed 800 m to west to foot of slope leading to summit dolerite. Units 18-30 were snow-covered at time of measuring and were exposed with an ice axe. | | |
| | Dolerite sill, 36 m thick. | | |
| 17 | Sandstone, like unit 5, with scattered white quartz pebbles mostly 1 to 5 cm across. | 1.4 | 35.4 |
| | - erosional contact - | | |
| 16 | Siltstone, light grey (w/light greenish grey [5GY 7/1]), coarse, laminated, shaly to massive. | 0.2 | 34.0 |
| 15 | Snow slope, with dolerite rubble. | 1.7 | 33.8 |

| Unit | | A | B |
|---|---|---|---|
| 14 | Sandstone, yellowish grey [5Y 8/1] (w/same and light brown [5YR 6/4]), fine to medium, indistinctly laminated, massive. Trough cross-beds. Gritty lens from 0.6 to 0.7 m. | 1.0 | 32.1 |
| | - erosional contact - | | |
| 13 | Siltstone, coarse, and very fine sandstone, yellowish grey [5Y 8/1] (w/same, light olive grey [5Y 6/1] and light brown [5YR 6/4]), unbedded and indistinctly ripple-laminated, mainly massive, but shaly and medium grey in lower 0.2 m. | 1.4 | 31.1 |
| 12 | Snow slope, with dolerite rubble. | 0.4 | 29.7 |
| 11 | Sandstone, very light grey (w/same, moderate yellowish brown [10YR 5/4] and light brown [5YR 6/4]), very fine to fine, laminated, massive. Lower 0.6 m has abundant carbonaceous laminae. Trough cross-beds above 1.3 m. | 2.1 | 29.3 |
| | Sample 25421 0.7 m Fine sandstone. N3-41 | | |
| | - snow-covered contact - | | |
| 10 | Sandstone, like unit 5, with white quartz pebbles mostly 1 to 2 cm across, siltstone fragments mostly 2 to 8 cm across, coal streaks and carbonaceous laminae in lower 0.2 m. | 1.0 | 27.2 |
| | - erosional contact - | | |
| 9 | Sandstone, light grey (w/same, light greenish grey [5GY 7/1] and a little light brown [5YR 6/4]), fine to very fine, indistinctly parallel and ripple-laminated, massive. Becomes finer in upper 0.4 m to coarse siltstone with white roots and rootlets. | 1.2 | 26.2 |
| | - erosional contact - | | |
| 8 | Siltstone, light grey (w/light greenish grey [5GY 7/1]), coarse, unbedded, massive, with small white rootlets. | 0.4 | 25.0 |
| 7 | Snow slope, with dolerite and sandstone rubble. | 2.8 | 24.6 |
| 6 | Sandstone, light grey (w/same, moderate yellowish brown [10YR 5/4], light brown [5YR 5/6] and light olive grey [5Y 6/1]), fine, ripple-laminated, flaky to massive. Very abundant carbonaceous laminae in lower 0.2 m. | 1.3 | 21.8 |
| | - snow-covered contact - | | |
| 5 | Sandstone, white (w/same, dark yellowish orange [10YR 6/6] light brown [5YR 5/6] and dusky yellow [5Y 6/4]), medium to coarse, and poorly sorted, indistinctly laminated, massive. Trough cross-beds. A few gritty lenses. Bed of subangular to subrounded white quartz pebbles mostly from 0.5 to 2 cm across at 1.0 m. | 3.0 | 20.5 |
| | Sample 25420 0.0 m Medium sandstone. N3-40 | | |
| | - erosional contact - | | |
| 4 | Sandstone, light grey (w/same, greenish grey [5GY 6/1], pale yellowish orange [10YR 8/6] and a little light brown [5YR 6/4]), very fine, ripple-laminated, massive. Upper 0.5 m grades up to coarse yellowish grey [5Y 8/1] siltstone with white roots and rootlets. | 1.5 | 17.5 |
| | - sharp contact - | | |

| Unit | | A | B |
|---|---|---|---|
| 3 | Siltstone and very fine sandstone, light olive grey [5Y 6/1] to medium grey (w/same, yellowish grey [5Y 7/2] and moderate yellowish brown [10YR 5/4]), laminated to unbedded, flaky and massive. Coal streaks up to 10 cm long common. White roots and rootlets extend down from upper surface. Siltstone and sandstone lens in and out. | 2.5 | 16.0 |
| | Sample 25419 1.1 m Siltstone. N3-39 | | |
| 2 | Scree, snow, and dolerite and sandstone blocks. | 9.5 | 13.5 |
| 1 | Sandstone, light grey (w/same, light olive grey [5Y 6/1], light brown [5YR 6/4]), fine, laminated, platy to massive. Some carbonaceous laminae. Scattered moderate olive brown [5Y 4/4] round concretions 1 to 2 cm across. Concretionary lens (w/moderate olive brown and dark yellowish brown [10YR 4/2]) from 1.7 to 1.9 m. | 4.0 | 4.0 |
| | Sample 25418 1.5 m Fine sandstone. N3-38 | | |
| | LASHLY FORMATION (524+ m). | | |
| | - gradational contact over 30 cm - | | |
| | FEATHER CONGLOMERATE (151 m) | | |
| | Sandstone, white (w/same, dark yellowish orange [10YR 6/6], moderate to dark yellowish brown [10YR 5/4-4/2] and light brown [5YR 5/6]), medium to coarse, unbedded, massive. Scattered round moderate olive brown [5Y 4/4] and moderate reddish brown [10R 4/6] concretions 2 to 3 cm across. Laminated in upper 0.5 m. Bluff-former. | | |
| | Sample 25417 -1.0 m Medium sandstone. N3-37 | | |
| | Note: Section continued by RAA, DVB 600 m west, where the 68-m-thick sill ends in a dyke that dips west at 30° to connect with a sill of similar thickness at the base of the Feather Conglomerate. The top of the Feather Conglomerate (above) is at the same level as the top of the dolerite bluffs to the east, where the section measured by PJB, ANC ends. | | |
| | Dolerite sill, 68 m thick. | | |
| | FEATHER CONGLOMERATE (151 m) | | |
| | Fleming Member (83 m) | | |
| 12 | Sandstone, like unit 4, and siltstone, like unit 3. Sandstone is in beds about 3 m thick commonly with coarse or gritty lenses at the base and with scattered dark reddish brown [10R 4/6] ferruginous spots 1 to 3 cm across. The sandstone becomes more greenish grey (w/moderate reddish brown [10R 4/6]) in upper 10 m. The siltstone is mostly snow-covered except just below sandstone contacts. Coaly shale layer from 31.6 to 31.8 at top of light greenish grey shaly very fine sandstone interval has poorly preserved stems. | 42 | 150.9 |
| | Sample 25416 40 m Medium sandstone. N3-36<br>25415 31.7 m Shaly siltstone with stems. N3-35A<br>25414 6 m Medium sandstone. N3-35 | | |
| 11 | Snow and scree. | 3.0 | 108.9 |
| 10 | Sandstone, like unit 7, but with a few pink quartz grains and thin greenish grey ferruginous beds. | 6.0 | 105.9 |
| | - erosion surface - | | |
| 9 | Siltstone, like unit 3. | | |
| 8 | Snow and scree. | 1.2 | 99.6 |

| Unit | | A | B |
|---|---|---|---|
| 7 | Sandstone, like unit 4, but fine to coarse and with scattered ferruginous concretions 2 to 5 cm across. | 4.3 | 94.9 |
| | Sample 23413 1.0 m Coarse sandstone. N3-34 | | |
| | - erosional contact with scattered 'dimple-like' bumps about 1 cm across - | | |
| 6 | Siltstone, like unit 3. | 0.3 | 94.1 |
| 5 | Snow and blocks of sandstone. | 8.7 | 93.8 |
| 4 | Sandstone, yellowish grey [5Y 8/1] (w/same, white and moderate yellowish brown [10YR 5/4]), medium to coarse, indistinctly very thin-bedded, massive to platy. Moderately well-sorted. Trough cross-beds 0.1 to 0.3 m thick. Lower part forms bluffs. | 6.0 | 85.1 |
| | - erosional contact - | | |
| 3 | Siltstone, olive grey [5Y 4/1] (w/same), fine, unbedded, flaky to massive. Bed of yellowish grey [5Y 8/1] clayey sandstone with large mica flakes from 0.7 to 1.0 m. | 1.1 | 79.1 |
| | Sample 25412 0.8 m Fine sandstone. N3-33<br>25411 0.6 m Siltstone. N3-32 | | |
| 2 | Snow and sandstone blocks, with rare outcrops of white and greenish grey medium to coarse sandstone. | 10.5 | 78.0 |
| | Fleming Member (83 m) | | |
| 1 | Sandstone, yellowish grey [5Y 8/1] (w/same, very light grey, light brown [5YR 6/4] and dark yellowish brown [10YR 4/2]), medium to coarse, indistinctly very thin-bedded, massive to slabby. Abundant white and pink feldspar grains in lower 7 m. Greenish grey [5GY 6/1] to olive black [5Y 2/1] shaly to flaky siltstone from 4.1 to 4.5 m. Scattered round ferruginous concretions 5 cm across in lower 7 m. | 67.5 | 67.5 |
| | Note: Extensive platform at 7 m at top of bluff. Section transposed about 200 m west. | | |
| | Sandstone becomes coarser, and gritty lenses with scattered angular white quartz pebbles up to 2 cm across appear above 15 m. A few thin ferruginous beds and concretionary layers above 22 m. Above this there are abundant though commonly indistinct vertical columns about 1 cm across that weather out as rods or show up due to colour differences. White quartz pebbles mostly 1 cm but up to 2 cm across become common and form 20% of the rock from 47 to 50 m. Above 50 m the pebbles are in scattered lenses as below. Upper part of unit forms prominent bluffs. | | |
| | Sample 25410 64.5 m Medium sandstone. N3-31<br>25409 25.4 m Coarse sandstone. N3-30<br>25408 7.0 m Medium sandstone. N3-29<br>25407 1.0 m Medium sandstone. N3-28 | | |
| | FEATHER CONGLOMERATE (151 m) | | |
| | - erosion surface - | | |

| Unit | | A | B |
|---|---|---|---|
| | WELLER COAL MEASURES (227 m) | | |
| 35 | Siltstone and very fine sandstone, light olive grey [5Y 6/1] to greenish grey [5GY 6/1] (w/same), indistinctly bedded, shaly to flaky. Poorly exposed under blocks and snow. Very sandy in upper 2 m. | 10.5 | 226.8 |
| | Sample 25406 9.3 m Fine sandstone. N3-27 | | |
| | - gradational contact - | | |
| 34 | Sandstone, like unit 32. | 6.5 | 216.3 |
| | Sample 25405 5.5 m Coarse sandstone. N3-26 | | |
| | - slumped contact - | | |
| 33 | Siltstone and very fine sandstone, medium grey to black (w/same), laminated, shaly to papery. Poorly exposed in scree. | 3.5 | 209.8 |
| | - gradational contact - | | |
| 32 | Sandstone, yellowish grey [5Y 8/1] (w/same, light brown [5YR 6/4] and dark yellowish brown [10YR 4/2]), fine to coarse, laminated to thin-bedded, massive to slabby. Laminae and thin beds of light olive grey siltstone and very fine sandstone. Carbonaceous siltstone lens from 4.3 to 4.5 m. A few coal streaks and thin carbonaceous shale fragments. Upper 2 m is very coarse and feldspathic. | 7.8 | 206.3 |
| | - erosional contact - | | |
| 31 | Siltstone and very fine sandstone, light to medium grey (w/same and light olive grey [5Y 5/2]), ripple-laminated, shaly. Some Glossopteris and star-shaped Vertebraria roots. | 3.2 | 198.5 |
| | - interfingering contact - | | |
| 30 | Sandstone, light grey (w/very light grey and dark yellowish brown [10YR 4/2]), very coarse, indistinctly thin-bedded, massive. Abundant large white feldspar crystals. | 1.3 | 195.3 |
| | Sample 25404 0.9 m Very coarse sandstone. N3-25 | | |
| | - erosional contact - | | |
| 29 | Siltstone, medium grey to black (w/same), shaly. Coaly. | 1.1 | 194.0 |
| | - gradational contact - | | |
| 28 | Sandstone, very light grey (w/same, yellowish grey [5Y 8/1] and dark yellowish orange [10YR 6/6]), medium to coarse, indistinctly thin-bedded, massive. A few thin beds of ripple-laminated fine sandstone with carbonaceous laminae. Siltstone fragments up to 30 cm long, including one with scattered quartz grains like unit 23. Trough cross-beds 0.1 to 0.2 m thick. | 11.5 | 192.9 |
| | Sample 25403 1.8 m Coarse sandstone. N3-24 | | |
| | - slumped contact - | | |
| 27 | Siltstone and very fine sandstone, medium grey to black (w/same and light olive grey [5Y 5/2]), laminated, shaly. Coaly in upper part. | 0.7 | 181.4 |
| | - scree-covered contact - | | |
| 26 | Sandstone, like unit 22. Poorly exposed. | 4.5 | 180.7 |
| | - snow-covered contact - | | |

| Unit | | A | B |
|---|---|---|---|
| 25 | Snow and scree, underlain by medium to dark grey shaly siltstone.<br><br>Note: Section line transposed about 100 m to the west at this level. | 10.0 | 176.2 |
| 24 | Sandstone, like unit 22, but medium to very coarse-grained. Mainly trough cross-bedded. Scattered subrounded white quartz pebbles up to 4 cm long. Subrounded boulder 0.5 m long of medium grey quartzite at base. Rare coal streaks in lower m. A few pink ?quartz grains up to 0.5 cm across.<br><br>Sample 25402 3.0 m Coarse sandstone. N3-23<br><br>- erosional contact - | 4.0 | 166.2 |
| 23 | Siltstone, medium grey (w/light olive grey [5Y 6/1-5/2]), thin-bedded, shaly. Scattered white quartz grit and pebbles up to 2 cm long.<br><br>- interfingering contact - | 0.7 | 162.2 |
| 22 | Sandstone, yellowish grey [5Y 7/2] (w/same, light olive [5Y 6/1], dark yellowish orange [10YR 6/6] and light brown [5YR 6/4]), fine to medium, laminated to thin-bedded, massive. Lower m contains abundant stems and coal streaks, siltstone fragments mostly 2 to 5 cm across, and white subrounded quartz pebbles mostly 1 to 2 but up to 7 cm across. Several thin coarse sandstone lenses. Unit mainly parallel or ripple laminated, but some trough cross-bedding.<br><br>Sample 25401 1.0 m Medium sandstone. N3-22<br><br>- erosional contact - | 6.9 | 161.5 |
| 21 | Siltstone, medium grey (w/light olive grey [5Y 6/1-5/2] and moderate yellowish brown [10YR 5/4]), finely laminated, shaly to papery. Abundant Glossopteris leaves and a few star-like Vertebraria roots.<br><br>Sample 25400 0.2 m Siltstone with plants. N3-21<br><br>- sharp contact - | 0.4 | 154.6 |
| 20 | Coal, bright, laminated. Dense network of thin white veins.<br><br>Sample 25399 0.5 m Coal. N3-20<br><br>- snow-covered contact - | 0.5 | 154.2 |
| 19 | Siltstone and very fine sandstone, medium to dark grey grey (w/light olive grey [5Y 6/1-5/2]), ripple-laminated, shaly to papery.<br><br>- snow-covered contact - | 7.1 | 153.7 |
| 18 | Sandstone, light grey (w/very light grey, yellowish grey [5Y 8/1] and a little brown [5YR 6/4]), fine, laminated, massive. Several carbonaceous very fine sandstone lenses up to 1 m thick. A few lenses of quartz grit and white pebbles up to 2 cm across. Scattered concretionary structures up to 0.8 m thick and 5 m long.<br><br>Sample 25398 6.3 m Concretion. N3-19<br>25397 5.7 m Fine sandstone. N3-18<br><br>- gradational contact - | 22.5 | 146.6 |
| 17 | Sandstone, light grey (w/white and yellowish grey [5Y 8/1]), medium to coarse, very thin-bedded, massive. Very feldspathic. Some thin carbonaceous laminae. Plastically deformed siltstone fragments up to 50 cm long.<br><br>Sample 25396 0.2 m Coarse sandstone. N3-17 | 2.4 | 124.1 |

| Unit | | A | B |
|---|---|---|---|
| | - erosional contact with 1 m of undulating relief over 5 m - | | |
| 16 | Siltstone and very fine sandstone, medium to dark grey (w/medium grey, light olive grey [5Y 6/1-5/2] and a little moderate yellowish orange [10YR 7/6]), finely laminated, shaly to papery. | 6.6 | 121.7 |
| | - gradational contact - | | |
| 15 | Sandstone, light grey (w/very light grey to white), fine to medium, laminated to unbedded, massive. Carbonaceous laminae common. Coal streaks and light olive grey [5Y 5/2] siltstone fragments up to 20 cm across at several levels. Some shaly fine sandstone lenses. A few concretionary lenses as in unit 9. Mainly slope-former, but bluffs 1 to 3 m high every 5 m. | 34.8 | 115.1 |
| | Sample 25395 32.3 m Fine sandstone. N3-16<br>25394 9.7 m Medium sandstone. N3-15 | | |
| | - snow-covered contact - | | |
| 14 | Sandstone, yellowish grey (w/same, light olive grey [5Y 6/1] and light brown [5YR 6/4]), fine to medium, laminated, massive. A few subrounded white quartz pebbles up to 5 cm across in lenses at base. Ripple-laminated and trough cross-bedded. Well-cemented. Concretionary sandstone as in unit 9 0.8 m thick forms top of unit. Torn up and plastically deformed siltstone fragments up to 30 cm across at 2 m. Bluff-former. | 4.9 | 80.3 |
| | Sample 25393 0.5 m Fine sandstone. N3-14 | | |
| | - erosional contact - | | |
| 13 | Sandstone, light grey (w/yellowish grey to light olive grey [5Y 8/1-6/1] very fine to fine, parallel and ripple-laminated, massive to shaly. Several lensoid well-laminated light grey (w/same and moderate yellowish brown [10YR 5/4]) fine sandstone beds up to 1 m thick above 4.5 m. The lenses are similar to concretions in unit 9 and contain thin coal streaks. Angular discordances of up to 10° in upper 4 m. Bluff-former. | 12.0 | 75.4 |
| | - gradational contact - | | |
| 12 | Siltstone and very fine sandstone, medium to dark grey (w/light to medium grey, light olive grey [5Y 6/1-5/2] and a little moderate yellowish orange [10YR 7/6]), ripple-laminated, shaly. Becomes more silty and papery above 6 m. Best exposed in bluff from 11 to 13 m, where there are laminae and thin beds with coarse quartzose sand. Several thin fine sandstone beds at other levels. Light grey fine sandstone forms prominent ledge from 4.2 to 4.5 m. Unit becomes light grey and less fissile in upper 5 m. Slope-former. | 22.6 | 63.4 |
| | Sample 25392 4.4 m Fine sandstone. N3-13 | | |
| | - snow-covered contact - | | |
| 11 | Sandstone, very light grey (w/same), medium to coarse, indistinctly thin-bedded, massive. Concretions like unit 9. Slope-former. | 2.8 | 40.8 |
| | Sample 25391 1.9 m Concretion. N3-12<br>25390 0.0 m Coarse sandstone. N3-11 | | |
| | - sharp contact - | | |
| 10 | Siltstone and very fine sandstone, medium to dark grey (w/same and light olive grey [5Y 6/1]), laminated, shaly to papery. | 0.6 | 38.0 |

| Unit | | A | B |
|---|---|---|---|
| | - gradational contact - | | |
| 9 | Sandstone, light grey (w/very light grey), very fine to fine, ripple-laminated, massive to shaly. Carbonaceous laminae common. Light grey (w/moderate yellowish brown [10YR 5/4] concretions up to 1 m thick and 6 m across. Slope-former. | 4.5 | 37.4 |
| | - gradational contact - | | |
| 8 | Sandstone, yellowish grey [5Y 8/1] (w/same, white, light brown [5YR 6/4] and moderate yellowish brown), fine to medium, indistinctly laminated, massive. Carbonaceous laminae common. Lenses of olive grey siltstone fragments up to 10 cm across in lower 2 m. | 7.0 | 32.9 |
| | Sample 25389 0.7 m Fine sandstone. N3-10 | | |
| | - erosional contact - | | |
| 7 | Siltstone and very fine sandstone, medium grey to black (w/same, light olive grey [5Y 6/1] and a little light brown [5YR 5/6]), finely laminated, shaly to papery. Some stems and Glossopteris fragments. | 0.4 | 25.9 |
| | Sample 25388 0.1 m Siltstone with Glossopteris. N3-09 | | |
| | - gradational contact - | | |
| 6 | Sandstone, yellowish grey [5Y 8/1] (w/same and light brown [5YR 6/4]), fine, ripple-laminated, massive. Some carbonaceous laminae. Mainly snow-covered. Slope-former. | 9.7 | 25.7 |
| | Sample 25387 5.5 m Fine sandstone. N3-08 | | |
| | - gradational contact - | | |
| 5 | Sandstone, like unit 3. | 1.7 | 16.0 |
| | - slumped contact - | | |
| 4 | Siltstone, dark grey (w/same), fine, shaly. Coal bed 0.3 m thick at top. | 0.5 | 14.3 |
| | Sample 25386 0.4 m Coal. N3-07 | | |
| | - gradational contact - | | |
| 3 | Sandstone, light grey (w/same, yellowish grey [5Y 8/1] and moderate yellowish brown [10YR 5/4]), medium to coarse, indistinctly very thin bedded, slabby to massive. White feldspar common. | 3.2 | 13.8 |
| | Sample 25385 1.5 m Coarse sandstone. N3-06 | | |
| 2 | Snow and scree, underlain by dark grey to black shaly siltstone. | 2.7 | 10.6 |
| 1 | Sandstone, light to dark grey (w/same), fine to medium. Poorly exposed under snow and scree. Quartzose and feldspathic. Scattered subangular to subrounded white and light grey quartz pebbles up to 8 cm long. Coarse light grey sandstone beds appear above 6 m. Lithology of lower part not dissimilar to the Metschel Tillite at Shapeless Mountain (S9). | 7.9 | 7.9 |
| | Sample 25384 0.5 m Sandstone with pebble. N3-05 | | |
| | WELLER COAL MEASURES (227 m) | | |
| | - snow and scree-covered contact - | | |

| Unit | | A | B |
|---|---|---|---|
| | AZTEC SILTSTONE (65+ m) | | |
| 6 | Sandstone, like unit 2. Some flaggy-quartzose medium sandstone. | 1.5 | 64.5 |
| | Sample 25383 1 m Medium sandstone. N3-04 | | |
| 5 | Snow and scree, with blocks of well-cemented quartzose sandstone. | 9.5 | 63.0 |
| 4 | Sandstone, like unit 2. | 0.9 | 53.5 |
| | Sample 25382 0.4 m Fine sandstone. N3-03 | | |
| 3 | Snow and scree, with blocks of well-cemented quartzose sandstone. | 16.1 | 52.6 |
| 2 | Sandstone, white (w/same, moderate yellowish brown [10YR 5/4] and moderate reddish brown [10R 4/6]), fine, indistinctly laminated, slabby to massive. Entirely quartzose. Finer beds very well-cemented; slightly coarser beds not so. Trough cross-beds 0.1 to 0.3 m thick. Some laminae and thin beds of coarse angular to subangular quartz sand deposited in scours. Unit poorly exposed in snow. | 10.8 | 36.5 |
| | Sample 25381 10.3 m Fine sandstone. N3-02<br>25380 0.1 m Fine sandstone. N3-01 | | |
| 1 | Snow and scree, with blocks of dolerite and well-cemented quartzose sandstone. | 24.7 | 24.7 |
| | Valley floor. | | |

SECTION D4 - SOUTH ROBISON PEAK

Section measured on eastern face of the peak to the south of the Robison Peak. Base of section 4•6 km at 153°30' from summit. Measured with staff and level by RAA, DVB 12/71.
Position of base 77° 14.2' S; 160° 20.3' E. Map elevation 2000 m.

| Unit | | A | B |
|---|---|---|---|
| | Thin dolerite sill capping summit. | | |
| | LASHLY FORMATION (259+ m) | | |
| 35 | Very fine sandstone and medium siltstone, light grey (w/same and light brown [5YR 6/4 - 5/6]), laminated, massive. Siltstone in lower 1 m with slump structures in the overlying sandstone. | 2.1 | 258.9 |
| | Sample 24686 0.1 m Fine to very fine sandstone. D4-25 | | |
| | - erosional contact - | | |
| 34 | Sandstone, medium grey (w/same and light brown [5YR 6/4 - 5/6]), fine, indistinctly laminated, thin bedded, massive. Trough cross-bedded. Coarse siltstone interbeds. | 6.7 | 256.8 |
| | - erosional contact - | | |
| 33 | Siltstone, medium grey (w/same and light brown [5YR 6/4]) indistinctly laminated, thin bedded, massive. | 1.1 | 250.1 |
| | - gradational contact over 10 cm - | | |
| 32 | Sandstone, medium grey (w/same and light brown [5YR 6/4]), fine, laminated, massive. Trough cross-bedded. Forms platform. | 9.1 | 249.0 |
| 31 | Sandstone, medium grey (w/same, light brown [5YR 6/4] and light olive grey [5Y 5/2]), very fine, indistinctly laminated in lower m then distinctly laminated, massive. Carbonaceous laminae above 1 m. | 1.6 | 239.9 |
| 30 | Interbedded very fine sandstone and coarse siltstone, light to medium grey (w/same and light brown [5YR 6/4]), laminated, massive. Some sandstone is trough cross-bedded. | 1.5 | 238.3 |
| | - snow-covered contact - | | |
| 29 | Sandstone, like unit 27. Contains plant fragments. Exposed as a broad platform with well-preserved ripples. Grades up into dark siltstone. | 4.5 | 236.8 |
| | Sample 24685 4.0 m Coarse siltstone. D4-24 | | |
| 28 | Dolerite scree and snow slope. | 3.5 | 232.3 |
| 27 | Sandstone, medium grey (w/same and light brown [5YR 6/4]), interbedded very fine and fine, laminated, papery to shaly. | 6.0 | 228.8 |
| | Sample 24684 1.0 m Sandstone. D4-23 | | |
| 26 | Scree and snow slope. | 20.9 | 222.8 |
| 25 | Sandstone, yellowish grey [5Y 8/1] (w/same and light brown [5YR 6/4]), fine, indistinctly laminated, massive. Scour channel at 1.5 m infilled with quartz pebbles and siltstone fragments. Carbonaceous laminae and coal streaks 1 x 10 cm above 3 m. Trough cross-bedding above 3 m. Scattered petrified logs from 6 to 8.5 m. | 8.7 | 201.9 |
| | Sample 24683 0.1 m Fine sandstone. D4-22 | | |
| | - erosional contact - | | |

| Unit | | A | B |
|---|---|---|---|
| 24 | Sandstone, light to dark grey (w/same and light brown [5YR 5/6]), very fine to fine, finely laminated and unbedded, papery to flaky and massive. Laminae of coarse siltstone. Striate stems in carbonaceous laminae. Leaves of Dicroidium flora at 4.9 m. | 7.7 | 193.2 |
| | Sample 24682 7.4 m Medium grey siltstone with stems. D4-21<br>24681 4.9 m Dark grey siltstone with leaves. D4-20<br>24680 2.7 m Dark grey siltstone with stem. D4-20a | | |
| | - gradational contact - | | |
| 23 | Sandstone, very light grey (w/same light brown [5YR 5/6] and moderate yellowish brown [10YR 5/4]), medium, indistinctly laminated and thin-bedded, platy and massive. Some trough cross-bedding. Basal lenses infilling scours of subangular to rounded pebbles of quartz, 0.5 to 2 cm across and up to 40 cm, rare quartz mica schist 2 cm across, light greenish grey [5GY 8/1] to olive grey [5Y 4/1] siltstone fragments up to 10 cm long, coal streaks and stem impressions. Lower 1 m contains coal streaks up to 20 cm long, siltstone fragments and some quartz pebbles 0.2 to 1 cm across. Pebble band at 1.9 m of subangular to sub-rounded white vein quartz and occasionally light grey quartz, 1.5 to 3 cm across and some quartz mica schist 1 to 2 cm across. | 15.0 | 185.5 |
| | - erosional contact - | | |
| 22 | Interbedded fine to medium sandstone and coarse siltstone, very light grey (w/same, light olive grey [5Y 6/1], greenish grey [5GY 6/1], moderate yellowish brown [10YR 5/4] and light brown [5YR 5/6]), laminated to thin-bedded, massive. In lower 1 m the sandstone interbeds contain light greenish grey [5GY 8/1] siltstone fragments and small lenses, also gritty pebble lenses. Pebbles are subangular to rounded white vein quartz, 0.5 to 2 cm across. Upper 1 m is fine sandstone only. | 3.7 | 170.5 |
| | - erosional contact - | | |
| 21 | Sandstone, light grey to yellowish grey [5Y 8/1] (w/same, light olive grey [5Y 6/1], light brown [5YR 6/4 - 5/6] and moderate yellowish brown [10YR 5/4]), fine to coarse, well-sorted, indistinctly laminated to unbedded, massive. Trough cross-bedded in places with individual fine and coarse beds 0.5 m thick. Basal lenses 0.3 m thick infilling scours are coarse sandstone with coal fragments. Pebble band in scour surface at 7.2 m of subangular white vein quartz 0.5 to 2 cm and up to 6 cm across, and light greenish grey [5GY 8/1] siltstone fragments with roots and rootlets, 2 to 5 cm and up to 15 cm across. Occasional lenses of coarse sandstone throughout the mainly medium sandstone. Unit grades to a fine sandstone above 9 m and becomes more carbonaceous towards the top. Light olive grey [5Y 6/1] siltstone from 14.5 to 14.7 m. | 17.4 | 166.8 |
| | Sample 24679 3.0 m Coarse sandstone. D4-19 | | |
| | - erosional contact - | | |
| 20 | Sandstone, yellowish grey [5Y 8/1] (w/same and light brown [5YR 6/4]), fine to medium, indistinctly laminated to very thin-bedded, massive. Trough cross-bedded. Lens at 6 m of siltstone fragments 10 to 30 cm long, from 16.5 to 16.7 m with fragments 5 cm long, and from 18.8 to 19.0 m with olive grey [5Y 4/1] to medium grey siltstone fragments. | 54.3 | 149.4 |

| Unit | | A | B |
|---|---|---|---|
| | Carbonized wood fragments at 10 m. Coal streaks from 0.5 to 2 cm thick and 50 to 100 cm long and carbonised stems and roots from 26 to 27 m. Carbonaceous laminae from 34.5 to 34.7 m with coal streaks and light olive grey [5Y 6/1] and very light grey siltstone fragments. Large partly silicified carbonised log 25 cm by 1.5 m at 43.5 m with scattered wood fragments and light grey siltstone fragments at same level. Lens from 53.1 to 54.3 m of light grey, laminated, shaly to massive fine sandstone, containing very abundant medium grey siltstone fragments and carbonaceous laminae. Unit forms very prominent bluffs. | | |
| | Sample 24678 22.9 m Fine sandstone. D4-18<br>24677 0.6 m Fine to medium sandstone. D4-17 | | |
| | - erosional contact - | | |
| 19 | Sandstone, light grey (w/same and light brown [5YR 6/4]), fine, laminated and unbedded above 1.5 m, massive. Planar cross-bedded in lower 0.5 m. Lens 3 m long from 1.0 to 1.5 m with light olive grey siltstone fragments mostly up to 10 cm across but rarely up to 30 cm, and ovoid, dark yellowish orange [10YR 6/6] and dusky yellowish brown [10YR 2/2] ferruginous concretions. Lens at 10.5 m of large siltstone fragments mostly 10 cm but up to 30 cm across. Cross-bedded above 12 m. Lens of shaly light grey siltstone in upper 0.5 m. Bluff-former. | 13.7 | 95.1 |
| | - erosional contact - | | |
| 18 | Sandstone, light grey (w/same and light brown [5YR 6/4]), fine, unbedded, platy and massive. Grades up into a coarse siltstone with roots and rootlets above 5.3 m. | 6.4 | 81.4 |
| | Sample 24676 5.3 m Fine sandstone. D4-16 | | |
| | - erosional contact with 0.2 m relief - | | |
| 17 | Very fine sandstone and coarse siltstone, medium grey to yellowish grey [5Y 8/1] (w/medium grey, light olive grey [5Y 6/1], light brown [5YR 6/4] and moderate to dark yellowish brown [10YR 5/4 - 4/2]), indistinctly ripple-laminated to unbedded, massive. Root flecks in upper part and burrows 2 mm wide and 10 mm deep from upper surface of unit. | 1.5 | 75.5 |
| | - erosional contact - | | |
| 16 | Fine siltstone and a little very fine sandstone, light to medium light grey (w/yellowish grey [5Y 8/1], light greenish grey [5GY 8/1], dusky yellow [5Y 6/4] and light brown [5YR 6/4]), unbedded, massive. Lower 5 to 10 cm is medium dark grey. Contains white roots and rootlets up to 1 cm thick and 15 cm long and a few siliceous and coaly stems. Becomes more carbonaceous towards the top of the unit. Calamitid stems in upper 0.5 m. | 2.2 | 73.5 |
| | Sample 24675 2.0 m Siltstone. D4-15<br>25674 0.6 m Siltstone. D4-14 | | |
| | - gradational contact - | | |

| Unit | | A | B |
|---|---|---|---|
| 15 | Sandstone, yellowish grey [5Y 8/1] (w/same, light brown [5YR 6/4] and greenish grey [5GY 6/1]), fine, indistinctly laminated, slabby to massive. Trough cross-bedded. Basal erosion surface is mudcracked, with white and light grey quartz pebbles 1 to 4 cm across, light olive grey siltstone fragments up to 5 cm long and siliceous coaly stems up to 15 cm long. Lens from 1.1 to 1.4 m of finely laminated, papery to platy, very fine sandstone and with fine carbonaceous laminae. Becomes more carbonaceous towards the top of the unit. Platform at 2.5 m. | 2.5 | 71.3 |
| | - erosional contact - | | |
| 14 | Sandstone, like unit 13. Above 1.3 m sandstone grades into a coarse massive siltstone with white rootlets. Upper 0.5 m weathers light brown [5YR 6/4]. | 3.8 | 68.8 |
| | - erosional contact with 10 cm relief - | | |
| 13 | Sandstone, light greenish grey [5GY 8/1] (w/same, light olive grey [5Y 6/1] and light brown [5YR 6/4]), fine to medium, ripple-laminated, flaky to massive. Grades to a coarse siltstone above 4 m and becomes indistinctly parallel laminated and unbedded. Silicified and coaly stems up to 10 cm long scattered through the unit. Upper 0.5 m weathers light brown [5YR 6/4]. Slope-former. | 7.2 | 65.0 |
| | - gradational contact over 10 cm - | | |
| 12 | Sandstone, yellowish grey [5Y 8/1] (w/same and light brown [5YR 6/4]), fine to medium, ripple-laminated, massive. Upper 0.2 m forms a platform and weathers light olive grey [5Y 5/2] and moderate brown [5YR 4/4 - 3/4]. | 4.5 | 57.8 |
| | - erosional contact - | | |
| 11 | Sandstone, yellowish grey [5Y 8/1] (w/same, light brown [5YR 6/4] and greenish grey [5GY 6/1]), fine to medium, finely laminated to indistinctly thin bedded, massive. Coal streaks 10 cm across and 3 cm long at base. Lenses of quartz pebbles infilling scours in lower 0.1 to 0.4 m. Pebbles commonly pale pink in lower 0.1 m with pink, white and grey quartz grit, and greenish grey siltstone fragments 2 to 15 cm long. Ripple-laminated above 2 m becoming finer towards the top. The upper m is siltstone with white roots and rootlets. | 4.9 | 53.3 |
| | Sample 24673 0.3 m Fine to medium sandstone. D4-13 | | |
| | - erosional contact - | | |
| | Dolerite sill 0.1 m thick just below erosion contact. | | |
| 10 | Sandstone, yellowish grey [5Y 8/1] (w/same and light brown [5YR 6/4]), fine, laminated, flaky to massive. Trough cross-bedded. Occasional scattered siltstone fragments up to 2 cm across. Lower 0.2 m is coarse sand with lenses of white quartz pebbles 0.2 to 5 cm across, rare quartz mica schist pebbles up to 3 cm across, and light olive grey siltstone fragments up to 10 cm long. Rare pink pebbles. Some siltstone fragments have burrows 0.1 cm wide and 1 cm deep. Unit becomes finer above 4 m with scattered small coal streaks and stems 0.2 m long. Unit grades into a siltstone above 5.5 m with white rootlets. | 7.9 | 48.4 |
| | Sample 24672 7.0 m Siltstone. D4-12 | | |
| | - erosional contact - | | |

| Unit | | A | B |
|---|---|---|---|
| 9 | Sandstone, yellowish grey [5Y 7/2] (w/same, light olive grey [5Y 6/1] and light brown [5YR 6/4 - 5/6]), fine to medium, indistinctly laminated, platy to massive. Trough cross-bedded. Occasional horizons of light olive grey siltstone fragments 1 to 2 cm across. Gritty lens with siltstone fragments from 2.2 to 2.3 m. Ripple-laminated at 3 m becoming gradually finer upward. Unit grades into a siltstone with white rootlets. Burrowing from upper surface. Bluff-former. | 6.8 | 40.5 |
| | - erosional contact - | | |
| 8 | Siltstone, light olive grey [5Y 6/1] (w/same and light brown [5YR 6/4]), coarse, laminated to unbedded, massive. Contains white roots and rootlets. | 6.6 | 33.7 |
| | - gradational contact - | | |
| 7 | Sandstone, yellowish grey [5Y 8/1] (w/same, light olive grey [5Y 5/2] and light brown [5YR 6/4 - 5/6]), fine, ripple-laminated, platy to massive. | 4.5 | 27.1 |
| | - erosional contact with 10 cm relief - | | |
| 6 | Sandstone, light olive grey [5Y 6/1] (w/same and light brown [5YR 6/4]), fine to medium, indistinctly parallel and ripple-laminated to thin-bedded, flaky to massive. Becomes finer, unbedded and more massive towards top of unit. Upper m contains white roots and rootlets and scattered coaly stems 0.5 x 1 cm and up to 10 cm long. | 2.3 | 22.6 |
| | - erosional contact - | | |
| 5 | Sandstone, yellowish grey [5Y 8/1] (w/same and light brown [5YR 6/4]), fine to coarse, poorly sorted, indistinctly laminated to very thin-bedded, massive. Light olive grey [5Y 6/1] siltstone fragments 3 to 15 cm long, often with small vertical burrows in basal part. Basal 0.5 m also contains coal streaks up to 20 cm long and rare pink and white quartz pebbles 1 cm across. Scattered thin siltstone beds up to 10 cm thick further up in unit. | 3.4 | 20.3 |
| | - erosional contact - | | |
| 4 | Very fine sandstone and coarse siltstone, yellowish grey [5Y 8/1] and light olive grey [5Y 6/1] (w/same and light brown [5YR 6/4]), indistinctly laminated to unbedded, massive. | 0.7 | 16.9 |
| | - erosional contact - | | |
| 3 | Sandstone, yellowish grey [5Y 8/1] (w/same and light brown [5YR 6/4 - 5/6]), fine, indistinctly laminated to very thin-bedded, massive. Indistinctly trough cross-bedded. Bluff-former. | 3.2 | 16.2 |
| | Sample 24671 2.1 m Fine sandstone. D4-11 | | |
| 2 | Scree, snow and tumbled sandstone blocks. | 12.3 | 13.0 |
| | Dolerite sill 1.8 m thick. | | |
| 1 | Sandstone, yellowish grey [5Y 8/1] (w/same, light olive grey [5Y 6/1] and light brown [5YR 6/4 - 5/6]), fine to very fine, parallel and ripple laminated, papery round moderate olive brown [5Y 4/4] concretions, 3 cm across. | 0.7 | 0.7 |

Note:- Weathers as series of bluffs and platforms.

LASHLY FORMATION (259+ m)

| Unit | | A | B |
|---|---|---|---|
| | - gradational contact over 10 cm - | | |
| | FEATHER CONGLOMERATE (185+ m) | | |
| | Note:- Weathers as slopes and bluffs. | | |
| 16 | Sandstone, mostly white but yellowish grey [5Y 8/1] in basal metre, (w/same), coarse, laminated to thin-bedded, massive. Trough cross-bedded in lower m. Basal lens up to 1 m thick of medium to dark greenish grey [5GY 6/1 - 4/1], shaly to massive siltstone. Horizons of gritty sandstone with rounded quartz pebbles up to 1 cm across, and of greenish grey [5GY 6/1] siltstone fragments 2 to 10 cm across. Greyish black, dusky yellowish brown [10YR 2/2] and dark yellowish orange [10YR 6/6] concretionary lens 4 m long and up to 0.2 m thick at 8.0 m. Dark mineral grains (including magnetite?) aligned along bedding planes between 12 and 13 m with undulating horizon of siltstone fragments 2 to 10 cm long and rare scattered pink grains. Pure white quartzose coarse and gritty sandstone again above 13.0 m.<br><br>Dolerite sill 1.0 m thick at 39.5 m.<br><br>Increase of light brown [5YR 6/4] weathering colour above 39.5 m. Some trough cross-bedding with units 0.2 m thick and abundant dark mineral grains aligned along the bedding planes. Occasional scattered thin siltstone lenses 0.1 m thick and 1 m long become more common towards the top of the unit. Also horizons of siltstone fragments and well-rounded vein quartz pebbles. Slope and bluff-former.<br><br>Sample 24670 58.8 m Very coarse sandstone. D4-10<br>24669 20.0 m Coarse sandstone. D4-09<br>24668 5.3 m Coarse sandstone. D4-08 | 63.0 | 184.8 |
| | - erosional contact with mudcracked surface - | | |
| 15 | Sandstone, white (w/same and light brown [5YR 6/4]), coarse, laminated, massive. Trough cross-bedded units 0.3 m thick. Gritty horizon from 2.0 to 2.2 m with rounded quartz pebbles up to 2 cm across. Lenses of light olive grey [5Y 5/2] (w/same, light brown [5YR 6/4 - 5/6], dusky yellow [5Y 6/4] and moderate yellowish orange [10YR 7/6]), flaky to massive siltstone and very fine sandstone above 5.5 m. | 7.5 | 121.8 |
| | - erosional contact - | | |
| 14 | Sandstone, yellowish grey [5Y 7/2] (w/same, dark yellowish orange [10YR 6/6], olive grey [5Y 3/2], dusky yellow [5Y 6/4], dark grey and light brown [5YR 6/4]), fine to coarse, unbedded, massive. Grades to siltstone in upper 0.1 m with weathering colours in mottled network. Paleosol ? | 0.6 | 114.3 |
| | - gradational contact - | | |
| 13 | Sandstone, white to yellowish grey [5Y 8/1] (w/same, light [5YR 6/4] and moderate yellowish brown [10YR 5/4]), fine to coarse, massive. Trough cross-bedded. Like unit 10. | 1.5 | 113.7 |
| | - sharp contact - | | |
| 12 | Siltstone, yellowish grey [5Y 8/1] (w/light brown [5YR 6/4 - 5/6]), finely laminated, massive. | 0.2 | 112.2 |
| | - gradational contact - | | |

| Unit | | A | B |
|---|---|---|---|
| 11 | Sandstone, yellowish grey [5Y 8/1] (w/light brown [5YR 6/4]), coarse, massive. Trough cross-bedded. Basal part contains siltstone blocks 5 to 10 cm across. Becomes finer towards top. | 0.7 | 112.0 |
| | Sample 25467 0.3 m Medium sandstone. D4-07 | | |
| | - gradational contact - | | |
| 10 | Sandstone, white to yellowish grey [5Y 8/1] (w/same, light brown [5YR 6/4] and moderate yelliwish brown [10YR 5/4]), fine to coarse, quartzose, laminated, massive and with knobbly weathering. Trough cross-bedded. Fine sandstone in beds 3 cm thick and several metres long. | 4.0 | 111.3 |
| | Sample 25466 0.7 m Coarse sandstone. D4-06 | | |
| | - erosional contact - | | |
| 9 | Sandstone, white to yellowish grey [5Y 8/1] (w/same and a little light brown [5YR 6/4]), coarse, massive. Some trough cross-bedding with individual units 0.1 to 0.3 m thick. Lenses of grit-sized quartz averaging 3 mm across. Some fine sand in the gritty lenses, subangular to rounded quartz pebbles 1 to 2 cm across, and rare pink quartz pebbles 1 to 3 cm across. Lathlike feldspar grains 1 to 3 mm across common. Grades into coarse siltstone in upper 0.3 m. | 27.6 | 107.3 |
| | Sample 25465 5.3 m Coarse sandstone. D4-05 | | |
| | - gradational contact - | | |
| 8 | Sandstone, yellowish grey [5Y 7/2] (w/same, moderate to dark yellowish brown [10YR 5/4 - 4/2], light brown [5YR 5/6], moderate reddish brown [10R 4/6] and dusky yellow [5Y 6/4]), fine to gritty, poorly sorted, massive. Scattered unbedded concretionary lenses (w/moderate olive brown [5Y 4/4], dusky purplish blue [5PB 3/2] and dark yellowish orange [10YR 6/6]), containing rounded quartz pebbles up to 1.5 cm across. Scattered concretionary structures of very fine sandstone to coarse siltstone mostly 1 to 5 cm across but rarely up to 1 m long. Vertical burrows 1 cm wide and 3 cm deep between 10.4 and 11 m. Bluff-former. | 20.0 | 79.9 |
| | Sample 25464 9.3 m Coarse sandstone. D4-04 | | |
| 7 | Scree and snow slope. | 2.7 | 59.7 |
| 6 | Sandstone, white (w/same, light brown [5YR 6/4] and moderate yellowish brown [10YR 5/4]), fine to coarse, poorly sorted, laminated, massive. Siltstone fragments in basal part. Some trough cross-bedding with alternating fine and coarse beds. Coarser beds contain rounded quartz 3 to 5 mm across. Scattered pink pebbles. Common scattered round ferruginous concretions 2 to 5 cm across are light olive grey to olive grey [5Y 5/2 - 3/2] (w/sark reddish brown [10R 3/4]). Lens of yellowish grey [5Y 7/2] very fine sandstone to coarse siltstone from 16.8 to 17 m. No pink pebbles above 24 m. | 40.9 | 57.0 |
| | Sample 25463 16.9 m Siltstone D4-03<br>25462 0.4 m Coarse sandstone. D4-02 | | |
| 5 | Siltstone, like unit 2. | 4.8 | 16.1 |
| | - gradational and erosional contact - | | |

| | | | A | B |
|---|---|---|---|---|
| | ...ne sandstone and siltstone, like unit 2, but w/very light grey to light greenish grey [5GY 8/1]. Contains white root flecks. Very fine sandstone is in lenses up to 0.8 m thick. | 3 | 3.6 | 11.3 |
| | - gradational contact - | | | |
| 3 | Sandstone, like unit 1. Trough cross-bedded with lenses and fragments of shaly siltstone (like siltstone in unit 2) in base of troughs. Fragments are 5 to 15 cm long and the lenses up to 0.3 m thick and 1 m long. Scattered small pink quartz pebbles 3 to 5 mm across, greyish orange pink [10R 8/2], to moderate orange pink [10R 7/4] to moderate reddish orange [10R 6/6]. | | 5.6 | 7.7 |
| | - interfingering contact - | | | |
| 2 | Sandstone, olive grey [5Y 4/1] (w/light olive grey [5Y 5/2] and greyish yellow green [5GY 6/2]), very fine, unbedded, flaky and massive. Thin laminae of siltstone of same colour. | | 0.9 | 2.1 |
| | - interfingering contact - | | | |
| 1 | Sandstone, white (w/same and light brown [5YR 6/4]), coarse, quartzose, laminated, flaky and massive. Trough cross-bedded. | | 1.2 | 1.2 |
| | Sample 25461 1.2 m Medium sandstone. | | D4-01 | |
| | FEATHER CONGLOMERATE (185+ m) | | | |
| | Dolerite scree. | | | |
| | Moraine and glacier ice. | | | |