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G. REF - 9026 8474

## NORTH-EASTERN DISTRICT

HAWES (50) SHEET

SD 98 SW/1

RAYDALE BOREHOLE (SD 9026 8474) 267.9 m O.D.

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Thickness  
mBritish Geological Survey  
Depth m

<u>Draff</u>	SUPERFICIAL DEPOSITS		
	Clay, sand and gravel	5.18	5.18
<u>Dinantian</u>	LOWER CARBONIFEROUS		
	Great Scar Limestone (Visean C <sub>2</sub> S <sub>1</sub> ) to D <sub>1</sub> )		
	Limestone, pale grey, partly pseudobrecciated in upper part; mid to dark grey, bioclastic in lower part	229.90	235.08
	Siltstone, dark grey; several beds of sandstone and impure limestone	38.20	273.28
	Limestone, massive, partly ankeritised	77.90	351.18
	Basement Beds (Visean C <sub>2</sub> S <sub>1</sub> )		
	Sandstones and conglomerates; dolomitic siltstone bands, partly grey, partly red-brown	143.87	495.05
	Unconformity		
	WENSLEYDALE GRANITE		
	Granitic debris and weathered granite	3.78	498.83
	Granite, pink medium-grained nonporphyritic weathered and hematitised on joints	101.73	600.56
	Logged by Mr. I. C. Burgess and Miss L. E. Dean.		

The age of the Wensleydale Granite has been determined by the Isotope Geology Unit, using Rb-Sr analysis, as 400± 10 m.y.

L. Jones

1/79

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Abstracted from Report No 74/7 (195 Boreholes 1972) pages 15/16

Saled by O on 1" &amp; 6" maps

GEO-MAGNETIC LABORATORY RE. GRT. NO. 45

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1. REFERENCE

Thirty-four rock samples were taken from the Raydale Borehole,  
SDB 9026 (SD98SW/1)  
Yorkshire, (GR. SD98SW & 8474) for density, porosity, magnetic  
susceptibility and sonic velocity determination. The samples were  
received at the beginning of September 1973. Details of the samples  
are given in Appendix I.

2. EXPERIMENTAL PROCEDURE

Where possible, testing was carried out on field cores 2½" dia.  
by 3½" and 1½" dia. by 4". Cores, for the magnetic susceptibility  
test were 1 3/16" dia. by 3½" cut from the field cores in the E.G.U.  
laboratories.

(a) Density Porosity Determinations

The sample cores were dried in an oven at 105°C for 24 hours, cooled  
in a dessicator and weighed.

The samples were placed in a dessicator and subjected to a vacuum  
of 4 torr for 1 hour; deionised water was then fed into the dessicator  
until the samples were covered. The vacuum dropped to 16 torr  
(saturated vapour pressure of water at 20°C is 17.51 torr) at which it  
was maintained until the samples and the water ceased to degas. The  
apparatus was then returned to atmospheric pressure and the samples  
allowed to reach ambient temperature, 20°C. Finally, each saturated  
sample was weighed; firstly submerged in deionised water, and secondly,  
surface dried in air.

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Appendix 1

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RAYDALE BOREHOLE SAMPLES TESTED

SAMPLE NO.	DEPTH (m)	ROCK TYPE DESCRIPTION
CARBONIFEROUS LIMESTONE		
IB373	20.22	Light grey limestone with slight iron staining and some stylolites which are horizontal across the specimen.
IB373	42.37	Light grey limestone with slight iron staining with a vertical calcite vein 5 mm thick at one edge of the specimen.
IB374	59.77	Light grey limestone with slight iron staining also bioturbated.
IB375	80.44	Light grey limestone with a fine vertical calcite vein also a number of shelly fossils
IB376	100.13	Light grey limestone with a fine vertical calcite vein
IB377	119.00	Grey limestone with a vertical calcite vein 2 mm thick. Fine mudstone partings at one edge of the specimen
IB378	140.31	Light grey limestone
IB379	160.30	Light grey limestone with two fine calcite veins 75° to the vertical
IB380	179.46	Light grey limestone, bioturbated with some stylolites.
IB381	200.02	Light grey limestone with slight iron staining, also a number of shelly fossils
IB382	219.84	Light grey limestone with some shelly fossils
IB383	234.02	Light grey limestone with some shelly fossils
IB384	240.49	Grey limestone with fine mudstone partings causing the sample to break up, bioturbated
IB385	250.24	Dark grey limestone with very fine mudstone partings
IB386	259.69	Light grey limestone with some very small mica flakes
IB387	270.36	Dark grey limestone, bioturbated also some calcite crystals along the vertical fracture (to specimen)
IB388	279.97	Light grey limestone with calcite crystals some stylolites horizontal (to specimen)
IB389	299.14	Light grey limestone with a vertical fracture also a number of shelly fossils and crinid debris.

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BRITISH GEOLOGICAL SURVEY	SAMPLE NO.	DEPTH (m)	BRITISH GEOLOGICAL SURVEY	ROCK TYPE DESCRIPTION	BRITISH GEOLOGICAL SURVEY
Greek Scar Limestone	IB390	319.76		Grey limestone with small cavities infilled with calcite crystals, some iron staining along stylites which are horizontal across the specimen.	
↓	IB391	341.05		Light grey limestone with small cavities infilled with calcite crystals	
Basement Fels	IB392	350.95		Dark grey limestone with small iron pyrites nodules (1 m dia.)	
	IB393	381.11		Grey limestone with fine vertical calcite veins	
BRITISH GEOLOGICAL SURVEY	IB394	390.73		Light grey limestone with fine horizontal mudstone partings also a fine vertical calcite vein.	
	IB395	400.30		Dark grey limestone	
	IB396	420.89		Brown mudstone with limestone partings.	
	IB397	439.38		Brown siltstone.	
	IB398	459.36		Grey sandstone	
	IB399	482.98		Light grey limestone with fine calcite veins	
	WENSLEYDALE GRANITE				
	IB400	503.79		Pinkish granite	
	IB401	510.00		Pinkish granite with some weathering and iron staining	
	IB402	539.30		Pinkish granite	
	IB403	559.61		Pinkish granite	
	IB404	581.05		Pinkish granite.	
BRITISH GEOLOGICAL SURVEY	IB405	580.02		Pinkish granite with some weathering and iron staining also a fracture line can be seen.	

SD 98/1

## Appendix 2

- 8 -

## RAYDLE BOREHOLE DENSITY, POROSITY

Sample	Saturated Density gm/cc	Dry Density gm/cc	Grain Density gm/cc	Effective Porosity %	Voids Ratio
IB372	2.691	2.683	2.705	0.828	0.008
IB373	2.695	2.691	2.702	0.385	0.003
IB374	2.682	2.676	2.693	0.655	0.006
IB375	2.694	2.686	2.708	0.787	0.007
IB376	2.696	2.693	2.702	0.325	0.003
IB377	2.700	2.698	2.704	0.234	0.002
IB378	2.691	2.686	2.700	0.528	0.005
IB379	2.703	2.698	2.711	0.493	0.004
IB380	2.693	2.687	2.703	0.598	0.006
IB381	2.703	2.701	2.705	0.142	0.001
IB382	2.671	2.717	2.720	0.383	0.003
IB383	2.694	2.686	2.708	0.791	0.007
IB384	SAMPLE DISINTEGRATED ON SATURATION				
IB385	2.697	2.696	2.699	0.123	0.001
IB386	2.690	2.670	2.724	1.977	0.020
IB387	2.746	2.741	2.755	0.529	0.005
IB388	2.699	2.697	2.704	0.279	0.002
IB389	2.712	2.703	2.729	0.932	0.009
IB390	2.821	2.807	2.848	1.317	0.014
IB391	2.827	2.820	2.838	0.635	0.006
IB392	2.603	2.605	2.703	0.312	0.003
IB393	2.710	2.667	2.786	4.249	0.044
IB394	SAMPLE SPLIT IN TWO ON SATURATION				
IB395	2.798	2.777	2.836	2.102	0.021
IB396	2.716	2.699	2.748	1.787	0.018
IB397	SAMPLE DISINTEGRATED ON SATURATION				
IB398	SAMPLE SPLIT IN TWO ON SATURATION				
IB399	2.855	2.846	2.871	0.851	0.008
IB400	2.587	2.581	2.597	0.637	0.006
IB401	2.580	2.563	2.607	1.710	0.017
IB402	2.588	2.583	2.598	0.575	0.005
IB403	2.575	2.566	2.589	0.883	0.008
IB404	2.590	2.585	2.598	0.522	0.005
IB405	2.590	2.581	2.604	0.878	0.008