

1954/110-111

NOTES ON THE GEOLOGY OF THE
RAILTON DISTRICT.

110

While investigating one or two isolated limestone occurrences in the Railton District recently, opportunity was taken to map generally the geology of an area to the North-West of that town. This was partly done by ground reconnaissance and partly by the aid of aerial photos.

The geological boundaries on the map prepared must not be accepted too literally for the following reasons:-

1. Some mapping was done exclusively from aerial photographs
2. Large areas of the country, particularly the low-lying parts (and there is much of this) are overlain not only by recent Alluvium but by widespread debris of the West Coast Range Conglomerate Series, probably deposited during the Pleistocene.
3. The three main sedimentary series, the Gordon River Limestones, Caroline Creek Shales and Permian Mudstones are all very susceptible to erosion and little remains of the outcrop of any of these rocks.
4. The Permian has been laid down on an uneven eroded surface of the shales and limestones, so that no theoretical boundaries can be determined between the Upper and Lower Palaeozoic rocks.
5. Dolerite has intruded both the Upper and Lower Palaeozoic rocks in large and small injections. Some of these minor intrusions may have been overlooked.

The various rock types may be briefly considered:-

1. WEST COAST RANGE CONGLOMERATE. The typical hard siliceous pink conglomerate occupies the main mass of the Badger Range in the South West of the area. On the other side of the syncline a remnant remains on top of the hill to the east of Dulverton Railway Station. Much of the area is covered by pebbles and boulders of this series probably brought down in the intense rainfall of the Pleistocene, but there is little in the way of outcrop except on the slopes of the Badger.
2. CAROLINE CREEK SERIES. The type area for these rocks occurs here, to the South West of Dulverton Brickworks, where a series of shales and sandstones contains a suite of dikelocephalid and asaphid trilobites of Tremadocian age. These rocks lie conformably between the West Coast Range Conglomerates and the Gordon River Limestones. Outcrops of these rocks may also be seen below the limestones near Blenkhorn's Quarry and in a creek bed south of the road leading from Railton to New Bed (on the west side of the synclinal axis).
3. GORDON RIVER LIMESTONE. This is the typical Ordovician limestone so common in Tasmania and no description need be given here except to state that in places cleavage is extremely well developed, more or less parallel to the bedding so that the rock breaks in plates sometimes less than one inch and in places appears almost schistose. The limestone is at present quarried at the Cement Works and Blenkhorn's and in the past, limestone has been burnt from outcrops at at least four other places. But the outcrop of this rock is very limited, and where it does appear at the surface it is

usually in the form of steep sided narrow peaks making economic exploitation on a larger scale impossible. It is interesting to note that at practically every outcrop the limestone is protected as it were, by small dolerite intrusions. Nowhere is the dolerite seen in actual contact with the limestone but the relative positions of the two rocks show that here dolerite does in fact intrude the lower Palaeozoic strata.

4. PERMIAN SEDIMENTS. Again these rocks outcrop little in the area. Their chief interest lies in the fact that they contain the coal measures, worked intermittently at New Bed and the soft mudstones used for the manufacture of bricks at Dulverton.

5. STRUCTURE. Although the Lower Palaeozoic rocks are frequently masked by the Permian beds, the dolerite intrusion, the basalt outpouring and the general alluvium, sufficient may be seen of these to work out their general structure, which is a large syncline whose axis at 310-330° is just to the West of the Cement Company's Quarry. A glance at the appended sections will show that the Caroline Creek beds in the West limb are apparently much thicker than those on the east and indeed show a thickness of six or seven thousand feet. Obviously there is some repetition of beds either by minor folding or faulting or more probably by both and the thickness of about a thousand feet shown on the east limb is more probably correct. The thickness of the limestones is of the order of two thousand feet.

In contrast to the severe folding of the Ordovician sediments, those of the Permian are only gently tilted. At the Brick Company's Quarry the dip is a few degrees to the South-West.

Two major faults, both coursing a little south of east, are splendidly visible on the air photos. The northern one separates the Brown Mountain (of dolerite) from the Badger (West Coast Range Conglomerate) and the southern forms the valley at the headwaters of Caroline Creek. The twisting round of the strata by this latter fault is well illustrated in the photos.

6. COMPARISON WITH PREVIOUS MAPPING. This district has already been mapped by A.M. Reid as portion of the very large area shown in the geological map accompanying the Oil Shale Resources of Tasmania Vol. 1 and it is interesting to compare that mapping with this. At that time (1924) the West Coast Range Conglomerate was considered to be Silurian in age, the Caroline Creek beds Cambrian and the Gordon River Limestone, Ordovician - although of the latter there was some doubt. At any rate the succession from the bottom was thus Caroline Creek beds, limestone and conglomerate and Reid had to adopt all sorts of immense faults and overfolds to place the conglomerates on top of, instead of below, the limestone. So too, he shows no conglomerate to the east of the Railway Line and no Caroline Creek rocks to the West of it. The only other major difference is the absence of the most northerly part of the limestone before it is covered by the Permian.

(Sgd.) Terence D. Hughes

GEOLOGIST

Department of Mines,
HOBART

23rd August, 1954.