1299 - TRANS

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NOTES TO ACCOMPANY PLAN ENTITLED "AREA NORTH OF ZEEHAN = REGIONAL STRUCTURE" DATED 15 JANUARY 1954

The plan presents the state of knowledge of the area as at this date. Work is still in progress and, in detail, the plan is subject to revision. In broad concept, however, the structure as represented may be accepted as substantially correct.

The most well-defined geological group present is the Eldon Group consisting of quartzites and shales ranging in age from Silurian to Lower Devonian. This occurs immediately north of the township of Zeehan. It is in the form of a tightly folded syncline with a slightly curved axis trending NNW and pitching to the south. A major fault trending northeast associated with another south of Zeehan (not shown on the plan) has dropped down the central block of the syncline with reference to the northern and southern ends. Thus, the Bell Shales in the north have limited lateral extent while between the two major faults they have a lateral extent of about three miles. The structure of this Group as shown on the plan has been generalised. In detail, a large number of small faults occur within the group generally at right angles to the synclinal axis. On the present plan, four such faults are shown, two of which are known to be associated with mineralisation. Details of the northern extremity of the syncline are not shown as information in this area is incomplete. There is some evidence to indicate that the northern end has been sheared off by a fault.

On the west side of the syncline along the valleys of Despatch and Parting Creeks through which runs Dunkley's Tramway occurs a belt of Gordon River Limestone in its correct stratigraphic position. Another belt of limestone occurs on the east side of the syncline south of the junction of the Queenstown and Renison Bell Roads. Normally, limestone should occur on the west side of the syncline north of this point also. However, a careful inspection has been made between the Renison Bell junction and the major fault along the Little Henty River and has shown that limestone does not occur over this section. The reason for this is not known. No inspection has been made between the Little Henty and the north end of the syncline. The limestone is middle to upper Ordovician in age and is the upper member of the Junee Group. The lower member, the West Coast Range Conglomerate, which normally occurs stratigraphically immediately below the limestone, is missing in this area.

On the eastern and northern sides of the faulted block of Eldon Group rocks, occurs a small patch of middle to upper Cambrian sediments. These are portion of an extensive area of such rocks typically developed at Dundas and recently defined by Elliston as "Dundas Group". The regional structure lines indicate an unconformity between these and the succeeding Eldon Group. This patch of Dundas Group rocks ends abruptly against a fault near the Nevada Creek. North of this fault there begins an extensive series of green and purple argillites with minor shales. Apart from an ultrabasic intrusion and a patch of quartzites and shales at Renison Bell discussed below, the argillites are continuous from the fault through to the Pieman River, eastwards almost to Rosebery, westwards to the Wilson River and northwards along the Wilson almost to Mount Lindsay. To the west of the Argent Tunnel they also occur along Dunkley's Tramway north of the syncline for four

miles. It appears strongly likely that they occupy the intervening area between the Argent Tunnel and Dunkley's Tramway.

It is obvious that this is a major group of rocks covering many square miles and it has been studied in detail by this unit mostly along the Pieman, Wilson and Huskisson Rivers. So far no fossils have been found to give age determination but, on lithological evidence and stratigraphic position below known middle Cambrian rocks the age tentatively assigned is lower to lower middle Cambrian. It is possibly equivalent to the Carbine Group as defined by Elliston. That it is important from an economic point of view is evidenced by the number of mineral occurrences found within its boundaries, viz. Renison Bell lodes, Owen Meredith-Bon Accord, the Copper-Nickel Field, a number of prospects in the vicinity of the Argent Tunnel and, further afield, prospects in the Exe River field. In the area between the Wilson and the Ring Rivers, there is a general regularity of strike NNW to north with dips at steep angles to the east. North of Argent Tunnel strikes are north and dips east: in the copper-nickel field north strikes with east dips with a strong curving of strike to NE. This will undoubtedly curve north again in the vicinity of the Argent Tunnel. Evidence of considerable contortion and associated fracturing in this group is found in the following areas- between the Argent Tunnel and Renison Bell - from Renison Bell along the Ring River - in the vicinity of Bon Accord - north of Zeehan syncline along Dunkley's Tramway.

In the vicinity of Renison Bell township there occurs a relatively narrow zone of sandstones, quartzites and shales of general whitish colour contrasting strongly with the green and purple of the argillites. They have been traced for some distance along the Owen Meredith tramway. Their position and age at present are not clear. Along the Pieman River west of Wilson River for 2½ miles is a further series of quartzites and shales. They appear to cover an area of several square miles south of the Pieman and are met with on Dunkley's Tramway south west of Bon Accord. It is probable that they are coeval with the group just mentioned as occurring at Renison Bell but this point has not yet been determined. The structural interpretation for this area as shown on the plan has been made from aerial photographs. Field investigations will shortly be made to supplement this information. The age of this group of rocks is in doubt at present. They are tentatively assigned to the Cambrian.

In the Pieman River, 2½ miles west of the Wilson, an unconformity has been observed between this group and Precambrian micaceous quartzites and slates on the west. These latter rocks cover an extensive area extending north to the Meredith granite massif and an undetermined distance westwards - at least 8 miles. They are highly contorted and fractured having passed through at least three orogenies.

The area immediately west of the township of Zeehan including the Oonah, Western and Zeehan-Montana has not, at present been studied in detail. It consists of slates and quartzites, complexly folded and fractured underlying unconformably the Ordovician limestone. A number of patches of melaphyre lava occur, two of which are shown on the plan.

North and west of the Montana is a series of shales, slates and quartzites often micaceous which are regarded as late Pre-Cambrian and coeval with the group observed north on the Pieman. This group has been closely studied and regional structure lines determined as shown. The series includes a mass of tillite. Definite evidence has been secured to indicate that the tillite is interbedded with the late Pre-Cambrian group and it is therefore regarded to be of the latter age.

Near the eastern margin of these late Pre-Cambrian rocks there occurs a persistent fracture zone along which no less than nine mines or prospects occur from the Montana to the Sylvester Mines. This is considered to be the most important feature of this area. One quarter of one half a mile west occurs another disturbed zone. The position of this is not so clearly defined but it appears to run from the Doric to the Big Ben. From the Zeehan-Montana through the Western to a point a little east of the Montana runs a well-defined shear zone. Just to the north of this are located a "prospect" and the old Western Consolidated. It appears likely that these two represent respectively the Doric - Big Ben and the Sylvester - Montana lines of lode offset to the southeast. It is probable that these lines of lode continue in a northeast direction. In the argillite along Dunkley's Tramway north of the syncline there is evidence of strong contortion and, as mentioned above, there is some evidence to indicate that the top of the syncline has been sheared off. The position of such a shear would tend to be along the theoretical extension of the Sylvester - Montana line of lode allowing for offsetting by the cross-shear. It is notable that three mineral prospects occur in this general area, one in limestone and two in argillite.

It is notable, also, that between the Montana and the Bon Accord along the line of Dunkley's Tramway there is a considerable amount of contortion with which can be expected a fair amount of fracturing. There is a gossan outcrop shown 2 miles southwest of Bon Accord. I have been advised by Mr. A. McGuiness that several patches of ore were worked along the line of Dunkley's Tramway although the actual locations are not known at present.

It appears that this area between the Montana and Bon Accord contains suitable host rocks, is considerably fractured and contains several known prospects. Therefore it is likely to be a suitable area in which to prospect for mineral occurrences and further work is warranted.

Geophysical traverses have been strategically placed along approximately the southern half of the likely area and work on these should reveal some evidence of mineralisation.

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REGIONAL GEOLOGIST

Zeehan.

15th January, 1954

The Director of Mines,
HOBART.