

058-16-24

436001

REPORT ON EXAMINATION  
OF  
LINDA DISTURBANCE

58-202

Rep. on the Linda Disturbance (2 COPIES)

LEE 25/2/58.

436

436002

0p5

25th February,

8.

To: Mr. G.F. Hudspeth.

REPORT ON EXAMINATION OF LINDA DISTURBANCE

**Dates of Examinations:** Dec. 16th & 17th; Dec. 19th-23rd; 1957  
Dec. 31st, 1957-Jan. 4th, 1958; Jan. 7th-11th;  
Feb. 13th & 14th; Feb. 14th-21st.

**Personnel in Party:** R.A. Both & C.R. Felgarno (students)

**Man days in Field:** 48

**Location of Camp:** Hut near Lyell Highway 20½ miles from Queenstown.

**Means of Transport & Supply:** Land Rover.

**Locality:** The area mapped extended approximately fifteen miles along the Lyell Highway east from the Queen River. The Raglan Ranges mark the southern extremity of the mapping, and the area to the north was penetrated some three miles.

**Topography:** The prominent topographic features are the Raglan Ranges, the King River plain and the strike ridges of Croby Quartzite. The Raglan Ranges rise steeply from the low swampy country and are heavily wooded, especially to the east of Bubb's Hill. To the north the area is marked by low ridges and swamps. In the west the country is moderately open, but in the Precambrian region to the east the vegetation is much thicker.

GEOLOGYStructure

(a) Faulting: The most important feature of the structure of the Linda Disturbance is the faulting. In the area mapped the intensity of faulting is greatest in the valley to the north of the Raglan Ranges. Here Eldon Group sediments are down faulted against the large Precambrian mass to the south. This mass extends from the east, westwards

almost to the King River. The general trend of faulting appears to be east to southeast.

A major fault coinciding with the escarpment of the Raglan Ranges apparently turns southward short of the King River and bounds the Precambrian to the west.

The eastern limit of the Eldon Group is marked by an approximately north-south line in the region of the Balaclava River.

The fault defining the course of the Collingwood River near Cardigan has upthrown Precambrian in the north.

Most of the faults have definite topographic expression, but many have been inferred in order to explain the structure.

(b) Folding: Few fold axes have been mapped, but generalised dips seem to indicate major synclines, occupied by Eldon Group sediments, to the north and west. In the Bubb's Hill region, folding is secondary to faulting and associated with it.

Folding in the Eldon Group is typically much more open than in the Precambrian where it is accompanied by intense shearing and, in places, drag folding.

In the west the cleavage in the slates of the Eldon Group is consistently north-south and evidently related to the major eastward thrust of the Owen Conglomerate.

#### Rock Types

Precambrian Although no attempt was made to differentiate between units, the Precambrian was easily distinguished from the younger sediments of the Eldon Group. Evidently previously folded, the Precambrian rocks are highly sheared. The rock types are quartz-mica-schists, sometimes

garnetiferous, phyllites, sericite schists and interbedded metaquartzites. Usually there is a distinct lineation and the Precambrian rocks are characteristically micaceous. Good sequences are seen in the Cardigan River (LE 155-160), the timber track south from Cardigan Hut (LE 162-165) and in the Collingwood River (Le 161, 173, 176-178).

Gordon Limestone The Gordon Limestone is typically developed, especially in the exposures at Bubb's Hill, as a massive blue-grey limestone with characteristic weathering. It is thickly bedded and has abundant rugose corals, which in this locality have been infilled with quartz crystals (LE 180). There is here a thickness of several hundred feet of shallow dipping limestone with a quartzite capping.

Eldon Group The Eldon Group in this area is not easily divisible into convenient formations. Apparently the Crotty Quartzite occurs as a white orthoquartzite with horizons of interbedded dark shales. It contains bands which are richly fossiliferous and evidently reaches thicknesses greater than three thousand feet.

The dark slates occupying the syncline in the region of the Princess River have been mapped as Amber Shale. No faunal studies have been made from the uppermost white quartzite horizons and they cannot therefore be definitely be correlated with the Crotty.

In the dark slates about half a mile east of the King River, there is a band of fossiliferous white quartzite (LE 1603). The stratigraphic position of this thin band of quartzite is doubtful due to the overthrust of the Cambrian to the west and the strongly developed cleavage in the slates, which masks the bedding.

Intrusives Near the junction of the Collingwood and Balaclava

Rivers are isolated occurrences of an intrusive basic amphibolite (LE 167, LE 175).

Glacials On the King River Plain there are remnants of a semi-consolidated Pleistocene till, consisting mainly of boulders of dolerite from the great dolerite sheet to the east.

#### Stratigraphy

Although the Owen Conglomerate and Dundas are not seen near the road on the eastern side of the King River Plain, the Owen apparently was deposited here since it is seen in the south.

In the area mapped the Precambrian is faulted against the Gordon Limestone or rocks of the Eldon Group. However, in the region of the headwaters of the Cardigan River, there is a downfaulted block which has preserved the Crotty Quartzite apparently overlapping the Precambrian. Outcrop in this area is very poor, but there is no suggestion of the presence of Gordon Limestone, and the Crotty appears to form a ridge-top capping over the Precambrian seen in the valleys below.

In the region of the Balachava River the nature of the Precambrian - Palaeozoic boundary is inferred to be unconformable and no Gordon Limestone has been observed north of the Collingwood fault.

The Gordon Limestone occurs in only five localities, all of which are close to the Raglan Ranges.

#### Conclusions

1. The faults in the valley north of the Raglan Ranges are apparently localised by movements along the unconformity during folding.
2. The east-west trending faults of the Linda Disturbance appear to be masked by the strongly developed north-south

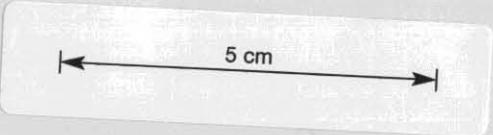
cleavage in the Amber Shales.

3. The general trend of the trough of the miogeosynclinal sediments seems to extend to the north of the Eldon Range.
4. The Raglan Range fault is a north facing fault with a down throw in this direction and this does not agree with a steep north thrust.

*H. A. Both*

*R. Dalgarno*

Scale 1" = 30 chains



N

S

