

# RAINFALL AT

Grays Sewage Works

Lat.

Lon.

County of

Essex

Rain Gauge, by

Observer

A. C. James Esq C.E.

Rodding - 2.

|                   |      |      |      |      |      |       |       |       |       |       |        |
|-------------------|------|------|------|------|------|-------|-------|-------|-------|-------|--------|
| Diameter . . . .  |      |      |      |      |      | 8     |       |       |       |       |        |
| Height . . . . .  |      |      |      |      |      | 2 3   |       |       |       |       |        |
| Altitude . . . .  |      |      |      |      |      | 12 ft |       |       |       |       |        |
| Year . . . . .    | 1890 | 1891 | 1892 | 1893 | 1894 | 1895  | 1896  | 1897  | 1898  | 1899  | MEANS. |
| January . . . .   |      |      |      |      |      | 1.32  | .41   | 1.53  | .45   | 1.65  |        |
| February . . . .  |      |      |      |      |      | .43   | .28   | 1.94  | .71   | 1.56  |        |
| March . . . . .   |      |      |      |      |      | 1.03  | 2.48  | 2.87  | 1.53  | .49   |        |
| April . . . . .   |      |      |      |      |      | .97   | .32   | 1.61  | 1.24  | 2.57  |        |
| May . . . . .     |      |      |      |      |      | .26   | .27   | .72   | 2.33  | 1.07  |        |
| June . . . . .    |      |      |      |      |      | .39   | 3.05  | 1.86  | 1.44  | 1.07  |        |
| July . . . . .    |      |      |      |      |      | 2.87  | 1.53  | .42   | .52   | .99   |        |
| August . . . . .  |      |      |      |      |      | 1.91  | 1.84  | 1.82  | .79   | .65   |        |
| September . . .   |      |      |      |      |      | .85   | 4.59  | 2.18  | .12   | 2.42  |        |
| October . . . . . |      |      |      |      |      | 2.27  | 2.60  | .31   | 2.08  | 1.88  |        |
| November . . . .  |      |      |      |      |      | 2.57  | 1.16  | 1.04  | 2.01  | 3.59  |        |
| December . . . .  |      |      |      |      |      | 2.68  | 2.38  | 1.72  | 1.52  | 1.13  |        |
| TOTALS . . . .    |      |      |      |      |      | 17.55 | 20.91 | 18.02 | 14.74 | 19.07 |        |

Little Thunrock 1000 yards NE  
 Sewage Precipitation Tanks 5 ft high 12 ft N  
 Grays 1 mile N.W.

RAINFALL AT Grays Sewage Works

Lat. ....

Lon. ....

County of EssexRushin  
Reading - 2.Rain Gauge, by StarlingObserver A.C. James Esq. cl.

| Diameter .. | 8               |       |       |       |       |       |       |       |       |       |        |
|-------------|-----------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|--------|
| Height .... | 2 3             |       |       |       |       |       |       |       |       |       |        |
| Altitude .. | 12 <del>7</del> |       |       |       |       |       |       |       |       |       |        |
| Year ....   | 1900            | 1901  | 1902  | 1903  | 1904  | 1905  | 1906  | 1907  | 1908  | 1909  | MEANS. |
| January ..  | 2.18            | .51   | .48   | 1.87  | 1.87  | .76   | 3.32  | 1.17  | .81   | .88   | 1.385  |
| February .. | 3.03            | .80   | .82   | 1.04  | 2.04  | .78   | 1.50  | 1.14  | .90   | .62   | 1.267  |
| March ....  | .78             | 1.78  | 1.04  | 1.45  | 1.09  | 2.47  | .80   | .88   | 1.74  | 2.19  | 1.417  |
| April ..... | .52             | 1.32  | .39   | 1.61  | .71   | 1.91  | .68   | 2.24  | 1.98  | 1.37  | 1.268  |
| May .....   | 1.06            | 1.44  | 2.31  | 1.66  | 1.52  | .78   | 1.28  | 1.91  | 1.39  | 1.28  | 1.453  |
| June .....  | 2.12            | .77   | 2.54  | 5.59  | 1.01  | 3.34  | 1.90  | 2.03  | .99   | 2.84  | 2.313  |
| July .....  | 1.33            | 2.74  | 1.38  | 5.50  | 2.36  | .44   | .58   | 1.29  | 4.18  | 3.41  | 2.316  |
| August .... | 2.06            | 1.31  | 2.50  | 2.79  | 1.62  | 1.97  | .49   | 2.05  | 2.68  | 2.07  | 1.954  |
| September.. | .52             | .87   | .55   | 1.82  | .94   | 1.43  | 1.72  | .30   | 1.26  | 2.11  | 1.152  |
| October.... | 1.34            | 2.21  | 1.28  | 4.06  | 1.61  | 1.06  | 4.24  | 2.93  | 1.14  | 3.30  | 2.317  |
| November .. | 1.97            | .59   | 1.13  | 1.88  | 1.28  | 2.59  | 3.52  | 2.01  | .76   | .75   | 1.648  |
| December .. | 1.72            | 2.82  | 1.24  | 1.50  | 2.05  | .57   | 1.47  | 1.82  | 1.31  | 2.55  | 1.708  |
| TOTALS ..   | 18.63           | 17.16 | 15.66 | 30.77 | 18.13 | 18.05 | 21.35 | 19.72 | 19.14 | 23.37 | 18.198 |

1900 Grays Church 1 mile N.W.

Tank 6 ft high 10 ft N

1902 July Gauge moved 60 yards NE only temporarily during  
works in progress

1903 Little Thurrock Church 1/2 mile NNE

Grays Station 1 mile NW

Building 15 ft high 25 ft S.W.

RAINFALL at Grays Sewage Works

1245

County of Essex Observer A. C. James Esq. C.E.  
S. Flinn (113)  
L.D. Holdgate (14)  
 River Basin Thames. Rodinj & C 2  
Roisher Rain Gauge, by Stanley

|              |       |       |       |       |       |       |       |       |      |       |        |
|--------------|-------|-------|-------|-------|-------|-------|-------|-------|------|-------|--------|
| Diameter ... | 8     |       |       |       |       |       |       |       |      |       |        |
| Height ..... | 2. 3  |       |       | 3 3   |       |       |       |       |      |       |        |
| Altitude ... | 9 K   |       |       |       |       |       |       |       |      |       |        |
| Year ...     | 1910  | 1911  | 1912  | 1913  | 1914  | 1915  | 1916  | 1917  | 1918 | 1919  | MEANS. |
| January ...  | 1.63  | .80   | 2.64  | 2.30  | .55   | 2.89  | .88   | .71   |      | 2.04  |        |
| February ... | 2.79  | .75   | 1.24  | .64   | 2.11  | 2.80  | 3.06  | .69   |      | 1.80  |        |
| March .....  | .96   | 1.52  | 2.22  | 2.09  | 3.75  | .67   | 3.13  | 1.13  |      | 2.61  |        |
| April .....  | 1.22  | 1.49  | .06   | 2.00  | .64   | 1.13  | 1.18  | 1.37  |      | 2.74  |        |
| May .....    | 2.09  | .77   | .87   | 1.16  | 1.12  | 2.73  | 1.36  | 2.24  |      | .11   |        |
| June .....   | 1.95  | 1.88  | 4.09  | .41   | 1.00  | .62   | 1.34  | .99   |      | 1.34  |        |
| July .....   | 2.73  | 1.10  | 1.05  | 2.18  | .76   | 2.70  | 2.21  | 5.97  |      | 1.97  |        |
| August ..... | .94   | 1.34  | 2.46  | 1.83  | .82   | 2.03  | 2.81  | 3.93  |      | 2.06  |        |
| September .. | .64   | .50   | 2.49  | 1.56  | .55   | 1.82  | .84   | 1.21  |      | .88   |        |
| October ...  | 1.63  | 2.38  | 2.16  | 3.97  | 1.29  | 1.79  | 2.04  | 2.31  |      | .66   |        |
| November ..  | 2.93  | 4.04  | 1.62  | 2.70  | 2.48  | 2.59  | 3.77  | 1.17  |      | 1.12  |        |
| December ... | 3.06  | 3.19  | 2.13  | .85   | 5.12  | 4.38  | 2.20  | 1.20  |      | 2.62  |        |
| TOTALS ...   | 22.57 | 19.76 | 24.03 | 21.69 | 20.19 | 26.15 | 24.82 | 22.94 | N.O. | 19.92 |        |
|              | D     | D     | D     | D     | D     | D     | D     | D     |      | D     |        |

1910 Gauge moved in 1902 & located in mostly ruin -  
 Building, 15 ft high 25 ft SW

| Date. | Lat. N. | Long.     | Railway Station. | Distance. | Direction. | Church.                  | Distance.   | Direction. |
|-------|---------|-----------|------------------|-----------|------------|--------------------------|-------------|------------|
| 1910  | 51.28.2 | 0.20.10 E | Grays            | 1 mile    | NW         | Little Thunrock<br>Grays | 1 1/2 miles | NNW        |



RAINFALL at *Grays Sewage Works*County of *Essex*Observer *L. D. Holgate* by *W. H. Cress*River Basin *Thames Roding & Co*(1925) *S. R. Kille**S. H. Cress* (Manager)

Rain Gauge, by

*St Dunstons Group & Tilling St. Sea: Red*

|               |       |       |       |       |       |       |       |       |       |       |                             |  |
|---------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-----------------------------|--|
| Diameter ...  | 8     |       |       |       |       |       |       |       |       |       |                             |  |
| Height .....  | 2     | 3     | 6     | 0     |       | 3     | 0     |       | 1     | 0     |                             |  |
| Altitude ...  | 9     |       |       |       |       | 3     |       |       | 7     |       |                             |  |
| Year .....    | 1920  | 1921  | 1922  | 1923  | 1924  | 1925  | 1926  | 1927  | 1928  | 1929  | <b>Means</b><br><b>1920</b> |  |
| January ...   | 2.11  | 1.86  | 2.28  | 1.17  | 2.40  | 1.24  | 1.49  | 1.88  | 2.31  | 1.04  | (2.13)                      |  |
| February ...  | .39   | .24   | 1.39  | 2.59  | .59   | 2.45  | 2.52  | 3.45  | 1.19  | .42   | (.97)                       |  |
| March .....   | .67   | 1.03  | 1.38  | 1.86  | .76   | .91   | .23   | 2.51  | 1.94  | .04   | (1.22)                      |  |
| April .....   | 2.65  | 1.29  | 2.42  | 1.76  | 3.50  | 1.76  | 4.97  | 1.62  | 2.03  | 1.59  | (1.61)                      |  |
| May .....     | .42   | .91   | .75   | 1.76  | 2.28  | 1.64  | .99   | 1.28  | 2.71  | 1.01  | (4.80)                      |  |
| June .....    | 2.06  | .20   | 1.03  | 1.06  | 2.78  | .33   | 2.91  | 2.14  | 2.80  | 1.12  | (.67)                       |  |
| July .....    | 3.66  | .09   | 2.17  | .88   | 2.46  | 2.94  | 1.96  | 3.09  | 2.39  | 1.55  | 1.75                        |  |
| August .....  | 1.44  | 1.59  | 1.47  | 2.11  | 1.76  | 2.92  | 2.01  | 3.66  | 3.18  | 2.67  | 2.24                        |  |
| September...  | 4.39  | 1.39  | 2.30  | 1.24  | 2.27  | 2.00  | .72   | 3.87  | .53   | .11   | 2.66                        |  |
| October ..... | 1.13  | .88   | 1.31  | 4.79  | 3.10  | 3.04  | 2.53  | 1.08  | 3.44  | 2.76  | .95                         |  |
| November...   | .50   | 1.82  | 1.04  | 1.83  | 3.36  | 2.47  | 4.38  | 2.21  | 2.02  | 5.65  | 3.37                        |  |
| December...   | 1.91  | 1.06  | 2.98  | 1.78  | 2.51  | 2.79  | .77   | 2.79  | 3.77  | 5.26  | 1.72                        |  |
| TOTALS...     | 21.33 | 11.86 | 20.52 | 22.83 | 27.77 | 24.49 | 25.48 | 29.58 | 28.31 | 23.16 | (24.09)                     |  |

1920. Building 20 ft. high 30 yds to N.

1926. June 4 ft. high 100 ft. S.E.

Tanks 20 ft. high 150 ft. S.W.

1928. " 10 ft. high 150 ft. S.

1929 not printed too big. Year 4 ft. 5 in. high. Obs. agrees with gauge mounted June 1930.

1930. Jan - June amended in ratio July - Dec. of Sewage Wks. to Stanley Rd.  
Tanks 8 ft. high 150 ft. S.

12.7-13.5.

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

Map, 2 miles to 1 inch Series

Reference No.

| Date. | Lat. N.    | Long. E. | Railway Station. | Distance from gauge | Direction from gauge | Parish Church. | Distance from gauge | Direction from gauge |
|-------|------------|----------|------------------|---------------------|----------------------|----------------|---------------------|----------------------|
| 1920. | 51° 52' 0" | 2° 10'   | Grays            | 15 in               | W                    | Grays          | 1 1/2 in            | W                    |

RAINFALL at Grays (Sewage Works)County of Essex Observer The ManagerRiver Basin Thames-Roding etc.-2Type of Gauge SluisherAnnual Average 20.3 in. based on 20.3 years obs. un-weighted. Period of average Ref.

20.3 in. compiled by Mr. Cornish (1935)

Ref. 56125/36

822203/28

| Diameter  | 8.    |       |       |       |       |       |       |        |       |       |       |       |
|-----------|-------|-------|-------|-------|-------|-------|-------|--------|-------|-------|-------|-------|
| Height    | 1.0   | 1.6   |       |       |       | 1.0   | 1.6   |        |       |       |       |       |
| Altitude  | 7.    |       |       |       |       |       |       |        |       |       |       |       |
| Year      | 1931  | 1932  | 1933  | 1934  | 1935  | 1936  | 1937  | 1938   | 1939  | 1940  | Means |       |
| January   | 1.14  | 1.15  | .96   | 1.12  | 1.06  | 3.60  | 3.72  | 1.80   | 2.71  | 1.41  | 1867  | 1827  |
| February  | 1.46  | .16   | .91   | .30   | 2.49  | 1.44  | 3.15  | .32    | 1.10  | 1.30  | 1263  | 1226  |
| March     | .32   | .90   | 1.32  | 1.97  | .38   | .72   | 2.44  | .38    | 1.17  | 2.56  | 1216  | 1222  |
| April     | 3.57  | .98   | .74   | 1.71  | 2.75  | 1.35  | 2.16  | .57    | 1.71  | 1.69  | 1723  | 1772  |
| May       | 2.65  | 2.80  | 1.89  | .35   | 1.19  | .37   | 2.53  | 1.44   | 1.51  | 1.21  | 1594  | 1599  |
| June      | 1.07  | .62   | 1.19  | 1.02  | 2.08  | 4.23  | 2.80  | .38    | 1.25  | .36   | 1500  | 1500  |
| July      | 2.24  | .81   | 2.59  | .59   | .45   | 2.09  | .95   | 1.25   | 1.42  | 4.06  | 1645  | 1615  |
| August    | 2.65  | .85   | .30   | 1.23  | 2.05  | .70   | .84   | 1.39   | 2.42  | .28   | 1271  | 1277  |
| September | 1.33  | 1.15  | 2.85  | 1.00  | 3.45  | 2.11  | .93   | 2.20   | .96   | .87   | 1683  | 1668  |
| October   | .44   | 4.25  | 1.00  | 1.24  | 2.27  | 1.48  | 1.60  | 1.92   | 6.47  | 2.10  | 2277  | 2228  |
| November  | 2.02  | 1.56  | .92   | 1.74  | 4.02  | 3.01  | 1.74  | 1.49   | 3.04  | 5.41  | 2395  | 2339  |
| December  | .31   | .13   | .39   | 3.24  | 1.91  | 1.26  | 3.70  | (1.85) | .82   | 1.04  | 1465  | 1477  |
| TOTALS    | 19.20 | 14.36 | 15.06 | 15.51 | 24.10 | 22.36 | 26.56 | 14.99  | 24.56 | 22.29 | 19899 | 19774 |

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  |         |       | LMS Tilbury      | 1 1/4               | SW                   | W/Tilbury      | 1 1/2 m             | N.                   |

Station No. 1245

## RAINFALL at Grays (Sewage Works)

41

County of Essex

Observer

The Manager

River Basin Thames - Roding etc.

Type of Gauge. Glaisher

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

20.3 in. computed by Mr. Cornish (1938) Ref. 561245/36 File No. 822203/28

| Diameter  | 8"    |       |       |       |       |       |        | 236  | 974   |       |       |
|-----------|-------|-------|-------|-------|-------|-------|--------|------|-------|-------|-------|
| Height    | 1' 6" | 2' 6" |       | 2 0   |       | 2' 6" | 2' 0"  |      |       |       |       |
| Altitude  | 7'    |       |       |       |       | 9'    |        |      |       |       |       |
| Year      | 1941  | 1942  | 1943  | 1944  | 1945  | 1946  | 1947   | 1948 | 1949  | 1950  | Means |
| January   | 1.74  | 1.68  | 3.34  | 1.01  | 1.07  | .90   | (1.79) |      | .76   | 1.17  |       |
| February  | .96   | .46   | .97   | .83   | .77   | 1.70  | (1.18) |      | .61   | 3.26  |       |
| March     | 2.33  | 2.25  | .34   | .06   | 1.56  | .96   | (3.82) |      | .66   | .60   |       |
| April     | 1.68  | .87   | .94   | 1.41  | .99   | 1.74  | 1.02   |      | 1.06  | 1.89  |       |
| May       | 1.30  | 2.56  | 2.05  | .38   | 2.49  | 3.57  | .78    |      | 1.60  | 1.20  |       |
| June      | 1.27  | (.08) | 1.04  | 1.19  | .96   | 1.57  | 1.72   |      | 1.42  | 1.25  |       |
| July      | 2.07  | 1.77  | 1.45  | 1.94  | 1.00  | 1.48  | 2.73   |      | 2.52  | 1.86  |       |
| August    | 2.95  | 1.46  | .92   | 3.02  | 1.47  | 3.65  | .14    |      | 1.46  | 1.73  |       |
| September | .27   | 1.98  | 1.54  | 2.08  | .40   | 2.32  | 1.50   |      | .92   | 2.11  |       |
| October   | .70   | 2.44  | 1.54  | 3.08  | 2.17  | 1.19  | .14    |      | 5.65  | .30   |       |
| November  | 2.56  | 1.65  | 1.13  | 3.28  | .57   | 2.94  | .83    |      | 2.04  | 4.45  |       |
| December  | 1.28  | 1.56  | 1.56  | 1.12  | 2.04  | 1.53  | 2.20   |      | .93   | 1.57  |       |
| TOTALS    | 19.11 | 18.74 | 16.82 | 19.40 | 18.49 | 23.55 | 17.85  | N.R. | 19.63 | 21.39 |       |
|           | D     | D     | D     | D     | D     | D     | D      |      | D     | D     |       |

1941.

01004

70004

1947 Jan, Feb and Mar obs. for now.

Edwin  
7113

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<br>1943 |         |       | Tilbury L.M.S.<br>Tilbury<br>Riverside | 1 1/4 m.<br>1 m.<br>(1947) | W<br>SW              | West Tilbury   | 1 1/4 m.             | N                     |
| 1949         |         |       | Tilbury                                | 1 1/4 m.                   | SW                   | W. Tilbury     | 2                    | N.                    |

BRITISH RAINFALL ORGANIZATION



Tilbury  
**RAINFALL** at Grays Sewage Works  
 County of Essex Observer The Manager  
 River Basin Thames Roding etc. 2 C.S.H. Hawkes, Esq. C.E.  
 Type of Gauge Glaisher

 Station No. 1245  
 (Amended w.r. 6/1/55)

51

Annual Average 20.39 in. based on 25 years obs. un-weighted. Period of average 1916-40  
 " " 20.3 in. computed by Mr. Cornish (1938) Ref. 561245/36 File No. 822203/28

| Diameter ...  | 8"    |       |       |       | 236   | 974   |       |       |       |       |       |
|---------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Height ...    | 2' 0" |       |       | 1 8   |       |       |       |       |       |       |       |
| Altitude ...  | 9'    |       |       |       |       |       |       |       |       |       |       |
| Year ...      | 1951  | 1952  | 1953  | 1954  | 1955  | 1956  | 1957  | 1958  | 1959  | 1960  | Means |
| January ...   | 1.34  | 1.40  | .97   | 1.38  | 1.99  | 3.27  | .81   | 1.36  | 1.65  | 1.58  |       |
| February ...  | 5.04  | .86   | 1.08  | 1.75  | 1.37  | .17   | 2.57  | 1.62  | .02   | 1.61  |       |
| March ...     | 2.08  | 2.11  | .30   | 1.44  | .84   | .78   | .92   | 1.08  | 1.46  | 1.02  |       |
| April ...     | 2.73  | 1.26  | 1.89  | .26   | 20    | 1.28  | .10   | 1.60  | 1.63  | .76   |       |
| May ...       | 2.18  | 1.04  | 1.33  | 1.46  | 4.22  | .44   | 1.09  | 1.74  | .74   | 2.25  |       |
| June ...      | .76   | 1.26  | 1.33  | 2.66  | 1.59  | 1.47  | .74   | 3.82  | .67   | 1.19  |       |
| July ...      | 3.30  | .75   | 3.40  | 2.82  | .12   | 4.32  | 2.65  | 3.45  | 1.26  | 2.79  |       |
| August ...    | 2.42  | 2.53  | 1.31  | 2.94  | .65   | 2.09  | 2.34  | 3.89  | 1.13  | 4.09  |       |
| September ... | 2.88  | 3.43  | 2.32  | 1.39  | 1.93  | 2.14  | 2.12  | 5.78  | .07   | 4.07  |       |
| October ...   | .63   | 2.08  | 2.51  | 1.28  | 3.76  | 1.92  | 1.20  | 2.52  | 1.93  | 5.67  |       |
| November ...  | 2.99  | 4.08  | .76   | 3.51  | 41    | .18   | 3.32  | 1.67  | 2.90  | 3.46  |       |
| December ...  | 1.71  | 1.73  | .70   | 1.42  | 1.59  | 75    | 1.35  | 2.65  | 2.99  | 2.43  |       |
| TOTALS ...    | 28.06 | 22.53 | 17.90 | 22.21 | 18.67 | 18.81 | 19.21 | 31.18 | 16.45 | 30.92 |       |
|               | D     | D     | D     | D     | D     | n.p.  | D     | D     | D     | D     |       |

1956: N.P. low. This record is now under same auth. as S/Ns 1246 and 1247/7 (See 19A f 822203/28)  
 Engr unable to supply corrections - Aug 6 Dec. 1960

\* Dec '56  
 Revised estimates used  
 in calculation March '70  
 not 0.80.

Position of Station on Ordnance One-Inch map :

No. of Map.....

National Grid Reference 51/654758

| Date. | Lat. N. | Long. | Railway Station.  | Distance Direction from gauge | Parish Church.    | Distance Direction from gauge. |
|-------|---------|-------|-------------------|-------------------------------|-------------------|--------------------------------|
| 1951  |         |       | Tilbury Riverside | 1 1/2 mi SW<br>75 mi SW       | W. Tilbury<br>L2B | 2 mi NE<br>1 1/2 mi NE         |

Summary of Earlier Records from 10-year Sheets :

| Record D, or d | 1910-19    | 1920-30    | 1931-40 | 1941-50    | 1951-60    |
|----------------|------------|------------|---------|------------|------------|
|                | ✓ but -'18 | ✓          | ✓       | ✓ but -'48 | ✓ but -'64 |
|                | ✓          | ✓ but d'30 | ✓       | ✓          | ✓          |