

Section of No. 1 Pit, Dunkerton Collieries, Dunkerton, Somerset.

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THE particulars of the strata penetrated by No. 1 Pit at Dunkerton Collieries together with the quantities of water pumped per hour were communicated to me by Mr. C. Heal, who was manager and engineer at the collieries at the time the pit was sunk. The classification of the strata is by myself.

The term "Langport Beds" is used for the true White Lias.

The beds from the Cotham Marble—the top deposit but one of the Cotham Beds—to the top of the red Upper Keuper Marls ("Red ground") were, at one time, imperfectly displayed in the railway-cutting close to the collieries, and such details as could be observed have been published in the *Quarterly Journal of the Geological Society*, Vol. LXVII (1911), p. 67. The thickness of the Westbury Beds—the *Pteria-contorta* Black Shales—in the railway-cutting was only 5ft. 7ins.; in the pit section a deposit 11ft. 2ins. thick is classified as Westbury Beds; but it may be that this thickness includes some Tea-green Marls (Upper Keuper).

As mentioned in the *Quarterly Journal* paper:

"The Rhætic Bone-Bed, pyritic and full of fish-remains, was passed through in the sinking of the Dunkerton-Colliery Shaft."

A specimen was shown to me by a sinker about the time that work was in progress. In the railway-cutting the Bone-Bed rests directly on the Tea-green Marls.

The thickness of the deposit classified as Tea-green Marls is about the same as that of the Tea-green Marls displayed in the railway-cutting.

Vast quantities of water accumulate in the multitude of minute fissures in the Upper Keuper Marls which overlie the Coal Measures over practically the whole of the Radstock Coalfield. When this No. 1 Pit was sunk 130,000 gallons per hour, or 3,120,000 gallons per day (24 hours) were pumped when the pit had been sunken down to the Dolomitic Conglomerate or "Millstone" of the sinkers and miners of the district.

The Dolomitic Conglomerate forms a very regular sheet in the Radstock Coalfield. It holds up the water in the overlying marls and prevents it from sinking into the Coal Measures beneath. Tubbing based in the Conglomerate permits of the effective shutting out of the water from the shaft.

The Coal Measures were practically dry: Mr. Heal informs me that

"When the water had been tubbed off in sinking the shaft, we had no water when sinking through the Coal Measures."

DUNKERTON COLLIERIES.—No. 1 PIT, SUNK 1902.¹

		Thickness.		Depth.		Gallons per hour.	
		Ft.	Ins.	Ft.	Ins.		
LOWER LIAS.	Surface soil	1	6	1	6		
	Dark clay	6	6	8	0		
	Blue beds of stone and clay	7	6	15	6		
	Loam	1	6	17	0		
	Blue beds of stone with dark clay	2	6	19	6		
	Very dark marls	1	3	20	9		
	Blue stone in thin beds	1	3	22	0		
	Blue stone with beds of light clay	10	3	32	3		
LANGPORT BEDS.							
RHÆTIC.	Sun Bed	1	2	33	5		
	White Lias in beds from 4 to 10 ins. thick	5	2	38	7		
	COTHAM BEDS.						
	Blue shale with boulders of blue stone	6	6	45	1		
	Blue marl (very soft)	4	0	49	1		
	Blue stone bed (soft)	1	0	50	1		
	WESTBURY BEDS.						
	Marls, very soft and soapy, very dark	11	2	61	3		
	TEA-GREEN MARLS.						
	Marls, light grey mixed with fine sand	14	0	75	3	15,000	
UPPER KEUPER MARLS.							
UPPER KEUPER.	Red ground mixed with thin beds of white	41	0	116	3	30,000	
	Red ground with light grey beds 10 ins. to 24 ins. thick	38	9	155	0	70,000	
	Light grey bed	2	0	157	0		
	Red ground	15	0	172	0	90,000	
	Thin bed of white spars [? gypsum]	0	3	172	3		
	Blue bed	1	0	173	3		
	Red ground, very dark	8	0	181	3		
	Bed of white spars [? gypsum]	0	2	181	5		
	Mottled grey bed	1	4	182	9		
	Red ground (light)	4	0	186	9		
	Light grey bed	0	9	187	6		
	Red ground (light)	4	0	191	6		
	Red ground mixed with boulders of spar	2	6	194	0		
	Light grey bed	0	9	194	9		
	Red ground darker and very sandy	7	4	202	1		
	Red [ground] very dark mixed with spar	8	4	210	5		
	Thin bed of light spar in boulders	0	3	210	8		
Red [ground] mixed with light grey streaks	3	6	214	2			
Red [ground] very soft	8	4	222	6	130,000		
DOLOMITIC CONGLOMERATE.							
MILLSTONE	34	6	257	0	All tubbed off.		
Unconformity							

1. This shaft was sunk to the Radstock Series, but has since been continued to the Farrington Series, so that now the seams of coal in both series are being worked.—C. Heal (*in litt.*, 30th Dec., 1924).

NO. 1 PIT, SUNK 1902—continued.

	Thickness.		Depth.		Gallons per hour.
	Ft.	Ins.	Ft.	Ins.	
Gleaves, soft, blue and yellow mixed ...	5	0	262	0	Practically dry.
Pan mixed ...	5	6	267	6	
Grey Pan (hard) ...	8	0	275	6	
Cliff ¹ thin beds ...	2	6	278	0	
Pan ² and Greys ³ ...	8	0	286	0	
Strong Cliff ...	7	6	293	6	
Pan fireclay (soft) ...	10	6	304	0	
Greys, light colour ...	2	4	306	4	
Soft Pan ...	8	6	314	10	
Shales soft and dark ...	13	0	327	10	
Cliff ...	3	6	331	4	
Dark coal shales ...	4	9	336	1	
Pan very strong ...	1	0	327	1	
Very strong Cliff ...	5	6	342	7	
Coal shales with COAL ...	0	4	342	11	
Coal shales black ...	2	4	345	3	
Shale of COAL ...	0	2	345	5	
Pan light colour ...	4	0	349	5	
Pan very hard ...	3	0	352	5	
Greys ...	7	0	359	5	
Cliff, very hard ...	6	0	365	5	
Cliff, softer ...	4	3	369	8	
Cliff, softer and darker ...	3	0	372	8	
COAL shales ...	1	8	374	4	
Pan fireclay ...	4	2	378	6	
Greys ...	8	0	386	6	
Cliff, mild ...	3	0	389	6	
Shale very COALY ...	4	3	393	9	
Pan fireclay ...	8	0	401	9	
Cliff with fossils ...	4	0	405	9	
COAL shales ...	1	6	407	3	
Pan and shales ...	6	3	413	6	
Greys mixed ...	1	6	415	0	
Cliff, very fine ...	5	6	420	6	
Greys hard and fine ...	4	6	425	0	
Strong Cliff ...	1	6	426	6	
Clay parting ...	0	6	427	0	
Strong Cliff ...	2	6	429	6	
Soft Cliff ...	9	0	438	6	
Soft Cliff ...	10	0	448	6	
Shales ...	0	6	449	0	
COAL , thin seam ...	0	3	449	3	
Dark shales ...	1	10	451	1	
COAL , thin seam ...	0	3	451	4	
Black shale ...	2	0	453	4	
Pan fireclay ...	3	0	456	4	
Black shales ...	2	0	458	4	
Pan, light colour ...	2	6	460	10	
Pan, very clean ...	6	0	466	10	
Pan and Cliff mixed ...	4	6	471	4	

1. "Cliff" = blue shales.

2. "Pan" = bastard fireclay.

3. "Greys" = sandstone.

NO. 1 PIT, SUNK 1902—continued.

	Thickness.		Depth.		Gallons per hour.
	Ft.	Ins.	Ft.	Ins.	
	Cliff north side and thin beds of Grey south	7	0	478	
Mixed Greys and Cliff (very hard) ...	6	0	484	4	
Cliff, very strong ...	10	6	494	10	
Cliff, thin beds ...	5	0	499	10	
Dark Pan ...	9	0	508	10	
Pan, light colour ...	1	0	509	10	
Pan, a little dark ...	3	0	512	10	
Cliff, clear ...	8	0	520	10	
Cliff, very clear ...	2	6	523	4	
Greys mixed ...	3	6	526	10	
Cliff, very clean ...	8	0	534	10	
GREAT VEIN COAL ...	2	4	537	2	
Black shales with boulders of Pan and COAL	7	6	544	8	
Mixed shales ...	8	0	552	8	
COAL and shale ...	1	9	554	5	
Shale and Pan ...	2	6	556	11	
Hard Greys in thin beds ...	4	9	561	8	
Hard Greys in thin beds ...	2	6	564	2	
Cliff, very thin beds but very clean ...	4	0	568	2	
Cliff, mixed ...	4	0	572	2	
Cliff, thin beds ...	6	0	578	2	
Cliff, thin beds with iron bands ...	7	8	585	10	
Soft shales ...	0	3	586	1	
Cliff and soft shales ...	15	3	601	4	
Cliff, stronger ...	7	6	608	10	
Cliff, strong, with ironstone bands ...	4	6	613	4	
Cliff, strong ...	7	0	620	4	
Shale ...	0	3	620	7	
TOP LITTLE VEIN { Coal 1ft. 2ins. } ...	3	3	623	10	
{ Shale 1ft. 4ins. } ...					
{ Coal 9ins. } ...					
Pan, very clean ...	8	0	631	10	
Cliff, very strong, with fossils ...	7	0	638	10	
Soft shales ...	0	9	639	7	
Cliff, softer in thin beds ...	4	6	644	1	
Pan with boulders ...	9	0	653	1	
Pan, hard boulders ...	8	0	661	1	
Cliff, very hard ...	6	0	667	1	
Cliff, very clean ...	7	9	674	10	
Cliff, softer ...	2	6	677	4	
Soft shale ...	0	6	677	10	
MIDDLE VEIN COAL ...	1	9	679	7	
Black shale... ...	2	3	681	10	

UPPER COAL MEASURES.

Strata here very disturbed.