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MICROFILMED

AN APPRAISAL OF THE GOLDFIELDS

OF

NORTH EASTERN TASMANIA

BY

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PURPOSE

As part of a regional geological survey of the area west of St. Helens and Scamander, N.E. Tasmania (E.L. 6/68), a survey was also carried out over the Mangana, Tower Hill, Mathinna and Dan Rivulet Goldfields.

INTRODUCTION

The principal gold deposits of N.E. Tasmania occur in quartz veins in a belt about half a mile wide, which runs approximately 56 miles N.N.W. from Mangana in the south through Tower Hill, Mathinna, Dan Rivulet, Alberton, Warrentina and Forester to Lyndhurst on the north coast.

GENERAL GEOLOGY AND STRUCTURAL CONTROLS FOR GOLD MINERALISATION

The gold deposits all lie in the succession of Mathinna Beds, a thick sequence of arenites, siltstones and shales. The Beds generally strike in the same direction as the trend of distribution of the gold fields, i.e. N.N.W.. This suggests some major structural control exists for the gold mineralisation. The Beds dip steeply to the S.W.

The gold fields are surrounded by granitic massifs, comprising a hornblende "granite" in the east and a porphyritic biotite "granite" in the west.

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The Mathinna Beds are folded along N.N.W. trending axes and have a well developed joint system developed in them as a result of the stresses inducing this folding. One set of joints is parallel to the bedding and the other at right angles. The less competent beds usually have a well developed cleavage running parallel to the bedding. In the vicinity of the reefs at Mathinna, Finucane (1935) found that the cleavage and bedding are not parallel. This may be explained by the fact that Threader (1965) considers the cleavage and a Main Shear (see later) to be parallel and the development of the cleavage in this area may be related to this main shear.

Running through the centre of the Mathinna Gold Field the prominent shear zone probably includes effects of 2 or 3 parallel, major faults. This main zone and similar shear zones, both parallel and at right angles to the bedding, are considered by Threader (1965) to be loci for concentration of the ore bearing solutions. The Main Shear runs N.N.W. along the length of the gold field. Post-Permian movement is inferred to have occurred along this Main Shear as well as along another member of the conjugate set which strikes E.N.E. and displaces the main shear.

In the individual gold fields folding is considered to be more intense in the mineralised areas than in other areas underlain by the Mathinna Beds. Finucane (1935) maintains that in the Mathinna Gold Field the reefs are mainly confined to areas where there is maximum development of cleavage in the slates whereas in country where arenities predominate the reefs that occur have been of little value.

Threader (1965) has found that the reefs strike in four principal directions. On each individual field, however, only one or two of these directions are present (Figure 1). He concluded that the gold was emplaced by highly selective replacement in the shear zones, and considered a spatial relationship existed between the faults and mineralisation in the Mathinna area. This mineralisation - major fracture relationship probably exists throughout the belt but no closer relationship to the regional folding is known. Drilling being carried out in the Alberton area at this time by the Tasmanian Mines Department is designed to establish the relationship in that area. Threader (1965) also considers that the Mathinna Gold Field lies in an upfaulted block, whereas other gold fields occur along the major watercourses. There the shear zone may lie beneath the watercourse and has not therefore been prospected.

INDIVIDUAL GOLD FIELDS

Mangana and Tower Hill Gold Field

Production : 1884 - 1905 ::::: 5,449 oz. of gold.

In this field the majority of the quartz lodes strike N.W. and generally were only prospected to a depth of 200 feet. Although the Mangana Mine was mined to 819 feet it was not payable after 200 feet. The smaller creeks in the area have been fairly well prospected, with minor

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quantities of gold in excess of \$800 value being removed. The wide alluvial flats of the Tower Rivulet, however, are virtually unexplored.

Mathinna Gold Field

Production : This field was the richest in N.E. Tasmania producing 270,895 ozs. of gold in the period 1880 - 1932, of which 253,865 ozs. was produced by the New Golden Gate Mine and 10,997 ozs. from the Tasmanian Consols Mine.

Geology : The Mathinna Beds in the vicinity of the gold field strike approximately N.30 deg. W. to N. 40 deg. W and dipping west at 45 - 80 degrees.

Most of the gold bearing lodes occur on ~~either side~~ ^{the footwall coast} of what was known as the "Main Slide". The "Slide" only occasionally contains payable quartz and has not displaced any reefs. Its role appears to have been that of allowing the flow of the mineralising solutions. It is ^{part of} ~~is~~ the Main Shear Zone ^{along which} ~~that~~ the principal reefs have been developed. These are Main Reef, Loarne's Reef, East and West Reef. They have been mined to a depth of 1800 feet in the New Golden Gate Mine and 1300 feet in the Tasmanian Consols Mine. The Department of Mines has placed 3 diamond drill holes in the vicinity of the Golden Gate Mine to test for gold and a continuation of the main shear.

The "Main Slide" is a 200ft shear zone, it is mineralised on the footwall (NE) side and is not the Main Shear Zone in the goldfield but only part of it. There are, probably, other ^{Page No. 4} parallel faults in other parts of the Mathinna goldfield.

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Dan Rivulet Gold Field

Production : 1888 - 1906 - 2,760 ozs. of gold.

Geology : The quartz veins in this gold field strike N.W. and N.E. No major strikes were recorded in this area. Hughes projected the lodes along strike and recommended drilling at the intersection of the Starlight, Carnegie and O'Brien's Lodes. In 1962 the Mines Department placed two diamond drill holes in this vicinity but failed to find any lodes, concluding that the reefs cannot be expected to persist for any distance, horizontally or vertically.

CONCLUSIONS AND RECOMMENDATIONS

Conclusions

The N.N.W. trending Main Shear appears to be genetically related to the mineralization and it is in the vicinity of this that the more persistent reefs occur. The reefs that occur outside this area are spasmodic and persistent. The fields have been virtually unexplored below 200 feet and it seems unlikely that something that occurs over a length of 56 miles occurs principally within 200 foot of the surface.

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Recommendations

Should further interest in gold be stimulated by this report it is recommended :

1. That a geomorphological study and a fracture analysis be made of this and surrounding areas to pick up any similar sheared zones and to extend the known fields.
2. That this be followed up by geochemical surveys using the Au - As relationship in orientation studies and routine studies if As can be shown to be locally or regionally shown to be an indicator.
3. That geophysical traverses might be carried out across the known gold fields to establish the position of the Main Shear (if it is continued) with the view of restriction of the area for placing of drill holes. Pyrite in the quartz gold lodes may be useful for indicating geophysical detection of anomalies for siting drill holes.
4. That sampling of the alluvium of the Dan and Tower Rivulets and the Ringarooma and Dorset Rivers be made to establish their gold content. If favourable indications show on this work it should be followed by geophysical surveys and boring to establish the extent of the alluvium.

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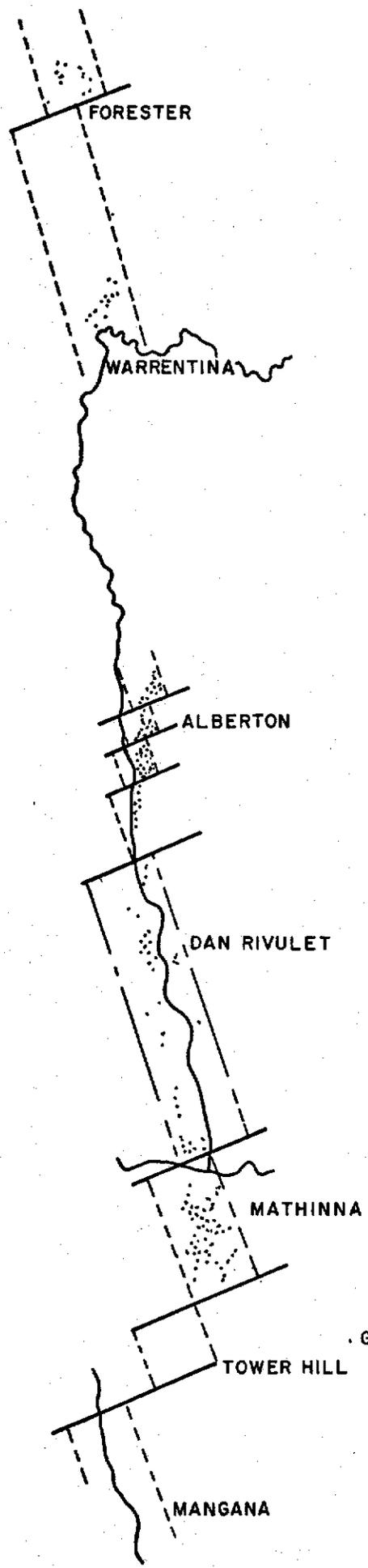
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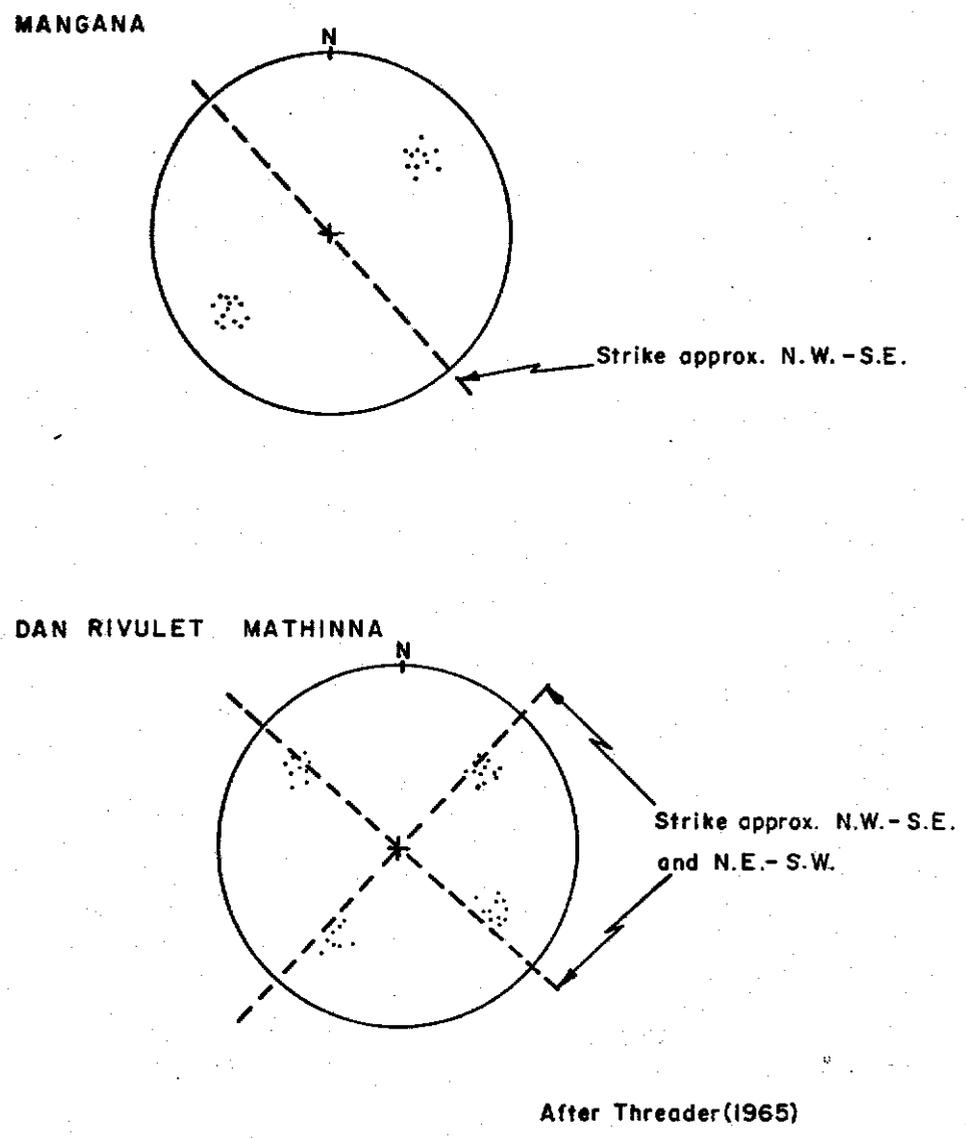


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DISTRIBUTION OF LODES NORTH EAST TASMANIAN GOLD FIELDS

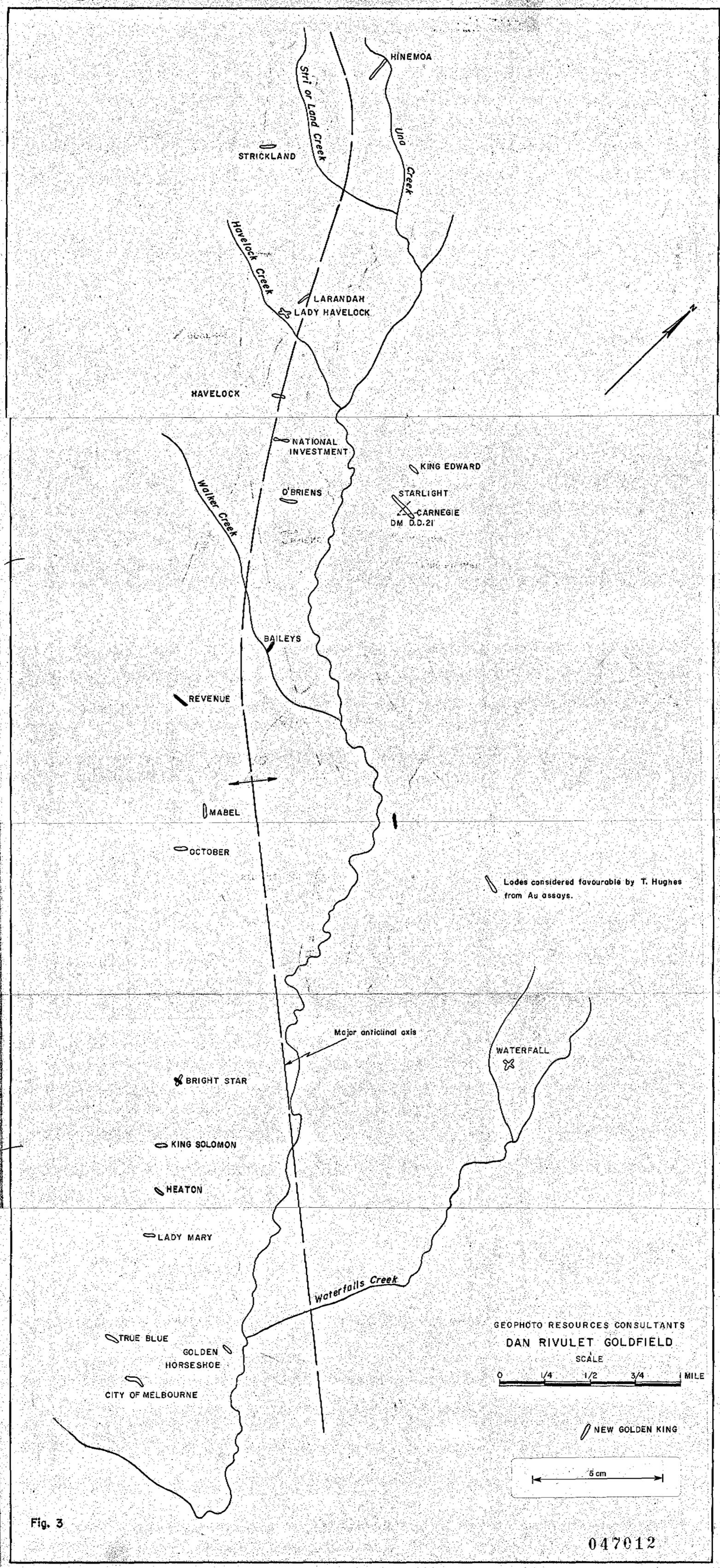
After Threeder (1965)

Fig. 1



GEOPHOTO RESOURCES CONSULTANTS
 STEREOGRAPHIC PROJECTIONS OF QUARTZ LODES
 IN INDIVIDUAL FIELDS

Fig. 2



GEOPHOTO RESOURCES CONSULTANTS
 DAN RIVULET GOLDFIELD
 SCALE
 0 1/4 1/2 3/4 1 MILE

NEW GOLDEN KING

5 cm

Fig. 3

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