

TR7-58-63

14. LIMESTONE DEPOSIT, MOLE CREEK AREA

by S. M. Rowe.

INTRODUCTION

An examination was made from 24th to 28th September 1962 in the Mole Creek area to locate limestone of high purity which could be used in the paper manufacturing industry.

PREVIOUS LITERATURE

A report by Jennings (1957) covered adequately the stratigraphy and structure and included sampling results at seven sites.

LOCALITY AND ACCESS

The site examined in detail occurs 2 miles W of the township of Mole Creek and 150 yards SE of the Sassafras Creek crossing. There is a bitumen road from Sassafras Creek to Mole Creek while Mole Creek is connected to Deloraine by a first-class bitumen road and a railway line.

GEOLOGY

After a general examination of the Mole Creek area, Site No. 2 of Jennings was regarded as the most promising and was examined in detail. A map of this site is shown on Figure 17. Approximately 400 feet of the lower part of the Gordon Limestone is exposed. The limestone is blue-grey to dark-grey in colour, compact, tough, fossiliferous and well bedded with occasional irregular calcite veins. The dip is almost uniform over the area, averaging 28° at 20° , and faulting is absent. Solution cavities are few and small and are unlikely to affect the reserves significantly. Small remnants of dolerite and basal Permian tillite occur.

QUALITY OF LIMESTONE

Two sets of samples Nos. 1-15 and 16-26 were taken across the same beds to determine if the quality varies along the strike. The locations of samples are shown on Figure 17; the results of analyses are shown in a table and are graphed for comparison in Figure 18. The results show that the limestone is essentially uniform in composition along the strike with a small increase in the percentage of available lime to the SE.

The sampling was done by the chip method, approximately 1 inch cubes of clean fragments being taken every 6 inches across the bedding. The close correspondence between samples from the same beds indicates that this method gives consistent results where outcrop is nearly 100%. However, the analysis of Sample No. 6, taken over 60 stratigraphic feet with 20% outcrop, must be regarded with caution, as Samples No. 22 and 23 indicate that the lower 20 feet of this section could be high grade.

TABLE I, LIMESTONE ANALYSES, MOLE CREEK

Reg. Nos.		Sample Nos.		Stratigraphic Thickness		PERCENT								BURNT LIME		PERCENT		Reserves		
						Acid Insoluble		R ₂ O ₃		CaO		MgO		Ignition Loss		%			Available CaO	
A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B			
4111	4114	15	18	28'	30'	3.0	3.2	0.9	0.8	50.1	52.5	2.4	1.3	42.9	42.7	57.1	57.3	76.5	80.6	
4110	4113	14	17	23'	30'	2.4	2.7	0.8	0.7	51.9	49.6	2.2	4.1	43.0	43.6	57.0	56.4	78.9	78.0	
4109	4112	13	16	19'	30'	3.0	2.7	1.0	0.6	51.6	51.9	2.1	1.7	43.1	42.9	56.9	57.1	77.3	80.7	
		AVERAGE ..		..		2.8	2.9	0.9	0.7	51.2	51.3	2.2	2.4	43.0	43.1	57.0	56.9	77.6	79.8	Block A
4108	..	12	N.S.	18'	18'	3.2	..	0.6	..	51.3	..	2.3	..	42.8	..	57.2	..	73.6	..	Block B
4107	4115	11	19	19'	19'	1.6	2.4	1.0	0.9	53.7	53.2	1.5	1.2	43.0	42.8	57.0	57.2	83.0	84.4	
4106	4116	10	20	18'	23'	2.0	2.4	0.8	0.6	51.6	51.5	2.9	2.7	43.4	43.2	56.6	56.8	80.6	81.9	
4105	..	9	N.S.	17'	..	2.0	..	0.8	..	52.3	..	2.1	..	43.1	..	56.9	..	80.1	..	
4104	4117	8	21	18'	30'	3.0	2.8	1.0	0.6	52.8	52.5	1.1	1.6	42.6	42.8	57.4	57.2	79.8	81.5	
		AVERAGE ..		..		2.1	2.5	0.9	0.7	52.6	52.4	1.9	1.8	43.0	42.9	57.0	57.1	80.9	80.6	Blocks C and D
4103	..	7	N.S.	20'	..	7.0	..	0.9	..	49.8	..	1.3	..	41.0	..	59.0	..	66.9	..	
4102	..	6	N.S.	60'	60'	12.9	..	1.6	..	45.8	..	1.0	..	38.0	..	62.0	..	46.5	..	
		AVERAGE ..		..		10.0	..	1.2	..	47.8	..	1.1	..	39.5	..	60.5	..	56.7	..	
..	4118	..	22	..	15'	..	2.8	..	0.6	..	52.5	..	1.3	..	42.7	..	57.3	..	81.2	
4101	4119	5	23	20'	19'	2.8	3.2	0.6	0.9	52.2	51.9	1.7	1.3	42.6	42.6	57.4	57.4	79.3	81.9	
4100	4120	4	24	20'	26'	5.0	3.4	1.0	0.9	50.7	52.2	1.4	1.3	41.7	42.5	58.3	57.5	71.9	79.3	
		AVERAGE ..		..		3.9	3.1	0.8	0.8	51.5	52.2	1.5	1.3	42.2	42.6	57.9	57.4	75.6	80.8	Block E
4099	..	3	N.S.	20'	..	11.2	..	0.9	..	47.0	..	1.6	..	38.5	..	61.5	..	49.9	..	
4098	..	2	N.S.	21'	55'	12.6	..	1.8	..	46.3	..	1.5	..	38.0	..	62.0	..	47.3	..	
4097	..	1	N.S.	14'	..	6.2	..	1.0	..	51.0	..	1.4	..	41.0	..	59.0	..	69.5	..	
		AVERAGE ..		..		10.0	..	1.2	..	48.1	..	1.5	..	39.2	..	60.8	..	55.6	..	

The last two columns in the tabulation show the percent weight of burnt lime obtained by calcination at 1000°C for 2 hours, and the percentage of available lime (sugar method) in the burnt lime.

TABLE II

The analyses indicate that the strata can be subdivided from top to bottom as follows:—

Sample Nos.	Total Strat. Thickness	Burnt Lime	Available CaO in Burnt Lime	Samples 1-15		Samples 16-22		Variation	Reserves
				Strat. Thickness	Available CaO	Strat. Thickness	Available CaO		
	feet	%	%	feet	%	feet	%		
13-15, 16-18	90	56.9	78.8	70	77.6	90	79.8	76.5-80.7	Block A
12	18	57.2	73.6	18	73.6	..	..	..	Block B
8-11, 19-21	72	57.0	81.7	72	80.9	72	82.6	79.8-84.4	Blocks C and D
6-7	60	60.5	56.7	80	56.7	..	..	46.5-66.9	..
4-5, 22-24	60	57.6	78.7	40	75.6	60	80.8	71.9-81.9	Block E
1-3	55	60.8	55.6	55	55.6	..	..	47.3-69.5	..

CORRELATION OF LIMESTONE MOLE CREEK

STRATIGRAPHIC THICKNESS (IN FEET)

 SAMPLES 1-15 ———
 SAMPLES 16-24 ○——

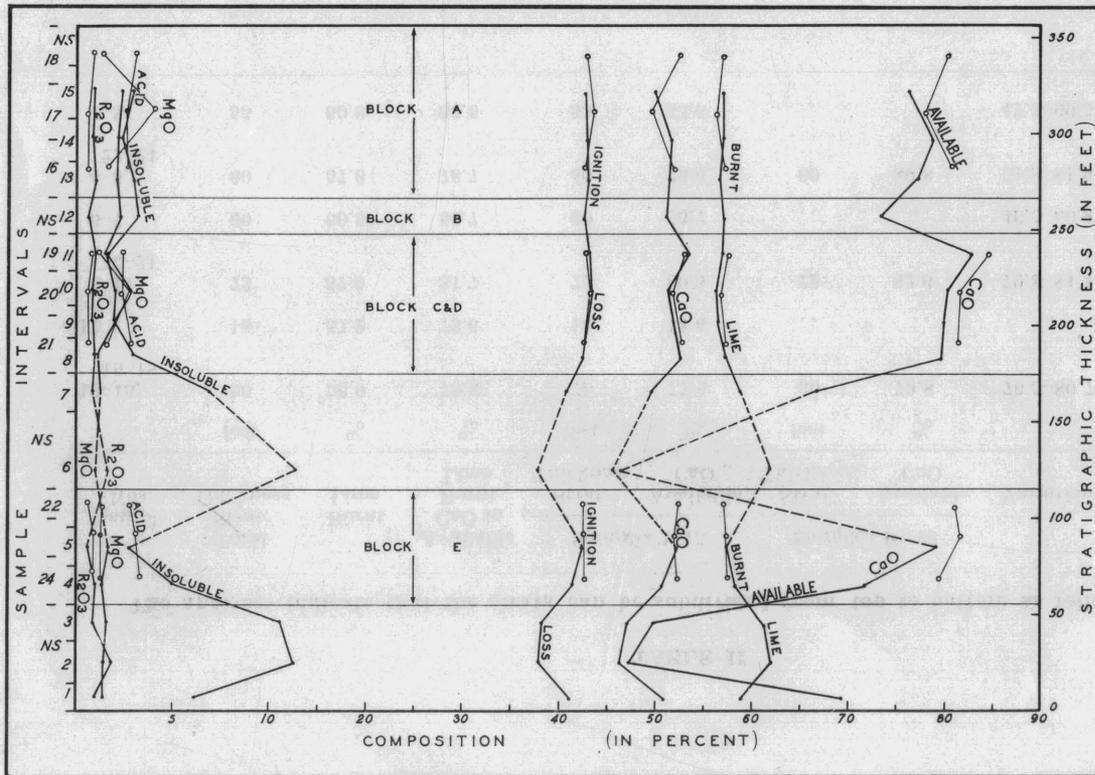
 S. ROWE
 GEOLOGIST
 1962


FIGURE 18.

5 CM

RESERVES

The approximate reserves of the various blocks outlined on Figure 17 with a maximum quarry depth of 100 feet are as follows:—

- Block A— $\frac{1}{2}$ million tons of 78.8% available CaO; quarry dimensions 140 feet wide by 70 feet deep.
- Block B— $\frac{1}{2}$ million tons of 73.6% available CaO; cannot be quarried without removing Block A.
- Block C—1 million tons of 81.7% available CaO; cannot be quarried without removing Blocks A and B.
- Block D—1 million tons of 81.7% available CaO; quarry dimensions 150 feet wide by 100 feet deep.
- Block A + B—1 million tons of 76.2% available CaO; quarry dimensions 190 feet wide by 90 feet deep.
- Block A + B + C—2 million tons of 79.0% available CaO; quarry dimensions 190 feet wide and 100 feet deep.
- Block A + B + C + D—3 million tons of 79.9% available CaO; quarry dimensions 340 feet wide by 100 feet deep.
- Block E— $\frac{1}{2}$ million tons of 78.7% available CaO; quarry dimensions 100 feet wide by 80 feet deep.

These reserves could be increased considerably by following the beds further to the SE.

CONCLUSION AND RECOMMENDATIONS

The survey shows the presence of large reserves of high grade limestone near Mole Creek and that the composition of the beds is consistent along the strike. Further sampling by diamond drilling would be advisable before quarries are developed.

REFERENCE

- JENNINGS, I. B., 1957.—Mole Creek, Chudleigh, and Liena; in Limestones in Tasmania. *Geol. Surv. Tas. Miner. Resour.*, 10, pp. 155-166.