ADDENDUM TO REPORT ON THE DOLOMITE DEPOSITS OF SMITHTON AND ADJACENT DISTRICTS, NORTH WEST COAST

On perusing the report on the dolomite deposits it appeared that the question of the extent of the deposits had not been clearly and fully described. This was brought about unconsciously because of the actual enormous extent of the deposits which did not therefore appear to require stressings. However, when the exploitation of the deposits is being considered it is advisable that the extent should be fully described, and this will be done below.

Smithton or Duck River deposit.

As far as evidence shows, this deposit forms the bedrock of the whole of Duck River plain. The most continuous outcrops are along the Duck River and these prove its existence over a length of approximately five miles from near Smithton in the north to Edith Creek in the south. The northern continuation is obscured by the sand, alluvium etc., while no attempt was made to trace the continuation to the south.

The eastern boundary of the dolomite is formed by the slates, breccias and limestone which underlie it, this boundary being approximately along or east of the general line of the Duck River.

To the west the dolomite occurs on the Duck River Plain, but outcrops are not numerous due to the thin covering of sand and, on the Mowbray Swamp of peat, marls etc. The outcrops, exposures in drains etc. however, prove that the dolomite occurs over a width of 220 chains. Taking into consideration the westerly dip of 40 degrees, the total thickness of the beds is 140 chains or approximately 9,000 feet.

Thus the dolomite occupies a tract of country at least five miles long and two and three quarter miles wide. The depth to which the dolomite extends increases from east to west to a depth of many thousands of feet (no allowance can be made for undetected faulting.) The quantity is, therefore, for all practical purposes, inexhaustible.

Turning from the general area to that viz. in the vicinity of Blackwood Bridge, recommended as the one worthy of investigation as the most suitable for exploitation the following remarks apply. The dolomite here outcrops at intervals over an area of about seven acres, and numerous shallow quarries have been opened up in it. From this locality the dolomite should extend for 60 chains to the east and north, and greater distances to the west and south. However, unless separate quarries were started on both sides of the Duck River, this stream would limit the extension of quarrying operations. Moreover, as the crystalline dolomite (of better quality) occurs west of the river, it would be better to commence quarrying operations on that side. Operations could then be carried to the north for 30 chains, north-west for 60 chains, and west as far as desired. The area available would be at least 200 acres below which the dolomite should extend to depths of 2,000 to 3,000 feet. It must be realised that the greater part of this area is

covered by a superficial layer of sand ranging in depth up to a maximum of about 12 feet, while in the vicinity of the existing quarries it would be much less than this figure.

At Edith Creek, it has already been indicated that quarrying operations could probably be carried out over 15 acres. In addition there would be a considerable extent under the plain country to the south-west, west and north sufficient for all practical purposes, but in which sub-surface quarrying would have to be employed.

Irish Town Deposit

This deposit is shown on the plan as extending over about 200 acres but actually it outcrops over only one half of this area. This deposit would not extend beyond the area shown except under the basalt to the south.

From the railway south to Irish Town a portion could probably be extracted by ordinary quarrying, but the greater part could only be extracted by sub-surface methods. In the northern half, sub-surface quarrying only could be applied.

The surface covering is soil and stream alluvial. The depth to which the dolomite extends would not be as great as in the case of the Smithton deposit, but would be sufficient for all practical purposes.

Conclusions

From the above descriptions it will be realised that the extent and depth of the dolomite of the Smithton deposit are so large that the quantities available may be considered practically inexhaustible.

In the Blackwood bridge area, the extent is at least 800 acres and the depth is much greater than any likely to be reached by sub-surface quarrying methods.

It is hardly necessary to express the quantities in figures, and it need only be pointed out that every 10 acres worked to a depth of 50 feet in dolomite should yield 1,700,000 tons approximately.

Analyses

On calculating the contents of lime, magnesia and carbon dioxide in the analyses it is found that there is an apparent excess of lime and magnesia. This is due largely, if not wholly to the difficulty of obtaining a correct balance of the above in analyses of high-grade dolomite. However, there is a slight possibility that a small proportion of silicates is present. Investigations are proceeding in connection with this problem.

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ANALYSES OF DOLOMITE SAMPLES
(Expressed as percentages)

		RAW DOLOMITE											CALCINED DOLOMITE			
Sample No.	Reg. No.	SiO_2	FeO & Fe_2O_3		Al_2O_3	CaO	MgO	As	P_2O_5	C	CO_2 By Ignition Loss	SO_3	Calcines	SiO_2	CaO	MgO
1.	1819	0.08	0.24 +		0.36	31.12	21.48	M.T.	T.	0.02	46.73	T.	52.74	0.16	58.50	40.44
2.	1820	0.20	0.24 +		0.48	31.22	21.64	M.T.	T.	0.156	46.14	T.	52.72	0.06	58.34	41.53
3.	1821	0.12	0.12 +		0.36	31.32	21.50	M.T.	T.	0.032	46.68	T.	52.73	0.06	58.34	41.06
4.	1822	0.08	0.12 +		0.48	31.22	21.56	T.	T.	0.028	46.64	T.	52.78	0.06	58.21	41.52
5.	1823	0.08	Fe_2O_3 0.08	FeO N.D.	0.40	31.60	22.22	M.T.	T.	0.03	46.84	N.D.	52.85	xInsol. x0.04	58.03	40.74
6.	1824	4.60	0.37	0.84	3.18	28.70	19.72	Nil	0.029	0.20	43.60	N.D.	56.37	x9.63	49.80	36.13
7.	1825	4.88	0.44	0.78	3.06	28.30	19.76	Nil	0.03	0.25	43.31	N.D.	56.36	x10.16	51.00	34.84
8.	1826	4.80	0.47	0.87	3.56	28.64	19.32	Nil	0.03	0.25	43.35	N.D.	56.40	x9.22	49.60	36.09
9.	1827	3.80	0.29	0.74	3.38	28.40	20.36	Nil.	0.028	0.35	43.73	N.D.	56.31	x9.10	48.99	37.05
10.	1828	5.08	0.35	0.71	3.86	28.00	19.20	Nil	0.035	0.25	43.63	N.D.	57.13	x11.26	48.18	35.92
11.	1829	6.64	0.76	1.26	8.24	28.20	14.62	Nil	0.054	0.65	40.75	N.D.	58.61	x14.86	46.33	29.79

continued.

		RAW DOLOMITE										CALCINED DOLOMITE			
Sample No.	Reg. No.	SiO_2	FeO & Fe_2O_3		Al_2O_3	CaO	MgO	As	P_2O_5	C	CO_2 By Ignition Loss	SO_3	Calcines	SiO_2	CaO	MgO
12.	1830	2.12	Fe_2O_3	FeO	3.54	29.80	19.40	Nil	0.04	0.35	44.73	N.D.	54.93	x5.86	52.96	36.34
13.	1831	5.52	0.71 0.40	1.03 0.94	3.68	28.00	19.98	Nil	0.03	0.40	42.48	N.D.	57.16	x12.12	47.54	35.50
14.	1832	3.28	0.15	0.38	0.42	30.40	21.56	Nil	0.06	0.05	44.83	N.D.	54.79	x7.28	54.00	37.33
15.	1833	0.52	0.65	0.71	0.56	31.20	21.36	Nil	0.10	0.14	46.46	N.D.	53.35	x1.02	57.42	38.77

Phosphate is soluble in hydrochloric acid. Oxides of iron in Nos. 1 - 5 soluble in hydrochloric acid and in Nos. 6-15 probably a small proportion is insoluble in hydrochloric acid.

+ Estimated that the oxides of iron contain approx. 65% Fe203
ø TiO_2 - 0.20%
::Contains a trace of iron pyrite.