

Rainfall at R. Gunpowder Factory, Waltham

bar.

Smith

Diameter of Gauge, 2 in.Height above Ground, 4 ft. in.Above Mean Sea Level, 80 ft.

Sea - 1.

G. R. J.

YEAR - -					1865	1866	1867	1868	1869	MEANS.
January - -						3.52	2.42	3.14	2.99	
February - -						3.02	1.45	1.22	2.70	
March - -					[#] 1.02	1.56	1.78	1.49	1.55	
April - - -					.31	1.59	2.19	1.69	1.54	
May - - -					2.81	1.62	3.30	1.32	2.44	
June - - -					.98	3.41	.89	.44	.84	
July - - -					2.64	1.86	3.80	.34	.67	
August - -					4.05	2.06	2.53	3.05	1.27	
September -					.55	3.83	2.51	1.60	3.02	
October - -					6.22	2.11	1.91	2.27	1.55	
November -					1.95	1.65	.76	1.00	2.08	
December -					1.40	2.24	1.71	5.33	3.30	
TOTALS -						28.45	25.25	22.89	23.95	

C C C C C

1865 May 11 1.00

" Aug. 24 1.125

" Oct. 23 1.37

Gauge on open space 35 yards from any high building
 one 13 ft. high distant 22 yards and one 8 ft. high
 distant 10 yards

RAINFALL AT *Naltham Abbey (Sunderland Factory)*

Lat.....

Lon.....

County of.....

Essex

Rain Gauge, by.....

Observer.....

*Lieut. A. M. Smith R.A.**See - 1.*

Diameter.....	8											
Height.....	4											
Altitude.....	70								82	74		
YEAR.....	1870	1871	1872	1873	1874	1875	1876	1877	1878	1879	MEANS.	
January.....	1.25	1.23	3.41	3.53	1.48	3.30	.85	4.58	1.49	1.86	2.298	
February.....	.94	1.41	.64	1.27	1.19	.47	1.80	2.20	1.45	3.33	1.440	
March.....	1.56	1.79	2.77	1.36	.64	(.51)	3.03	1.93	.95	1.19	1.573	
April.....	-.21	2.24	1.37	.87	1.26	1.98	1.92	3.13	3.31	2.64	1.843	
May.....	1.11	-.56	2.90	1.74	1.51	.79	.99	2.83	3.62	2.80	1.885	
June.....	.76	2.81	2.71	1.72	2.77	2.66	1.29	.50	5.33	4.46	2.501	
July.....	1.03	2.85	3.71	2.26	.79	5.00	.54	3.21	.55	3.83	2.377	
August.....	1.14	.65	3.19	2.97	.15	1.72	3.47	3.61	5.03	4.02	2.595	
September.....	1.90	4.65	2.10	2.71	2.27	2.46	3.35	1.01	.87	3.00	2.432	
October.....	3.47	.65	2.28	2.38	3.21	3.98	1.64	1.79	1.84	.70	2.394	
November.....	1.28	-.56	3.20	2.15	1.97	3.41	2.87	3.58	3.65	.64	2.331	
December.....	2.68	1.56	3.89	.34	1.17	.82	5.41	2.01	1.18	.36	1.942	
TOTALS.....	17.33	20.96	34.17	22.80	18.4	(27.10)	27.16	30.38	29.27	28.83	25.641	

1875 Amount for March computed by differentiation
 1878 Small willows 4ft high & 12ft distant surround
 the gauge

RAINFALL AT *Gunpowder Factory, Waltham Abbey*

80

Lat. _____

Lon. _____

County of _____

Rain Gauge, by _____

Observer _____

Essex
The Superintendent

See 1.

Diameter	5								5		
Height	4.0								1.6		
Altitude	62 L						70				
Year	1880	1881	1882	1883	1884	1885	1886	1887	1888	1889	MEANS.
January ....	.59	.94	1.16	1.84	2.12	1.50	2.25	^(1.27) 1.77	.83	.51	1.251
February	2.19	3.13	.85	3.10	1.13	2.48	.29	.34	.74	1.26	1.551
March .....	.98	2.00	1.35	1.26	1.82	1.29	1.32	1.03	3.37	1.60	1.566
April	2.21	1.14	2.71	1.81	.87	2.00	.95	1.16	2.39	1.75	1.699
May .....	.35	.86	1.21	1.31	.51	3.37	4.24	1.72	1.18	3.53	1.828
June	2.37	1.80	2.08	2.15	1.55	1.49	.37	.67	2.45	2.11	1.799
July	4.41	2.06	1.47	2.39	1.99	.43	2.23	.85	5.01	2.68	2.352
August .....	.60	4.13	1.57	1.14	1.07	2.00	.70	2.00	4.40	2.79	2.040
September	3.36	1.92	2.56	2.80	1.38	3.57	1.15	2.41	.80	1.44	2.149
October	5.21	2.50	5.08	1.70	1.06	3.74	2.36	1.59	1.32	4.60	2.916
November	2.12	2.55	2.38	2.61	1.63	2.76	3.25	3.24	3.00	.84	2.438
December	3.22	3.50	2.68	.77	2.68	.83	3.53	1.17	1.29	.52	2.019
TOTALS	28.61	26.53	25.15	22.82	17.51	25.46	22.64	^(17.45) 16.95	26.78	23.63	23.688

1880. Waltham Holy Cross, $\frac{1}{2}$ mile S.E.

Trees 5ft high 6ft distant all round

1881 " 12ft " 60ft " " "

1886 " 20ft " " " " "

1887 Record imperfect. Snow in Jan not measured

1888 1.50 in added. Snow map 1x11

RAINFALL AT *Waltham Abbey Gunpowder Factory*

Lat. _____ Lon. _____ County of *Essex*

Rain Gauge, by _____ Observer *Col W. H. Noble*

Sta - 1.

Diameter	5										
Height	16								20		
Altitude	70								64		
Year	1890	1891	1892	1893	1894	1895	1896	1897	1898	1899	MEANS.
January	2.31	1.38	.34	1.37	2.01	1.55	.52	1.65	.72	2.25	1.410
February ....	.60	.00	1.38	2.98	1.68	.05	.23	2.29	.84	1.57	1.162
March	1.93	1.73	1.30	.47	.94	1.53	3.30	3.63	1.07	.47	1.637
April .....	.69	.72	.92	.12	1.75	1.29	.92	1.45	1.30	2.69	1.185
May	1.92	3.32	.51	.97	1.54	.33	.20	1.34	1.77	1.61	1.251
June	2.62	1.46	1.77	.85	1.65	.42	2.31	3.33	1.48	.83	1.642
July	4.71	2.74	1.79	2.42	3.52	3.31	.89	.46	1.05	2.23	2.317
August	2.84	3.32	2.79	1.77	2.57	2.73	2.83	3.27	1.28	.32	2.372
September ....	.44	.96	2.63	1.13	.98	1.12	6.76	2.95	.34	2.72	2.003
October	1.35	4.85	3.55	3.08	3.50	2.45	3.76	.57	3.26	2.20	2.857
November	2.48	1.92	2.31	2.03	3.04	3.18	1.19	.89	1.31	3.74	2.209
December ....	.32	3.34	1.21	2.12	1.96	2.10	3.50	1.50	2.06	1.42	1.953
TOTALS . . .	22.21	25.74	20.50	19.31	25.14	20.06	26.41	23.33	16.48	22.10	22.128

1890 Waltham Abbey 1/2 mile SE

Tree 20 ft high 60 ft all round

1899 January 1st gauge moved 310 yards N NW by N

RAINFALL AT Waltham Abbey Gunpowder Factory

Lat. 51° 41' 41"

Lon. 0° 0' 33" W

County of Essex

Snoddan Rain Gauge, by Nº 112957

Observer The Superintendent

See - 1.

Diameter ..	5										
Height	20										
Altitude ..	64										
Year	1900	1901	1902	1903	1904	1905	1906	1907	1908	1909	MEAN.
January ..	2.80	.44	.76	1.80	2.24	1.47	3.94	.94	1.42	.97	1.678
February ..	3.30	.75	1.23	.70	2.77	1.14	2.25	1.31	1.70	.60	1.575
March ....	.60	2.36	1.56	2.35	1.40	3.16	1.32	.96	2.95	2.85	1.951
April .....	.85	1.88	.49	1.20	.82	2.03	.57	3.04	2.85	1.89	1.562
May	1.04	1.40	2.75	2.29	2.07	1.80	1.44	2.02	2.23	1.39	1.843
June	2.04	.38	4.00	6.13	1.02	3.58	3.13	1.77	1.56	3.49	2.710
July	1.37	2.27	1.13	5.69	2.59	1.86	1.40	2.08	4.29	3.72	2.640
August	1.80	1.42	4.47	4.12	1.97	2.62	.68	2.06	3.03	1.99	2.416
September..	.97	1.68	1.14	2.70	1.22	2.02	1.55	.99	2.32	2.34	1.693
October....	2.11	1.76	1.12	5.62	1.47	1.60	3.69	2.99	1.83	3.88	2.607
November ..	1.80	.52	1.51	2.16	1.59	3.11	4.20	2.28	.69	.87	1.873
December ..	2.85	3.20	1.31	1.49	1.78	.92	2.43	3.41	2.20	2.82	2.241
TOTALS ..	21.53	18.06	21.47	36.25	20.94	25.31	26.60	23.85	27.07	26.81	24.760

1900 Waltham Abbey Church 940 yards S.S.E

Tree ^{40 1905} 18 ft high 30 ft N
^{35 1905} 15 " 39 " S
^{80 1905} 80 " 90 " E
^{50 1905} 50 " 30 " W

1903 Waltham Cross Station 1 mile S.W

RAINFALL at Waltham Abbey Gunpowder FactoryCounty of EssexObserver The SuperintendentRiver Basin Thames Lea 1Snooze Rain Gauge, by N 43 No 997

Diameter ...	5											
Height	2.0											
Altitude ...	64 ft											
Year ...	1910	1911	1912	1913	1914	1915	1916	1917	1918	1919	MEANS.	TOTAL
January ...	1.53	1.49	3.22	2.68	.62	2.85	1.21	.92	2.39	2.92		16.19
February ...	2.84	1.81	1.60	.75	1.93	2.93	2.34	.51	.73	1.49		7.64
March .....	.92	2.04	3.01	1.78	3.54	.86	2.59	1.13	.23	2.07		5.07
April	2.07	1.36	.13	2.44	.58	.82	1.05	1.63	2.96	2.57		6.02
May	2.53	2.22	1.20	1.40	1.66	1.92	1.77	2.36	1.55	.19		8.21
June	3.28	3.00	2.97	.45	1.41	.75	1.77	.80	.69	1.25		5.87
July	2.03	1.25	1.72	1.96	1.47	3.80	1.51	2.91	3.87	1.72		4.51
August	2.31	.52	5.20	1.44	1.19	2.56	4.24	2.80	1.19	1.70		10.01
September ..	.69	1.44	1.88	1.07	.87	1.24	1.00	1.43	4.27	.79		9.93
October ...	1.80	3.18	2.26	3.44	.95	.76	3.02	3.08	.92	.36		7.49
November ..	3.04	3.60	2.11	2.54	2.67	2.31	3.53	1.32	1.83	1.72		7.38
December ...	3.61	4.43	2.52	.60	5.32	4.17	2.34	.72	1.57	2.69		8.40
TOTALS ...	26.65	26.34	27.82	20.55	22.16	24.97	26.37	19.62	22.20	19.47?		7.32
	D	W	W	W	W	W	W	W	W	W		87.65

1910 uses Black Paper 45 ft high 10 yds N
 - 40 - 13 - S
 - 15 - 20 - E
 - 15 - 45 - W

1917 Bad - not printed

Date.	Lat. N.	Long.	Railway Station.	Distance.	Direction.	Church.	Distance.	Direction.
1910	51.44.41 N	01.53.30 W	Waltham Cross	1 mile	SW	Waltham Abbey	940 yds	SE

RAINFALL at *Walton Abbey, Gunpowder factory*County of *Essex*Observer *See Superintendent*River Basin *Essex**London* Rain Gauge, by *Nº 3* Nº. 957.

1930 14.0

Diameter ...	5											
Height	2	5							1	0		
Altitude ...	64											
Year	1920	1921	1922	1923	1924	1925	1926	1927	1928	1929	Mean 1930	Totals
January ...	1.94	1.81	2.65	1.95	2.47	1.73	2.28	1.33	2.58	1.28	1.89	20.91
February ...	.29	.25	1.74	2.77	.59	2.26	2.69	3.21	1.36	.44	.59	16.19
March	1.22	.75	1.38	1.71	1.04	.63	.23	2.05	1.86	.02	1.57	12.46
April	3.16	1.30	2.16	1.11	3.20	1.67	2.80	1.57	.73	1.37	1.63	20.75
May	1.60	.70	.78	1.45	2.90	1.75	1.36	1.03	1.85	1.39	3.15	17.96
June	1.63	.44	1.09	.53	2.95	.06	3.05	2.98	2.37	1.11	1.79	18.00
July	4.35	.19	3.07	2.48	3.28	2.62	2.06	2.62	1.49	1.83	1.90	25.83
August	1.16	1.30	2.11	1.62	2.18	2.36	1.86	3.71	1.78	1.26	2.32	21.66
September...	2.38	2.04	1.56	1.38	2.24	2.39	1.48	4.55	.58	.33	3.03	21.96
October	1.13	1.00	1.02	4.31	3.09	2.17	2.56	1.99	3.27	3.22	1.10	24.86
November...	.64	2.00	.99	1.67	2.25	1.40	3.59	2.17	2.09	4.60	3.54	24.94
December...	1.94	1.06	2.01	1.90	2.17	1.80	.33	2.96	2.37	4.81	2.23	23.58
TOTALS...	21.44	12.84	20.56	21.88	23.36	20.84	24.29	30.17	22.33	21.66	24.79	247.16
	d	D	D	D	d	d	d	d	d	d	d	d

1920. *Tree* *Black Poplar* *45 ft.* *away* *10 yds.* *N.*
Conting *30* *30* *E.*
older *55* *45* *W.*
Building *30* *70* *N.E.*
 1928 *Poplar trees* *40' high* *10 yds S.E.*
 1930 *"* *50' "* *15 yds E.*
Alder " *40' "* *10 yds W.*

Position of Station on reduced Ordnance Survey } No. of Map

Map, 2 miles to 1 inch Series

Reference No.

Date.	Lat. N.	Long.	Railway Station.	Distance from gauge	Direction	Parish Church.	Distance from gauge	Direction
1920.	51.41.41.0	0.23	Walton X. St.	1 mi	SW	Walton Abbey	9 yds	SE

RAINFALL at Waltham Abbey (Gunpr. Fact.)County of EssexObserver The SuperintendentRiver Basin Thames-Lea-1Type of Gauge M.O.

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

314 789/27

Diameter	5.											
Height	1.0.											
Altitude	64.											
Year	1931	1932	1933	1934	1935	1936	1937	1938	1939	1940	Totals.	Means
January	1.03	1.49	1.49	1.33	1.24	3.19	3.28	2.10	4.19	(2.13)	214.7	
February	1.85	.15	1.02	.17	2.04	1.42	3.17	.68	.49	1.51	125.0	
March	.16	1.33	1.98	1.90	.58	.94	2.06	.53	1.63	2.48	135.9	
April	3.33	2.00	.93	1.73	2.69	1.03	2.60	.12	2.90	.99	183.2	
May	2.68	2.83	1.69	.43	1.33	.58	2.68	1.93	1.54	2.28	179.1	
June	1.41	.79	2.13	1.28	2.95	4.79	2.06	.38	1.35	.50	176.4	
July	2.40	2.08	.76	1.24	.68	2.59	2.32	1.55	2.43	2.54	184.9	
August	4.53	1.63	.53	2.20	1.45	.34	2.72	1.35	4.30	.10	191.5	
September	2.40	1.74	2.92	1.28	3.19	2.52	1.33	3.14	1.93	.78	212.3	
October	.52	4.36	1.35	1.28	2.83	1.77	2.15	2.36	5.14	2.80	245.6	
November	2.11	1.19	.96	1.87	3.01	2.86	1.38	3.22	3.03	6.38	260.1	
December	.54	.34	.36	4.33	2.54	1.29	3.27	3.20	.90	.90	176.7	
TOTALS	22.96	19.93	16.12	19.04	24.43	23.29	28.49	20.56	29.83	23.39	2285.4	4.64

1931. Building 30' high 7yds NE
 Poplar trees 40' " 10yds SE
 " 50' " 15 " E
 Alder trees 40' " 10 " W
 1934. Building 30' " 20 ft. E.
 Alder trees 40' " 18 " W.

1940. Jan. est. for snow.

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
1931			Waltham Cross L.N.E.R.	1 mile	SW	Waltham Abbey	94yds	SSE

Station No. 1238

RAINFALL at Waltham Abbey (Gumps Inst.)

41

County of. Essex Observer The SuperintendentRiver Basin Thames - Lea - 1Type of Gauge St. (Snowdon 1950)

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

File No. P.14.789/27

Diameter	5"			254	299							
Height	1'0"											
Altitude	64'											
Year	1941	1942	1943	1944	1945	1946	1947	1948	1949	1950	Means	
January	2.25	1.84	4.04	1.43	1.97	1.59	1.57	4.74	1.64	1.12		Totals 22.17
February	2.15	.78	.80	1.04	1.22	2.60	1.39	1.37	1.21	3.02		15.58
March	2.96	2.06	.31	.14	.75	1.30	5.29	.94	.78	.66		15.19
April	1.41	1.08	.99	1.36	1.13	1.77	1.58	1.34	1.23	1.53		13.42
May	2.11	2.60	1.81	.62	2.67	2.47	.76	2.76	1.94	1.37		17.11
June	.93	.16	1.30	2.31	1.92	2.61	2.85	2.77	.59	1.56		17.00
July	3.59	1.76	1.65	2.12	3.28	3.71	1.79	.77	1.82	3.56		24.05
August	5.13	1.72	1.88	2.97	1.09	3.62	.12	3.19	.63	2.12		22.47
September	.68	1.11	1.86	2.78	1.75	3.67	1.38	1.55	.25	2.58		17.61
October	.71	4.13	2.23	3.62	3.18	1.35	.13	2.38	4.93	.24		22.90
November	1.89	2.33	1.43	3.46	.37	3.88	.91	2.09	2.26	4.32		22.94
December	1.27	2.18	1.40	1.30	3.17	2.02	2.45	1.73	1.22	1.43		18.17
TOTALS	25.08	21.78	19.70	23.15	22.50	30.59	20.22	25.63	18.50	23.51		230.63

1941. Buildings 30' high 20'E

Tree Alders 40' " 18'W.

1943 Trees, 40 ft high 45'N, 50' high 86'S, 35' high 36'E, 50' high 36'W

1st Jan 1943 gauge moved 155' NNE

1949 Trees 35' high 45'N. Building 18' high 86'S. Trees 35' high, 70'E, 40'W. Trees 50', 40'W.

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			Waltham X. LNER	1 mi.	S.W.	Waltham Abbey	340 yd.	S.S.E.

BRITISH RAINFALL ORGANIZATION

Station No. 1238RAINFALL at Waltham Abbey (Gunpr. Factory)

51

County of EssexObserver The SuperintendentRiver Basin Thames Lea - 1The Director, E.R.D.E.Type of Gauge M.O.Annual Average 1916-58 in, based on 24.31 years obs. un-weighted. Period of average 14 years 1943-57 Ref. 5File No. 814789/27

Diameter ...	5"				244	299						
Height ...	1' 0"			2 0								
Altitude ...	64'											
Year ...	1951	1952	1953	1954	1955	1956	1957	1958	1959	1960	Means	
January ...	2.13	1.71	.87	.98	2.19	3.64	1.19	2.35	1.98	1.80		19.84
February ...	5.14	.58	1.50	2.32	1.38	.33	3.18	2.72	.05	2.01		19.21
March ...	2.89	2.75	.49	1.96	1.18	.91	1.10	.87	1.70	1.29		15.14
April ...	2.63	1.07	2.49	.38	.36	1.16	.18	1.24	2.38	.55		12.44
May ...	2.27	1.32	1.34	1.80	4.25	.74	.75	3.01	1.01	1.94		18.43
June ...	.60	1.38	1.73	2.83	2.35	2.55	1.09	5.22	1.09	1.20		20.04
July ...	.81	.68	3.08	2.85	.17	3.46	3.21	2.72	1.73	3.89		22.60
August ...	5.56	2.92	1.69	3.63	1.48	3.85	1.65	2.87	1.44	2.91		28.00
September ...	3.19	3.09	1.80	1.71	1.65	2.35	2.56	3.80	.05	3.95		24.15
October ...	.70	1.65	2.99	2.37	3.62	2.42	2.00	2.56	1.83	5.89		26.03
November ...	4.36	4.03	.89	3.74	.72	.56	2.44	1.76	2.73	3.69		24.92
December ...	1.36	2.14	.79	1.99	1.66	2.62	2.08	2.76	3.29	2.60		21.38
TOTALS ...	31.64	23.32	17.66	26.56	21.01	24.59	21.43	31.87	19.27	31.72		251.08
	d	d	d	d	d	D	D	D	D	D		

1951 Trees 35', 45' & 70' N.E. resp; Buildings 18' 80'S; Trees 80' 40' W.

1954 Trees 40' @ 40' N. Buildings 15' @ 80'S. Buildings 16' @ 100' W. T.R. Tower 45' @ 120' E.

* Allred 27/3/68.

TL (52)

Position of Station on Ordnance One-Inch map :

No. of Map.....

National Grid Reference (51) 375013

Date.	Lat. N.	Long.	Railway Station.	Distance Direction from gauge	Parish Church.	Distance Direction from gauge.
1951			Waltham Cross	1 1/2 m S.W.	Waltham Abbey	940 yd S.E.

Summary of Earlier Records from 10-year Sheets :

1916-1950, P - Rejected

Record D, or d	1910-19	1920-30	1931-40	1941-50	1951-60
	✓	✓	✓	✓	✓
	✓ but 11.11.19-14	✓ but D 31.23	✓	✓	✓