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LIMESTONE DEPOSITS OF NORTHERN AND NORTH - EASTERN TASMANIA

General:

Limestone is required in the northern and north-eastern portion of the State for two purposes -

1. The Aluminium Commission requires some 6,000 tons of limestone each year.
2. Farmers in north-eastern Tasmania and particularly the Agricultural Bank require supplies of ground limestone for agricultural purposes.

The Deposits:

Limestone Deposits in this part of the State fall into three categories. -

1. Recent Deposits formed among the sand dunes along the North Coast.
2. Narrow Permian Beds in the Karoola-Bangor district.
3. Large high grade deposits of Lower Palaeozoic Age at Flowery Gully and Beaconsfield.

1. Recent Deposits:

LOW HEAD.

About 1 mile north of the Low Head Aerodrome and a quarter of a mile from the sea is an area of about twenty acres covered intermittently with hummocks and "stalagmites" of limestone. This deposit was probably formed in recent times by precipitation from lime impregnated waters; the calcium carbonate was probably derived from shell beds and possibly also from the basalt which outcrops near-by.

Portion of the deposit is friable and could easily be crushed to a fine powder. Other parts have become hardened into rock-like masses.

Three samples were taken and have been analysed with the following results -

1. Soft white material easily converted for agricultural needs.

Acid Insoluble	17.2%	CaO	43.3%
Al_2O_3	1.0%	MgO	0.6%
Fe_2O_3	1.0%		

11. Hardened material:- would require same crushing as normal limestone.

Acid Insoluble	11.6%	CaO	52.9%
Al_2O_3	0.2%	MgO	1.0%
Fe_2O_3	0.2%		

111. Impure sandy material occurring between the hummocks formed of 1.

Acid Insoluble	37.4%	CaO	31.2%
Al_2O_3	1.4%	MgO	0.8%
Fe_2O_3	1.7%		

~~Now~~, although, this deposit covers an appreciable area, it occurs merely as a crust, and not even a continuous crust over the sand. Consequently no great tonnages could be obtained. However, local needs for small amounts of agricultural lime could perhaps be satisfied provided some means of carting ~~the stuff~~ it out could be devised. It is about a mile from the deposit to the road at the aerodrome and much of the route consists of soft sand.

Another deposit of similar nature occurs some six miles north-west of Bridport, on the North Coast midway between West and East Sandy Capes. This occurs on the property of Mills Brothers of "Panshanger" and I understand these gentlemen are interested in the deposit and have forwarded samples of the material to the Agricultural Department.

It is quite likely that further deposits occur along the north coast, particularly between Low Head and Bridport and an intensive survey may reveal these. Provided access is reasonable these deposits may be of limited use for agricultural needs.

II. Permian Limestones

The deposits occurring in the Lilydale district between Karoola and Bangor are, from an economic point of view, most disappointing. Indeed they could scarcely be called limestone deposits at all, and consist of a narrow bed of limestone contained within mudstones and sandstones.

On the hill immediately east of the Piper's River Bridge on the Karoola Bangor Road is a narrow bed of

Permian Limestone containing some pebbles and numerous fossils of fenestella, spirifer, pecten etc. This bed is some hundred feet above the river flats, outcropping on a hillside having a slope of 35° and above it is some thirty feet of sandstone.

Twenty years ago, before the second visit of P.B. Nye, a trench was dug into the hill, across the bed, which proved to be only three feet in width.

The limestone itself is very similar to the Granton beds in appearance and an analysis of a grab sample showed -

Acid Insoluble	14.7%
Al_2O_3	0.9%
Fe_2O_3	1.0%
CaO	45.0%
MgO	1.2%

Because of its narrow width, however, and the fact that it is overlain by so much overburden, it could not be considered as a commercial proposition.

There had been a report that limestone occurred on Kents Blocks, on the north side of the Second River. I examined this area thoroughly in company with the owner, Mr. Goodger, and could find no trace of limestone, a slightly calcareous mudstone was the nearest approach. This area lies about 1½ miles north-east of the previously mentioned deposit and this bed could quite easily extend that far and because of its narrow width remain unobserved.

The third so-called limestone deposit of the district is located on the bank of the Third River, one and a half miles east of Bangor and was shown to me by Mr. W. Hammersley. This is a tiny superficial deposit of recent origin formed on the surface of the Mathinna Quartzite Series and is of no commercial interest.

Permian Limestones have also been reported from the Beaconsfield District but here again the beds are

very narrow and difficult to work and cannot be considered when we remember the older high grade deposits of the same district.

III. The Lower Palaeozoic Deposits of Flowery Gully and Beaconsfield.

Here, then, we find a very different occurrence of limestone, large deposits of high grade stone, and, at Flowery Gully very easy to quarry

(a) Flowery Gully Deposits

This limestone, although of great purity compared with the Permian deposits does contain some impurities (black chert, quartz, pyrite and some purplish slatey material). It is a hard bluish-grey stone, plentifully impregnated with calcite veins and bunches, usually fairly massive but at times with a well developed cleavage parallel to the bedding. These beds form portion of the eastern leg of a great anticline, with a strike of 160°. The beds dip to the north-east at 45° and have a width of 1,000 feet which corresponds to the lateral extent of 1,400 feet.

To the north, the limestone is cut off by a fault which is concealed beneath the recent alluvium of Johnsons Creek; to the south and south-west, it is overlain by Permian Conglomerates.

Although this limestone deposit is extensive, all workable portions of it are either leased or owned by Companies or persons interested in the production of limestone. Those interested belong to four groups of which three are vitally concerned with supplying the Aluminium Commission's requirements. These groups are as follows -

1. Beaconsfield Lime Products Ltd. This Company produces burnt and crushed limestone. At present they are constructing a large lime burning plant near the junction of the Flowery

Gully and West Tamar Roads, and are operating a quarry on the eastern side of the Flowery Gully - Winkleigh Road on property owned by them (82ac.-1-18) -A. Douglas Purchaser) and have opened a face on the same side of the road, 1,100 feet to the south. The limestone in both these faces appears to be very high grade, with abundant calcite and few impurities. Vertical samples taken down each face showed the following analyses.

Sample 1.

SAMPLE. 1. Quarry (30')

CaO	54.2%
Acid Insoluble	0.6%

Sample 2. Working face (15')

CaO	51.4%
Acid Insoluble	0.7%

(N.B. Complete Analysis of all samples shown in table on page 8 &. 9.)

This Company are also interest in the old quarry on block 29ac.A.E. Thomas Purchaser. The limestone here is near the upper limit of the beds and shows some quartz, pyrite and purplish slate along cleavage faces. A small crushing plant is in operation at this quarry. A sample taken over 15 feet vertically showed the following analysis :-

Sample 6.

CaO	51.3%
Acid Insoluble	4.1%

Mr. Griffiths, the Manager of this Company, informed me that they were very anxious to supply the Commission with their lime requirements, whether in the form of limestone or burnt lime and had been in communication for some time now.

II. Messrs. A.R. and H.L. Beams are at present operating a quarry to the east of the Road in the southern portion of the belt, on land they own and hold under mineral lease 365P/M, 196 acres. At present they are burning all the limestone they produce in a kiln situated near the quarry. This lime is sold to various firms in Launceston. The quarry has been opened up to a height of 25 feet across the dip so that 45 feet across the bedding is exposed. A sample was taken across this distance and showed the following result -

Sample 3.

CaO	53.6%
Acid Insoluble	2.1%

On the other side of the road and farther up the hill smaller quarries have been worked in the past. The limestone, here, does not appear to be as high in quality as there are some small black cherty inclusions contained in it. A sample taken across 25 feet of the beds was analysed as follows -

Sample 4.

CaO	47.4%
Acid Insoluble	7.9%

Mr. A. Beams on behalf of himself and his brother is very interested in supplying the Commission with limestone and when he has considered the matter is prepared to quote a price.

3. Messrs. R. Beams and N. Campbell have an application for two mineral leases of 113 ac. and 13ac. in land owned by Mr. Beams, which contains the greater portion of the limestone beds. At present, Mr. R. Sulzberger is winning limestone from this property under a royalty basis.

Although Mr. Beams is not at present producing limestone himself he plans to do so at some future date and is very interested in supplying the Commissions requirements. Before submitting an actual quotation he desires to discuss the matter with his co-lessee, Mr. N. Campbell.

There are some excellent sites for quarrying situated on this property perhaps the best of which is on the opposite side of the road from the quarry operated by Beaconsfield Lime Products. This is indicated on the accompanying section. No fresh face is available here to take a channel sample but a grab sample from rocks broken in the vicinity gave the following assay.

Sample 7.

CaO	51.7%
Acid Insoluble	5.8%

The stone does not appear quite as massive as in some other parts and a little purplish slatey material shows along cleavage planes.

4. R. Sulzberger is operating on several faces below the caves entrance on R. Beams' property. He is crushing the stone in Launceston and supplying the Burnie Paper Works. He informed me he was not interested in doing business with the Aluminium Commission. A sample taken from the working face showed the following result:-

Sample 5.

CaO	44.2%
MgO	8.9%
Acid Insoluble	4.1%

(b) Beaconsfield Deposits:

A deposit of limestone occurs near the junction of the Flowery Gully and Beaconsfield Roads. Most of it probably occurs on property owned by the Beaconsfield Lime Products Ltd. and this is the site of their new plant. This stone has been won in the past by sub-surface pits which are at present full of water. However, P.B. Nye reports that the stone is very similar to that at Flowery Gully. Although this deposit is some three miles closer to Beauty Point than the Flowery Gully Limestone it cannot be compared with the latter deposit for the following reasons.-

1. The stone could not be quarried but would have to be won by sub-surface methods.

2. The pits are at present full of water and

pumping plant would be needed to deal with water.

3. An overburden of up to thirty feet of alluvium covers the deposit.

4. The deposit is not as extensive as that at Flowery Gully.

Recommendations:

It would thus appear that the only deposit worth considering is that at Flowery Gully. Although, all the lime-stone country is covered by ownership or lease or both, at least three differentgroups are interested, and anxious to supply the stone. If the Commission however, preferred to win their own stone I do not doubt that this could be dome on a royalty basis, particularly on H. Beams' property.

The limestone on all properties, however, is high grade, abundant, and in many places ideal for quarrying and close to existing roads.

It is unfortunate that no worth while deposits have been located on the eastern side of the Tamar, but the deposits examined could not be considered in relation to the Commission's needs.

however, the small recent deposits along the North Coast may have a limited local use for agricultural needs.

Terence D Hughes

GEOLOGIST

20.2.50

ON ASSAY RESULTS:

It would appear that, although all the results are indicative of limestone of good quality, the beds richest in calcium are those to the east of the area or those closer to the top of the series. These are shown in the first two analyses of the Beaconsfield Lime Products and the first of Beams' Bros. In Beams Bros. No. 2 Quarry, which was worked in the past by Sulzberger on a royalty basis the impurity, small blebs of black chert, consists mainly of silica and appears to be of limited extent. The stone from Beaconsfield Lime No. 3. Sample and the grab sample of R. Beams has small amounts of purplish slate which however, only give an acid insoluble of about 5%. The stone from Sulzberger's workings is interesting on account of the high magnesium content. This again appears to be a local variation of limited extent. When it is remembered that no picked samples were taken but channel samples either across the beds or vertically down the face and the only discard was overburden and obvious seams of clay, it can be seen that these analyses reveal deposits of high grade limestone.

L.D.H.

59B.

TABLE II

ANALYSES OF ACID INSOLUBLE

No.	Total Acid Insoluble	SiO_2	Al_2O_3	Fe_2O_3	TiO_2	CaO	MgO	Na_2O	K_2O
1	0.6	70.80	18.71	0.99	1.50	Trace	2.53	0.41	5.19
2	0.7	67.28	20.00	1.42	1.94	"	2.66	0.34	5.25
3	2.1	80.28	12.12	0.56	0.72	"	2.14	0.19	3.60
4	7.9	91.64	5.18	0.28	0.34	"	0.85	0.25	1.20
5	2.0	72.92	16.90	0.78	1.16	"	2.39	0.50	5.06
6	4.1	74.96	16.23	0.50	0.87	"	2.20	0.40	4.76
7	5.8	91.16	6.05	0.21	0.34	"	1.00	0.40	1.44