

REPORT ON EXAMINATION
OF
STRAHAN AREA

58-198

Q57 No 7.

Rep. on Strahan Area (2 copies)

LEE 14/2/58.

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14th February,

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REPORT ON EXAMINATION OF STRAHAN AREA

Dates of Examinations: Saturday, 18th January - Tuesday, 21st January.
Monday, 27th January - Friday, 31st January.
Thursday 6th February.

Personnel in Party: R.A. Both and C.R. Dalgarno.

Man Days in Field: 20.

Location of Camp: P.W.D. Hut $3\frac{1}{2}$ miles from Strahan on Strahan-Queenstown Road.

Means of Transport and Supply: Land Rover.

Previous Work: Dr. Scott investigated the Strahan lead zinc prospect $11\frac{1}{2}$ miles from Strahan on Strahan-Queenstown road (report dated 1st March, 1957).

LOCALITY

The area mapped extended from the western extremity of the mapping done previously on the Queenstown sheet to the west to include Tertiary sediments in the vicinity of Strahan. The eastern limit of the area is marked on the road by the previously mapped north plunging syncline in Bell Shale approximately 12 miles from Strahan along the road to Queenstown.

TOPOGRAPHY

In the eastern part of the area the country consists of undulating hills and steep valleys with moderately thick vegetation. The country in the western part is marked by flat button-grass plains with occasional patches of scrub. Sand dunes are found near the coast to the north of

Strahan.

GEOLOGY

Eldon Group. The Silurian below the Florence Quartzite cannot be differentiated because of the absence of the Amber Shale horizon. All rocks above the Gordon Limestone and below the Florence Quartzite are therefore mapped as undifferentiated Silurian. To the west this unit is not developed as orthoquartzites but occurs as a green felspathic quartzite (LE 190) with poorly developed bedding and interbedded white and black siltstones.

Overlying this, with a well defined boundary, is the Florence Quartzite, a white, thin bedded, slabby schist (LE 191). Fossiliferous horizons contain brachiopods and crinoid stems (LE 189).

Above the Florence Quartzite is a thickness of at least 5000 feet of Bell Shale. This formation is a dark shale with occasional bands of light coloured siltstone. It is very thinly bedded, sometimes laminated, and is characterised in the road cuttings by light brown iron staining.

The structure of the Eldon Group in this area consists of a series of north pitching asymmetric folds. The west limb of the previously syncline was completed and an adjacent anticline and second syncline and anticline were mapped to the west. The west limb of the eastern syncline shows overturning. The structure as mapped agreed with interpretation from aerial photographs. The Florence Quartzite forms a clearly defined ridge which indicates the folds on the photographs. This ridge cannot be traced around the nose of the western anticline and it is suggested that it may be covered by the Permian.

The area to the north was penetrated along a northern tributary

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of Manuka Creek. Here dark shales, apparently Bell, were found to dip steeply to the east, with the bedding often near vertical.

Permian. Observed in road cuttings from about $1\frac{1}{2}$ miles to about $2\frac{1}{2}$ miles from Strahan is a weathered tillite, presumably Permian. The matrix here is weathered to a yellow clay (LE 193) and sub-rounded pebbles from one to nine inches in diameter are common (LE 192). The pebbles consist of felspathic quartzites, meta quartzites and Precambrian quartz-mica-schists.

In the deeply incised creek to the north of the road, there is a good exposure of unweathered tillite. The matrix is a hard grey siliceous material. Quartzite horizons without pebbles occur in this section with clearly defined horizontal bedding. From the character of the rock and the presence of bedding it would appear to be a marine glacial sequence.

The tillite evidently overlies the Eldon Group unconformably, and since there is no further evidence as to its age, rough correlation with other Permian glacials seems reasonable. There is, however, no definite proof that this is a glacial deposit, because no striated boulders have been found. The northern and southern limits of the tillite must be inferred from photo-interpretation because of cover by vegetation.

Tertiary. The Tertiary in the Strahan area is developed in four prominent levels, viz. 230 ft., 130 ft., 50 ft. and 20 ft. above sea level.

The sections observed show no evidence of marine sedimentation, although the levels would seem to indicate successive lowering of sea-level.

Prominent in the 230 ft. level are conglomerates containing cobbles of Silurian quartzites and Owen Conglomerate which were possibly transported down the course of an ancient King River. These conglomerate

beds are common in the upper part of all levels, but the 130 and 50 ft. levels have unconsolidated, cross-bedded white sands underlying them. The 50 ft. section has a persistent lignitic horizon with poorly preserved twigs and reed-like plant remains. This horizon is seen about 15 to 20 ft. above sea-level.

The levels are undisturbed by faulting, but to the north of Strahan they are replaced by more recent dune sands which extend inland beyond the edge of the timber.

The importance of Tertiary faulting is not clear, but the relatively resistant and high standing Permian may be down-faulted along its western boundary where covered by more recent deposits.

Mineralisation. The only mineralisation observed was the previously reported lead-zinc prospect in the Bell Shale near the Strahan-Queenstown road, about $11\frac{1}{2}$ miles from Strahan. As this prospect has already been investigated, no further report is considered necessary.

King River Section. Traverse from the western limit of the Florence Quartzite to the mouth of the King River.

Undifferentiated Eldon Group sediments (LE 196) extend westwards beyond the first river crossing of the railway and are here overturned on the east limb of an anticline. The Gordon Limestone is seen in one exposure (LE 197) about halfway between the two rail bridges and its boundaries are interpreted with relation to the boundaries of the Florence Quartzite. Overlying shales are again encountered before the second river crossing. These indicate west limb anticline with dips of 40° W.

On the north side of the river an area of faulting is encountered with the NW direction of the Tertiary faulting. Thereafter for approximately half a mile of the section is a series of unknown age dipping at $70-80^{\circ}$ to

the east and bounded to the east and west by possible NW trending faults. Specimens LE 198 and LE 198a are from this area. The first shows evident local shearing and other specimens may be tuffaceous. This could suggest a Cambrian age, but it is possible the rocks are related to the felspathic sandstones already noted in the Eldon Group to the north (e.g. LE 190). There is no fossil evidence as to their age.

For the remaining 4 miles of the section to the coast the dips are shallow to the north with thin bedded laminated shales (LE 199a) and coarse grained massive quartzites (LE 199b) showing dips of the order of 20° N. The lack of disturbance of the beds suggests a post Devonian age and although nothing is known of the area between this and the tillite to the north, it is suggested that the sequence may underly this Permian? tillite.

A vertical serpentinous rock (LE 199) may be an intrusive in this sequence.

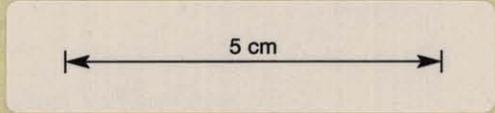
for J. S. cest.

R.A. Both

C.R. Dalgarno

Cainozoic Sediments, Strahan

Vertical Scale: 1" = 10 ft



-  Soil
-  Clay
-  White sand
-  Dark sand
-  Lignitic sand
-  Iron-stained sand
-  Gravel

