REPORT ON TRACK-CUTTING OPERATIONS IN THE VICINITY OF WARATAH

FROM FEBRUARY 1936 TO APRIL 1937

Introduction:

In continuance of the scheme of track-cutting, combined with geological reconnaissance and prospecting operations initiated in 1935, under the Commonwealth Aid to Metalliferous Mining Advance, the Meredith Range track, from the 16 mile, on the Waratah-Corinna road was extended as a pack-track for three and a quarter miles; it was then continued as a foot-track for nearly six miles, making the total distance from the road approximately eleven miles. Several miles of exploratory tracks were cut from the main travelling-way.

A light, high level bridge, suitable for horse traffic, was constructed over the Whyte River approximately three and a half miles from the Waratah-Corinna road.

At the same time two parties, one starting from each end, were engaged in clearing the old Specimen Reef-Magnet track.

Owing to the necessarily slow progress in this area, it was decided to place the work in charge of a foreman, under the direct control of the writer who kept in touch with the various parties through frequent inspections.

Due to the dense undergrowth, scrub etc. it was possible to make geological reconnaissances only within limited extent of the exploratory tracks so that a brief outline only of the geology of the area can be attempted.

THE MERIDITH RANGE AREA

This area is situated on the north-western and western slopes of the Meredith Range and is reached by means of the recently constructed track, which commences from a point a few chains south along the old tram formation, from the site of the Jasper mill, near the 16 mile peg on the Waratah-Corinna road, where it turns south west and mounts a spur of Thorne's Hill. The track rises fairly steeply to a height of approximately 400 feet above the Waratah-Corinna road, about 1,200 feet above sea-level, then by gentle undulations for nearly two miles, the track follows the ridge and rises only another 100 feet. From the end of the supr a sidling, with an average grade of 1 in. 8, takes the track down 600 feet into the Whyte River gorge. After crossing the Whyte River bridge the track bears away to the south west, rises on a moderate gradient for approximately one and a half miles to the top of the ridge, which is the limit of the pack-horse track. It then continues as a foot-track which falls away to Contact creek, a consequent stream to the contact between the breccias and the granite. The track continues in southerly direction to reach the Waterfall basin about six or seven miles from the road. Continuing in a general south westerly direction the track rises over a thousand feet roughly following the contact between the granite and the Cambro-Ordovician rocks.

TOPOGRAPHY

The area under review is essentially part of an extensive peneplain which has been elevated and dissected. The Meredith Range, composed of granite and consisting of a number of peaks well rounded in the characteristic fashion of weathered granite country, is a residual mountain mass, a remnant of a former peneplain. It rises about 1,000 feet above the general level of the existing peneplain. The generally high relief is further accentuated by the deep gorges cut by the present river system.

The area consists of a small portion of the Whyte River drainage system. All creeks are fast flowing mountain streams with little accumulation of alluvium. Paradox Creek cascades over falls 270 feet high and after flowing for a short distance in a northerly direction it turns westerly and disappears under enormous granite boulders for a considerable distance; when it reappears a few short cascades bring it to the place where over a sheer drop of 70 feet it enters the Whyte River. The Whyte River flows through a very narrow and deep gorge, about 30 feet wide, in the granite, widening to at least two chains after passing through the contact belt. The river is approximately 400 to 500 feet below the general level of the peneplain.

The Heazlewood River also has been unable to keep pace with the rate at which erosion is taking place in the valley of the Whyte River with the result that it enters the latter by means of small falls, in this case only a few feet.

VEGETATION AND TIMBER

The whole area is covered with dense forests of Beech or "Myrtle" and Eucalypts, also thick undergrowth of many kinds.

The Beech or "Myrtle" forests are best developed in dark and damp gullies etc. and consist of the following trees:- "Myrtle " (Nothofagus cunninghami); Sassafras (Atherosperina moschatum); Leatherwood (Eucryphia billardieri) and Celery Top Pine (Phyllocladus rhomboidalis), together with a heavy under-growth of tree-fern (Dicksonia) or horizontal (Anodopetalum biglandulosum).

The Eucalypt forests occur at various localities and are restricted chiefly to the ridges where there is ample light.

Elsewhere the vegetation consists of a jungle of bauera (Bauera rubioides) cutting-grass (Gahnia psittacorum) and dog-wood (Pomaderris apetala) and isolated areas with sparse growth of eucalypts and much manuka or "Tea tree" (Leptospermum scoparium) and cutting grass.

In places the grass-tree or "Maori chief" (Richea pandanifolia) grows in abundance.

Occasional trees, three to four feet in diameter, of Blackwood (Acacia melanozylon) occur.

GENERAL GEOLOGY

Owing to the comparatively small number of exposures and the complexity of the structure no attempt can be made to give even an approximate section or indicate the probable

thickness of the sedimentary series. Therefore, the general sequence as determined in adjacent areas will be given with brief references to the individual members of the series as observed in the vicinity of the tracks.

SEQUENCE OF SEDIMENTARY ROCKS:

System	Series	Lithological characters
Cambro-Ordovician	Dundas	Purple slates, breccias &c.
	Probable unconformity	
	Bischoff-Mathinna	Greyish-black slates and sandstones.
	Unconformity	
Silurian	Queen River etc.	Shales, sandstones, argillaceous limestone.

CAMBRO-ORDOVICIAN

No palaeontological evidence of age is available and the rocks have been assigned to the various series on purely lithological grounds. Six separate areas of rocks referrable to this system are exposed along the track; two, 60 and 80 chains respectively, south of the Whyte River, are very small and probably represent xenoliths in the Devonian basic rocks.

Dundas Series:

This series of rocks normally consists of purple slates, cherts and breccias, but breccias only were observed. These breccias are not to be confused with the type breccia from North Dundas which is composed of coarse-grained greenish coloured cherty fragments but are to be regarded rather as sedimentary breccias composed of igneous material. Both types (felspathic and micaceous) as recognised by P.B. Nye in his mapping of the Waratah district were observed but the micaceous type was by far the more widely developed.

The felspathic type was almost without exception weathered to a reddish brown rock in which only opaque and decomposed felspars are recognisable in the hand specimen. This type was not observed south of the Whyte River.

The micaceous breccia is best developed in the area north of Contact Creek and shows considerable alteration due to contact metamorphism resulting from the granitic intrusions.

Bischoff Series:

This series is represented by black slates, white to greyish sandstones and quartzites. In a creek, approximately $1\frac{1}{4}$ miles from the Waratah-Corinna road, a white, thinly bedded flaggy variety of sandstone is exposed. The strike is 155° with a steep dip to the east. This is the only occurrence observed north of the Whyte River.

Black slates are exposed in the two small xenolithic areas. The rocks exposed in the Cambro-Ordovician area south of the Waterfall basin consist of black slates, grey sandstones and quartzites. The strike and dip varies through a very wide range, from N.10° E. with westerly dip, through N.80° E. with northerly dip, to S. 7°E. with easterly dip. The quartzites are contact metamorphic derivatives and in places exhibits much schistosity.

THE IGNEOUS ROCKS

The above sedimentary rocks have been intruded by igneous rocks of different ages; the igneous rocks vary from ultrabasic to acid and include peridotites, proxenites granites etc.

The sequence is as follows:-

Dundas and Porphyroid Series:	Much decomposed rocks intruding the Dundas series. Any lavas and tuffs included in the Dundas series.
Devonian:	Peridotites, pyroxenites, granite
Upper Mesozoic:	Dolerite (or Diabase)
Tertiary:	Basalt

Only rocks referrable to Devonian age were observed in this area. Devonian basic rocks - gabbro, pyroxenite and serpentine - occur adjacent to the margin of the Meredith Range granite massif which is of Devonian age and slightly younger than the basic rocks. There is no direct evidence of the relation of basic to acid igneous rocks but in conformity with work in adjacent areas the above relationship is assumed.

Although these rocks occupy a great proportion of the area examined, outcrops are comparatively few and, therefore, brief reference only to the types can be made.

Basic:

The pyroxenites predominate north of the Whyte River They are generally fine-grained and when fresh are dark green in colour, but are usually decomposed to a dark brown clay.

The belt of pyroxenites which outcrop in the vicinity of the 16 miles on the Waratah-Corinna road extends in a general south-westerly direction and can be traced for at least one and a half miles.

At the Whyte River a saussuritised gabbro-amphibolite outcrops. Microscopically it can be seen that the rock is a metamorphic modification of gabbro in which the felspar has been saussuritised by the development of a mixture of albite-zoisite. There is little to distinguish between the pyroxene and amphi-bole but the only evidence suggests amphibole. The pyroxene is apparently in a stage of conversion to amphibole although the structure is unaltered. The section shows ilmenite and its alteration product leucoxene. Pyrrhotite is fairly abundant in the section. This type outcrops again about 30 chains north west of the Packer's Camp divide.

Acidic:

The main granite massif of the Meredith Range extends in a general southerly direction from the Whyte River about one mile east of the main track. On the track the granite is exposed from Paradox Creek south through the Waterfall basin

for about three miles, again about six miles south from the Whyte River bridge for approximately half a mile, and at the end of the track.

The granite is holocrystalline, typically medium to coarse texture and fairly even grainsize. It is the normal type as developed in the Meredith Range massif. The felspar (orthoclase) reaches one third of an inch in length and is usually fresh when newly broken. Quartz is abundant in roughly rounded crystals, up to a quarter of an inch in diameter. Black biotite mica is scattered throughout the rock. Tourmaline was sparsely developed.

With the exception of a narrow greisen vein in the granite, east of the junction of Paradox Creek, with the Whyte River, none of the rock types developed elsewhere in the massif were observed.

CONCLUSIONS AND RECOMMENDATIONS:

General prospecting operations have indicated little of economic importance in the area traversed by the tracks. It further indicates that future prospecting should be undertaken further west than the present areas and most attention devoted to the southern extension of the belt of Devonian basic and ultrabasic rocks, for it is in these rocks that most of the lodes in the district were formed owing to their susceptability to attack by mineralising solutions.

When work is resumed in this area I suggest that it be commenced from somewhere in the vicinity of the old Holdfast cage, as work cannot be continued efficiently from the end of the existing track owing to the long distances the men are required to pack equipment, stores etc.

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SPECIMEN REEF - MAGNET TRACK

The Specimen Reef-Magnet is portion of the old pack-track from Waratah, via Magnet, to the old Specimen Reef gold mine. This track, approximately 33 miles in length, had not been cleared, with the exception of 15 miles on the Magnet end which had been cleared some twelve years previously, for over 40 years, and consequently was so completely over-grown that to locate it was almost impossible.

Early in March 1936 the work of re-opening this track was commenced and two parties were engaged, one on each end; despite conditions which made progress slow and difficult reasonably good progress was made.

The Specimen Reef end is reached by way of a track which leaves the Waratah-Corinna road at Johnson's Turn-off (21 miles from Waratah). This track, for approximately 10 miles crosses portion of the elevated peneplain which is very broken by the deeply entrenched river system, the Savage River being in a gorge of at least 1,000 feet deep. The Rio Tinto bridge across the Savage River was swept away by floods last winter and was replaced by a cage sometime after August, Approximately eight miles of track were cleared from the Specimen Reef mine.

The Magnet end is reached from the main shoe track north of the timber shed at the Magnet mine, a distance of approximately one mile. This end was cleared to the small plain known as the Ten Mile.

So that 18 miles of a total of 33 miles was cleared leaving fifteen yet to clear.

If at any time it is decided to continue the work by re-opening this track it can best be attacked from the Magnet end as equipment and supplies can be packed by horses, whereas, from the other end it will be possible to use horses only as far as the Savage River, which is at least 12 to 13 miles from the end of the clearing at present.

Unless it is desired to open up the country towards Balfour there does not appear to be sufficient inducement to continue with this work.

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27th October, 1937.