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KLB/1 20th March, 1958

MEMORANDUM

UNIVERSITY GEOLOGY EXCURSION

The period 7th-12th March has been spent accompanying the University of Tasmania 3rd year Geology Excursion to the North West Coast. The stratigrapher, M.R. Banks, and structural geologist, E. Williams, were in charge of the party. Several useful ideas have arisen from the discussions, the most important of which are detailed below:-

7th March:

The axial planes of minor folds associated with the Alum Cliffs fault intersect the fault plane, which confirms the Survey view that this is a break thrust.

The sandstone overlying Gordon Limestone at Ambrose Howe's property, Mayberry, contains Ordovician fossils, and is probably a bed in the limestone, not Permian as previously thought. The limestone here is the Girvanella-Maclurites zone, about one quarter of the way above the base of the limestone. The limestone shows textural variations, with arenite bands and quartzite particles, and festoon cross-bedding.

A brecciated limestone near the start of the Forestry road is probably associated with a previously mapped fault.

Variations in fold style within the Fisher Group are such that mapping of the Precambrian on fold style rather than lithology should give fruitful results.

8th March:

Prossure solution of pebbles in contact occurs in the Owen Conglomerate. After examination of porphyroid pebbles in the Owen at the Cotana Unconformity, pointed out by Mr. Jennings. the writer maintained that the schistosity was post-Ordovician cognate with the lenticular schistosity of the groundmass. The alternate view is that the pebbles were sheared before being included in the conglomerate. The important question of the age of the shearing has thus been raised, and is as yet unresolved.

It will be remembered there was some discussion of the origin of basic clots in the porphyroid at Geales Crossing. After examination of specimens by Mr. Everard, and discussions at the outcrop, it was decided these were metamorphic segregations, and this view has found ready acceptance. The Survey view that the siltstone bands and chert conglomerates prove the Bull Creek porphyroids were originally pyroclastic sediments and not igneous intrusives is confirmed.

20th March, 1958

DIRECTOR OF MINES, HOBART

The Main Anticline at Round Hill shows concentric shear joints, shear cleavage, and A-C joints concordant with the fold.

9th March:

Further development of Halletts Quarry at Eugenana has exposed more of the (probably) Permian carbonaceous shale which unconformably overlies the limestone. The distribution confirms Prof. K.G. Brill's view that this deposit is of paludal origin.

The strong axial-plane (presumably) schistosity of the Melrose limestone, first noted by Q.J. Henderson, is folded at Stones old quarry by similar-type folds. The flat lying planes previously thought to be bedding are probably joints parallel to the axial planes of these folds. No bedding could be found, but if the schistosity is axial-plane and not a bedding structure, then the folding of the schistosity indicates two distinct orogenic phases. The writer considers the schistosity is Tabberabberan, oblique to bedding, as does M.R. Banks, so the later folding of this implies post-Devonian orogenesis.

10th March:

The graphite schist north of Paloona Bridge shows minor crumplings plunging south, Precambrian structure, with east-west superimposed folds of Tabberabberan affinities. The garnet schists and quartzite near Forth show axial plane schistosity, and the quarry at Gawler fold mullions, striking N-S with the regional Precambrian structure.

11th March:

Goat Island can be consistently interpreted as Precambrian shear folding. Most interesting here, and at Gawler, is evidence of Tabberabberan refolding of earlier schistosity.

Rocks just east of Goat Island previously considered Upper Precambrian are more probably Cambrian. The Preston Conglomerate in the Leven Gorge has a disrupted framework indicating deposition by Turbidity currents.

12th March:

Rich fossil horizons occur in the Gordon Limestone above Gunns Plains caves. Two trilobite horizons in the Leven Argilites (Cambrian) were located.

The double folding in the Leven Argilities and Wilsonia Chert indicates two orogenic movements have affected these rocks. With the evidence from Melrose a post-Devonian orogenesis is possible. This, if proven, could be of fundamental importance in the study of ore deposits throughout the State.

This information is tabulated for record purposes, and to demonstrate the value of attending these excursions when specialists are available to discuss field problems.

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