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British Geological Survey

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G. Ref - 9026 8474

NORTH-EASTERN DISTRICT

SD 98 SW/1

HAWES (50) SHEET

Yorks 82 NW/4

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

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Thickness
mBritish Geological Survey
Depth
m

<u>Dmr</u> <u>-----</u> Dinantian	SUPERFICIAL DEPOSITS		
	Clay, sand and gravel	5.18	5.18
	LOWER CARBONIFEROUS		
	Great Scar Limestone (Viséan C ₂ S ₁ to D ₁)		
	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 (Viséan C ₂ S ₁)		
	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.		

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

per L. Jones

1/79

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Abstracted from Report No 74/1 (I.G.S Boreholes 1972) pages 15/16

Sited by O on 1" & 6" maps

GEO. PHYSICAL LABORATORY REPORT NO. 45

SD 98/11

1. REFERENCE

Thirty-four rock samples were taken from the Raydale Borehole, SD 9026 (SD 98/54/11) Yorkshire, (GR. SD 9026 & 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 1RAYDALE BOREHOLE SAMPLES TESTED

SAMPLE NO.	DEPTH (m)	ROCK TYPE DESCRIPTION
		CARBONIFEROUS LIMESTONE
IB372	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	60.44	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	119.20	Grey limestone with a vertical calcite vein 2 mm thick. Fine mudstone partings at one edge of the specimen
IB378	140.21	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 crinad debris.

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SAMPLE NO.	DEPTH (m)	ROCK TYPE DESCRIPTION
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
IB392	350.95	Dark grey limestone with small iron pyrites nodules (1 mm dia.)
IB393	381.11	Grey limestone with fine vertical calcite veins
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	482.08	Light grey limestone with fine calcite veins
WENSLEYDALE GRANITE		
IB400	503.99	Pinkish granite
IB401	510.28	Pinkish granite with some weathering and iron staining
IB402	539.80	Pinkish granite
IB403	559.61	Pinkish granite
IB404	581.03	Pinkish granite.
IB405	598.02	Pinkish granite with some weathering and iron staining also a fracture line can be seen.

Great Scar
Limestone

Basement Rock

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Appendix 2

ROYD LEE 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	2.271	2.717	2.728	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	1.217	0.014
IB391	2.827	2.820	2.838	0.635	0.006
IB392	2.693	2.695	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	2.583	2.583	2.598	0.575	0.005
IB403	2.575	2.566	2.589	0.883	0.008
IB404	2.599	2.585	2.598	0.522	0.005
IB405	2.590	2.581	2.604	0.878	0.008