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ASSESSMENT OF COAL DEPOSITS

IN SOUTH EASTERN TASMANIA

**MICROFILMED**

Prepared for <sup>Manufacturers</sup> AUSTRALIAN PAPER MILLS  
LIMITED.

Prepared by EARTH RESOURCES AUSTRALIA  
PTY. LTD.  
*Goldfields House, Sydney*  
M.R. BUNNY B.Sc(Hons), M.Aus.  
I.M.M.  
Consulting Geologist.

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AMG REFERENCE POINTS ADDED



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SOUTHEASTERN TASMANIA.

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SUMMARY

Although there are no areas in southeastern Tasmania where large reserves of cheaply won coal are likely to exist, there are two areas which may have potential for reserves in the order of 150,000 to 200,000 tons of open cut coal or up to 10 years supply for the mill. The possibility of greater tonnages exists, but must be considered as less probable at this stage.

The two areas are:-

- (i) Catamaran (together with the east side of Recherche Bay)
- (ii) Lune Plain area

Catamaran is 69 kms. south of Port Huon and Lune Plain is some 48 kms. south. In the case of Catamaran several kilometres of road improvement would be required if extraction of coal was undertaken.

Because of the special circumstances applying in this case, it is difficult to make specific recommendations in terms of usual economic parameters. The Company's decision whether or not to proceed with further investigation of these areas obviously depends largely on the degree of importance placed on having captive energy reserves within reasonable geographic proximity to the mill as a safeguard against possible future difficulties in obtaining fuel oil. The possibility (and economics) of obtaining coal from Fingal or the mainland must also be considered.

If the Company decides the need for captive reserves is sufficiently important, and elects to further investigate these areas, the following programme is recommended. This programme is in two separate stages, and the second stage will be entered only if very favourable indications result from Stage 1.

On electing to proceed, the Company would first need to acquire prospecting tenure under the Mining Act. All necessary forms have been obtained for this, if required.



Exploration Programme - Catamaran Lune Plain AreasStage 1.

This stage consists of bulldozer work to expose outcrop and costean seams to a sufficient depth to accurately assess thickness, quality, dip of seams and extent of surface oxidation.

The programme would investigate Catamaran, the east side of Recherche Bay and the Lune Plain area. The following costs are estimated maxima.

(a) D6 Bulldozer	2250
15 days @ \$150/day	
(b) Geologist - Field supervision and office compilation and assessment	
35 days @ \$75/day	2625
(c) Accommodation and Travel	1950
(d) Analytical work	500
(e) Surveying	500
(f) Preliminary open cut costing	500

TOTAL ESTIMATED MAXIMUM \$7325

Stage 2.

The cost of this stage will depend entirely upon results obtained in Stage 1. Certainly the biggest area of expenditure would be on drilling to evaluate seams down dip from the outcrop. It is envisaged that the second stage programme, up to and including opening of a trial box cut would cost somewhere between \$10,000 and \$20,000.

*M. R. Bunny*

M.R. BUNNY B.Sc(Hons), M.Aus.I.M.M.

CONSULTING GEOLOGIST

MARCH 1974.



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INTRODUCTION

Coal occurrences in the southeastern part of Tasmania were inspected with a view to securing small reserves of easily won coal to supply the Australian Paper Mills Limited Port Huon mill in the event of fuel oil shortages.

Deposits visited were Strathblane, Hastings, Ida Bay, Catamaran, Kaoota and Cygnet. The location of these is shown in Figure 1.

The Kaoota deposit has been worked fairly recently on a very small scale. The remaining deposits have not been worked for many years.

Catamaran operated mainly between 1905 and 1939 when some 70,000 tons of excellent quality steaming coal were produced.

The Cygnet coal deposit occurs in rocks of Permian age (i.e. of similar age to the mainland black coal deposits) but the remaining areas are of Triassic age. In Tasmania the Triassic coal are invariably better in quality and thickness than the Permian coals.

*thicker but  
not better*

Triassic sediments and their contained coal measures are developed over wide areas of eastern Tasmania, but unfortunately they have been extensively intruded by Jurassic dolerites which have severely disrupted the sediments. In many areas this intrusion has resulted in steep dips and extensive faulting on all scales, and is in large part responsible for the rugged topography which characterizes the region. In many areas the dolerite has had the added effect of altering the rank of the coal, producing low volatile anthracite and semi-anthracite varieties, as has occurred at Kaoota and in part at Catamaran and Cygnet.

Apart from the general structural complexity of the region, geological observations are severely hampered by dense vegetation cover.



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MODE OF INVESTIGATION

Prior to field inspections, various background data were assessed. Information available included a number of unpublished Tasmania Mines Department reports supplied by Mr. Owers, together with Mineral Resources No. 7 ("Coal Resources of Tasmania"), Bulletin No. 20 ("Catamaran and Strathblane Coal Fields") and various geological maps.

Detailed topographic base maps were acquired at the Tasmanian Lands Department and from Mr. Wood, Port Huon Mill Manager.

At the conclusion of the field inspections discussions were held with Mr. Ian Jennings (Chief Geologist) and Mr. Vic Threader (Senior Non-Metallics Geologist) of the Tasmanian Mines Department.

A number of local residents also provided useful information regarding some of the deposits.



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## 1. STRATHBLANE AREA

Good access to this area is afforded by numerous forestry roads. These roads with the occasional adjacent quarries, constitute virtually the only sites of observation in the area. Off-road geological mapping is impossible without prior clearing by bulldozer, and over much of the area the rugged topography would prevent the latter.

Detailed geological traverses were conducted on all roads in the area, but due to the disappointing results obtained, maps summarizing these data have not been prepared.

Workings in the Strathblane area have been inaccessible since the time of Twelvrees visit in 1914 (Bulletin 20).

Mineral Resources No. 7 (P. 154) notes that "... the beds are upturned at a high angle and at least two faults have been located".

The dip of the seam in the workings is reported to be 18 deg. Three seams have been opened in the area but all are quite thin. The "main workings" are apparently very restricted, with the seam averaging 2 ft 9 in in thickness.

### Coal Quality.

Mineral Resources No. 7 states that as a domestic fuel this coal is far superior to most local coals, and for steaming purposes is highly prized. Production is reported as "a few hundred tons".

### Potential of Area.

Despite the apparent good quality of the coal, the steep dips, rugged topography, limited coal thickness and extensive igneous intrusions within the area preclude it from serious consideration as a viable source of coal in the future.



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## 2. HASTINGS AREA.

The topography and geology of this area are very similar to the Strathblane area, and almost certainly the same seams were worked in both.

Once again, disappointing results obtained have not warranted preparation of plans of the area.

Three seams have been exposed in the past by means of tunnels. The uppermost, or Gamma Seam, has been worked to at least 200 feet. This seam is 37 feet above the Delta which in turn is 27 feet above the Eta Seam. The Gamma Seam dips at 23 degrees to the WNW.

Coal quality is reported to be very similar to the Strathblane area, and total production is similarly small, not having exceeded 500 tons.

### Potential of Area.

For the same reasons as stated for Strathblane, the Hastings area is considered to have no potential for future production of coal.



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3. IDA BAY AREA. (Figure 2.)

Both old records and present observations suggest that this is a very restricted area of Triassic coal measures almost completely surrounded by igneous rocks. Three seams occur in the area, but only one has been opened (in 1892), for the production of 330 tons. The seam dips SW at 20 deg and the coal is reported to be dirty and not a good steaming coal.

In view of the rugged topography, steep dips, limited area and inferior coal quality, further investigation of this area is certainly not warranted.



4. KA00TA/SANDFLY AREA.

This general region is extensively intruded and faulted and the topography is quite rugged. Mr. O.T. Roberts, the present lease holder was not available at the time of this visit, but one of the old adits (now filled with rubbish) and spoil heaps were inspected, and observations made of road cuttings and other outcrops in the vicinity. The anthracitic nature of the coal, caused by the dolerite intrusives, is readily apparent in hand specimen.

Seams are reported to occur in three groups in the area, these separated by "considerable thickness of felspathic sandstone and shale". (M.R.7). In all, eight seams occur, four of which are of workable thickness throughout, the others only in part.

The intricate faulting in the area, reported in M.R.7, is substantiated by recent drilling in the area (Threader, V.M., Tech. Rept 13).

Potential of the Area.

The coal occurrences in this area are reasonably well documented and these data will not be reiterated here. The coal is a low volatile - high ash type and as such is probably unsuitable for A.P.M.'s use. In any event the apparent limited reserves, structural complexity and poor mining conditions do not auger well for this area.



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5. CYGNET AREA

Coal occurs in rocks of Permian age some 9 km southeast of the township of Cygnet. Access is gained to the mine area 3.7 km west along the Gardners Bay road, then turning south for approximately 3/4 km on a property track. The only accessible adit lies on a property owned by a Mr. Wolff, however the workings contain water and little can be seen.

Coal outcrops have been traced for some 5 miles, but due to the extremely rugged terrain, the area has no potential for open cut reserves. The area is extensively intruded and faulted, and records show that in some areas the coal has been affected by the intrusions. Dips in the workings are up to 11 deg to the southeast.

Mineral Resources No. 7 records the presence of two seams in the Cygnet area, with indications of two others. Only the upper (Lamba) seam has been developed. Openings were made where the best showings of coal were recorded at the surface and the average thickness at these points is three feet. Local residents report that there are three seams in the sequence, the upper one attaining a maximum thickness of 3 feet 10 ins and the others being very thin. Considerable variations in the thickness of the main seam are recorded in the worked areas.

The main mine at Cygnet was operated (at the time of writing of M.R. 7 - 1922) by the Electrolytic Zinc Company of Australia Limited, at which time some 70,000 tons are estimated to have been extracted. Later records have not been acquired.

No analyses of the coal have been obtained, but it is certainly inferior to the Triassic coals which have been worked elsewhere in the State. M.R. 7 described the coal as having a dull appearance with occasional bright laminations. It is hard and compact, has a high ignition point and in the furnace gives out great heat.

A stratigraphic drill hole was recently sunk in the area by the Mines Department. This hole passed through old workings but did not intersect any



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other seams of economic interest.

Potential of Area.

It appears probable that the areas of thicker development of the main seam may have been worked out, and that what coal remains unworked is therefore generally less than three feet in thickness. This, combined with dips which may be 11 deg or more would make underground extraction difficult and expensive. In addition the quality of the coal is only mediocre. There is no potential for open cut reserves in the area, and further investigations by the region are considered unwarranted.



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6. CATAMARAN AREA. (Figure 3)

Of those previously worked coal areas examined in the course of this investigation, the Catamaran area is the only one which may be worthy of further investigation.

There are certain gaps in the records relating to the Catamaran Mine. Several hours were spent at the Tasmanian Geological Survey in an attempt to fill some of these gaps, and whilst some old data, mainly old mine plans, were found, certain bore information still remains to be obtained. Careful searching of departmental records will undoubtedly produce some of this information, especially data relating to bores sunk by the Mines Department in 1936. ||

Access to the mine area is severely hampered by dense undergrowth. Regrowth along old tramways and in the vicinity of old workings is even more dense than the virgin scrub, and is additionally made worse by extensive blackberry thickets. The only access to the mine area is via an old tramway leading from the Catamaran River to the "New Main Shaft". This has been kept open by Forestry officers. Apart from an old caved-in prospecting adit adjacent to this tramway, this shaft was the only evidence of activity in the area.

Mr.A.H. Smith of Strathblane, who has a holiday cottage at Moss Glen, north of Catamaran, accompanied the writer to the old shaft and also provided much useful information about the Catamaran mine and about general prospecting operations in the area. Mr. Smith worked at the mine for a number of years prior to its closure in 1939, and his information is considered reliable.

The Catamaran mine operated between 1905 and 1939, during which time some 70,000 tons of coal were removed. Mr. Smith advises that prior to closure of the pit, substantial removal of pillars was undertaken. It is thus a fair assumption that reserves within the main seam, lying between outcrop in the east and the fault zone in the west, have been depleted. Prospecting to the north of the workings has been unsuccessful in delineating continuation of the main seam outcrop in this direction. The reasons for this are not clear, but it could be due either to deterioration of the seam or to the presence of



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an E-W striking fault. The occurrence of coal on the eastern side of Recherche Bay (worked by convicts according to Mr. Smith) may be due to faulting of the type described.

In evaluating previous work in the Catamaran area, it must be borne in mind that the aim was to define underground reserves and that no consideration was given to open cut extraction. Depending on the method of interpreting data (see unpublished report by Hudson and Nye, 1932) there are either three or six seams in the immediate vicinity of the Catamaran mine. It is more probable that there are only three seams in the section, and that the three seams reported in the "Anthracite" area are in fact a repetition by faulting of the Catamaran Section (see unpublished report by Blake, ?1939).

The correlation of these seams would appear to be as follows:-

Catamaran Area

- Upper Seam - very thin
- Catamaran Seam - 40-46 ins
- Young Seam - 30-36 ins

"Anthracite" Area

- Upper Seam - 1 foot
- Middle Seam 4ft 4 ins
- Anthracite Seam - 3 ft

The Young Seam is 8 to 12 feet below the Catamaran Seam while the Anthracite Seam is some 10 to 12 feet below the middle seam. The "upper" seam in each area appears to be of no interest.

The close proximity of these seams would enable both to be worked from one open cut operation. If an aggregate thickness of 6 to 7 feet of coal is worked to an overburden: coal ratio of somewhere between 10:1 and 12:1 on essentially level ground, strips of around 5 chains in width would result. For the 15 chain length of outcrop proved for the "Anthracite" seam (1939 Rept) open cut tonnages in the order of 75,000 tons could be expected. If a similar 15 chain length of outcrop could be proved in the Catamaran area (but away from worked areas) then a total of around 150,000 tons, or up to 10 years supply could be expected. From existing data it appears reasonable that such lengths of outcrop could exist at Catamaran. The initial work in the area proved outcrop for 4300 feet, or about 65 chains. An old plan of the Catamaran workings (Plan No. 727A/97, undated but post 1934) shows the



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Catamaran seam to have been worked over a strike width of less than 30 chains - ie., there is nearly 40 chains of the original outcrop length which has not been mined.

Other factors which would have to be considered in connection with open cut extraction of coal in this area include the extent of oxidation of the seams and the effect of groundwater on the operation.

It appears, from available analyses, that the coal is not affected to any significant depth by surface weathering. This is probably a function of both the nature of the coal and the high water table. The standing water level in the main shaft was approximately 20 feet at the time of this inspection.

The Catamaran region is certainly a "wet" area, and water was definitely a problem in the old workings. Nonetheless it is felt that the extent to which water was a problem has been exaggerated. Certainly the mine handled the problem for over thirty years, and the ultimate closure of the pit was not due to water, but in fact caused by the fault zone, beyond which economic coal was not intersected.

Should sufficient coal be shown to exist under conditions suitable for open cut extraction, it is felt that modern equipment and techniques would be capable of coping with the groundwater problem.

#### Conclusions.

The Catamaran area may have the potential to fulfil the Company's requirements for up to 10 years at the rate of 15-20,000 tons per annum. Initial evaluation of this potential could be undertaken relatively inexpensively by means of bulldozer work alone. Should this work reveal outcrop over sufficient strike length, and seams of sufficient thickness and quality over that length to be of interest, shallow drilling would be necessary to evaluate the seams down dip.

Should the company elect to further investigate Catamaran, it is strongly recommended that the eastern side of Recherche Bay also be evaluated, since coal is known to occur in this area. The topography is quite gentle and may



be amenable to open cut extraction.

Catamaran is some 69 kms by road from Port Huon.



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7. LUNE RIVER AREA (Figure 2.)

The Lune Plain area lies some 48 km. south of Port Huon, adjacent to the main road. Triassic coal measure sediments occur in the area, but no coal seam was sighted in the present investigation. Original mapping suggests that there is an area in excess of 1 square mile which may be underlain by Triassic strata, possibly including coal seams. This area is delineated in Figure 2.

The topography of the area is very gentle, and if seams of reasonable quality and thickness exist with dips similar to those noted as outcrop, open cut reserves sufficient to satisfy the Company's requirements may well be proved.

Whilst the area would have to be regarded as a "wild cat" prospect attention is drawn to the following extract from Bulletin No. 20 (P.13):-

"On the south side of the little creek at the Lune River Settlement, shales are seen on the road underlying beds of white sandstone and dipping west. Some dark carbonaceous shale outcrops on Hutchen's land here, and suggests the possibility of coal existing not far off."

Compare the above with the following report from Mineral Resources No. 7.

"Shale outcrops in the road cutting on the north bank of the Lune River, suggesting the near presence of a coal bed. A little exploratory work in this area may well lead to important results".

There is a foot note to the latter statement, as follows:

"Since the foregoing was written prospectors have opened up a coal bed of three seams, containing nine feet of coal. The coal occurs under light cover in flat country of considerable extent."

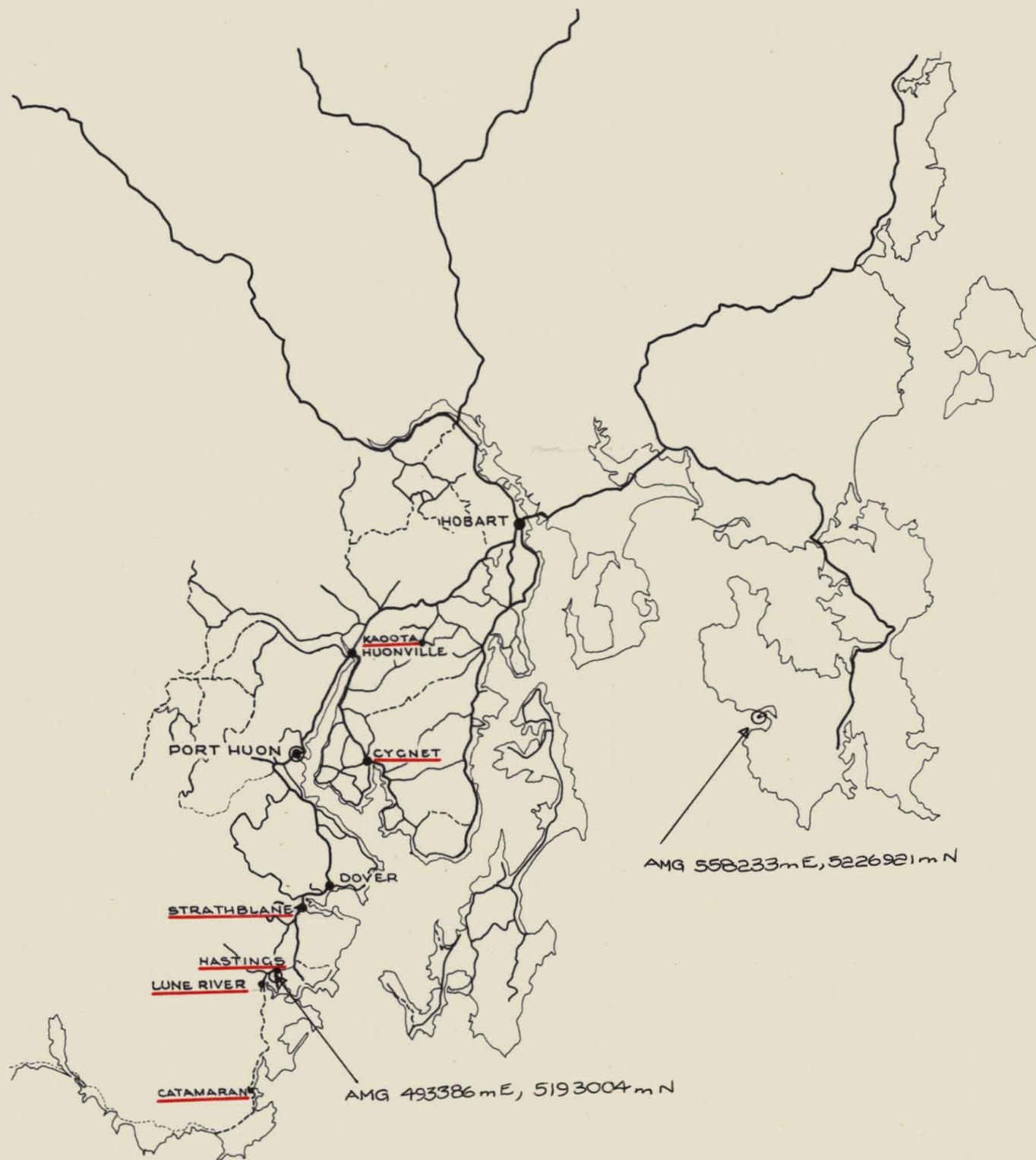
The present investigation verified Twelvrees observations of the westerly dipping shales underlying white sandstone in the bank of the little creek south of the Lune River crossing. However there are no outcrops to be found in the north bank of the Lune River itself nor in the road on the north



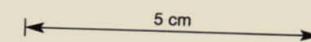
bank. It is almost certain therefore that both authors are referring to the same location. No further light could be shed on this matter at the Mines Department, as there are no extant records of the coal openings referred to in M.R. 7. However, the "flat country of considerable extent" can only be the Lune Plain area.

Despite the sketchy and conflicting records regarding this area, it is recommended that if the Company wishes to proceed further in an endeavour to locate reserves of Coal in the general region, some attention should be paid to the Lune Plain area. The area of potential is delineated on the accompanying map. (Figure 2).





AMG REFERENCE POINTS ADDED



SCALE



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LOCATION MAP

To accompany report by M.R. Bunny B.Sc. (Hons.) M.Aus.I.M.M.  
MARCH 1972.



**LEGEND:**

- Tertiary Gravels
- Tertiary Basalt
- Jurassic Dolerite
- Triassic Sediments
- Geological boundary
- Fault
- Road
- Tramway
- Prospective Area

Base information from SOUTHPORT 1:31,680  
 Sheet No 8211 - II - 5  
 Geology from Mineral Resources No 7 & M.R. BUNNY.  
 Contours shown in feet.

SCALE : 40 CHAINS = 1 INCH

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<b>LUNE RIVER AREA</b>
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