Thicknesses of Owen Conglomerate (2 copies)
L.E.C. 20/6/58

Regional No 148.

58-231

THICKNESS OF OWEN
CONGLOMERATE.

Copy 1 of 2

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20th June, 1958.

To: Mr. C.F. Hudspeth.

Thicknesses of Owen Conglomerate

The thickness of the Owen Conglomerate is summarised in the attached sheets. For the purposes of this report the Gordon and Arthur concessions have been divided into the following areas:

A. Queenstown - Darwin Area

B. Central Area

An area between 370,000 yards east (Military grid reference) and 410,000 yards east. This has been subdivided again into:

(a) Northern Block - north of the Linda Disturbance;

(b) Central Block - north of the Eagle Creek Fault;

(c) Southern Block - south to Bathurst Harbour.

C. Adamsfield Area

A. QUEENSTOWN - DARWIN AREA

The rapid changes in thickness of the Owen Conglomerate is due to the existence of the Dundas Ridge during the deposition of the Conglomerate. This Ridge caused a zone of little or no deposition north of the King River and west of the existing Range, with the main zone of sedimentation thickening rapidly northwards from Mount Jukes.

	Mount Sedgwick	Possible 3000 feet.
	Mount Lyell	2650 feet
	Mount Jukes	1250 feet
1 mile south of	Mount Jukes	700 feet
	Mount Sorell	600 feet
near	Queen River Valley	80 feet
	Lynch Creek	

These figures may be reduced if the Upper Owen is demonstrated to be the Caroline Creek Sandstone.

B. CENTRAL AREA

(a) Northern Block

1. Carey and Banks (1954), p.256

The Gordon limestone is approximately 2100 feet thick. They surmise a sandstone formation beneath the limestone but there is no direct evidence.

2. Dalgarno and Both (1958)

The Gordon Limestone is approximately 1900 feet thick. No limestone has been observed north of the Balaclava Fault, the Crotty Quartzite appears to overlap and rest directly on the Precambrian to the north. The Limestone appears to be limited to the Linda Disturbance.

Assuming an absence of strike faulting, the Eldon Group here reaches up to 3000 feet thick.

(b) Central Block

1. Mount Fincham Area (I.R. McLeod, 1955, pp.14 & 15)

(i) Canyon Creek = 130' (at least) of Owen Conglomerate.

(ii) Canyon Creek area = 50' of Owen Conglomerate

(iii) Wright Creek area = 15' of Owen Conglomerate.

The formation in this area is arenaceous rather than rudaceous although conglomerates do occur. The distribution of the rock types suggests that the Owen Conglomerate was deposited around a hill or an island of quartzite in the Ordovician topography. In Canyon Creek the basal conglomerate (Precambrian pebbles) is 4 feet thick with pebbles up to 1", above this primarily sandstone size, and less than $\frac{1}{8}$".

2. Andrew River Area (R.P. Mather 1955).

On N.E. Limb of Andrew River Syncline, which forms the slopes of the Engineer Range, the Owen Conglomerate varies in thickness from 750 to 1550 feet.

A Tyennan unconformity is exposed in a creek draining from this Range and the basal member contains rounded fragments of quartz and hard white micaceous quartzite up to 9 inches in size.

A general section would show 1100 feet of conglomerates and sandstone size. A basal conglomerate consists of angular to rounded quartz and quartzite up to 9", several feet thick. No general decrease in grain size as go upwards to the Gordon Limestone, broadly coarse-fine-coarse cycle with pebble conglomerate bands directly underneath the limestone.

3. Thirkell Area (B. Wells 1955)

(i) Owen Conglomerate = 725'
Tubicular Quartzite = 130'

(ii) Warnes Look-Out

The Owen Conglomerate is at least 850 feet thick.

At Warnes Look-Out a basal conglomerate occurs with angular cobbles up to 8 inches. The top of the Owen Conglomerate at Calder Pass is represented by the white sandstones with tubicular structure. They are underlain by white silicified conglomerate containing pebbles of quartz of the order of 1 cm. (= $\frac{1}{2}$").

(c) Southern Block

1. Elliott Range

The thickness of the Owen Conglomerate approaches 500 feet. The Conglomerate consists of well bedded white quartzites and subordinate quartz-pebble conglomerates, with tubicular sandstones at the top.

2. Sprent Ridge

The same thickness as for the Elliott Range, plus or minus 500 feet.

C. ADAMSFIELD AREA

1. The Thumbs (Nye, 1929)

The conglomerate is several thousand feet thick and is coarser at the bottom and finer towards the top.

Top

Quartzite Series	1300 feet
Conglomerate	Several hundred feet

Bottom

The total thickness would be approximately 2-2,500 feet, although part of the quartzite series may belong to the Caroline Creek Sandstone.

2. Tim Shea

There is evidence to suggest that east of Tim Shea the Owen Conglomerate thins considerably (to a few hundred feet?) but this apparent thinning may be due to a strike fault along the Conglomerate/Gordon Limestone contact here.

B. Scott

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