

# RAINFALL AT Wortdale Watersheds

Lat. \_\_\_\_\_

Lon. \_\_\_\_\_

County of Lancashire

Rain Gauge, by \_\_\_\_\_

Observer W.H. Hopkinson Esq. C.E.

Ribble - 6.1

Diameter ....	5					5						
Height .....	1.0					1.0						
Altitude ....	775					1115						
Year .....	1890	1891	1892	1893	1894	1895	1896	1897	1898	1899	MEANS.	
January ....			5.13	1.36	6.39	3.82	3.24	1.24	4.72	8.27		
February ....			2.93	6.06	7.98	52	1.53	3.27	3.58	2.80		
March .....			1.05	1.81	4.89	3.68	7.10	5.98	2.44	2.78		
April .....			1.90	.67	2.49	3.31	2.54	3.30	3.28	3.16		
May .....			4.36	2.74	2.82	4.21	.91	2.44	2.92	3.73		
June .....			1.39	4.51	2.94	3.47	4.77	3.06	7.12	3.98	1.37	
July .....			4.31	2.82	4.95	4.61	9.36	2.61	2.65	1.11	2.45	
August .....			8.11	5.13	4.26	5.98	9.19	2.80	5.93	4.98	2.09	
September....			3.72	4.18	4.88	.57	2.41	8.67	4.78	1.35	7.21	
October .....			5.20	8.57	6.83	6.65	5.91	5.51	2.26	5.53	3.91	
November....			5.15	2.88	4.01	4.03	6.98	2.81	4.34	4.50	2.19	
December ....			10.52	3.93	5.71	4.51	5.46	5.64	6.52	6.50	3.72	
TOTALS ....			44.22	51.63	47.39	46.22	54.32	56.62	46.42	49.83	44.59	43.68

1889 36.60 see Yorks

Haworth Ch 4 miles ESE

Gauge on open Moor

1895 May Gauge moved from inner slope of Ponder

Reservoir <sup>with dam</sup> 1 1/2 miles lower down the river Worth (in Yorkshire)



RAINFALL at Worthdale Watershed Lees ReservoirCounty of Central LancashireObserver W Foulds Esq C.E.  
M R Barnett Esq C.E.River Basin Grass. Aire 4Symons Sutton Rain Gauge, by Kent's

Diameter ...	5										
Height .....	1 0										
Altitude ...	1115 T										
Year ...	1910	1911	1912	1913	1914	1915	1916	1917	1918	1919	MEANS.
January ...	8.21	2.96	4.66	4.70	4.23	8.04	6.59	4.68	3.47	6.17	
February ...	7.52	7.13	2.84	3.43	4.91	7.20	7.86	1.62	8.37	2.21	
March .....	1.49	3.20	7.55	7.19	6.59	2.30	5.31	3.14	1.90	6.86	
April .....	4.49	3.36	1.67	5.37	1.84	2.37	3.82	3.97	1.26	2.46	
May .....	4.02	2.21	3.54	3.55	2.46	2.67	3.18	2.32	3.23	2.78	
June .....	2.70	5.36	3.34	3.01	2.15	.50	3.35	2.92	1.95	1.33	
July .....	4.85	.40	5.87	1.30	3.31	5.28	3.59	1.86	3.86	2.72	
August .....	7.50	2.96	3.30	1.98	3.06	4.61	3.84	7.83	3.49	3.73	
September ..	.51	3.93	3.02	1.61	3.21	1.56	3.12	2.69	10.60	2.26	
October ...	3.49	4.52	4.99	2.43	2.50	1.62	12.01	8.18	3.90	2.83	
November ..	6.70	5.84	4.41	6.38	8.80	3.07	5.07	5.59	2.88	3.97	
December ...	6.73	8.54	6.76	4.00	9.35	7.91	5.88	3.50	8.66	7.68	
TOTALS ...	58.21	50.41	61.75	44.95	52.51	47.53	63.62	48.30	53.57	45.00	
	<u>10</u>					<u>10</u>		<u>10</u>	<u>10</u>	<u>10</u>	

1910 Obs read 3 pm - 4 pm 1914  
1912 f on Moorland

Date.	Lat. N.	Long. W.	Railway Station.	Distance.	Direction.	Church.	Distance.	Direction.
	55° 50' 13" 14	2° 2' 58" 54	Haworth	4 1/2 m	E	Haworth	4 1/2 m	E



RAINFALL at Horthdale Watershedless ReservoirCounty of C. LancashireObserver M. R. Barnett Esq C.E.River Basin Guse-Aire &Eng. Raighley Valley L.S.Imperial Standard Rain Gauge, by Hunte  
M. O. (126)(1930) Alan Atkinson

Diameter ...	5"											
Height .....	10											
Altitude ...	1115											
Year .....	1920	1921	1922	1923	1924	1925	1926	1927	1928	1929	MEANS 1930	
January ...	6.15	8.16	4.36	4.05	3.47	3.59	5.64	5.23	12.89	1.88	8.44	
February ...	4.05	5.6	5.41	7.04	1.32	6.41	5.50	2.63	7.22	1.81	1.30	
March .....	4.50	4.14	3.47	1.89	1.71	1.24	3.25	4.84	3.83	1.29	3.20	
April .....	5.35	1.64	3.62	4.18	1.87	2.42	2.60	4.29	1.70	1.59	4.29	
May .....	6.09	2.63	1.98	4.37	imp	3.35	4.47	1.74	1.70	3.63	2.84	
June .....	2.61	1.18	2.83	1.02	imp	1.03	3.55	4.54	6.86	2.24	2.16	
July .....	6.78	2.35	5.25	3.89	3.53	1.91	3.96	4.96	2.42	3.36	8.51	
August .....	1.84	6.51	6.66	5.49	4.23	3.97	4.64	7.85	3.95	5.27	7.59	
September...	1.73	2.08	4.50	5.79	imp	2.18	4.23	6.90	1.18	1.79	5.18	
October .....	2.69	2.86	1.20	5.83	imp	4.41	4.38	5.46	6.68	7.15	7.08	
November...	3.00	2.54	2.11	7.11	imp	3.26	8.04	6.11	8.15	8.50	7.61	
December...	3.70	7.79	5.24	4.23	1.91	5.72	2.27	2.33	3.21	11.27	4.42	
TOTALS...	48.49	41.44	46.93	54.89	imp	51.09	52.58	56.88	61.84	48.78	62.62	
	D	D	D	D	D	D	D	D	D	D	D	

1924 N. P. Rev. P. ...  
 1925 not printed, Cows.  
 1926. No subjects near.

Position of Station on reduced Ordnance Survey  
Map, 2 miles to 1 inch Series

No. of Map

Reference No.

Date.	Lat. N.	Long.	Railway Station.	Distance from gauge	Direction from gauge	Parish Church.	Distance from gauge	Direction from gauge
1920	53° 50' 14"	2° 2' 54"	Haworth	2200 yds	E 7° S	Haworth	20350 yds	E 7° S

RAINFALL at Watersheddles Reservoir \*County of Central LancashireObserver A. Atkinson, Esq., C.E.River Basin Duse-Aire-4T. No. 7 Wood, M.C., C.E.Type of Gauge LondonA. Boothman, Esq., (449)Annual Average 48.4 in. based on 21 years obs. un-weighted. Period of average 1881-1901 Ref 5744053/27

Diameter	5.											
Height	1.0.											
Altitude	1115.											
Year	1931	1932	1933	1934	1935	1936	1937	1938	1939	1940	Means	
January	5.73	6.96	3.77	4.74	2.75	6.11	6.25	7.86	7.31	2.25		
February	6.75	8.1	7.02	4.7	9.77	3.02	7.12	2.64	6.36	2.54		
March	5.8	3.38	2.83	3.39	2.30	3.66	3.29	2.15	3.93	3.98		
April	4.21	4.56	1.97	3.18	3.54	2.04	3.69	9.0	2.88	4.46		
May	2.80	5.02	2.94	4.11	1.31	2.16	3.08	4.94	1.73	1.21		
June	6.73	1.68	2.59	3.07	5.12	4.64	3.13	5.40	3.98	.95		
July	5.18	5.00	3.38	3.03	2.52	4.71	2.68	6.30	8.39	5.51		
August	5.23	1.83	1.59	4.87	2.19	3.91	1.93	8.17	3.65	.82		
September	5.34	7.31	2.06	3.99	8.86	5.03	2.46	2.29	2.12	5.34		
October	3.16	8.27	5.26	6.84	12.13	5.75	2.77	11.34	3.53	5.37		
November	8.45	3.99	2.92	2.94	8.18	6.42	2.33	8.05	9.75	8.30		
December	3.22	2.14	.65	7.19	4.39	6.67	2.93	6.32	3.94	5.62		
TOTALS	57.38	58.40	36.98	47.82	63.06	54.62	41.76	66.36	57.57	46.35		
	<u>2</u>	<u>2</u>	<u>2</u>	<u>2</u>	<u>2</u>	<u>2</u>	<u>2</u>	<u>2</u>	<u>2</u>	<u>2</u>		

1933. Gauge inspected August 29<sup>th</sup> site of old gauge is unsatisfactory - recommended that when comparative readings are available for about three years gauge should be abandoned. Site of new gauge highly satisfactory see file 744053/27.

\* Gauge overhauled on move.

Position of Station on reduced Ordnance Survey Map,  
1 mile to 1 inch Series

No. of Map.....

Reference No.....

Date.	Lat. N.	Long.	Railway Station.	Distance from gauge	Direction from gauge	Parish Church.	Distance from gauge	Direction from gauge
1931			Haworth	22,000 ft	E 7° S	Haworth.	20,500'	E 75° S.

BRITISH RAINFALL ORGANIZATION, EXHIBITION ROAD, LONDON, S.W.7.



RAINFALL at Watersheddallas Reservoir (No. 2)County of L. Lancs.Observer H. Atkinson, Esq., C.E.River Basin Ouse - Aire - H.J. Noel Wood Esq., M.C., C.E.Type of Gauge StandardA. Boothman Esq., C.E.Annual Average in. based on years obs. un-weighted. Period of average Ref.

c 1933

f 744053/27

Diameter	5										
Height	1	0									
Altitude	1115										
Year	1931	1932	1933	1934	1935	1936	1937	1938	1939	1940	Means
January			4.02	4.91	3.01	7.07	6.94	8.35	8.01	2.34	
February			7.24	4.8	10.03	3.54	8.08	2.78	6.61	2.65	
March			2.93	8.66	2.24	4.07	3.98	2.14	3.93	4.18	
April			2.19	3.31	3.73	2.23	3.42	.88	2.91	4.60	
May			3.08	4.06	1.35	2.21	3.06	4.95	1.78	1.20	
June			2.75	3.21	5.13	4.62	3.10	8.45	3.93	.89	
July			3.58	2.96	2.41	4.90	2.66	6.30	8.65	5.58	
August			1.55	4.73	2.19	4.03	2.03	8.38	3.58	2.76	
September			2.05	3.97	8.96	5.03	2.56	2.36	2.17	5.30	
October			5.31	7.27	12.43	3.85	2.91	11.30	3.80	5.47	
November			3.31	3.22	8.56	7.06	2.72	8.23	9.79	8.60	
December			.76	7.70	4.87	7.01	3.39	6.88	4.07	5.77	
TOTALS			38.77	49.48	64.91	57.62	45.35	68.00	59.23	49.34	
			8	10	12	11	10	12	11	10	

Site approved by Dr. Glacepool in August 1932.

1934 Stone Wall 60" high 22' 6".

Position of Station on reduced Ordnance Survey Map, } No. of Map..... Reference No.....  
1 mile to 1 inch Series

Date.	Lat. N.	Long.	Railway Station.	Distance from gauge	Direction from gauge	Parish Church.	Distance from gauge	Direction from gauge
			Haworth	2,100'	E 7° S.	Haworth	2,400'	E 7° S.

Station No. 3963RAINFALL at Watershedder Reservoir \*

41

County of Central Lancashire Observer A. Borthwick Esq. C.E. (left 1946)River Basin Quake Gorge - AG. E. V. Boldy Esq. succeeds  
(W.W. Esq. March 1947)Type of Gauge StandardAnnual Average 48.4 in. based on 31 years obs. unweighted. Period of average 1881-1915 Ref. SFile No. 744053/27

Diameter	5"										
Height	1'0"										
Altitude	1115'										
Year	1941	1942	1943	1944	1945	1946	1947	1948	1949	1950	Means
January	2.56	5.15	6.60	9.13	4.18						
February	7.54	1.91	4.59	3.27	5.24						
March	4.80	3.59	1.74	.73	1.42						
April	3.06	2.58	3.26	3.67	1.96						
May	3.24	4.27	3.57	4.43	4.69						
June	.86	1.32	4.87	4.48	3.76						
July	3.38	5.24	4.01	3.69	2.37						
August	6.44	4.90	7.55	3.37	3.97						
September	.82	3.78	5.13	6.64	2.61						
October	6.21	8.91	3.61	6.28	5.47						
November	3.52	1.81	4.10	7.84	.72						
December	2.58	5.13	3.50	5.17	2.34						
TOTALS	45.34 d	48.65 d	52.53 d	58.70 d	38.73 d						

1945 n.p. gauge to be abandoned

1947. Record terminated in June. Engineer agrees to it. T., see encl. 142.9.

\* Gauge overexposed on moss.

Position of Station on reduced Ordnance Survey Map, }  
1 mile to 1 inch Series

No. of Map.....

Reference No. SD 93

Date.	Lat. N.	Long.	Railway Station.	Distance from gauge	Direction from gauge	Parish Church.	Distance from gauge.	Direction from gauge.
1941			Haworth	2200 yds	E 70° S	Haworth	20500 yds	E 7 1/2° S
						0 min 9 - low		
						200 yds		
						1/2 in		

BRITISH RAINFALL ORGANIZATION

20-23 25-30 ✓ 41-45  
n.p. 25 n.p. 45 ✓  
20-23 25-29 ✓  
17-19 ✓  
Volunt D34 ✓

Station No. 30131RAINFALL at Watershed Hills Reservoir (N°2)

41

County of Central LancashireObserver A. Borchers Esq. B.E. (1946)River Basin Pase. Aire. 4J. E. V. Baldry Esq. succeedsType of Gauge Standard(W. W. Esq. March 1947)

Annual Average.....in. based on.....years obs. un-weighted. Period of average.....Ref.....

c. 1933

File No. 744 053/27

Diameter	5"		✓	074	852						
Height	1'0"				1						
Altitude	1115'				41						
Year	1941	1942	1943	1944	1945	1946	1947	1948	1949	1950	Means
January	3.02	5.47	7.15	9.61	4.66	5.21	4.62	10.45	3.35	4.00	
February	7.74	1.99	4.77	3.52	5.91	7.30	2.25	4.25	4.36	7.80	
March	4.96	4.17	1.83	76	1.55	2.20	13.08	3.09	1.81	2.89	
April	3.22	2.54	3.35	3.89	2.17	1.70	4.84	3.04	5.71	4.47	
May	3.36	4.46	3.79	4.49	5.12	2.06	2.71	1.53	3.06	2.70	
June	.82	1.45	4.84	4.59	4.01	3.00	3.63	5.41	1.10	2.82	
July	3.34	5.59	4.29	3.75	2.60	5.35	3.93	2.30	3.04	4.59	
August	6.60	5.20	7.49	3.52	4.36	8.66	.38	5.77	3.34	8.15	
September	.86	4.13	5.35	7.21	3.00	8.89	3.45	4.03	1.39	8.19	
October	6.62	9.13	3.62	6.68	6.04	1.45	1.80	3.11	5.85	4.17	
November	3.75	1.99	4.11	8.48	.84	8.55	8.35	2.39	8.10	6.91	
December	3.10	5.44	3.73	5.64	2.78	4.51	5.33	5.56	9.08	3.01	
TOTALS	47.38 d	51.56 d	54.32 d	62.14 d	43.04 d	58.88 d	54.31 d	50.93 d	50.19 d	59.70 d	

1941 Dry Stone Wall 6' high 22' 6" from gauge.

Position of Station on reduced Ordnance Survey Map,  
1 mile to 1 inch Series

No. of Map.....

Reference No.....

Date.	Lat. N.	Long.	Railway Station.	Distance from gauge	Direction from gauge	Parish Church.	Distance from gauge.	Direction from gauge.
1941			Haworth	21900ft.	E 7° S	Haworth	20000ft.	E 7½° S

BRITISH RAINFALL ORGANIZATION



Station No. 2013/1RAINFALL at Watershedale Reservoir - No 2

51

County of Central LancashireObserver G. E. V. Bolding Esq.River Basin Case - Aire - 4Bramen Water Board (1/4/60)Type of Gauge SnowdonAnnual Average 55.05 in. based on 24 years obs. un-weighted. Period of average 1916-50 Ref. 93" " 55.05 " 24 " " within 1933-57. " " 1916-50 File No. 744.053/27

Diameter ...	5"		✓	074	85r						
Height ...	1' 0"				1						
Altitude ...	1115'				51						
Year ...	1951	1952	1953	1954	1955	1956	1957	1958	1959	1960	Means
January ...	5.00	5.83	2.45	4.78	2.42	5.50	5.86	4.12	3.87	6.30	
February ...	3.95	1.61	3.36	3.15	2.21	2.12	3.83	7.35	.93	3.43	
March ...	5.35	2.93	2.68	2.87	2.66	2.43	5.76	2.44	2.12	1.78	
April ...	3.23	3.70	4.13	.98	2.28	3.26	.62	1.84	4.38	3.76	
May ...	4.39	3.01	2.70	4.30	4.69	2.34	1.53	5.45	1.59	2.09	
June ...	1.79	3.80	3.27	3.12	3.42	3.37	3.27	5.57	3.85	1.51	
July ...	3.95	3.17	6.78	7.03	1.12	5.55	6.81	4.25	3.46	7.61	
August ...	4.76	7.41	7.37	8.70	1.66	12.08	7.07	4.68	1.01	5.54	
September ...	3.53	5.09	5.50	6.23	3.38	4.86	6.44	5.38	.31	3.59	
October ...	1.58	5.46	2.37	10.15	3.66	3.49	7.69	4.53	6.23	5.83	
November ...	11.22	2.50	7.29	8.50	3.22	2.34	2.91	2.01	5.66	8.90	
December ...	12.25	5.29	2.95	8.21	7.63	5.92	6.07	5.14	10.24	6.63	
TOTALS ...	61.00	49.80	50.85	68.02	38.35	53.26	57.86	53.26	43.65	56.97	
	d	d	d	d	d	d	d	d	d	d	

1954. Sup 11" Bleedde. of old. rain completely lacking edge of regular compass. Like an small hole in all hand of pressure fitting into S. side of reservoir. 120 gals W of end of dam. Very overgrown. on all sides except S (ring ground). Read must be top of dam.

1956 Accumulation

1958 n.p. low.

Position of Station on Ordnance One-Inch map :

No. of Map.....

National Grid Reference 2461463.329.

Date.	Lat. N.	Long.	Railway Station.	Distance from gauge	Direction from gauge	Parish Church.	Distance from gauge.	Direction from gauge.
1951			Haworth	21900'	E 7° S	Haworth	20400'	E 7½° S.

Summary of Earlier Records from 10-year Sheets :

Record D, or d	1910-19	1920-30	1931-40	1941-50	1951-60
			C1933 133.36-40 234	✓ 141-49	