

REPORT ON EXAMINATION
OF
"Y" AREA. 18.4.58

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REPORT ON EXAMINATION OF
'Y'.

Copy 1 of 2

Examination of the 'Y' Area (Copies)

A.E.G. 18/4/58

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18th April, 1958.

To: Mr. G.F. Hudspeth.

REPORT ON EXAMINATION OF "Y" AREA

Dates of Examination: 26th January to 5th February, 1958.

Geological: R.G. Elms.

Bushmen: R. Martin and M. Penney.

Man days in the Field: 27

Location of Camps: Lewis River, 1 mile N of "Y" junction.

Means of Transport & Supply: Helicopter.

General Topography of Area:

The "Y" shaped structure after which the camp was named is the dominant feature of the area. This is an upfaulted block of Pre-Cambrian sediments, increasing in elevation from S to N.

1½ miles south of the Lewis River camp, it is in places less than 50 feet above the surrounding plane, while a mile north of the Lewis River it is several hundred feet higher. This feature is covered with low scrub.

To the west, the granitic areas are generally low-lying, featureless and heavily timbered.

East of the base camp, the Pre-Cambrian sediments constitute the highest ground in the area, and form a southern extension of North Broken Hill. This ground is apparently due to upfolding and is heavily timbered.

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Geological Investigation and Findings

1. Pre-Cambrian.
2. Granite (Post Cambrian).
3. Structure of the "Y".

1. Pre-Cambrian

At a point $2\frac{1}{2}$ miles west of the Y Camp, the rock type was a thin bedded white quartzite dipping to the east at 60° . Traversing west for half a mile from this point no rock exposure was found because of the swampy flat nature of the plain. West of this plain all exposures of rock exhibit west dips. Assuming this quartzite, apparently exposed in the crest of an anticline, to be the oldest rock type seen, tabulation of the sequence encountered on moving in a westerly direction to the Y represents at least the partial Pre-Cambrian succession, which generally strikes in a NE or NNE direction.

1. Thin bedded white quartzite;
2. Thin bedded quartz mica schist;
3. Sheared quartz mica schist (LE 1069);
4. Thin bedded light grey micaceous quartzite;
5. Thin bedded light brown micaceous quartz sandstone.
6. Thick bedded light grey quartzite;
7. Light grey fine grained quartz mica schist;
8. Thin bedded light grey quartzite.
9. Medium grained slight iron stained greyish rock composed predominantly of quartz, less felspar with some mica - a felspathic sandstone (LE 1068).

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Pre-Cambrian

- 10. Dundas lava?? Dark grey fine grained matrix with medium sized phenocrysts of quartz and felspar.
- 11. Light grey quartzite.
- 12. Dark grey shale with contorted bedding.
- 13. White quartzite.
- 14. Dark grey shale, with some pyrite.
- 15. Quartz-sericite-chlorite schist, bedding showing slight contortions (LE 1065).
- 16. Dark grey-black shale, exhibiting minor folding and some iron staining.

This occurrence is a few yards east of the east scarp of The Y. Some tens of yards to the west of this the rock is more indurated and is classed as a black slate. This slate is intersected with numerous small quartz veins and in places has small interbedded lenses of sandy material. Here the bedding is contorted and some iron staining is present.

- 17. Thin bedded light brown micaceous quartz sandstone.
- 18. Light grey quartzite.
- 19. Quartz mica schist(LE 1063).

This sequence comes from a traverse south of The Y Junction.

From a traverse approximately 1 mile north of this junction, the following generalised section was obtained, and would seem to be continuous with the preceding one, after No. 9, thus:

Quartz sericite schist.

Thick bedded light brown quartzite.

Dark grey shale.

Quartz sericite schist.

Light grey quartzite.

Dark grey shale.

Quartz sericite graphite schist (LE 1073) -
sheared quartzite.

Light-dark grey micaceous quartzite.

Quartz chlorite sericite schist (LE 1074).

The last mentioned rock was the last sediment encountered before the granitic intrusion, and from its sheared nature would seem to lie quite close to the contact.

In the distance traversed, some $2\frac{1}{2}$ miles east of The Y Camp to 1 mile west of it, a stratigraphic thickness of at least 12,500 feet was countered. Individual beds cannot be allotted thicknesses as a detailed study was not undertaken.

2. Post Cambrian Granite

Granite was first observed in the belt of heavy timber $\frac{1}{2}$ mile west of the fly camp which was 1 mile north of The Y Junction.

The granite (LE 1075 and LE 1077) was porphyritic in texture with more abundant mafic mineral content than is usual.

Large ($\frac{1}{2}$ ") rounded phenocrysts of pink feldspar and small ($\frac{1}{4}$ ") quartz phenocrysts were set in a medium grained groundmass of feldspar, quartz, biotite and perhaps other mafic minerals.

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It weathers to a yellow or reddish brown crumbly mass in which texture and porphyritic minerals are still recognisable.

Between LE 1075 and LE 1077 was found a specimen of chert (LE 1076) to which magmatic origin may most probably be ascribed.

3. Structure of The "Y"

The "Y" is an elevated block of Pre-Cambrian sediments, uplifted by faulting some several hundred feet above the adjacent country at its point of maximum elevation north of the Y junction. South of the Y junction the structure is less elevated.

That this is a structure produced by faulting is indicated by:

1. The steepness of the scarps on either side of the structure;
2. (a) Dragfolding and contorted bedding with numerous irregular quartz veins, all in dark shales;
(b) A quartz sericite chlorite schist (LE 1065) also exhibits dragfolding;
(c) Contorted bedding in quartzites near proposed faults. Dragfolding generally indicates E side S.
3. Shear planes were evident in rocks which would record them, e.g. quartz chlorite mica schist (LE 1063).
4. The same rock type (dark shale) occurs on The Y as immediately the east.

R. G. Elms.