

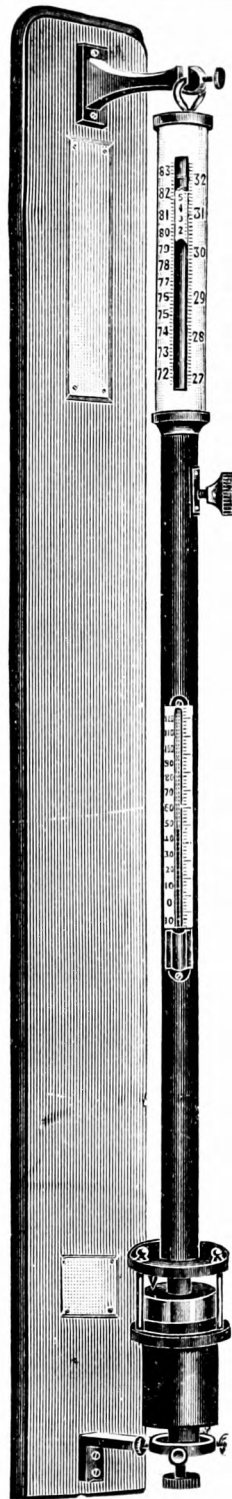
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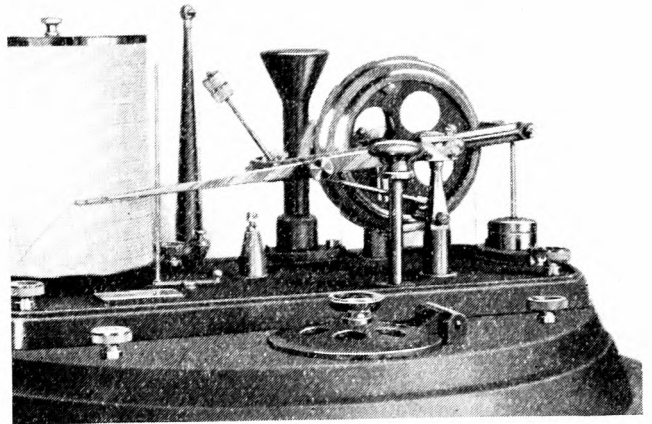
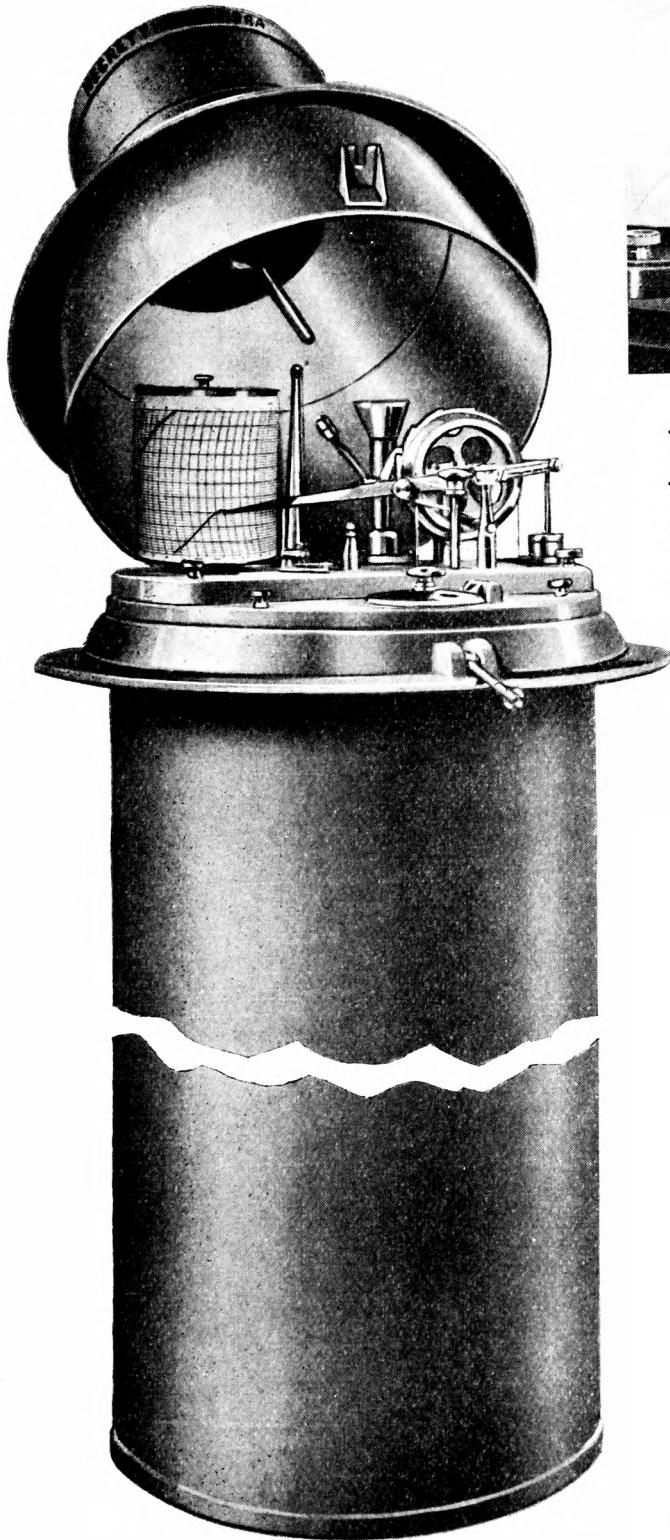
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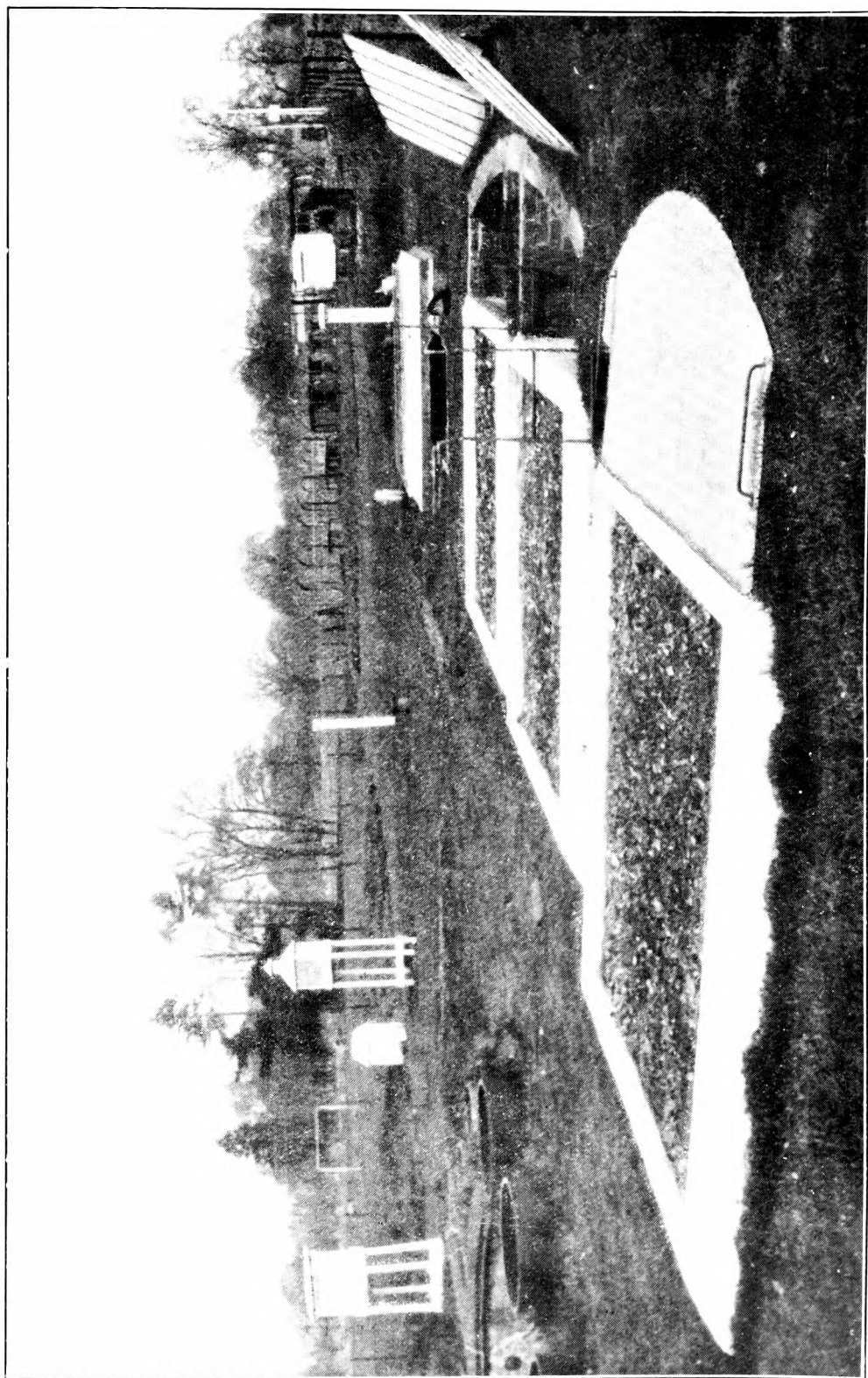


METEOROLOGICAL OFFICE  
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# BRITISH RAINFALL 1931







*Photo by J. Glasspool.*

METEOROLOGICAL ENCLOSURE AT ROTHAMSTED EXPERIMENTAL STATION.



FOR OFFICIAL USE

M.O. 345

AIR MINISTRY

METEOROLOGICAL OFFICE

# BRITISH RAINFALL

1931

THE SEVENTY-FIRST ANNUAL VOLUME OF  
THE BRITISH RAINFALL ORGANIZATION

*Report on the*  
**DISTRIBUTION OF RAIN**  
IN SPACE AND TIME OVER THE  
BRITISH ISLES DURING THE YEAR  
1931 AS RECORDED BY OVER 5,000  
OBSERVERS IN GREAT BRITAIN AND  
IRELAND

WITH MAPS AND ILLUSTRATIONS

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LONDON

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ERRATA IN " BRITISH RAINFALL," 1930.

p. 125. Table XXII :

*for* Cardiff (Ely Pumping Station) *read* Ystalyfera (Wern House).

*for* Glyncoirwg Colliery *read* Cardiff (Ely Pumping Station).

p. 216. *delete* Kendal (Ellergreen) and data relating thereto.

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BRITISH RAINFALL, 1931

PART I

THE WORK  
OF THE  
BRITISH RAINFALL  
ORGANIZATION

## BRITISH RAINFALL, 1931.

## PART I.

**THE WORK OF THE BRITISH RAINFALL ORGANIZATION**

## THE STAFF OF OBSERVERS.

The detailed account of the rainfall of the year 1931 over the British Isles, which is presented in this volume, follows the lines of previous issues. The basis of the discussion is a collection of more than 5,300 returns of rainfall measurements for the year received from all parts of the country. The measurements are generally made every day, but in inaccessible districts they may be made only once a week or even once a month. Only a small number of the observers receive payment from the Meteorological Office; the great majority of the rainfall returns are contributed either by private persons, who measure the rainfall primarily as a matter of private interest, or by public local authorities, and especially the authorities of water undertakings, who find that a knowledge of the rainfall over their gathering grounds is indispensable to them in their work. These two classes of observers forward copies of their observations voluntarily for preservation by the British Rainfall Organization of the Meteorological Office as national records, and for use not only in the preparation of the annual volumes of *British Rainfall* but also for purposes of study and research. In this way records which are primarily of local interest acquire a national value which was not always realized by those who initiated them. To the numerous voluntary observers who forward their observations the Organization desires to acknowledge its indebtedness: it would be quite impossible to compile such an account as this without their assistance and goodwill.

In order to ensure, so far as possible, that the various records of rainfall summarized in the volume may be comparable with one another, the Organization issues to each observer and to anyone who is interested, a copy of a pamphlet entitled *Rules for Rainfall Observers*. This pamphlet was originally drawn up by the late Mr. G. J. Symons, F.R.S., founder of the Organization, and although it has been extensively revised since his time, yet the fundamental rules laid down by him remain practically unaltered.

The total number of records printed in Part III of this volume is 5,329, an increase of 13 records over last year. As many as 324 additional records are included in the volume, while 311 records printed in *British Rainfall*, 1930, are no longer available. Details as to the numbers of records printed in earlier volumes are given in a separate table.

The number of records published for Scotland is 16 more than last year, while there are two less for England and one less for Wales,

the number in Ireland remaining the same. The counties with the largest net gains during 1931 are Ayrshire, Yorkshire W.R. and Stirlingshire with 15, 11 and 7 respectively. On the other hand there are 7 fewer stations in Antrim. The large increase in Ayrshire is due to the enthusiasm of Mr. W. Dunbar, F.R.Met.Soc., who collects the rainfall data monthly and sends a summary, including a map showing the distribution of the rainfall, soon after the close of each month to all contributing observers. There were only 34 records in Ayrshire in *British Rainfall*, 1925, so that the number is now more than double. Mr. Dunbar is to be congratulated in that there are now more records in Ayrshire than in any other county in Scotland.

Of the gains in England mention may be made of three records in Surrey forwarded by Mr. A. E. Cornwall-Walker, Engineer to the East Surrey Water Co., four from Dartmoor maintained by Mr. F. Howarth (Plymouth W.W.), twelve maintained by the Manchester Corporation W.W. near Manchester and in the Longendale Valley, and 21 from the Sheffield Corporation W.W. These gains are mainly the result of inspections carried out in earlier years. Some of the additional records from the Sheffield W.W. area are from the Loxley and Ewden Valleys, and these records have been maintained for a number of years although included in *British Rainfall* for the first time. The new records from Dartmoor are of special interest since they are from gauges in sites selected as likely to give a better sample of the precipitation than those already in operation. As the new sites are sometimes at considerable distances from those of the old gauges, the altitudes are included in the comparison below, of the catches for 1931 :—

		Altitude ft.	Old in.	New in.
Dartmoor (Cowsic Valley) .. ..		1352	75.20	—
„ „ „ „ .. ..		1323	—	80.50
„ (White Tor) .. ..		1640	52.15	—
„ „ „ „ .. ..		1439	—	81.80
„ (Devil's Tor) .. ..		1785	51.60	—
„ „ „ „ .. ..		1570	—	77.55
„ (Cowsic Head) .. ..		1580	68.05	—
„ „ „ „ .. ..		1465	—	85.30

These four additional records and the two records from Cranmere Pool and Newbridge, further to the north, add considerably to our knowledge of the rainfall over Dartmoor. The instruments at Dartmoor Prison were damaged during the disturbance in January, 1932, but the rainfall record recommenced on April 7th.

Two new records are forwarded from Aldershot by the Mid-Surrey District Utility Co., and three additional records by Mr. Terence More, F.R.Met.Soc. The long record at Stretham Engine in the Fen District, which started in 1848 and terminated in 1929 has been re-started and is included in the volume. Records are also included

from Whipsnade Park, Beachy Head, Peacehaven, Wells (The Palace), Eyam Rectory, Brougham Castle, to the south of Penrith, and Callaly Castle to the west of Alnwick.

The most important gains in Wales are those from the Pontypridd W.W. in the Rhondda Valley, the Hawarden W.W. at Cilcain in Clwydian Range, Llangollen (Vivod) in Denbighshire, Pwllheli (Talcymerau Bach), Criccieth (Bron Eifion and Glasbury (Gwernynyfed Park), where a record is available from 1884 to 1922.

The gains in Scotland include 19 additional records from Ayrshire, four from Mr. J. McMillan, Engineer to the District Committee (Middle Ward) of Lanarkshire and four from the Dundee W.W. Catchment area (Mr. G. Baxter).

Records from Islay (Eallabus), Invergarry Schoolhouse and Melvich in Sutherlandshire, are again included. The new records from Glenmoriston (Ceannacroc), Glenurquhart (Corrimony), Skye (Duntulm) and Grimersta Lodge, to the west of Stornoway, fill gaps in the index map of stations. It is possible to include the record from Garroch, near Dalry, the Kirkcudbrightshire mansion belonging to Mr. Arthur Young which was destroyed by fire on the 31st October, 1931.

In Ireland the most important gains are those from Edenderry in Offaly, Slane Rectory, to the west of Drogheda, Tuam (Palace Gardens), at Old Head House on the coast to the west of Westport, an additional record maintained by the Marquess of Sligo, and at Banagher Filters in the mountains of Londonderry.

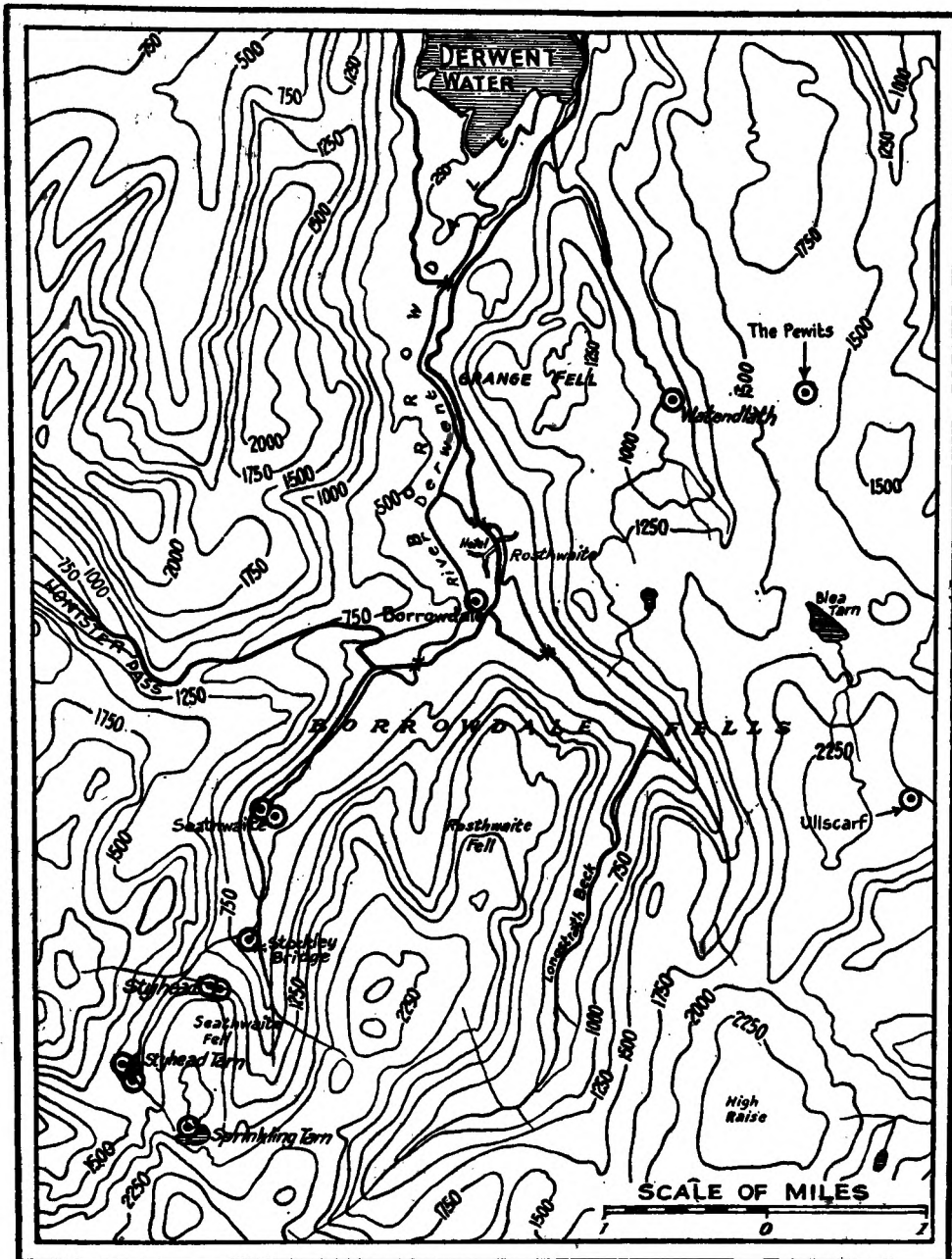
Among the more serious omissions from the General Table the following stations with long records may be mentioned :—Ashburton (Druid House), Newcastle (Wellburn, Jesmond), Darlington (Hummernsknott), Emsworth (Westbourne), Beccles (Raveningham Hall), Launceston (Polapit Tamar), and High Wycombe (Easton Street).

The record from Abersoch, in Carnarvonshire, is not included since the catch of the gauge seems to have fallen off of recent years, but the cause of the apparent error has not yet been identified. The old record from Lligwy is not included because the record was too small; a new gauge was set up in September, 1931, and comparative readings since then are available.

*Rain-gauges in and near Borrowdale.* The Seathwaite area was visited by Dr. Glasspoole in September, 1931, and a number of changes were subsequently made with the object of improving the exposures, wherever possible, and increasing our knowledge of the distribution of rainfall in and near Borrowdale. The changes referred to below do not affect the data for 1931. The present distribution of the rain-gauges is shown in the accompanying map. This area is usually approached from Keswick, where there are some four rainfall stations



of which special mention should be made of that on Derwent Island, commenced in 1865 by the late Mr. H. C. Marshall and subsequently continued by Mr. C. E. Marshall, and of the climatological station



### RAIN-GAUGES IN AND NEAR BORROWDALE.

maintained by Mr. Tom Wilson on behalf of the Urban District Council. The next station further up the valley is at The Moraine, Borrowdale, in the charge of Mr. George Scott, who also makes temperature readings on behalf of the Royal Meteorological Society.

Three rain-gauges were in operation at Seathwaite Farm in

September, 1931 :—an old 4-inch gauge and a Seathwaite gauge in the garden in positions corresponding to positions IV and VII, and a Bradford gauge in the field corresponding to position VI, as shown in the diagram facing p. 16 of *British Rainfall*, 1895. The old gauge was worn out and the inner can leaked slightly, and this was, therefore, dismantled. This type of gauge was made originally in 1863 by Messrs. Cook of York to the design of Mr. Isaac Fletcher, M.P., F.R.S., who had 12 of them installed round about Seathwaite. The gauge is being retained in the Meteorological Office at South Kensington as of historic interest.

A new octapent rain-gauge of 30 in. capacity was set up just below Stockley Bridge and readings are available from February, 1932. An octapent rain-gauge has a standard funnel 5 in. in diameter, but the outer can and container correspond with a gauge 8 in. in diameter, so that the capacity is materially increased without the inner can becoming unduly long. The site is so rocky that the gauge could not be sunk in the ground any lower than to give a height for the rim of 1 ft. 6 in. above ground. A fence was set up round the gauge there.

Two gauges were in operation at Sty Head, an old 4 in. gauge and a Seathwaite gauge, at site B, shown on the map facing p. 18 of *British Rainfall*, 1896. The old gauge was 3 yds. to the south-west of the new gauge and being worn out was, therefore, dismantled. The old sites C and D were also identified. It was concluded that while gauges at B, C, and D were well exposed to the south-west, the exposure was unsatisfactory to the north-east, the ground beginning to slope down steeply within 15 yds. in that direction. A more satisfactory site was selected with Mr. F. Hudleston further west, on a relatively flat plain, and this site was found later to be almost identical with that of the original site A, for which records are available from 1851 to 1857. An octapent rain-gauge, similar to that used at Stockley Bridge, was set up on 23rd January, 1932. As a result of unusually heavy rains the whole site was water-logged and some apprehension was felt for the gauge in case the ground became frozen.

The Seathwaite gauge to the west of Sty Head Tarn was in good condition generally. Minor defects, which were apparent in most of the Seathwaite gauges, were (a) that the locking device was broken, (b) that the inner can had no lid to minimise loss by evaporation, and (c) that the gauges were constructed mainly of galvanized iron, which is not strong enough for the severe conditions prevailing in these regions during the winter. The general exposure of the gauge was satisfactory but as it was set up amongst rocks there was not only some risk of insplashing but also of eddies being set up by these rocks. A more orthodox site was selected to the south of Sty Head Tarn on fairly flat ground just above the swamp bordering on the Tarn.

An octapent rain-gauge of 50 in. capacity was set up during the summer of 1932.

The Seathwaite gauge at Sprinkling Tarn was in good condition. The gauge was on a small mound just to the west of the Tarn in a reasonably good, although not ideal, site. A better site was selected not far from the old site and 10 ft. lower, and in this case a turf wall was set up round the new octapent gauge of 50 in. capacity, also erected during the summer of 1932. The old gauge is being discontinued.

The rain-gauges at Seathwaite and above Seathwaite are all read monthly by Mr. T. Bainbridge or his son, while Mr. George Scott kindly supervises these readings and has carried out all the changes which have recently been made, including the erection of the new gauges.

Mr. George Scott was also of service in arranging for Mr. W. Tyson to commence rainfall readings at the end of 1931 at Watendlath Farm, shown on the map. The changes which have been made should materially increase our knowledge as to the rainfall in Borrowdale, and supplement that included in the article on the mean annual rainfall in the English Lake District, *British Rainfall*, 1897, p. 17.

A number of rain-gauges have been maintained in the adjoining valley to the east by the Manchester Corporation, in connexion with their water supply from Thirlmere. Of these the positions of the gauges at The Pewits and to the east of Ullscarf are shown. The sites of all the gauges round Thirlmere were inspected during September, 1931, and certain modifications to existing sites suggested, which should result in much useful information from that area being available for 1932. The changes were mainly to the gauges to the west of Helvellyn where the selection of suitable sites is especially difficult.

Additional rainfall records have also been secured to the north of the Keswick to Penrith road, viz., at Welbeck, Troutbeck to the north of Saddleback above Mosedale, where a daily record was commenced on the 18th December, 1931, by Mrs. Streatfield, and at Skiddaw House, to the east of Skiddaw, and at an altitude of about 1,550 ft., through the good offices of Mr. Hudleston.

*Changes in County boundaries.* As a result of the 1929 Local Government Act, the boundaries of all Counties in England are at present being reviewed for the purpose of straightening out anomalies and abolishing detached areas. While these adjustments are likely to be numerous for some while to come, they are not likely to involve the transference of many rainfall stations from one county to another. The only change due to this cause in the present volume is that of Blockley, which is now included in Gloucestershire, whereas formerly it was in Worcestershire.

For assistance in the collection of the rainfall returns for the year we are especially indebted to officials of various local organizations, among whom may be mentioned :—Mr. C. P. Sinclair, of the Hertfordshire Natural History Society and Field Club, Mr. R. H. Primavesi, of the Northamptonshire Natural History Society; Col. H. C. Copeman, of the Norfolk Rainfall Organization; Mr. W. G. Willis Watson, of Exeter; Miss Young, Librarian at the Barnstaple Athenæum; the Rev. F. P. Synge, of the Mid-Wessex Rainfall Association; Mr. A. P. Jenkin, of the Cornwall Rainfall Association; Mr. A. A. Barnes, of the Manchester and Stockport Rainfall Organization; Mr. A. J. Jenkins, of Jersey; Miss Cordelia Marshall, of Ambleside; Mr. W. Dunbar, of Kilmarnock; and Mr. E. W. M. Murphy, of the Irish Rainfall Association.

*British Rainfall, 1931, compared with 1930.*  
*Number of Records Published.*

			Gain.	Loss.	Difference.	Per cent. change in year.		
England	..	..	212	.. 214	.. — 2	..	— 0·1	
Wales, etc.	..	..	21	.. 22	.. — 1	..	— 0·2	
Scotland	..	..	67	.. 51	.. + 16	..	+ 1·9	
Ireland	..	..	24	.. 24	.. 0	..	0·0	
British Isles	..	..	<u>324</u>	.. <u>311</u>	.. <u>+ 13</u>	..	<u>+ 0·3</u>	

*Number of Rainfall Records Published in the Volumes of  
"British Rainfall" for the undermentioned Years.*

Years.	England.	Wales, etc.	Scotland.	Ireland.	British Isles.	Change from previous year.	No. of Stations per 100 sq. mi.
1861	.. 333	.. 9	.. 109	.. 20	.. 471	.. + 47	.. 0·4
1871	.. 1038	.. 88	.. 311	.. 67	.. 1504	.. + 5	.. 1·2
1881	.. 1548	.. 131	.. 313	.. 153	.. 2145	.. + 41	.. 1·8
1891	.. 2091	.. 168	.. 359	.. 181	.. 2799	.. + 23	.. 2·3
1901	.. 2616	.. 253	.. 442	.. 195	.. 3506	.. + 13	.. 2·9
1911	.. 3705	.. 397	.. 701	.. 271	.. 5074	.. + 198	.. 4·2
1914	.. 3962	.. 450	.. 753	.. 288	.. 5453	.. + 83	.. 4·5
1919	.. 3419	.. 436	.. 766	.. 277	.. 4898	.. — 101	.. 4·1
1920	.. 3460	.. 453	.. 758	.. 281	.. 4952	.. + 54	.. 4·1
1921	.. 3577	.. 446	.. 784	.. 271	.. 5078	.. + 126	.. 4·2
1922	.. 3601	.. 470	.. 785	.. 270	.. 5126	.. + 48	.. 4·2
1923	.. 3406	.. 442	.. 754	.. 262	.. 4864	.. — 262	.. 4·0
1924	.. 3438	.. 438	.. 756	.. 248	.. 4880	.. + 16	.. 4·0
1925	.. 3437	.. 439	.. 750	.. 259	.. 4885	.. + 5	.. 4·0
1926	.. 3418	.. 442	.. 775	.. 238	.. 4873	.. — 12	.. 4·0
1927	.. 3491	.. 448	.. 786	.. 245	.. 4970	.. + 97	.. 4·1
1928	.. 3585	.. 441	.. 791	.. 251	.. 5068	.. + 98	.. 4·2
1929	.. 3665	.. 453	.. 797	.. 265	.. 5180	.. + 112	.. 4·3
1930	.. 3765	.. 455	.. 834	.. 262	.. 5316	.. + 136	.. 4·4
1931	.. 3763	.. 454	.. 850	.. 262	.. 5329	.. + 13	.. 4·4
Difference from 1930	— 2	.. — 1	.. + 16	.. 0	.. + 13	.. —	.. 0·0

County.	Records in 1930.	Records Lost.	Records Gained.	Records in 1931.	Records per 100 sq. mi. of area.	County.	Records in 1930.	Records Lost.	Records Gained.	Records in 1931.	Records per 100 sq. mi. of area.
<b>ENGLAND.</b>						<b>SCOTLAND.</b>					
LONDON ..	58	4	0	54	46	WIGTOWN ..	12	1	0	11	2
SURREY ..	190	12	16	194	27	KIRKCUDBRIGHT ..	13	2	2	13	1.4
KENT ..	174	7	12	179	12	DUMFRIES ..	16	1	3	18	1.7
SUSSEX ..	173	12	9	170	12	ROXBURGH ..	18	3	0	15	2
HAMPSHIRE ..	179	8	10	181	11	SELKIRK ..	7	2	0	5	2
BERKSHIRE ..	63	5	5	63	9	PEEBLES ..	14	0	1	15	4
MIDDLESEX ..	64	5	5	64	28	Berwick ..	14	2	2	14	3
HERTFORDSHIRE	88	3	2	87	14	E.LOTHIAN (HAD'N)	15	1	1	15	6
BUCKINGHAMSHIRE	48	2	3	49	7	MIDLOTHIAN ..	36	0	1	37	10
OXFORDSHIRE ..	59	4	1	56	7	W.LOTHIAN (LIN.)	16	0	0	16	13
NORTHAMPTON ..	63	3	2	62	6	LANARK ..	47	1	4	50	6
HUNTINGDONSHIRE	7	1	1	7	2	AYR ..	68	4	19	83	7
BEDFORDSHIRE ..	27	2	1	26	6	RENFREW ..	41	5	3	39	16
CAMBRIDGESHIRE	40	0	3	43	5	DUMBARTON ..	23	1	2	24	9
ESSEX ..	108	4	6	110	7	STIRLING ..	41	1	8	48	10
SUFFOLK ..	67	6	2	63	4	BUTE ..	7	1	1	7	3
NORFOLK ..	80	5	5	80	4	ARGYLL ..	68	3	3	68	2
WILTSHIRE ..	64	1	3	66	5	CLACKMANNAN ..	8	0	0	8	15
DORSETSHIRE ..	93	9	4	88	9	KINROSS ..	5	0	0	5	6
SOUTH DEVON ..	197	21	18	194	11	FIFE ..	36	2	1	35	7
NORTH DEVON ..	44	1	3	46	5	PERTH ..	68	1	2	69	3
CORNWALL ..	84	4	3	83	6	ANGUS (FORFAR)	38	0	4	42	5
SOMERSETSHIRE ..	172	11	7	168	10	KINCARDINE ..	14	2	1	13	3
GLOUCESTERSHIRE	96	9	6	93	7	ABERDEEN ..	3	0	1	38	2
HEREFORDSHIRE	51	2	1	50	6	BANFF ..	10	0	0	10	2
SHROPSHIRE ..	49	1	6	54	4	MORAY (ELGIN)..	11	1	0	10	2
STAFFORDSHIRE	62	0	3	65	6	NAIRN ..	6	0	0	6	4
WORCESTERSHIRE	67	8	2	61	8	INVERNESS ..	77	9	6	74	2
WARWICKSHIRE	50	4	2	48	5	ROSS & CROMARTY	31	3	1	29	0.9
LEICESTERSHIRE	33	1	5	37	4	SUTHERLAND ..	9	3	1	7	0.3
RUTLANDSHIRE ..	2	0	0	2	1.3	CAITHNESS ..	11	2	0	9	1.3
LINCOLNSHIRE ..	64	3	1	62	2	ORKNEY ..	12	0	0	12	3
NOTTINGHAMSHIRE	56	0	1	57	7	SJETLAND ..	5	0	0	5	0.9
DERBYSHIRE ..	82	6	11	87	8	<b>IRELAND.</b>					
CHESHIRE ..	86	3	9	92	9	CORK ..	20	1	0	19	0.7
SOUTH LANCs. ..	133	9	3	127	18	KERRY ..	13	0	0	13	0.7
CENTRAL LANCs. ..	77	7	8	78	15	WATERFORD ..	7	2	1	6	0.8
NORTH LANCs. ..	52	2	1	51	8	TIPPERARY ..	12	1	3	14	0.8
YORKSHIRE, W.R.	316	9	20	327	12	LIMERICK ..	8	0	0	8	0.8
YORKSHIRE, E.R.	25	0	1	26	2	CLARE ..	5	0	0	5	0.4
YORKSHIRE, N.R.	93	4	3	92	4	WEXFORD ..	6	0	0	6	0.7
DURHAM ..	58	4	1	55	5	KILKENNY ..	3	1	2	4	0.5
NORTHUMBERLAND	43	3	1	41	2	WICKLOW ..	9	0	0	9	1.2
CUMBERLAND ..	58	6	2	54	4	CARLOW ..	5	1	1	5	1.4
WESTMORLAND ..	70	3	4	71	9	LEIX ..	3	0	0	3	0.5
<b>MONMOUTH, WALES, ETC.</b>						OFFALY ..	7	0	1	8	1.0
MONMOUTH ..	30	0	3	33	6	KILDARE ..	4	0	0	4	0.6
GLAMORGAN ..	65	3	5	67	8	DUBLIN ..	27	0	2	29	8
CARMARTHEN ..	17	1	0	16	2	MEATH ..	6	0	1	7	0.8
PEMBROKE ..	12	0	2	14	2	WESTMEATH ..	8	0	0	8	1.1
CARDIGAN ..	17	0	0	17	2	LOUTH ..	4	0	0	4	1.3
BRECON ..	84	7	1	78	11	LONGFORD ..	6	1	0	5	1.2
RADNOR ..	25	1	0	24	5	GALWAY ..	7	1	3	9	0.4
MONTGOMERY ..	24	0	0	24	3	ROSCOMMON ..	7	4	0	3	0.3
FLINT ..	18	1	2	19	7	MAYO ..	8	1	1	8	0.4
DENBIGH ..	38	2	3	39	6	SLIGO ..	2	0	0	2	0.3
MERIONETH ..	23	1	1	23	3	LEITRIM ..	3	1	1	3	0.5
CARNARVON ..	51	2	2	51	9	CAVAN ..	3	0	0	3	0.4
ANGLESEY ..	15	1	0	14	5	FERMANAGH ..	5	0	3	8	1.1
CHANNEL ISLANDS	26	2	1	25	3	MONAGHAN ..	1	1	0	0	0.0
						ARMAGH ..	5	0	0	5	1.0
						DOWN ..	15	0	2	17	1.8
						ANTRIM ..	29	7	0	22	1.8
						LONDONDERRY ..	11	0	2	13	1.6
						TYRONE ..	7	2	0	5	0.4
						DONEGAL ..	6	0	1	7	0.4



**CHECKING OF RECORDS.**—Every record of rainfall which is published in Part III of this volume goes through a process of examination before it is included in the table. This consists in the plotting of the monthly and annual totals of rainfall and of the annual numbers of rain days and wet days on large scale maps, of which all except the map of rain days are reproduced in the volume on much reduced scales. Some details of the procedure are set out in *British Rainfall*, 1931, p. xv.

Another opportunity for critically examining the returns is afforded by the preparation of the Rainfall Survey. This examination is more exacting than that undertaken year by year, since the values are plotted on a map of a larger scale and since computed averages can be compared for stations in the same locality, which were not in operation at the same time. Much has been done in improving the accuracy of the future records by correspondence with those observers whose values have appeared inconsistent on the survey maps. In some cases gauges of standard patterns have been lent, and comparisons made with gauges which have been thought to be giving defective records.

In certain cases where a record has been found to be out of harmony with those from surrounding stations, and no explanation of the difficulty has been found after correspondence with the observer, the station has been inspected and the cause of the error ascertained.

**AVERAGES PRINTED IN THE GENERAL TABLE OF BRITISH RAINFALL.**—Since 1926 a column in the General Table has been devoted to the average annual rainfall at the various stations, and year by year additional values have been given. This information is supplied mainly by the Rainfall Survey which is being carried out for certain counties year by year.

Since 1930 a distinction has been made in the type, according as the average quoted is (a) the mean of the 35 years 1881 to 1915 or has been weighted in this Office to give a computed mean for that period and (b) the mean of a period of 20 years, or more, but unweighted, or computed outside this Office. It is hoped to make this column much more complete in the course of a few years.

**INVESTIGATIONS.**—Four articles are printed in Part IV of this volume. Mr. E. G. Bilham discusses the measurements of evaporation at Valentia Observatory, in Co. Kerry, and shows that the anomalous results obtained from the tank in wet windy weather may be accounted for by losses due to out-splashing. The article emphasises the desirability of setting up a tank in a relatively sheltered site.

In the second article Mr. F. Hudleston, M.Inst.C.E., of Hutton

John, Penrith, gives his sixth report on the experiments he is making at Hutton John into the effects on rainfall measurements of unorthodox exposures, and of the steps which can be taken to mitigate those effects. The report is concerned mainly with details as to the most suitable height for a turf wall and as to whether the rim should be horizontal or parallel with the ground. Comparisons are also given of the catches of gauges set up in pits of various dimensions.

Mr. W. Dunbar, Burgh Surveyor and Water Engineer, Kilmarnock, deals with a thirty years' rainfall record maintained at the West of Scotland Agricultural College, Kilmarnock. Reference is made, in the section on the staff of observers, to the large number of additional rainfall records which Mr. Dunbar has secured in Ayrshire. Mr. Dunbar also contributed a paper to the Royal Meteorological Society on Eighty Years' Rainfall at North Craig Reservoir, Kilmarnock (*Q.J.* 1932, p. 31).

Statistics are also included of general monthly rainfall over England and Wales from 1727 to 1931. This is a continuation of the article on General Monthly Rainfall over the British Isles 1881 to 1924 published in *British Rainfall*, 1924, p. 256.

Reference should also be made to the following articles or notes published during the year :—

The Splashing of Rain, by Lt.-Col. E. Gold, *The Meteorological Magazine*, 1931, p. 153.

The Splashing of Rain, with special reference to Evaporation Tanks, by E. G. Bilham, *The Meteorological Magazine*, 1932, p. 86.

Rain-gauge Funnels of Different Depths, by J. Glasspoole, *Monthly Weather Review*, 1931, p. 157.

Rain-gauges near Belper and Duffield (Derbyshire), by A. A. Barnes, *Q.J.R. Meteor. Soc.*, 1932, p. 115.

Rainfall reviewed ; A Common Long-average Period for each country of the British Isles, by A. A. Barnes, *Q.J.R. Meteor. Soc.*, 1932, p. 126.

**INSPECTIONS.**—During the year ended 31st March, 1932, some 200 rainfall stations were inspected. These included a number of stations in the gathering grounds of the Metropolitan Water Board, of the waterworks of Wakefield, Rochdale and Maidstone as well as of the Manchester Corporation round Hawes Water and Thirlmere.

A number of rain-gauges were also inspected in Loch Aber, the River Garry and in Borrowdale, including the very wet stations of The Styne above Seathwaite and Kinlochquoich and Loan at the head of the River Garry. It is worth recalling that all the wettest stations in the British Isles, *viz.*, those at the head of the River Garry, on Snowdonia and in the English Lake District have been visited at

various times without the inspector getting wet ! Additional rainfall stations have also been inspected in the Thames Valley, including those near Devizes, Swindon and Cirencester.

Among the many observers who have facilitated the inspections of rain-gauges in their areas, special reference should be made to Mr. C. Clemesha Smith (Wakefield), Mr. H. A. Braddock (Rochdale), Mr. C. H. Harden (Maidstone), Mr. W. F. H. Creber (Manchester W.W.), Mr. F. Hudleston (Hutton John, Penrith) and Mr. W. T. Halcrow (of Messrs. C. S. Meik and Halcrow). The number of gauges which can be seen in a day is materially increased by the assistance of someone familiar with the district, and this co-operation is consequently especially worthy of acknowledgment.

**SURVEY MAPS.**—The work on the detailed average annual rainfall map of the British Isles on the scale of two miles to the inch, for the period 1881–1915, has been continued. During the year isohyetal lines have been drawn over Leicestershire and over parts of Inverness-shire and the West Riding of Yorkshire. Substantial progress has been made in working up the data for other counties. It is hoped to be able to complete the lines over a number of counties shortly and to include the averages for individual stations in *British Rainfall*, 1932.

**INQUIRIES.**—A large number of inquiries regarding the rainfall of various parts of the country was dealt with. Among the more important of these, the following may be mentioned :—

Reports were prepared on the rainfall of certain areas in connection with Stockport Water Bill (Goyt Valley), Cardiff W.W. (Taff Fawr catchment area), Rhyl U.D.C. Water Bill, River Avon (Bristol) catchment area and the Tony Valley.

Reports were supplied monthly to the Metropolitan Water Board and to the Thames Conservancy.

**OBITUARY.**—During the twelve months 1st July, 1931, to 30th June, 1932, reports have been received of the deaths of 54 observers who have contributed to volumes of *British Rainfall*. Of these twelve have kept rainfall records, or been associated with relatives who have kept records for 30 years or more. A list of these is given below. In most cases the records have been maintained throughout by the same observer.

Name.	Last place of observation.	No. of years' records.
Major T. L. K. Edge .. ..	Strelley Hall, Notts. .. ..	51
The Hon. F. G. Wynn .. ..	Llanwrda, Carnarvon .. ..	50
Dr. J. S. Cowley .. ..	Upton-on-Severn, Worcester ..	47
A. G. Copeman, Esq. .. ..	Little Dunham, Norfolk .. ..	42
Miss M. A. Burke .. ..	Sudbury, Suffolk .. ..	41
Major W. J. Hamilton .. ..	Castle Hamilton, Co. Cavan ..	39
Rev. J. Cross .. ..	Sturminster Newton, Dorset ..	35
J. C. Yorke, Esq. .. ..	Langton, Dwrbach, Pembroke	35
A. Young, Esq. .. ..	Loughborough, Leicester ..	33
F. Morgan, Esq. .. ..	Talgarth, Brecon .. ..	32
G. F. Slade, Esq... ..	Wallingford, Berks. .. ..	30
W. L. Stanton, Esq. .. ..	Maisey Hampton, Glos. .. ..	30

The Hon. F. G. Wynn forwarded seven records from the neighbourhood of Glynllivon Park and Bodfean Hall in western Carnarvonshire. The record maintained by Mr. J. C. Yorke is being continued by his daughter, Mrs. Johns, at Trenewydd to the west of Fishguard Bay.



BRITISH RAINFALL, 1931

PART II

RAINFALL AND METEOROLOGY

1931

## 1. A BRIEF SUMMARY OF THE RAINFALL OF THE YEAR, 1931.

The rainfall of 1931, over the British Isles as a whole was 109 per cent. of the average. Thus the remarkable run of wet years was continued, although 1931 was drier than five of the previous eight years. Since 1921, the accumulated excess of rainfall over the British Isles as a whole has amounted to 99 per cent. of the average annual amount. In the last ten years we have received, therefore, nearly as much rain as falls in eleven years on the average of the standard period, 1881 to 1915. It has been suggested that, having regard to the fluctuations which have been experienced over the British Isles during the last seventy years, the average for the period 1881 to 1915 is too small. The 44 years 1887 to 1930 have been suggested as being more representative. Even if this average is adopted as the standard for comparison the rainfall of the last ten years is 84 per cent. in excess of that average. The table below gives the general values over the British Isles as a whole, and for the countries separately, since the famous dry year, 1921.

*Annual Rainfall as per cent. of Average, 1881–1915.*

		1922	1923	1924	1925	1926	1927	1928	1929	1930	1931
England and Wales	..	% 105	% 113	% 120	% 106	% 102	% 123	% 115	% 100	% 117	% 109
Scotland	..	94	120	105	100	111	114	123	101	109	104
Ireland	..	92	110	122	99	100	108	126	106	116	111
British Isles		100	114	117	104	103	118	118	101	115	109

The general rainfall of the winter six months 1930 to 1931, over the British Isles as a whole, amounted to 25·3 inches, or 1·9 inches in excess of the average. The total for the summer of 1931 was 23·6 inches and the only wetter summers during the last fifty years were those of 1927 and 1924. The only wetter seasonal years in the series were those of 1926 to 1927, 1911 to 1912 and 1882 to 1883. The rainfall of the summer six months was in excess of the average over the whole of England and Wales, the eastern half of Scotland, and most of Ireland. Over much of England and Wales the rainfall exceeded 150 per cent. of the average. This was due to the unusual prevalence of cyclonic rains. At Boston the total rainfall during the summer was 23·53 inches or 210 per cent. of the average. This was due in part to the heavy rainfall of August 8th, when 6·10 inches was recorded. The more congenial weather in the north-west of Scotland,

especially during the late summer, stands out in marked contrast. Over much of the western half of Ross and Cromarty the rainfall of the summer six months was less than 80 per cent. of the average.

The rainfall of the calendar year was less than the average at stations in the south-east of England and the north-west of Scotland, while more than 130 per cent. occurred over a large number of areas between North Wales and the east coast from Boston to Middlesbrough. This wet area across the southern Pennines reflects the unusual prevalence of cyclonic rains, especially during the summer, while the small percentages in the north-west of Scotland are accounted for by the dry late summer and the small percentages in the south-east of England are due mainly to the dry October and December.

During 1931 wet months predominated, there being only four months, March, September, October and December in which the general rainfall over the British Isles was below the average. The excesses were greatest in May, June and November; November was the wettest month and March the driest month of the year.

Over the British Isles as a whole the rainfall of March was less than that of any other March in the series back to 1870, with but four exceptions, and October was the driest October also with but four exceptions. There was only one wetter November in the series than November, 1931. As much as 30 inches was recorded on Snowdon during November. No measurable rain fell at a few isolated stations in the south of England during March.

The general number of rain-days over the British Isles was 217 or 13 more than the average number. The preponderance of rain-days during the period 1918 to 1931 was very remarkable, for during these 14 years, there was an accumulation of 141 rain-days in excess of the average, or as many rain-days as usually occur in over eight months.

Droughts were relatively infrequent during 1931 and, moreover, only isolated stations recorded either an absolute drought, partial drought or dry spell during the summer months. An even more remarkable feature was the infrequency of rain spells and wet spells. The explanation of the infrequency of both droughts and rain spells during 1931 is apparent from a consideration of the statistics of monthly rainfall. Droughts usually occur during the summer months and are usually most widespread over England and Wales, but in 1931 the rainfall of each summer month was in excess of the average, especially over England and Wales. On the other hand three months in the winter half-year of 1931 were unusually dry, viz., March, October and December and these months included periods which qualified as droughts, instead of giving rain spells as in most other years.



Intense falls of rain were unusually frequent during 1931 and these were associated with the cyclonic and instability rains of the summer months. Intense falls were also frequent during 1930, 1927 and 1924. Among the more striking incidents in the rainfall of 1931, mention may be made of the following:—the thunderstorm rains of May 27th to 28th, which gave as much as 4·18 inches at Cardiff (Penylan) of which 3·6 inches fell in 3½ hours; the widespread intense rains of June 14th, the day of the Birmingham tornado, and the series of intense rains during August, of which in south-west London those of the 5th and 14th were most remarkable.

Perhaps the most striking feature was the large number of heavy falls on rainfall days. There were as many as 270 instances of falls of 3 inches or more, a much larger number than occurred in any other year back to 1915 with the exception of 1929 with 260. The number of falls of 4 inches or more during the year was 114, an unprecedentedly large number. The bulk of these falls occurred on November 3rd, when as much as 7·25 inches was recorded at Trecastle (Blaenau-hydfer) to the north of the Black Mountains. The total fall for the two rainfall days, November 2nd and 3rd, amounted to 9·61 inches at Blaenau-hydfer, to 8·68 inches at Llyn-y-fan Fach in the Black Mountains and to 8·61 inches at Patterdale in the English Lake District. The fall of 6·10 inches at Boston on August 8th is also worthy of special comment.

## 2. THE DISTRIBUTION OF RAINFALL IN TIME.

### THE NUMBER OF RAIN-DAYS AND WET-DAYS IN 1931.

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The following definitions have been used in *British Rainfall* in order to obtain a homogeneous series of statistics :—

A *rain-day* is a period of 24 hours, commencing normally at 9 a.m. on which  $\cdot 01$  inch, or 0.2 mm. or more of rain is recorded.

A *wet-day* is a period of 24 hours, commencing normally at 9 a.m. on which  $\cdot 04$  inch, or 1.0 mm. or more of rain is recorded.

The former definition dates from the year 1865, the latter was adopted only about 1917. Each of the terms “rain-day” and “wet-day” is open to criticism, the latter particularly so, since it has a different meaning in ordinary use. It must, therefore, be understood that whenever these terms are used in this publication the meanings set out above are always to be attached to them.

For reasons which are set out in detail in the article entitled “The distribution over the British Isles in time and space of the annual number of days with rain,” in *British Rainfall*, 1926, there is frequently a lack of harmony in the annual values of adjacent stations. In fact, the observed differences are sometimes so much greater than that of any other climatic factor, that there is little doubt that some of the individual values are incorrect. Statistics of wet-days were found to be much more consistent. It was this reason, coupled with the fact that similar data are published for certain other countries of Europe, which led to the introduction of statistics of wet-days.

Latterly, however, attention has been re-directed to the improvement of the statistics of rain-days. The Meteorological Office has standardised a new taper measure and new regulations for reporting small quantities of rain have been brought into use.

On the taper measure there is a graduation marked  $\cdot 005$ ; this graduation is to show the limit between the amounts which count as  $\cdot 01$  inch, and those which are mere “traces.”

All water found in the rain-gauge is treated as rain, even though it comes from melted snow, hoar frost, dew or mist. If the gauge contains less than  $\cdot 01$  inch, but more than  $\cdot 005$  inch, the measurement should be entered as  $\cdot 01$  inch. The same entry is made if the measurement is exactly  $\cdot 005$  inch.

The circumstances in which the entry “trace” or “tr” is to be made in the daily register are as follows :—

(a) When there is less than  $\cdot 005$  inch of water in the gauge and



happens sometimes especially in dry, warm weather, without the gauge being even damp, the small amount of rain having evaporated before it got into the receiving can.

Observers who distinguish carefully between measurements of "trace" and of  $\cdot 01$  inch, in the manner set out above, will feel confident that their statistics of rain-days are correct. If such a precise distinction is not made, doubt may attach to the statistics of rain-days. The desirability of using taper-measures is therefore evident.

Information as to the number of rain-days and wet-days during the year is set out in this volume in various forms. As usual, the General Table of rainfall in Part III of this volume shows the number of rain-days and wet-days in 1931 as reported from each station at which daily observations were made. The number of wet-days have been plotted on a large map of which the illustration on p. 6 is a reduced copy. The distribution of the numbers is shown on the map in the usual manner.

In order to study the distribution of rain-days and wet-days throughout the year, 100 stations have been selected to represent as uniformly as possible the conditions over the whole of the British Isles. The stations are the same as those used last year except that the following records :—Poole, Okehampton (Uplands), Craræ Lodge, Poolewe (Inverewe Gardens), Kilmacthomas (Comragh House), Mullingar (Belvedere House) and Galway (Grammar School), have replaced seven records no longer available for that table. The number of rain-days and wet-days for each month, as well as for the whole year, have been extracted from the returns from the 100 stations and printed in Table V. Monthly general numbers (for England and Wales, Scotland, Ireland and for the British Isles) have been worked from these data and they are shown in the table in heavy type. The annual mean values for 1931 are shown again in Tables I and III and the monthly mean values for 1931 in Tables II and IV, where in each case they can be readily compared with similar values for the intervening years from 1917; and with the averages. In the case of rain-days averages are available for the standard period 1881 to 1915, but for wet-days the averages cover only the period 1917 to 1931.

The map of the annual number of wet-days during 1931 is very similar to those for earlier years. As in all the other maps there is a steady increase in the number of wet-days from the south-east to the north-west of the British Isles and from the plains of the east coast to the mountainous regions of the west. In 1931 the number varied from about 110 in the neighbourhood of the Thames Estuary to rather more than 225 in the Western Highlands of Scotland and in the mountains of Connemara and Donegal. Less than 125 wet-

days occurred to the north of Doncaster and over the south-east of England from the Wash to the south-coast, stretching as far eastwards as Tewkesbury, Chippenham, Andover and Swanage. More than 200 wet-days occurred in the mountainous districts of Wales, the English Lake District, locally in the Southern Uplands and to the south of Greenock, as well as over the greater part of the north-western half of Scotland, the mountainous districts in Kerry and the north-west of Ireland.

The total number of rain-days varied from rather less than 150 along the coasts of Suffolk and Essex, to over 275 in the Western Highlands of Scotland between Ben More, on Mull, and Loch Fannich and including part of the Isle of Skye. The numbers recorded in all parts of the country were very close to those shown by the average map for the period 1881 to 1915 (see *British Rainfall*, 1926, p. 264) but in general there were about 10-20 more rain-days during 1931. The distribution was similar to that in 1930.

The general values given in Table III indicate that the frequency of wet-days was very close to the average for the period 1917 to 1931. The number for 1931 was one more for England and Wales, two less for Scotland, one less for Ireland and one less than the average for the British Isles as a whole.

It should be emphasized that in the case of wet-days comparable statistics are only available back to 1917, and the averages used for comparison are for the period 1917 to 1931, which includes mainly wet years. The averages are therefore greater than they would have been if statistics covering the standard period 1881 to 1915 were available. This fact is brought out by Table I, where 11 out of the last 15 years gave rain-days appreciably in excess of the average for the period 1881 to 1915.

The number of wet-days over the British Isles in each month is given in Table IV. There were 18 wet-days in February and November and only 7 in March and 9 in September. The range is smaller than usual. During each month from April to July the number was in excess of the average, the accumulated excess being 12 wet-days. On the other hand during each month August to October the number was less than the average, the accumulated deficiency being also 12 wet-days.

In dealing with the general numbers of rain-days, given in Tables I and II, it is possible to compare the values for 1931 with computed averages for the 35 years, 1881 to 1915. It is shown in Table I that over the British Isles as a whole there were 217 rain-days or 13 more than the average number. This total was, however, exceeded in four out of the last nine years, *viz.*, in 1928, 1927, 1924 and 1923, when the general numbers were 225, 223, 223 and 236 respectively. The excess of rain-days during the period 1918 to 1931 was so remarkable that

during these 14 years, there was an accumulation of 141 rain-days in excess of the average, or as many rain-days as usually occur in over eight months. The total number in 1931 was identical with that in 1930.

The number of rain-days during 1931 was more striking over Scotland and Ireland than over England and Wales, although many recent years have given larger numbers in both Scotland and Ireland. The largest numbers occurred in 1923, when the general number of rain-days was 257 in Scotland and 253 in Ireland. The number over England and Wales for 1931, of 199 rain-days, was exceeded in seven out of the previous 14 years.

The number of rain-days over the British Isles in each month is given in Table II. There were 22 in January, February, July and November, while March had the smallest number with 11. More than the average number of rain-days occurred in each of the four consecutive months April to July, the total excess being 18. During each of the three months August to October the number was less than the average, but the accumulated deficiency amounted to only 7 days. During the late spring and early summer months there was, therefore, a greater number of both rain-days and wet-days than usual, while during the late summer and autumn months the number of rain-days and more especially wet-days was less than usual. The number of rain-days was 7 less than the average during March.

During the year the mean number of rain-days per month was 18, or 1 more than the average. Of these, 14 received sufficient rain to rank as wet-days. There were six more rain-days than wet-days in December, five more in January, April, July and September, and four more in the remaining months.

There is no instance of a calendar month during 1931 without a rain-day at any of the 100 selected stations in the British Isles. In fact the longest period without a rain-day was 21 days (see Section 3). The least number of rain-days in any month was two, which occurred in March at Haughley in Suffolk, while a number of stations in the neighbourhood of the Thames below Oxford, in the Fen district and near Warwick and Wellingborough recorded 3. Only one wet-day was recorded in March at Warwick, Wellingborough and Shifnal.

As many as 30 rain-days occurred during October at Loch More (Achfary), during November at Mull (Gruline) and during December at Galway. As many as 29 rain-days were recorded during January in the Outer Hebrides and Mull; during July in the north of Ireland and at Cluny Castle in Inverness-shire; during November in the north and west of Ireland and during December in the Outer and Inner Hebrides. There were 28 rain-days during November in North Devon and parts of Wales and 28 during July in South Wales.

Table I.—*Annual General Number of Rain-days (Days with .01 in. or more) in 1917-1931, compared with Average, 1881-1915†.*

Year.	England and Wales. Average 188.			Scotland. Average 217.			Ireland. Average 220.			British Isles. Average 204.		
	Rain Days.	Diff. from Aver.	Per cent. of Aver.	Rain Days.	Diff. from Aver.	Per cent. of Aver.	Rain Days.	Diff. from Aver.	Per cent. of Aver.	Rain Days.	Diff. from Aver.	Per cent. of Aver.
1917	185	— 3	98	217	0	100	224	+ 4	102	203	— 1	100
1918	200	+ 12	106	226	+ 9	104	227	+ 7	103	214	+ 10	105
1919	191	+ 3	102	214	— 3	99	213	— 7	97	203	— 1	100
1920	203	+ 15	108	232	+ 15	107	243	+ 23	110	220	+ 16	108
1921	158	— 30	84	224	+ 7	103	217	— 3	99	190	— 14	93
1922	196	+ 8	104	234	+ 17	108	226	+ 6	103	214	+ 10	105
1923	216	+ 28	115	257	+ 40	118	253	+ 33	115	236	+ 32	116
1924	202	+ 14	107	237	+ 20	109	248	+ 28	113	223	+ 19	109
1925	192	+ 4	102	231	+ 14	106	230	+ 10	105	212	+ 8	104
1926	192	+ 4	102	234	+ 17	108	226	+ 6	103	211	+ 7	103
1927	208	+ 20	111	233	+ 16	107	238	+ 18	108	223	+ 19	109
1928	204	+ 16	109	240	+ 23	111	247	+ 27	112	225	+ 21	110
1929	165	— 23	88	217	0	100	218	— 2	99	192	— 12	94
1930	207	+ 19	110	223	+ 6	103	232	+ 12	105	217	+ 13	107
1931	199	+ 11	106	233	+ 16	107	235	+ 15	107	217	+ 13	106

† The averages for the period 1881-1915 are based on the records from about 100 stations distributed as evenly as possible over the country. The selection of stations is described in an article in *British Rainfall*, 1926, p. 267, and the general number of rain-days in each year from 1881 will be found in Table I of that article.

Table II.—*Monthly General Number of Rain-days (days with .01 in. or more) in 1917 to 1931, British Isles, with Average, 1881-1915†.*

	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
1917 ..	15	12	19	16	13	14	12	23	17	25	20	17	203
1918 ..	20	20	12	12	13	13	19	17	25	22	16	25	214
1919 ..	23	12	20	18	11	16	11	16	16	14	20	26	203
1920 ..	24	17	21	23	19	13	24	13	17	13	16	20	220
1921 ..	25	9	23	11	17	7	12	20	11	16	16	23	190
1922 ..	24	20	17	18	13	15	21	19	17	12	16	22	214
1923 ..	22	24	15	17	19	13	18	21	20	25	19	23	236
1924 ..	22	15	10	16	23	17	20	23	20	19	16	22	223
1925 ..	18	23	16	19	23	5	16	17	21	19	15	20	212
1926 ..	24	20	14	17	19	14	14	17	16	17	24	15	211
1927 ..	23	16	21	18	12	20	18	21	22	17	21	14	223
1928 ..	27	17	21	16	11	20	14	19	12	23	23	22	225
1929 ..	14	14	5	13	14	15	14	21	11	22	23	26	192
1930 ..	23	9	19	16	15	12	18	23	18	24	19	21	217
1931 ..	22	22	11	19	19	18	22	15	14	15	22	18	217
Average	19	17	18	15	15	14	16	17	15	19	19	20	204

† The average general values for England and Wales, Scotland and Ireland separately are given in *British Rainfall*, 1927, p. 7, and are discussed in an article on *The Distribution over the British Isles of the average number of days with rain during each month of the year.*—Q.J.R. Meteor. Soc. Vol. 54, 1928.

Table III.—*Annual General Number of Wet-days (Days with .04 in. or more) in 1917 to 1931, with Average.*

	England and Wales.	Scotland.	Ireland.	British Isles.
1917 .. ..	134	174	176	155
1918 .. ..	150	182	188	168
1919 .. ..	143	172	171	158
1920 .. ..	151	185	197	171
1921 .. ..	110	177	166	142
1922 .. ..	146	181	178	163
1923 .. ..	159	206	198	182
1924 .. ..	154	184	199	173
1925 .. ..	143	179	180	162
1926 .. ..	141	184	173	161
1927 .. ..	156	184	185	171
1928 .. ..	151	193	200	175
1929 .. ..	121	170	170	147
1930 .. ..	155	174	186	168
1931 .. ..	145	180	182	163
Average 1917-31	144	182	183	164

Table IV.—*Monthly General Number of Wet-days (Days with .04 in. or more) in 1917 to 1931, British Isles, with Average.*

	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
1917 ..	11	8	14	13	10	10	9	20	12	21	15	12	155
1918 ..	15	17	9	9	10	9	15	12	22	16	13	21	168
1919 ..	19	9	15	14	8	12	8	12	13	11	15	22	158
1920 ..	20	13	17	19	15	10	19	9	13	9	12	15	171
1921 ..	20	5	17	8	13	5	10	15	7	12	12	18	142
1922 ..	20	16	13	14	9	11	16	15	13	8	11	17	163
1923 ..	15	20	11	13	14	8	13	17	16	21	16	18	182
1924 ..	17	9	7	12	19	13	17	18	16	15	12	18	173
1925 ..	14	19	11	15	18	3	12	13	15	14	12	16	162
1926 ..	20	15	9	12	15	11	11	13	12	14	19	10	161
1927 ..	19	13	17	13	8	16	13	17	17	13	15	10	171
1928 ..	23	13	16	11	8	16	10	15	9	19	18	17	175
1929 ..	9	10	3	8	11	11	11	16	8	17	20	23	147
1930 ..	19	5	14	12	11	9	14	18	14	20	16	16	168
1931 ..	17	18	7	14	15	14	17	11	9	11	18	12	163
Average 1917-31	17	13	12	12	12	11	13	15	13	15	15	16	164



Table V.—Number of "Rain-days" (.01 in. or more) and of "Wet-days" (.04 in. or more) in 1931.

County and River Division.	Station.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Year.	Total Rain-fall.
ENGLAND AND WALES.															
London . . . . .2	St. Pancras (Camden Square)	20 11	18 12	6 2	17 16	14 11	10 7	18 12	18 15	14 9	6 3	13 10	11 5	165 113	25.39
Kent . . . . .2	Lympne Aerodrome . . . . .	23 12	22 17	7 5	16 13	11 7	10 7	16 12	20 15	11 7	8 6	16 12	14 5	174 118	24.90
Sussex . . . . .3	Patcham (Brighton W.W.) . . .	19 14	19 15	7 3	18 16	13 10	11 7	20 16	14 11	10 10	6 5	14 12	7 5	158 124	30.02
Hampshire . . .1	Ventnor (Royal National Hos.)	18 13	18 15	9 7	17 12	18 12	12 8	16 11	19 14	14 8	11 5	18 15	11 7	181 127	29.16
Hampshire . . .7	Selborne (The Wakes) . . . . .	23 14	21 17	9 7	22 17	13 12	14 12	18 15	19 13	11 8	12 3	22 13	13 5	197 136	34.79
Berkshire . . .5	Upton (Manor House) . . . . .	17 9	17 9	3 2	20 17	18 12	13 9	18 13	16 13	10 6	6 3	19 13	8 7	165 113	23.24
Northants . . .4	Wellingborough (Swanspool) . .	18 13	20 15	3 1	15 13	16 9	13 8	18 13	15 12	15 10	10 2	23 13	15 5	181 114	24.42
Northants . . .4	Eye (Northolm) . . . . .	21 11	21 13	3 2	20 14	14 8	14 8	19 16	13 12	18 9	9 5	18 8	13 4	183 110	22.64
Cambridge . . .2	Cambridge (Botanic Gardens) . .	17 13	14 12	3 3	18 15	13 12	8 7	15 12	14 10	16 12	4 2	12 9	8 4	142 111	23.22
Essex . . . . .3	Great Wakering . . . . .	19 10	21 15	3 2	17 13	14 11	10 5	11 11	18 14	11 7	6 3	11 9	6 3	147 103	19.26
Suffolk . . . . .2	Haughley (Haughley House) . .	17 10	21 17	2 2	15 13	11 9	10 8	17 12	14 11	14 10	7 3	14 8	9 6	151 109	20.56
Norfolk . . . . .1	Corleston . . . . .	21 15	20 18	6 4	19 14	15 11	12 8	16 13	14 8	11 9	12 6	14 9	14 7	174 122	26.55
Norfolk . . . . .4	Sporle . . . . .	25 14	24 19	7 4	22 14	18 12	17 10	17 14	16 12	19 12	16 8	21 11	19 7	221 137	28.83
Wiltshire . . . .3	Larkhill (Sch. of Artillery) . . .	18 12	19 14	5 3	17 13	16 13	13 11	20 14	16 10	10 8	12 3	20 15	11 8	177 124	25.37
Dorsetshire . .3	Poole . . . . .	17 10	18 10	9 5	17 13	14 11	15 13	20 12	16 10	10 8	5 2	18 15	9 7	168 116	28.27
South Devon .4	Holne (Church Park Cottage) . .	23 15	24 20	18 11	16 13	20 16	16 13	25 21	18 13	12 7	13 5	23 18	14 10	222 162	67.53
North Devon .2	Barnstaple (N.Dev. Athenæum) .	24 19	24 20	15 8	20 13	23 16	18 12	27 20	21 13	14 10	15 7	28 20	23 13	252 171	39.74
North Devon .3	Okehampton (Uplands) . . . . .	26 19	24 20	11 9	18 16	17 14	16 14	25 19	17 15	13 11	13 9	21 19	18 13	219 178	54.21
Cornwall . . . .2	St. Austell (Trevarna) . . . . .	25 21	24 21	18 10	15 7	17 15	16 13	28 22	17 17	14 12	13 7	24 20	17 11	228 176	52.10
Somerset . . . .1	Bath (Henrietta Park) . . . . .	18 10	21 18	6 4	18 11	16 12	16 12	19 16	17 11	13 7	11 3	22 15	11 10	188 129	29.08
Somerset . . . .3	Angersleigh (Leigh Court) . . . .	21 12	21 13	10 7	16 13	18 12	14 10	19 12	18 15	12 10	9 6	22 20	12 9	192 139	33.21
Hereford . . . .1	Ross (Birchlea) . . . . .	17 11	16 10	9 4	16 11	18 13	16 10	20 15	18 14	15 8	9 5	23 15	11 7	188 123	32.23
Shropshire . . .3	Bishops Castle (Castle Street) .	20 14	23 17	9 6	20 16	22 18	11 9	20 17	14 12	14 10	9 6	22 19	15 10	199 154	38.41
Shropshire . . .4	Shifnal (Hatton Grange) . . . . .	20 17	18 13	6 1	25 19	18 13	15 11	20 16	20 15	15 12	10 7	24 15	15 5	206 144	33.98
Staffs. . . . .5	Ashbourne (Mayfield House) . . .	22 16	23 20	7 2	21 16	16 12	15 13	23 18	15 14	10 10	7 5	21 15	14 10	194 151	40.16

Table V.—Number of "Rain-days" (.01 in. or more) and of "Wet-days" (.04 in. or more) in 1931.—(con.).

County and River Division.	Station.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Year.	Total Rain- fall.
ENGLAND AND WALES—(con.)															in.
Warwick . . . 1	Warwick Castle Gardens . . . . .	17 11	24 15	3 1	20 15	16 11	13 10	16 10	18 12	11 8	8 3	17 11	11 6	174 113	26·51
Leicester . . . 4	Leicester (Stoughton Drive) . . .	22 16	22 17	4 3	22 13	13 9	15 12	17 12	15 12	12 10	6 4	19 11	12 6	179 125	26·69
Lincoln . . . . 3	Horncastle . . . . .	17 17	21 17	6 3	19 15	12 10	15 11	18 13	15 10	18 10	13 7	15 11	10 8	179 132	30·88
Nottingham . . 5	Workshop (Hodsock Priory) . . .	21 13	22 13	8 4	19 17	16 14	16 10	19 11	14 13	15 9	10 6	22 15	14 6	196 131	30·10
Cheshire . . . . 2	Northwich (Hunts Lock) . . . . .	25 18	22 16	7 3	22 15	18 14	17 13	23 17	19 17	16 13	13 6	22 17	19 11	223 160	37·20
North Lancs . . 5	Blackpool (Met. Observatory) . .	22 16	22 16	7 4	19 14	18 12	20 16	21 15	13 10	13 9	12 10	24 19	17 13	208 154	39·17
Yorks. W.R. . . 8	Meltham (Harewood Lodge) . . .	22 19	23 20	8 5	21 18	18 17	18 14	21 19	16 15	12 11	13 9	21 18	17 13	210 178	52·93
Yorks. E.R. . . 3	Hull (Pearson Park) . . . . .	21 12	24 15	8 5	20 17	17 10	15 10	17 10	16 10	21 10	11 6	22 13	12 7	204 125	31·20
Yorks. E.R. . . 4	Filey Vicarage . . . . .	22 17	22 17	6 2	20 19	16 13	13 11	21 18	15 11	18 11	18 13	20 11	14 9	205 151	30·89
Yorks. N.R. . . 1	West Witton (Ivy House) . . . . .	18 12	23 13	10 3	21 17	19 15	19 13	26 13	15 12	9 7	15 13	20 18	13 7	208 143	37·29
Yorks. N.R. . . 2	Felixkirk (Mount St. John) . . .	22 14	20 12	8 6	20 18	16 14	19 16	23 19	16 15	17 9	14 8	17 13	13 8	205 152	36·81
Durham . . . . 2	Sunderland (W. Hendon Ho.) . . .	19 16	18 12	15 8	19 16	16 15	17 10	21 15	11 10	13 7	11 8	19 10	13 5	192 132	29·92
North'land . . . 6	Ilderton (Lilburn Tower Gdns.) . .	20 14	15 9	10 10	15 14	13 11	18 16	21 15	14 12	15 8	12 8	21 14	13 8	187 139	31·29
Cumberland . . 1	Geltsdale . . . . .	22 18	22 20	11 9	20 15	14 12	21 17	23 22	13 12	13 9	18 14	19 18	16 13	212 179	40·04
Westm'land . . 2	Grasmere (The Wray) . . . . .	24 23	24 21	12 6	20 18	24 18	24 21	25 22	16 12	17 8	20 15	26 24	19 13	251 201	93·06
Glamorgan . . . 6	Treherbert (Tyn-y-waun) . . . . .	23 16	24 21	11 7	20 17	22 19	21 15	28 23	19 15	13 10	14 12	23 21	17 14	235 190	91·26
Carmarthen . . 2	Carmarthen (The Friary) . . . . .	25 15	23 18	13 6	20 13	25 18	19 14	28 17	15 13	10 10	14 11	27 22	20 11	239 168	52·55
Pembroke . . . 4	Haverfordwest (Portfield) . . . .	24 17	22 16	14 9	21 12	20 16	14 12	26 17	15 12	16 9	17 9	27 24	17 12	233 165	51·08
Cardigan . . . . 3	Lampeter (Falcondale) . . . . .	23 21	22 22	11 7	22 19	23 19	18 12	28 20	17 16	14 12	14 10	28 24	22 18	242 200	50·80
Denbigh . . . . 2	Denbigh (Garn) . . . . .	23 16	22 18	10 7	21 17	17 16	18 11	22 13	17 16	15 13	15 11	22 17	18 11	220 166	37·44
Merioneth . . . 4	Dolgelly (Bryntirion) . . . . .	23 21	24 21	10 6	25 21	21 19	25 23	24 22	16 14	12 11	12 10	25 22	24 20	241 210	75·09
Anglesey . . . .	Llanerchymedd (Ll'diarth Es.) . .	20 18	20 16	13 6	21 19	18 13	21 18	16 10	15 13	15 9	14 12	28 25	21 18	222 177	41·86
England and Wales	(Mean of 47 Stations) . . . . .	21 15	21 16	8 5	19 15	17 13	16 12	21 15	16 13	14 9	12 7	21 15	14 9	199 145	37·87

Table V.—Number of "Rain-days" ('01 in. or more) and of "Wet-days" ('04 in. or more) in 1931.—(con.).

County and River Division.	Station.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Year.	Total Rain-fall.
<b>ISLE OF MAN.</b>															in.
Isle of Man ..	Douglas (Borough Cemetery) ..	23 15	21 18	13 6	17 13	18 14	18 16	19 17	15 9	13 9	16 11	26 23	20 14	219 165	50·60
<b>CHANNEL ISLANDS.</b>															
Guernsey ....	St. Peter Port (Grange Road) .	24 20	23 20	14 10	14 11	14 10	10 6	18 13	18 15	10 8	8 4	19 17	14 10	186 144	35·61
<b>SCOTLAND.</b>															
Wigtown ... 3	Whithorn (Physgill) .....	25 17	19 16	14 6	18 12	16 11	18 15	23 14	15 11	12 9	15 13	26 22	19 11	220 157	40·99
Dumfries ... 3	Dumfries (Crichton Inst.) .....	21 14	16 14	9 6	15 13	22 14	19 16	19 15	11 7	9 7	15 11	26 20	14 12	196 149	41·43
Peebles ... 1	Edin. W.W. (Victoria Lodge) ..	21 19	25 22	10 9	18 16	21 16	23 18	26 20	15 11	13 7	17 16	24 22	19 18	232 194	49·67
Berwick ... 4	Duns Castle .....	15 10	20 12	14 9	17 12	18 12	19 14	24 14	16 11	13 8	14 8	23 16	16 8	209 134	34·10
Linlithgow . 2	Linlithgow Academy .....	17 11	19 13	14 8	18 12	16 13	22 19	23 21	14 10	9 5	15 12	23 16	15 7	205 147	36·52
<b>Lanarkshire. 5</b>	Strathaven (Dungavel) .....	24 20	23 21	10 7	18 15	17 13	20 19	23 18	13 9	13 8	17 14	24 21	24 22	226 187	50·46
<b>Ayrshire. ... 6</b>	Maybole (Culzean Castle) .....	21 19	19 17	11 7	18 10	16 13	19 16	20 16	13 11	13 6	17 14	23 23	21 19	211 171	41·39
<b>Renfrew ... 3</b>	Greenock (Prospect Hill) .....	21 19	24 22	13 6	20 15	23 18	24 19	27 22	12 7	11 7	17 17	27 24	25 19	244 195	61·00
<b>Buteshire . 6</b>	Dougarie Lodge .....	24 22	26 20	9 6	16 10	17 10	21 19	21 19	13 11	11 8	19 15	26 23	23 16	226 179	45·03
<b>Argyllshire 11</b>	Crarae Lodge .....	23 21	25 24	9 7	20 17	21 16	23 21	28 23	10 6	11 8	20 19	26 26	24 24	240 212	70·82
<b>Argyllshire. 14</b>	Islay (Ardbeg) .....	24 22	26 23	7 5	21 14	22 14	23 20	22 20	11 8	17 13	20 17	26 21	24 21	243 198	47·88
<b>Argyllshire. 14</b>	Mull (Gruline) .....	29 25	27 23	13 7	26 17	22 18	24 20	26 24	17 10	19 15	26 21	30 28	29 26	288 234	76·77
<b>Argyllshire. 14</b>	Tiree (Cornaigmore Sch.) .....	26 23	26 23	11 6	23 17	21 15	25 19	24 18	10 6	16 13	24 18	28 25	27 19	261 202	42·12
<b>Fifeshire ... 3</b>	Leuchars (Training Base) .....	16 10	14 12	14 10	16 10	16 10	18 9	24 19	12 7	10 7	10 7	21 16	15 6	186 123	30·06
<b>Perthshire . 11</b>	Aberfeldy (Dall Avon) .....	19 14	19 14	12 7	18 13	18 14	19 14	26 21	11 7	10 5	21 12	25 20	17 11	215 152	37·69
<b>Kincardine . 2</b>	Stonehaven (Mains of Cowie) ..	20 15	19 15	18 7	19 11	15 12	14 10	21 18	11 6	9 7	12 7	18 15	10 5	186 128	26·16
<b>Aberdeen . 1</b>	Balmoral (Castle Gardens) ....	23 12	23 12	20 9	22 16	24 14	21 14	27 16	18 9	15 7	24 12	25 15	23 14	265 150	34·74
<b>Aberdeen . 4</b>	Peterhead (Forehill Works) ..	27 24	23 17	12 6	19 14	17 13	20 13	26 16	13 9	18 11	21 16	17 13	19 15	232 167	29·92
<b>Morayshire . 2</b>	Gordon Castle .....	24 17	24 19	12 10	22 15	16 10	19 12	24 18	14 11	17 11	20 16	13 7	17 12	222 158	27·90
<b>Inverness . 3</b>	Cluny Castle .....	27 31	27 21	14 10	23 16	20 17	18 17	29 23	13 8	13 6	22 20	27 20	22 16	255 195	39·73
<b>Inverness . 16</b>	Fort William (The Factory) ..	26 21	27 26	12 8	24 17	20 18	25 20	28 23	13 9	16 9	22 18	27 20	24 24	264 213	67·90

Table V.—Number of "Rain-days" (.01 in. or more) and of "Wet-days" (.04 in. or more) in 1931.—(con.).

County and River Division.	Station.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Year	Total Rain-fall.
<b>SCOTLAND</b> —(con.).															
Inverness .18	Skye (Portree) .....	28 28	28 26	11 9	24 21	23 15	22 19	24 18	16 10	14 9	27 23	27 25	29 26	273 229	67.52
R'&Cromarty3	Fortrose .....	22 15	21 16	12 5	17 12	17 10	18 11	21 18	14 8	13 7	16 13	10 8	13 11	194 134	24.10
R'&Cromarty8	Poolewe (Inverewe Gardens) .	27 25	27 27	11 10	26 20	25 18	20 17	28 20	16 10	17 11	27 25	23 18	27 25	274 226	51.66
R'&Cr'm'rtly10	Stornoway .....	29 28	28 24	14 9	25 20	20 16	21 15	20 13	11 4	16 11	27 22	26 20	29 24	266 206	47.01
Sutherland .1	Lairg .....	20 19	18 17	12 11	17 17	15 14	13 11	21 14	10 5	14 10	23 17	15 14	20 16	198 165	40.97
Sutherland .5	Loch More (Achfary) .....	26 25	28 28	13 10	28 23	23 21	21 17	22 19	16 12	21 17	30 27	24 18	27 25	279 242	86.15
Caithness .3	Thurso (Buckies) .....	21 21	23 23	14 12	17 15	18 15	13 13	17 15	10 10	13 11	24 23	15 15	22 19	207 192	38.72
<b>Scotland</b> .....	<b>(Mean of 28 Stations).....</b>	<b>23 19</b>	<b>23 20</b>	<b>13 8</b>	<b>20 15</b>	<b>19 14</b>	<b>20 16</b>	<b>24 18</b>	<b>13 9</b>	<b>14 9</b>	<b>20 16</b>	<b>23 19</b>	<b>21 17</b>	<b>233 180</b>	<b>46.01</b>
<b>IRELAND.</b>															
Co. Cork....6	Dunmanway (The Rectory)...	17 12	23 19	22 18	15 7	22 18	20 15	21 18	14 11	10 5	19 12	23 20	18 9	224 164	52.76
Co. Cork....7	Glanmire (Lota Lodge) .....	16 11	19 16	16 14	14 10	20 19	17 13	20 16	10 9	9 6	13 10	24 22	12 9	190 155	46.99
Co. Cork....9	Mallow (Longueville) .....	23 13	21 18	19 14	18 9	21 19	19 15	26 19	15 10	13 9	18 8	27 22	16 11	236 167	40.50
Co. Kerry...3	Cahiriveen (Valentia Obsy.)...	25 21	24 22	21 14	19 14	20 16	25 18	26 16	15 9	13 11	18 12	27 25	24 18	257 196	56.06
Waterford .2	Kilmacthomas (Comragh Ho.)	18 15	19 17	17 13	16 12	22 21	16 16	25 21	13 10	13 9	15 10	23 20	14 10	211 174	67.37
Tipperary .1	Nenagh (Castle Lough).....	24 17	23 20	15 11	16 10	21 19	20 16	26 20	15 9	17 13	14 12	25 17	24 13	240 177	44.68
Tipperary .3	Casheal (Ballinamona) .....	23 17	25 16	17 13	20 12	21 20	19 15	25 18	12 9	13 8	13 9	27 20	18 10	233 167	43.71
Limerick ...2	Foynes (Coolnanes).....	25 19	26 18	13 9	16 11	22 17	23 19	22 19	11 8	9 5	13 10	25 20	18 12	223 167	35.43
Co. Wexford 4	Gorey (Courtown House) .....	19 12	23 12	16 14	13 13	20 15	14 10	19 13	11 8	15 9	10 6	23 19	16 10	204 141	42.67
Leix .....2	Abbey Leix (Blandsfort).....	22 14	25 18	16 13	21 13	24 21	19 16	27 23	13 10	16 8	11 7	24 18	22 15	240 176	43.47
Co. Dublin..2	Dublin (Fitz William Square).	16 12	17 11	13 7	17 10	23 17	19 15	23 16	13 11	12 9	8 6	21 17	17 6	199 137	30.84
Co. Meath..4	Kells (Headfort) .....	20 12	21 17	17 11	21 18	22 19	18 16	25 19	12 9	13 9	16 11	24 19	18 12	227 172	43.61
Co. W'meth1	Mullingar (Belvedere Ho.)....	23 18	22 17	15 12	17 16	19 16	18 16	23 16	10 8	15 10	16 14	24 18	19 14	221 175	45.29
Co. Longford2	Castle Forbes Gardens.....	17 16	23 19	14 11	14 12	23 22	17 15	22 19	7 7	11 9	14 13	21 21	14 13	197 177	41.23
Co. Galway .3	Galway (Grammar School) ..	23 17	24 21	12 10	19 11	22 18	22 16	24 18	17 11	16 9	21 15	29 24	30 19	259 189	40.47

Table V.—Number of "Rain-days" (.01 in. or more) and of "Wet-days" (.04 in. or more) in 1931.—(con.).

County and River Division.	Station.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Year.	Total Rain-fall.
<b>IRELAND</b> —(con).															in.
Co. Galway . . . . . 3	Ballynahinch Castle . . . . .	23 23	25 25	17 12	21 15	24 18	26 21	26 23	17 12	12 11	18 14	28 26	27 26	264 226	68.33
Co. Mayo . . . . . 4	Mallarany . . . . .	24 24	26 26	18 15	19 19	26 24	23 20	24 21	15 11	15 9	16 14	29 27	26 23	261 233	69.32
Co. Sligo . . . . . 2	Collooney (Markree Obsy.) . . . .	25 22	25 23	16 11	19 15	26 23	23 20	25 20	13 9	13 13	18 13	28 24	25 16	256 209	49.77
Co. Cavan . . . . . 1	Belturbet (Cloverhill) . . . . .	21 18	27 17	17 9	19 11	21 17	19 15	25 20	13 7	13 8	17 11	25 17	22 13	239 163	36.19
Co. Down . . . . . 2	Seaforde . . . . .	22 18	17 16	13 11	17 12	24 18	20 17	29 21	16 11	14 11	16 11	26 23	20 14	234 183	43.89
Co. Antrim . . . . . 5	Ballymena (Harryville) . . . . .	23 22	25 23	19 15	22 19	22 20	21 20	26 19	13 10	15 11	17 15	29 25	25 21	257 220	45.99
Co. Tyrone . . . . . 3	Omagh (Edenfel) . . . . .	25 20	24 22	19 9	23 17	25 18	23 20	29 24	13 7	18 12	21 16	24 19	24 17	268 201	44.20
Co. Donegal . . . . . 3	Milford (The Manse) . . . . .	27 24	26 22	13 10	22 16	21 16	20 18	27 22	17 13	19 13	21 16	28 24	22 18	263 212	42.09
<b>Ireland . . . . .</b>	<b>(Mean of 23 Stations) . . . . .</b>	<b>22 17</b>	<b>23 19</b>	<b>16 12</b>	<b>18 13</b>	<b>22 19</b>	<b>20 17</b>	<b>25 19</b>	<b>13 10</b>	<b>14 9</b>	<b>16 12</b>	<b>25 21</b>	<b>21 14</b>	<b>235 182</b>	<b>46.73</b>
<b>British Isles . . . . .</b>	<b>(Mean of 100 Stations) . . . . .</b>	<b>22 17</b>	<b>22 18</b>	<b>11 7</b>	<b>19 14</b>	<b>19 15</b>	<b>18 14</b>	<b>22 17</b>	<b>15 11</b>	<b>14 9</b>	<b>15 11</b>	<b>22 18</b>	<b>18 12</b>	<b>217 163</b>	<b>42.29</b>

### 3. ABSOLUTE DROUGHTS, PARTIAL DROUGHTS AND DRY SPELLS IN 1931.

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As in the analogous case of rain-days and wet-days (Section 4), certain definitions have to be adopted in order to obtain a reliable body of statistical information on the subject of droughts. The definitions used are:—

An **absolute drought** is a period of at least 15 consecutive days, to none of which is credited '01 inch of rain or more ;

A **partial drought** is a period of at least 29 consecutive days, the mean daily rainfall of which does not exceed '01 inch ;

A **dry spell** is a period of at least 15 consecutive days to none of which is credited '04 inch of rain or more.

These terms are used in *British Rainfall* only in the senses stated. More concise definitions of two of these terms would be:—An *absolute drought* is a period of at least 15 days, none of which is a rain-day ; a *dry spell* is a period of at least 15 days, none of which is a wet-day.

In Table VIII are given particulars of the absolute droughts, partial droughts and dry spells, which occurred at the 100 selected stations of Table V. Stations from which no droughts were reported are omitted from this table.

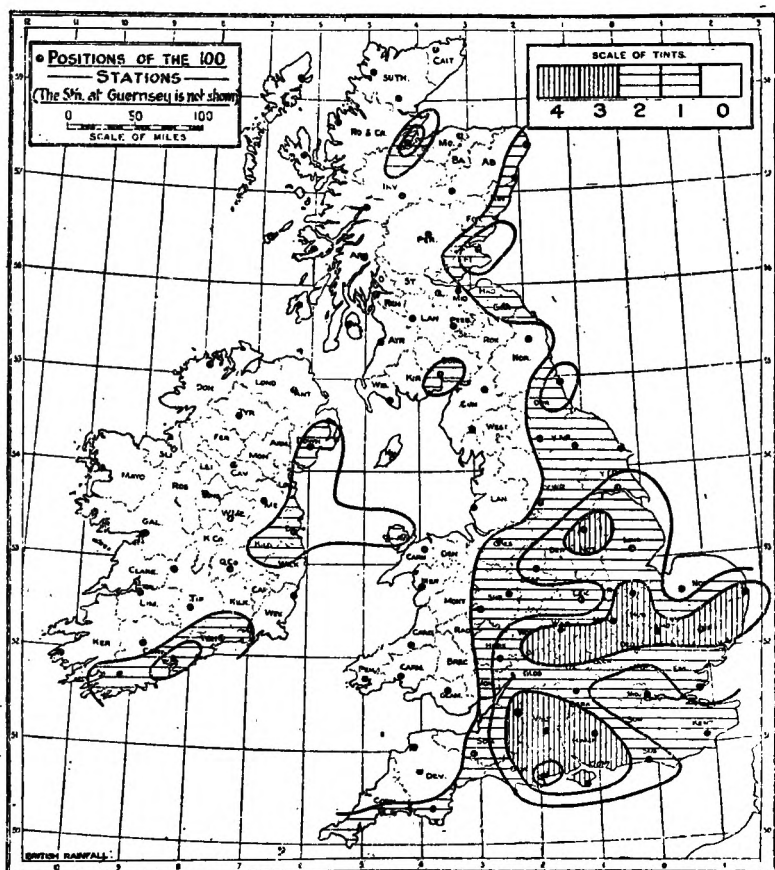
During 1931 as many as 53 out of the 100 stations failed to record either a drought or a dry spell. In 1930 there were 39 stations without one, while in 1929 only one of the 100 stations failed to record either a drought or a dry spell. The year 1931 was noteworthy for the large areas over which no drought or dry spell occurred. These areas included Dartmoor, North Devon, the north of England, practically the whole of Wales, the Isle of Man, and the greater part of Scotland and Ireland.

In Tables VI and VII the number of droughts and dry spells recorded in 1931 are compared with those of each year from 1917 to 1930. In the case of absolute droughts and dry spells similar information is available as far back as the famous dry year 1887 (see *British Rainfall* 1929, page 20), and averages are therefore available for the 45 years 1887 to 1931.

The total number of absolute droughts recorded in 1931 was

16, or 43 less than the average 1887 to 1931. In only four years have fewer absolute droughts been recorded, *viz.*: in 1927, 1923, 1904 and 1902 with 11, 11, 12 and 10 respectively, although in 1930 there was the same number. The number of partial droughts was not so remarkable, being 28 or only 22 less than the average.

Of the 100 stations, 85 had no absolute drought and 82 no partial drought. In only five years since 1887 has no absolute drought occurred



**Number of Dry Spells, 1931.**

at a larger number of stations, *viz.*: 1930, 1927, 1923, 1904 and 1902 with 86, 90, 89, 88 and 90 respectively. There were 53 stations, or 22 more than the average, without a dry spell during 1931. The relative infrequency of droughts was, therefore, one of the most remarkable features of the incidence of the rainfall of 1931. The infrequency was comparable with that in 1930 but was rather more widespread in 1931.

The longest absolute drought occurred in March and lasted 21 days at Wellingborough, Cambridge and Haughley. Most years have given at least one absolute drought of longer duration than 21 days. The longest partial drought persisted during the latter half of September and during October, a period of 46 days, at Upton in Berkshire and at Great Wakering, near Shoeburyness. The longest dry spell occurred at Poole and lasted for 26 days during October.

The absolute droughts occurred mainly during March. At Larkhill, on Salisbury Plain, and at Warwick the absolute drought covered the first fortnight of March, while at a number of stations in the Fen District and to the north of the Humber the drought covered the last fortnight of March. There were no absolute droughts during the summer. At Ashbourne (Mayfield House), in Staffordshire, an absolute drought occurred during the end of September and five stations recorded a drought at some time during October. The absolute drought from December 9th to 28th at Patcham, to the north of Brighton, is worthy of comment.

The partial droughts occurred mainly during March and October, and were confined entirely to the south-east and Midlands of England apart from that at Stonehaven, in Kincardineshire, from September 19th to October 22nd. There was only one partial drought during the summer and this occurred at Lympne Aerodrome, in Kent, from June 11th to July 13th.

The dry spells occurred mainly in October, December and March. They naturally include all the absolute droughts, but the period covered by a dry spell is often longer than that of an included absolute drought, while the list of dry spells contains periods which do not qualify as absolute droughts. The total number of dry spells is shown in the sketch map. Few stations in either Wales, Scotland or Ireland recorded a dry spell, and only three stations, in those countries, *viz.* : Leuchars, in Fifeshire, Fortrose, on the Moray Firth, and Glanmire, near Cork, recorded two dry spells during the year. A number of stations in the south-eastern half of England recorded three dry spells and at Poole there were four dry spells during the year. Only two stations recorded a dry spell during the summer, *viz.* : Leuchars and Gorleston where the dry spell included the latter half of June.



Table VI.—*Droughts at 100 Stations, 1917–1931.*

ABSOLUTE DROUGHTS.*					PARTIAL DROUGHTS.†			
Year.	No. of Droughts at 100 Stations.	Mean Duration.	Longest.	Stations without one.	No. of Droughts at 100 Stations.	Mean Duration.	Longest.	Stations without one.
		Days.	Days.			Days.	Days.	
1917	109	19	28	23	64	33	61	46
1918	20	16	18	83	14	34	47	87
1919	33	18	31	68	44	38	50	69
1920	18	17	22	84	22	37	54	79
1921	86	19	38	47	109	42	89	30
1922	63	17	23	46	44	36	51	66
1923	11	17	24	89	20	38	54	80
1924	50	16	22	55	25	36	57	81
1925	74	23	33	37	76	38	60	29
1926	20	17	24	83	43	36	57	64
1927	11	17	19	90	19	32	43	83
1928	50	17	22	57	41	33	43	70
1929	110	20	37	14	99	47	85	35
1930	16	17	20	86	29	31	42	72
1931	16	18	21	85	28	34	46	82
Average 1887–1931	59	18	26	55	50	36	56	60
1931 diff. from Average.	–43	0	–5	+30	–22	–2	–10	+22

\* 15 days without a "rain day."

† 29 days averaging not more than .01 in.

Table VII.—*Dry Spells\* at 100 Stations, 1917–1931.*

Year.	Number at 100 Stations.	Mean Duration.	Longest Spell.	Number of Stations with			
				None.	1 or 2.	3 or 4.	5 or more.
		Days.	Days.				
1917	193	20	31	5	70	25	0
1918	118	17	26	36	47	17	0
1919	98	19	38	35	62	3	0
1920	56	18	31	55	44	1	0
1921	201	21	58	21	43	29	7
1922	162	18	30	13	65	22	0
1923	65	18	29	54	43	3	0
1924	120	17	29	32	56	12	0
1925	164	22	43	14	65	21	0
1926	98	19	40	30	65	5	0
1927	91	17	31	43	49	8	0
1928	115	19	31	25	68	7	0
1929	215	22	53	1	65	31	3
1930	76	18	22	45	51	4	0
1931	84	19	26	53	35	12	0
Average 1917–1931	124	19	35	31	55	13	1

\* 15 days without a "wet day."

TABLE VIII.—Droughts and Dry Spells in 1931.

County and River Division.	Station.	Absolute Droughts.			Partial Droughts.			Dry Spells.		
		Began.	Ended.	Lasted days	Began.	Ended.	Lasted days	Began.	Ended.	Lasted days
ENGLAND AND WALES										
London .....2	St. Pancras (Camden Square) .	..	..	..	Mar. 1	Mar. 31	31	Oct. 8	Oct. 28	21
Kent .....2	Lympne Aerodrome .....	..	..	..	June 11	July 13	33	Dec. 11	Dec. 27	17
Sussex .....3	Patcham (Brighton W.W.) .....	..	..	..	Oct. 8	Nov. 5	29	Oct. 8	Oct. 28	21
Hampshire .1	Ventnor (Royal Nat. Hospital)	Dec. 9	Dec. 28	20	..	..	..	Dec. 9	Dec. 31	23
" .....	Selborne (The Wakes) .....	..	..	..	..	..	..	Sept. 18	Oct. 3	16
" .....	Selborne (The Wakes) .....	..	..	..	..	..	..	Oct. 27	Oct. 27	19
" .....	Selborne (The Wakes) .....	..	..	..	..	..	..	Dec. 25	Dec. 25	17
" .....	Selborne (The Wakes) .....	..	..	..	..	..	..	Oct. 3	Oct. 3	16
" .....	Selborne (The Wakes) .....	..	..	..	..	..	..	Oct. 7	Oct. 28	22
" .....	Selborne (The Wakes) .....	..	..	..	..	..	..	Dec. 16	Dec. 30	15
Berkshire ...5	Upton (Manor House) .....	..	..	..	Feb. 28	April 1	33	Sept. 17	Oct. 5	19
" .....	Upton (Manor House) .....	..	..	..	Sept. 18	Nov. 2	46	Oct. 8	Oct. 28	21
Northants ..4	Wellingborough (Swanspool) .	Mar. 11	Mar. 31	21	Mar. 1	April 1	32	Mar. 9	April 1	24
" .....	Wellingborough (Swanspool) .	..	..	..	Sept. 24	Nov. 2	40	Oct. 7	Oct. 28	22
" .....	Wellingborough (Swanspool) .	..	..	..	..	..	..	Dec. 6	Dec. 27	22
" .....	Wellingborough (Swanspool) .	..	..	..	Mar. 1	April 1	32	Mar. 10	April 1	23
" .....	Wellingborough (Swanspool) .	..	..	..	Sept. 20	Oct. 28	39	Oct. 8	Oct. 28	21
" .....	Wellingborough (Swanspool) .	..	..	..	..	..	..	Dec. 6	Dec. 22	17
Cambridge ..2	Cambridge (Botanic Gardens) .	Mar. 10	Mar. 30	21	Mar. 1	April 1	32	Mar. 10	Mar. 30	21
" .....	Cambridge (Botanic Gardens) .	Oct. 8	Oct. 27	20	Sept. 24	Oct. 28	35	Oct. 8	Oct. 27	20
" .....	Cambridge (Botanic Gardens) .	..	..	..	..	..	..	Dec. 6	Dec. 27	22
Essex .....3	Great Wakering .....	..	..	..	Feb. 28	Mar. 31	32	Oct. 13	Oct. 28	16
" .....	Great Wakering .....	..	..	..	Sept. 13	Oct. 28	46	Oct. 11	Dec. 27	17
" .....	Great Wakering .....	..	..	..	Nov. 27	Dec. 27	31	Dec. 11	Dec. 27	17
Suffolk .....2	Haughley (Haughley House) .	Mar. 11	Mar. 31	21	Mar. 1	April 1	32	Mar. 11	Mar. 31	21
" .....	Haughley (Haughley House) .	..	..	..	Sept. 23	Oct. 28	36	Oct. 7	Oct. 28	22
Norfolk ....1	Gorleston.....	..	..	..	Mar. 10	April 8	30	Dec. 10	Dec. 27	18
" .....	Gorleston.....	..	..	..	..	..	..	Mar. 12	April 1	21
" .....	Gorleston.....	..	..	..	..	..	..	June 20	July 4	15
" .....	Gorleston.....	..	..	..	..	..	..	Dec. 6	Dec. 22	17

TABLE VIII.—*Droughts and Dry Spells in 1931—(con.).*

County and River Division.	Station.	Absolute Droughts.			Partial Droughts.			Dry Spells.				
		Began.	Ended.	Lasted	Began.	Ended.	Lasted	Began.	Ended.	Lasted.	Rain.	
				days			days			days	in.	
Norfolk . . . . 4	Sporle . . . . .	Mar. 14	April 1	19					Mar. 11	April 1	22	.02
Wiltshire . . . . 3	Larkhill (Sch. of Artillery) . . .	Mar. 5	Mar. 19	15	Mar. 4	April 1	29		Mar. 5	Mar. 19	15	.00
		..	..	..	..	..	..		Sept. 17	Oct. 5	19	.11
		..	..	..	..	..	..		Oct. 8	Oct. 28	21	.06
Dorsetshire . 3	Poole . . . . .	..	..	..	..	..	..		Mar. 4	Mar. 19	16	.06
		..	..	..	..	..	..		Sept. 18	Oct. 5	18	.02
		Oct. 14	Nov. 2	20	..	..	..		Oct. 8	Nov. 2	26	.01
S. Devon . . . . 4	Holne (Church Park Cottage) .	..	..	..	..	..	..		Dec. 16	Dec. 30	15	.02
Cornwall . . . . 2	St. Austell (Trevarna) . . . . .	..	..	..	..	..	..		Dec. 9	Dec. 27	19	.08
Somerset . . . 1	Bath (Henrietta Park) . . . . .	..	..	..	..	..	..		Dec. 9	Dec. 25	17	.11
		..	..	..	..	..	..		Dec. 9	Dec. 25	17	.11
		..	..	..	..	..	..		Mar. 5	Mar. 19	15	.02
		..	..	..	..	..	..		Sept. 18	Oct. 5	18	.04
		..	..	..	..	..	..		Oct. 8	Oct. 28	21	.08
" . . . . 3	Angersleigh (Leigh Court) . . . .	..	..	..	..	..	..		Sept. 18	Oct. 5	18	.06
Herefordshire 1	Ross (Birchlea) . . . . .	..	..	..	..	..	..		Mar. 1	Mar. 17	17	.04
		..	..	..	..	..	..		Oct. 13	Oct. 28	16	.05
Shropshire . . 3	Bishops Castle (Castle Street) .	..	..	..	..	..	..		Oct. 8	Oct. 26	19	.05
" . . . . 4	Shifnal (Hatton Grange) . . . . .	..	..	..	..	..	..		Mar. 1	Mar. 19	19	.08
Staffordshire . 5	Ashbourne (Mayfield House) . .	..	..	..	..	..	..		Oct. 8	Oct. 26	19	.08
		Sept. 17	Oct. 1	15	Mar. 1	Mar. 31	31		Mar. 1	Mar. 19	19	.08
		..	..	..	..	..	..		..	..	..	.02
		..	..	..	..	..	..		Sept. 17	Oct. 2	16	.02
Warwickshire 1	Warwick Castle Gardens . . . . .	Mar. 1	Mar. 17	17	Mar. 1	April 1	32		Oct. 8	Oct. 26	19	.03
		..	..	..	Sept. 18	Oct. 27	40		Mar. 1	Mar. 22	22	.04
		..	..	..	..	..	..		Oct. 13	Oct. 28	16	.07
		..	..	..	..	..	..		Dec. 6	Dec. 22	17	.05
Leicestershire 4	Leicester (Stoughton Drive) . . .	..	..	..	Mar. 1	April 1	32		Mar. 14	April 1	19	.05
Lincolnshire 3	Horncastle . . . . .	..	..	..	Mar. 11	April 8	29		Mar. 11	April 1	22	.01
		..	..	..	Sept. 24	Oct. 23	30		Oct. 7	Oct. 23	17	.07
Nottinghamshire . 5	Worksop (Hodsock Priory) . . . .	..	..	..	Mar. 2	April 1	31		Mar. 11	April 1	22	.04
shire.		..	..	..	Sept. 20	Oct. 26	37		Sept. 20	Oct. 5	16	.06
		..	..	..	..	..	..		Dec. 6	Dec. 22	17	.08
Cheshire . . . . 2	Northwich (Hunts Lock) . . . . .	..	..	..	..	..	..		Oct. 8	Oct. 26	19	.06
Yorks, W.R. . 8	Meltham (Harewood Lodge) . . .	..	..	..	..	..	..		Mar. 14	Mar. 31	18	.02
" E.R. . . . 3	Hull (Pearson Park) . . . . .	Mar. 12	Mar. 31	20	..	..	..		Mar. 12	April 1	21	.01
		..	..	..	..	..	..		Dec. 6	Dec. 22	17	.05

TABLE VIII.—Droughts and Dry Spells in 1931—(con.).

## DROUGHTS AND DRY SPELLS.

County and River Division.	Station.	Absolute Droughts.			Partial Droughts.			Dry Spells.		
		Began.	Ended.	Lasted. days	Began.	Ended.	Lasted. days	Began.	Ended.	Lasted. days
Yorks, E.R. .4	Filey Vicarage .....	Mar. 16	April 1	17	..	..	..	Mar. 11	April 1	22
" N.R. 1	West Witton (Ivy House).....	..	..	..	..	..	..	Mar. 14	Mar. 31	18
" N.R. 2	Felixkirk (Mount St. John)...	Mar. 15	April 1	18	..	..	..	Mar. 11	April 1	22
Durham ....2	Sunderland (W. Hendon Ho.)..	..	..	..	..	..	..	Mar. 14	April 1	19
Anglesey ....	Llanerchymedd (Ll'diarth Es.)	Oct. 12	Oct. 26	15	..	..	..	Dec. 10	Dec. 28	19
CHANNEL ISLANDS								Oct. 12	Oct. 26	15
Guernsey.....	St. Peter Port (Grange Road) .	Oct. 8	Oct. 27	20	..	..	..	June 15	July 3	19
SCOTLAND								Oct. 8	Oct. 27	20
Dumfries....3	Dumfries (Crichton Inst.).....	..	..	..	..	..	..	Feb. 25	Mar. 11	15
Berwick....4	Duns Castle.....	..	..	..	..	..	..	Mar. 14	Mar. 28	15
Fifeshire....3	Leuchars (Training Base).....	..	..	..	..	..	..	June 16	June 30	15
Kincardine .2	Stonehaven (Manse of Cowie) .	..	..	..	Sept. 19	Oct. 22	34	Oct. 7	Oct. 22	16
Aberdeen ...4	Peterhead (Forehill Works) ...	..	..	..	..	..	..	Dec. 10	Dec. 27	18
Ross and ...3	Fortrose.....	..	..	..	..	..	..	Mar. 12	Mar. 27	16
Cromarty		..	..	..	..	..	..	Sept. 12	Sept. 30	19
IRELAND								Dec. 9	Dec. 23	15
Co. Cork ....6	Dunmanway (The Rectory)....	..	..	..	..	..	..	Sept. 12	Sept. 28	17
" ....7	Glanmire (Lota Lodge).....	..	..	..	..	..	..	31.xii.30	Jan. 19	20
Co. Waterford2	Kilmacthomas (Comragh Ho.)..	..	..	..	..	..	..	Sept. 12	Sept. 28	17
Co. Dublin ..2	Dublin (Fitz William Square)...	..	..	..	..	..	..	Oct. 13	Oct. 28	16
Co. Down ...2	Seaforde.....	Oct. 13	Oct. 27	15	..	..	..	Dec. 6	Dec. 22	17
					..	..	..	Oct. 13	Oct. 28	16

#### 4. RAIN SPELLS AND WET SPELLS IN 1931.

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The definitions of the terms "rain spell" and "wet spell," as used in this section, are analogous to those of the terms "absolute drought" and "dry spell," which are used in the previous section. Thus :—

A **Rain Spell** is a period of at least 15 consecutive days to each of which is credited .01 inch of rain or more.

A **Wet Spell** is a period of at least 15 consecutive days to each of which is credited .04 inch of rain or more.

In other words, a *rain spell* contains at least 15 consecutive rain days, and a *wet spell* contains at least 15 consecutive wet days.

Table XI contains particulars of all rain spells\* and wet spells\* during 1931 which were reported from the 100 selected stations of Table V. Stations from which no rain or wet spells were reported are omitted from this table. The number of stations so omitted is 49. Tables IX and X give comparative statistics concerning the rain spells and wet spells since 1917. Similar details of rain spells are available back to 1903 and are given in *British Rainfall*, 1929, p. 30.

In 1931, the total number of rain spells at the 100 stations was 121 or 52 less than the average. This is the smallest number recorded in any year since comparable statistics became available in 1903, with the exception of 1909 with 110 and 1905 also with 121. The mean duration of the rain spells was 20 days, or one less than the average. The mean rain per day during the rain spells was also slightly less than the average.

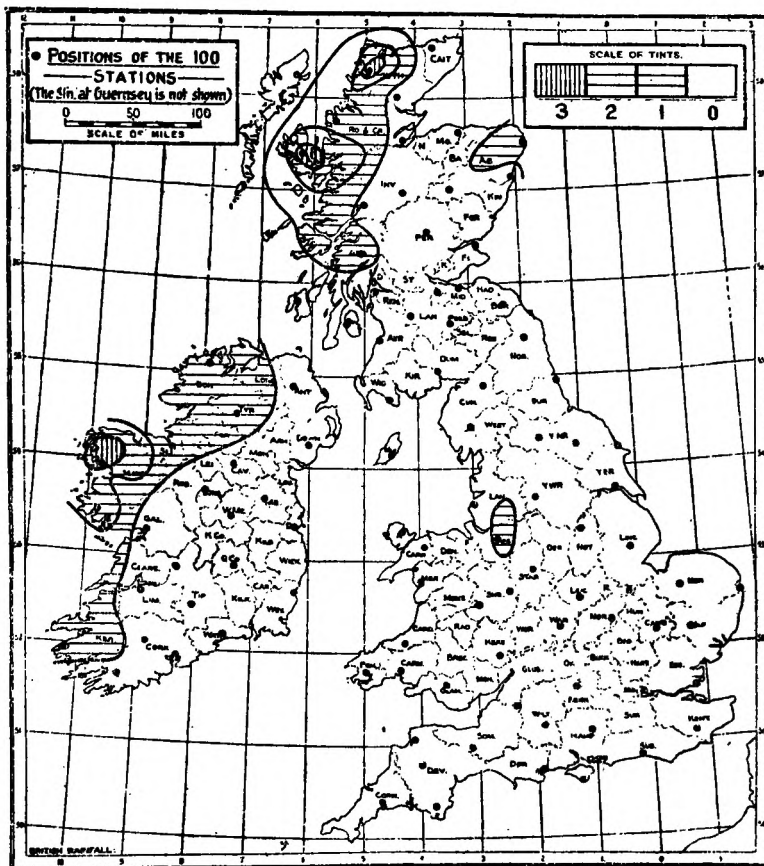
The longest rain spell continued for 56 days from January 7th to March 3rd at Stornoway. Rain spells occurred during 1931 at only 51 stations or 20 fewer than the average. A larger part of the British Isles was immune from rain spells than in any year back

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\* The precise procedure adopted in the allocation of rain spells or wet spells which cover parts of two years is set out in the footnote on p. 25, *British Rainfall*, 1926.

to before 1903. Two stations recorded six rain spells during the year, *viz.* Portree in Skye and Loch More (Achfary) in the north-west of Sutherlandshire.

The total number of wet spells at the 100 stations was only 20 or 34 less than the average. The number is appreciably less than that recorded in any year since comparable statistics became available



**Number of Wet Spells, 1931.**

in 1917. Only three stations recorded as many as three wet spells, *viz.* Portree in Skye, Loch More (Achfary) and Mallarany in Co. Mayo. The longest wet spell lasted for 32 days, from January 29th to March 1st at Loch More (Achfary).

The total number of wet spells recorded at the 100 stations is shown in the diagram. They occurred in three main groups: (a) the last three weeks of January, (b) during February, and (c) the latter half of November and first half of December.

Table IX.—*Rain Spells\* at 100 Stations, 1917—1931.*

Year.	No. of Rain Spells.	DURATION OF SPELLS				STATIONS WITH			
		Mean.		Greatest.					
		Days.	Mean rain per day.	Days.	Mean rain per day.	None.	1 or 2.	3 or 4.	5 or more.
1917....	152	22	·28	52	·19	30	48	17	5
1918....	186	23	·30	56	·21	21	51	19	9
1919....	143	20	·26	46	·31	29	53	14	4
1920....	165	20	·25	45	·24	32	45	12	11
1921....	184	22	·29	45	·25	31	36	25	8
1922....	170	21	·26	49	·35	30	42	23	5
1923....	222	23	·26	89	·31	17	47	21	15
1924....	168	19	·25	54	·23	33	41	18	8
1925....	176	19	·29	60	·34	27	43	23	7
1926....	194	20	·28	45	·14	21	37	38	4
1927....	206	19	·26	42	·19	21	43	26	10
1928....	202	24	·27	52	·27	28	43	21	8
1929....	157	21	·32	57	·27	19	58	15	8
1930....	174	23	·30	72	·42	32	36	29	3
1931....	121	20	·25	56	·25	49	33	12	6
Average 1903-31	173	21	·27	53	·27	29	43	20	8

\* At least ·01 inch each day, 15 days or more.

Table X.—*Wet Spells\* at 100 Stations, 1917—1931.*

Year.	Number of Wet Spells.	Mean Duration.		Longest Spell.		STATIONS WITH			
		Days.	Mean rain per day.	Days.	Mean rain per day.	None.	1 or 2.	3 or 4.	5 or more
1917....	55	19	in. ·35	31	in. ·46	67	28	3	2
1918....	49	21	·40	36	·44	70	26	4	0
1919....	49	17	·29	33	·34	66	29	5	0
1920....	47	18	·37	31	·61	75	17	8	0
1921....	59	20	·41	29	·32	69	22	9	0
1922....	65	20	·36	42	·28	64	29	7	0
1923....	62	20	·36	42	·39	73	17	8	2
1924....	30	18	·34	24	·37	79	19	2	0
1925....	55	17	·42	31	·18	67	27	6	0
1926....	60	19	·37	30	·48	62	32	6	0
1927....	39	18	·35	24	·29	74	22	4	0
1928....	87	20	·40	39	·29	62	21	17	0
1929....	59	19	·41	33	·40	59	36	4	1
1930....	71	21	·40	35	·51	61	30	9	0
1931....	20	19	·31	32	·44	87	10	3	0
Average 1917-31	54	19	·37	33	·39	69	24	6	0

\* At least ·04 inch each day, 15 days or more.

Table XI.—Rain Spells and Wet Spells in 1931.

County and River Division.	Station.	Rain Spells.*			Wet Spells.†			Max. in a Day during Rain Spells.	
		Began.	Ended.	Lasted	Total Rain.	Began.	Ended.	Lasted	Total Rain.
				days	in.			days	in.
ENGLAND AND WALES									
Norfolk ... 4	Sporle .....	April 15	May 5	21	3·68	..	..	..	..
S. Devon ... 4	Holne (Church Park Cottage)...	Jan. 14	Jan. 31	18	6·46	..	..	..	..
		Feb. 5	Mar. 5	29	7·92	..	..	..	..
		July 3	July 19	17	3·91	..	..	..	..
		June 30	July 14	15	3·14	..	..	..	..
N. Devon .. 2	Barnstaple (N. Dev. Athenæum)	Nov. 1	Nov. 15	15	3·95	..	..	..	..
		Nov. 18	Dec. 3	16	2·29	..	..	..	..
		Nov. 14	Feb. 2	20	4·45	..	..	..	..
Cornwall ... 2	St. Austell (Trevarna) .....	July 3	July 21	19	5·12	..	..	..	..
		Aug. 4	Aug. 23	20	4·93	..	..	..	..
Shropshire . 4	Shifnal (Hatton Grange) .....	Jan. 21	Feb. 4	15	1·34	..	..	..	..
Leicestershire 4	Leicester (Stoughton Drive) ..	Jan. 14	Jan. 29	16	2·25	..	..	..	..
Cheshire ... 2	Northwich (Hunts Lock) .....	Aug. 4	Aug. 21	18	7·16	Aug. 7	Aug. 21	15	4·45
		Jan. 14	Jan. 29	16	4·53	..	..	..	..
Yorks, W.R. . 8	Meltham (Harewood Lodge) ...	April 14	April 28	15	2·31	..	..	..	..
Durham ... 2	Sunderland (W. Hendon Ho.) ..	June 5	June 23	19	7·86	..	..	..	..
Westmorland 2	Grasmere (The Wray) .....	Sept. 28	Oct. 12	15	7·38	..	..	..	..
		Jan. 14	Feb. 2	20	9·24	..	..	..	..
Glamorgan.. 6	Treherbert (Tyn-y-waun) .....	June 2	June 16	15	6·87	..	..	..	..
		July 1	July 19	19	7·11	..	..	..	..
		June 4	June 20	17	3·90	..	..	..	..
		July 9	July 31	23	3·84	..	..	..	..
		Nov. 2	Nov. 16	15	7·57	..	..	..	..
		Aug. 7	Aug. 21	15	3·76	..	..	..	..
Carmarthen 2	Carmarthen (The Friary) .....	April 14	April 28	15	4·62	..	..	..	..
Cardigan .. 3	Lampeter (Falcondale) .....	June 2	June 23	22	6·97	..	..	..	..
		June 5	June 20	16	2·67	..	..	..	..
		Nov. 16	Dec. 10	25	4·43	..	..	..	..
Denbigh ... 2	Denbigh (Garn) .....								
Merioneth .. 4	Dolgelly (Bryntirion) .....								
Anglesey ....	Llanerchymedd (Ll'diarth Es.) ..								

\* At least 15 days, each credited with ·01 inch or more.

† At least 15 days, each credited with ·04 inch or more.



Table XI.—*Rain Spells and Wet Spells in 1931—(con.).*

County and River Division.	Station.	Rain Spells.*			Wet Spells.†			Max. in a Day during Rain Spells.	
		Began.	Ended.	Lastest Rain.	Began.	Ended.	Lastest Rain.	Date.	Rain.
ISLE OF MAN									
Isle of Man..	Douglas (Borough Cemetery) ..	Aug. 7 Oct. 27	Aug. 21 Nov. 14	4·07 7·61	.. ..	.. ..	in. ..	Aug. 19 Nov. 3	·84 1·54
SCOTLAND									
Wigtown ...3	Whithorn (Physgill) .....	Oct. 29	Nov. 14	4·96	..	..	..	Nov. 3	·93
Ayrshire ...6	Maybole (Culzean Castle) .....	Sept. 28	Oct. 12	2·16	..	..	..	Oct. 6	·50
Renfrew ...3	Greenock (Prospect Hill) .....	Oct. 31	Nov. 14	4·36	..	..	..	Nov. 2	·90
		Nov. 22	Dec. 9	6·99	..	..	..	Nov. 23	1·24
		Nov. 22	Dec. 10	5·08	..	..	..	Nov. 23	1·26
Buteshire ..3	Dougarie Lodge .....	Jan. 14	Jan. 28	6·49	..	..	..	Jan. 15	1·22
Argyllshire.11	Crarae Lodge .....	Sept. 29	Oct. 13	5·79	..	..	..	Oct. 1	1·12
		Oct. 31	Nov. 14	4·89	Oct. 31	Nov. 14	4·89	Nov. 1	·91
"	Mull (Gruline) .....	15.xii.30	Jan. 4	6·24	..	..	..	26.xii.30	1·25
		Jan. 7	Feb. 16	14·91	..	..	..	Jan. 31	1·57
		July 16	Aug. 1	3·67	..	..	..	July 27	·88
		Sept. 29	Oct. 13	6·64	..	..	..	Sept. 29	1·06
		Oct. 31	Dec. 14	20·18	..	..	..	Nov. 2	2·58
"	Tiree (Cornaimore Sch.) .....	17.xii.30	Jan. 3	2·64	Nov. 16	Dec. 14	12·63	Nov. 2	2·58
		July 11	July 25	1·88	..	..	..	28.xii.30	·69
		Nov. 16	Dec. 14	5·18	..	..	..	July 22	·34
Aberdeen ..1	Balmoral (Castle Gardens) .....	Feb. 2	Feb. 17	1·13	..	..	..	Nov. 25	·59
		April 12	April 27	2·87	..	..	..	Feb. 11	·22
		Nov. 22	Dec. 9	3·60	..	..	..	April 17	·62
		Jan. 8	Jan. 29	2·69	Jan. 12	Jan. 26	2·08	Dec. 2	·63
"	Peterhead (Forehill Works) .....	Jan. 31	Feb. 14	2·14	..	..	..	Jan. 16	·46
					..	..	..	Jan. 31	·50

\* At least 15 days, each credited with ·01 inch or more.

† At least 15 days, each credited with ·04 inch or more.



Table XI.—Rain Spells and Wet Spells in 1931—(con.).

County and River Division.	Station.	Rain Spells.*				Wet Spells.†				Max. in a Day during Rain Spells.		
		Rain Spells.*			Total Rain.	Wet Spells.†			Total Rain.	Date.	Rain.	
		Began.	Ended.	Lasted		Began.	Ended.	Lasted				
SCOTLAND —(con.)												
Sutherland . . . 5	Loch More (Achfary) . . . . .	Jan. 8 Jan. 29 April 8 Sept. 29 Oct. 17 Nov. 30	Jan. 26 Mar. 1 April 23 Oct. 15 Nov. 4 Dec. 14	19 32 16 17 19 15	in. 10.62 14.19 3.91 3.42 5.86 7.93	Jan. 29 Sept. 29 Nov. 30	Mar. 1 Oct. 13 Dec. 14	32 15 15	in. 14.19 3.37 7.93	Jan. 10 Feb. 24 April 16 Oct. 1 Oct. 22 Dec. 9	in. 2.15 1.54 .81 .69 1.01 1.78	
IRELAND.												
Co. Cork . . . . 6	Dunmanway (The Rectory) . . . . .	May 27	June 11	16	2.86	..	..	..	..	June 5	.73	
" . . . . . 9	Mallow (Longueville) . . . . .	Jan. 14	Feb. 1	19	1.82	..	..	..	..	Jan. 23	.32	
Co. Kerry . . . 3	Cahiriveen (Valentia Obsy.) . . . . .	Jan. 11 Feb. 19	Feb. 2 Mar. 6	23 16	3.43 2.94	Jan. 18	Feb. 2	16	2.79	Jan. 31 Feb. 27	.61 .67	
Co. Water- ford . . . . . 2	Kilmacthomas (Comragh Ho.) . . . . .	Jan. 19	Feb. 2	15	4.51	..	..	..	..	Jan. 31	1.19	
Co. Tip- perary . . . . 1	Nenagh (Castle Lough) . . . . .	Jan. 14 Nov. 17	Feb. 3 Dec. 11	21 25	3.08 5.21	..	..	..	..	Jan. 25 Nov. 17	.40 .75	
" . . . . . 3	Cashel (Ballinamona) . . . . .	Jan. 16 Nov. 16	Feb. 2 Nov. 30	18 15	3.11 5.42	..	..	..	..	Jan. 23 Nov. 17	.58 1.35	
Co. Limerick 2	Foynes (Coolnanes) . . . . .	Jan. 14 Feb. 3	Feb. 1 Feb. 17	19 15	3.11 1.99	..	..	..	..	Jan. 30 Feb. 10	.47 .36	
Leix . . . . . 2	Abbey Leix (Blandsfort) . . . . .	Jan. 16 Feb. 4	Feb. 2 Feb. 20	18 17	2.26 1.69	..	..	..	..	Jan. 30 Feb. 7	.57 .28	
Co. West- meath . . . . 1	Mullingar (Belvedere House) . . . . .	Jan. 14	Feb. 2	20	2.53	..	..	..	..	Jan. 30	.68	
Co. Galway . 3	Galway (Grammar Sch.) . . . . .	Feb. 5 Sept. 29 Nov. 8	Feb. 22 Oct. 15 Dec. 20	18 17 43	2.39 2.74 6.10	..	..	..	..	Feb. 7 Oct. 1 Nov. 17	.37 .50 .62	

\* At least 15 days, each credited with .01 inch or more.

† At least 15 days, each credited with .04 inch or more.

Table XI.—*Rain Spells and Wet Spells in 1931—(con.)*.

County and River Division.	Station.	Rain Spells.*				Wet Spells.†				Max. in a Day during Rain Spells.	
		Began.	Ended.	Lasted	Total Rain.	Began.	Ended.	Lasted	Total Rain.	Date.	Rain.
IRELAND —(con.)											
Co. Galway .3	Ballynahinch Castle	Feb. 5 May 28 July 16 Sept. 28 Nov. 16 Jan. 16 Feb. 5 Nov. 16 Feb. 7 Nov. 8 Jan. 21 Jan. 9 May 18 June 29 Oct. 28 Jan. 27 Oct. 27 Nov. 16 Feb. 7	Feb. 25 June 11 July 31 Oct. 13 Dec. 13 Feb. 3 Feb. 25 Dec. 15 Feb. 25 Nov. 28 Feb. 26 Jan. 25 June 15 July 13 Nov. 11 Feb. 16 Nov. 14 Dec. 5 Feb. 25	21 15 16 16 28 19 21 30 19 21 37 17 29 15 15 21 19 20 19	in. 7.29 6.32 2.99 4.06 7.51 5.22 6.54 8.03 3.76 4.69 4.51 1.62 8.10 1.34 2.99 5.54 3.21 5.34 3.75	Feb. 5 .. July 16 .. .. Jan. 16 Feb. 5 Nov. 16 Feb. 7 .. .. .. .. .. .. .. .. .. Feb. 7	Feb. 25 .. July 30 .. .. Feb. 3 Feb. 25 Dec. 5 Feb. 25 .. .. .. .. .. .. .. .. Feb. 22	21 .. 15 .. .. 19 21 20 19 .. .. .. .. .. .. .. .. 16	7.29 .. 2.97 .. .. 5.22 6.54 7.07 3.76 .. .. .. .. .. .. .. .. 3.24	Feb. 7 June 2 July 23 Sept. 28 Nov. 17 Jan. 30 Feb. 25 Nov. 17 Feb. 11 Nov. 17 Jan. 23 Jan. 16 June 5 July 13 Nov. 9 Jan. 31 Oct. 29 Nov. 17 Feb. 11 Feb. 15 July 24 Jan. 27 Feb. 15 July 21 Nov. 17 Dec. 2	in. 1.12 2.03 .61 1.06 1.29 1.03 .86 1.10 .50 .79 .33 .23 1.48 .37 .52 .71 .72 .80 .40 .40 .30 1.05 .58 .24 .49 .51
Co. Mayo .4	Mallarany										
Co. Sligo .2	Collooney (Markree Obsy.)										
Co. Cavan .1	Belturbet (Cloverhill)										
Co. Down .2	Seaforde										
Co. Antrim .5	Ballymena (Harryville)										
Co. Tyrone .3	Omagh (Edenfel)										
Co. Donegal .3	Milford (The Manse)										

\* At least 15 days, each credited with .01 inch or more.

† At least 15 days, each credited with .04 inch or more.

## 5. DURATION OF RAINFALL IN 1931.

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The duration of rainfall is obtained from measurements of the records of autographic gauges. On these records the amount of rain is measured vertically and the duration of the rainfall is measured horizontally, in accordance with scales which are printed upon the charts before they are placed in position in the gauges. The pen of an autographic gauge writes a horizontal line on the record during such time as no rain is falling, and it writes a more or less sloping line whenever rain is passing into the receiver of the gauge.

The duration of rainfall discussed in this section is defined as the length of time during which rain is falling at a rate not less than 0.1 mm. per hour, *i.e.*, .004 in. per hour. The tabulations at all the official stations are made according to this convention, which was first brought into general use in *British Rainfall*, 1920. It was adopted because during very light rainfall it was found to be almost impossible to decide upon the exact point on the record where the change from "no rain" to "rain" occurred. By taking a definite limiting slope of the trace as the criterion this difficulty is to a great extent avoided and it is found possible to obtain comparable measurements from different gauges and from different observers. The limit of 0.1 mm. (.004 in.) per hour is low enough to ensure that no fall of practical importance is excluded\*.

The list of stations reporting duration of rainfall for 1931 is given in Tables XII and XIII. These tables have been arranged in this volume so as to give information of the total duration of rainfall and of the mean rate of rainfall for the same stations at one opening. Additional records are included from Kensington Palace, Hanwell, Salisbury and Boscombe Down. Hanwell is supplied by the Engineer, Middlesex County Council, Salisbury by the Salisbury Corporation, while Boscombe Down is an official station. In the majority of cases the records are maintained by the local authorities and are mainly used in problems connected with the disposal of flood water.

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\* An analysis of the results for 1930 at Kew Observatory, Richmond, Surrey, showed that about 0.5 per cent. of the total amount fell at a rate of less than 0.1 mm. per hour and that the total duration exceeded the duration above that limit by about 15 per cent. These figures may be regarded as indicative of the order of magnitude of the effect of the arbitrary limit on the duration data for the drier districts. The results would probably be different in a district like the West Coast of Ireland, where very light drizzle is more frequent.

The records at Manston Aerodrome in Kent, and Glenedra Lodge in Co. Londonderry, have terminated, while those from Ramsgate, Irlam in South Lancs. and Nelson have not been received for 1931.

The distribution of the stations in operation at the beginning of 1927 was shown by a map in *British Rainfall*, 1926, p. 36. Central Ireland and northern Scotland are still but sparsely represented, while records of duration from some of the very wet stations in central and northern Wales and the English Lake District would also be particularly valuable. A Beckley rain-gauge was lent to the North Wales Power Co. for use at the Cwm Dyli Power Station at the foot of Snowdon, near Penygwryd Hotel, where the average annual rainfall is about 110 inches, and we hope to be able to publish the records for 1932.

Table XII sets out the duration of rainfall expressed in hours at 81 stations in the British Isles, for each month and for the whole year of 1931. In this table the durations at Kew Observatory, Eskdalemuir Observatory, Aberdeen Observatory and Valentia Observatory are expressed for monthly periods commencing both at midnight and at 7 a.m. The station with the highest aggregate duration for the year is Glenleven (Blackwater Dam) with a duration of 1,653 hours. This period is equivalent to about 69 days, or about  $4\frac{1}{2}$  hours per day. Other stations with high aggregates were Cray Reservoir (Brecon) with 1,309 hours and Eskdalemuir (Dumfries) with 1,219 hours. The smallest aggregates for the year occurred at stations near London and in the south-east of England, where rather less than 400 hours, or about one hour per day, was recorded.

The duration of rainfall exceeded 100 hours at a number of stations in January, February, April and November and at a few stations in May, June and July. The least duration occurred generally in March, October and December. About half the stations recorded less than 10 hours duration in March and a number of stations near London gave less than 5 hours. At Cork the duration in March was 167 hours due to the prolonged rains at the beginning and end of the month. The total for the month was 8.01 inches and November was the only wetter month during the year at Cork.

Table XIII sets out the mean monthly and annual values of rate of rainfall at each of the stations of Table XII. The values are obtained by dividing the total fall for the month or year by the duration as given in the preceding table. The mean rates for the year vary from .068 to .040 in. per hour. The table shows the usual feature of high mean rates in June, July and August. It is shown in Section 6 that  $87\frac{1}{2}$  per cent. of the intense falls in short periods occurred in those months. August usually gave the highest mean rate, the largest values being .160 and .156 in. per hour at Greenford and Ickenham, respectively.



Table XIII.—Mean Rate of Rainfall at 81 Stations during 1931. (Monthly and Annual values.)

County and River Division.	Station.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
		ins. per hr.	ins. per hr.	ins. per hr.	ins. per hr.	ins. per hr.	ins. per hr.	ins. per hr.	ins. per hr.	ins. per hr.	ins. per hr.	ins. per hr.	ins. per hr.	ins. per hr.
London.....1	Eltham (High Street).....	.030	.042	.035	.048	.084	.071	.072	.137	.054	.046	.072	.040	.063
".....2	Kensington Palace.....	.026	.029	.030	.036	.059	.059	.060	.086	.081	.030	.042	.037	.048
".....2	Fulham (Bishops Park).....	.032	.043	.009	.042	.063	.108	.083	.099	.101	.042	.058	.040	.055
".....4	St. Pancras (Camden Square).....	.033	.038	.033	.039	.060	.063	.063	.104	.076	.039	.044	.049	.054
Surrey.....5	Croydon Aerodrome.....	.028	.028	.037	.043	.064	.076	.044	.070	.044	.043	.043	.027	.045
".....5	Leatherhead (Dunard Lodge).....	.034	.043	.047	.046	.057	.074	.065	.098	.063	.041	.057	.033	.055
".....5	Kingston (Sewage Works).....	.026	.026	.042	.036	.048	.041	.046	.100	.052	.038	.041	.014	.040
".....5	Richmond (Kew Observatory).....	.029	.037	.027	.041	.062	.069	.064	.112	.064	.041	.045	.030	.054
".....5	" " ".....	.029	.036	.035	.041	.062	.069	.064	.112	.064	.041	.045	.030	.054
".....5	" " ".....	.048	.045	.023	.038	.072	.059	.075	.097	.064	.043	.068	.045	.057
Kent.....1	Dover (Waterloo Crescent).....	.038	.045	.032	.044	.055	.070	.100	.106	.059	.056	.065	.032	.058
".....1	Dover (Barton Road).....	.034	.031	.039	.039	.061	.051	.059	.093	.059	.045	.069	.038	.050
".....2	Lympe Aerodrome.....	.028	.040	.090	.034	.068	.051	.054	.068	.051	.035	.051	.028	.046
".....4	Strood Waterworks.....	.039	.035	.032	.042	.060	.058	.065	.104	.091	.044	.084	.061	.058
Sussex.....5	Eastbourne (Motcombe Gardens) ..	.049	.037	.032	.035	.058	.061	.064	.099	.081	.037	.065	.045	.055
".....5	Hellingly (Burlow).....	.041	.030	.044	.039	.079	.053	.060	.099	.061	.059	.070	.040	.056
Hampshire.....4	Calshot (Seaplane Station).....	.048	.039	.025	.041	.059	.085	.094	.013	.068	.062	.053	.038	.059
".....5	Winchester (Worthy Down).....	.050	.041	.027	.039	.064	.050	.061	.129	.076	.069	.060	.037	.058
".....6	Petersfield (Stoner Hill).....	.026	.032	.027	.034	.059	.086	.059	.078	.063	.042	.047	.030	.049
".....8	South Farnborough (R.A.E.).....	.030	.042	.058	.044	.060	.079	.074	.110	.081	.043	.057	.047	.060
Middlesex.....1	Twickenham Sewage Works.....	.030	.042	.058	.044	.060	.079	.074	.110	.081	.043	.057	.047	.060
".....1	Hanwell.....	.041	.049	.040	.043	.060	.081	.056	.126	.075	.047	.061	.050	.062
".....1	Hayes Sewage Works.....	.044	.050	.031	.044	.059	.089	.077	.156	.093	.048	.060	.057	.068
".....1	Greenford.....	.045	.047	.040	.038	.069	.070	.080	.160	.076	.046	.059	.060	.067
".....1	Ickenham Sewage Works.....	.039	.047	.036	.040	.063	.073	.090	.118	.077	.051	.060	.055	.064
".....1	Wealdstone Sewage Works.....	.047	.050	.034	.040	.069	.042	.085	.083	.077	.051	.066	.066	.060
".....1	Edgware (M.C.C. Depot).....	.048	.052	.043	.039	.066	.071	.081	.117	.086	.050	.057	.074	.064
".....1	Stanmore.....	.039	.045	.025	.043	.069	.076	.058	.110	.071	.041	.050	.059	.059
".....2	Palmers Green (Broomfield Park) ..	.047	.056	.074	.040	.066	.048	.073	.110	.091	.046	.067	.070	.063
Herts.....2	Barnet Sewage Works.....	.035	.035	.019	.036	.054	.072	.084	.089	.068	.040	.051	.055	.053
".....2	Harpenden (Rothamsted).....													

† Values are for periods ending 24h. on last day of month.



Table XII.—Duration of Rainfall at 81 Stations during 1931—(con.).

County and River Division.	Station.	Pattern of Gauge.	H't. above Sea.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
			ft.	hrs.	hrs.	hrs.	hrs.	hrs.	hrs.	hrs.	hrs.	hrs.	hrs.	hrs.	hrs.	hrs.
Oxon . . . . . 2	Leafield (Wireless Station) . . . .	Hyeto	612	58	61	7	116	83	56	67	50	46	28	91	33	696
" . . . . . 3	Upper Heyford . . . . .	Nat. Syphon	408	44	49	3	101	55	34	51	41	38	15	82	19	532
Bedford . . . . . 3	Cardington . . . . .	Nat. Syphon	137	33	34	5	82	46	25	37	42	38	13	43	13	411
Essex . . . . . 1	Leyton Sewage Works . . . . .	Hyeto	22	33	46	5	82	42	21	48	46	25	14	35	10	407
Suffolk . . . . . 2	Ipswich (Rookwood, Copdock)	Casella	164	65	61	5	82	42	20	34	45	27	18	37	14	450
" . . . . . 3	Felixstowe Aerodrome . . . . .	Nat. Syphon	15	53	56	6	72	40	19	32	36	19	12	30	12	387
Wilts. . . . . 3	Salisbury (Sewage Works) . . . .	Nat. Syphon	147	52	46	22	68	53	39	60	32	18	8	79	15	492
" . . . . . 3	Porton (W.D. Ex. Station) . . . .	Hyeto	363	55	56	21	74	51	36	43	26	15	8	73	19	477
" . . . . . 3	Amesbury (Boscombe Down)	Nat. Syphon	419	56	65	26	86	57	45	64	35	25	10	89	23	581
Dorset . . . . . 3	Poole . . . . .	Hyeto	8	57	54	29	71	55	38	64	37	25	7	77	19	533
S. Devon . . . . 2	Plymouth (Freedom Park) . . . .	Hyeto	208	76	90	67	80	82	63	106	49	31	18	85	39	786
Cornwall . . . . 2	Falmouth Observatory . . . . .	Beckley	167	100	96	120	37	62	56	84	56	55	17	123	61	867
Hereford . . . . 1	Ross (County Observatory) . . . .	Hyeto	224	36	36	10	64	63	40	49	37	27	10	79	23	474
Stafford . . . . . 3	West Bromwich . . . . .	Hyeto	543	46	45	2	93	80	45	50	57	38	14	66	17	553
" . . . . . 5	Ashbourne (Mayfield House) . . .	Casella	374	114	112	4	125	74	83	83	80	56	21	99	43	894
Lincoln . . . . . 3	Cranwell Aerodrome . . . . .	Nat. Syphon	242	67	94	15	88	65	35	46	44	53	16	52	21	596
Nottingham . . . 2	Sutton Bonington (Agric. Coll.)	Hyeto	159	41	32	5	93	54	39	49	53	33	12	55	13	479
" . . . . . 5	Nottingham (Trent Lane) . . . .	Fernley	83	43	60	6	78	52	34	40	44	32	12	51	13	465
" . . . . . 5	Workshop (Hodsock Priory) . . . .	Halliwell	56	59	58	7	99	50	59	50	63	48	18	67	23	601
Derby . . . . . 6	Burbage (Lower Burbage) . . . .	Hyeto	925	105	86	6	122	45	58	62	66	52	22	97	37	758
Cheshire . . . . 3	Birkenhead (Bidston Obs.) . . . .	Nat. Syphon	198	72	68	17	82	72	75	51	85	71	36	109	45	783
S. Lancs. . . . . 2	Liverpool (Monument Place) . . .	Casella	129	..	..	27	131	126	113	83	133	100	53	99	41	..
" . . . . . 3	Bolton (Queen's Park) . . . . .	Fernley	342	161	124	9	94	81	86	86	82	74	49	137	80	1063
C. Lancs. . . . . 2	Leyland (Worden Hall) . . . . .	Fernley	125	103	92	11	90	61	85	74	81	68	50	123	56	894
" . . . . . 3	Southport (Hesketh Park) . . . .	Fernley	39	77	60	8	71	54	79	60	73	60	43	109	42	736
N. Lancs. . . . . 4	Lancaster (Greg Observatory) . . .	Beckley	312	96	70	10	51	46	82	90	48	40	58	118	66	775
W.R. Yorks. . . . 7	Sheffield W.W. (Rivelin) . . . . .	Hyeto	564	95	92	5	124	53	71	57	72	50	25	94	37	775
" . . . . . 7	Rotherham (Aldwarke Sewage Works)	Hyeto	73	41	41	7	74	40	54	49	52	..	..	84	31	..

Table XIII.—Mean Rate of Rainfall at 81 Stations during 1931—(con.).

County and River Division.	Station.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
		ins. per hr.	ins. per hr.	ins. per hr.	ins. per hr.	ins. per hr.	ins. per hr.	ins. per hr.	ins. per hr.	ins. per hr.	ins. per hr.	ins. per hr.	ins. per hr.	ins. per hr.
Oxon .....	Leafield (Wireless Station) .....	.028	.027	.023	.026	.046	.054	.049	.048	.043	.028	.042	.041	.029
" .....	Upper Heyford .....	.038	.043	.027	.035	.060	.079	.065	.067	.065	.049	.043	.057	.051
Bedford .....	Cardington .....	.037	.050	.015	.034	.059	.056	.081	.076	.047	.035	.047	.045	.051
Essex .....	Leyton Sewage Works .....	.037	.042	.048	.041	.063	.063	.053	.093	.068	.048	.056	.078	.056
Suffolk .....	Ipswich (Rookwood, Copdock) .....	.027	.040	.039	.039	.057	.072	.084	.063	.093	.043	.046	.047	.051
" .....	Felixstowe Aerodrome .....	.025	.038	.039	.041	.050	.044	.068	.068	.068	.041	.038	.035	.045
Wilts. ....	Salisbury (Sewage Works) .....	.033	.044	.037	.039	.045	.075	.059	.145	.067	.068	.057	.045	.056
" .....	Porton (W.D. Ex. Station) .....	.037	.038	.031	.034	.055	.061	.068	.118	.096	.081	.056	.033	.053
" .....	Amesbury (Boscombe Down) .....	.038	.034	.025	.030	.049	.059	.057	.098	.062	.057	.049	.030	.047
" .....	Poole .....	.040	.033	.040	.027	.059	.068	.075	.080	.068	.073	.055	.054	.053
Dorset .....	Plymouth (Freedom Park) .....	.047	.041	.032	.040	.043	.073	.048	.083	.051	.051	.088	.064	.054
S. Devon .....	Falmouth Observatory .....	.045	.038	.044	.057	.051	.059	.065	.085	.057	.041	.063	.034	.053
Cornwall .....	Ross (County Observatory) .....	.039	.047	.038	.042	.050	.080	.086	.132	.066	.056	.067	.058	.065
Hereford .....	West Bromwich .....	.038	.055	.059	.045	.053	.095	.064	.087	.063	.070	.056	.055	.060
Stafford .....	Ashbourne (Mayfield House) .....	.034	.035	.050	.032	.043	.053	.046	.069	.057	.048	.051	.044	.045
" .....	Cranwell Aerodrome .....	.032	.029	.021	.033	.041	.080	.082	.078	.049	.035	.043	.045	.046
Lincoln .....	Sutton Bonington (Agric. College) ..	.031	.066	.040	.032	.045	.089	.075	.085	.065	.043	.034	.046	.054
Nottingham .....	Nottingham (Trent Lane) .....	.035	.042	.041	.038	.060	.082	.098	.083	.070	.047	.041	.071	.057
" .....	Worksop (Hodsock Priory) .....	.036	.040	.047	.034	.045	.060	.078	.073	.065	.040	.042	.045	.050
Derby .....	Burbage (Lower Burbage) .....	.039	.055	.060	.043	.065	.089	.081	.110	.094	.061	.059	.053	.064
Cheshire .....	Birkenhead (Bidston Observatory) ..	.035	.031	.015	.027	.037	.061	.043	.066	.043	.050	.042	.029	.042
S. Lancs. ....	Liverpool (Monument Place) .....	..	..	.010	.021	.021	.041	.028	.051	.037	.037	.041	.035	..
" .....	Bolton (Queen's Park) .....	.045	.049	.052	.042	.035	.074	.047	.076	.047	.066	.059	.032	.051
C. Lancs. ....	Leyland (Worden Hall) .....	.045	.038	.031	.030	.030	.074	.051	.063	.046	.052	.058	.042	.048
" .....	Southport (Hesketh Park) .....	.044	.047	.047	.035	.038	.075	.045	.063	.060	.057	.065	.043	.052
N. Lancs. ....	Lancaster (Greg Observatory) .....	.049	.054	.055	.044	.047	.080	.066	.075	.089	.066	.060	.060	.062
W.R. Yorks .....	Sheffield W.W. (Rivelin) .....	.040	.049	.057	.038	.056	.069	.079	.092	.090	.044	.057	.049	.058
" .....	Rotherham (Aldwarke Sew. Works) ..	.043	.049	.029	.039	.062	.086	.076	.070	..	..	.034	.023	..

Table XII.—Duration of Rainfall at 81 Stations during 1931—(con.).

County and River Division.	Station.	Pattern of Gauge.	H't. above Sea.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
			ft.	hrs.	hrs.	hrs.	hrs.	hrs.	hrs.	hrs.	hrs.	hrs.	hrs.	hrs.	hrs.	hrs.
W.R. Yorks. . . . . 9	Haworth (Lower Laithe Res.)	Hyeto	771	110	148	6	125	66	127	95	75	69	49	128	61	1059
" . . . . . 9	Earby (Sewage Works)	Hyeto	426	82	84	5	72	45	79	62	51	36	50	123	58	747
" . . . . . 9	Skipton (Town Hall)	Hyeto	368	87	92	5	81	43	90	48	54	47	29	111	37	724
N.R. Yorks. . . . . 2	Felixkirk (Mt. St. John)	Halliwell	542	78	52	34	110	55	75	69	59	74	30	87	28	751
Glamorgan . . . . . 3	Swansea (Victoria Park)	Hyeto	28	91	100	30	66	77	66	102	50	47	43	111	47	830
" . . . . . 7	Cardiff (Penylan)	Nat. Syphon	205	83	111	53	92	110	78	81	43	37	33	126	46	893
Brecon . . . . . 7	Cray Reservoir	Halliwell	1044	126	128	35	122	135	118	166	99	59	85	170	66	1309
Flint . . . . . 1	Sealand Aerodrome	Hyeto	17	69	56	12	74	70	61	33	71	63	24	85	59	677
Anglesey . . . . . 1	Holyhead (Salt Island)	Hyeto	26	82	72	52	66	74	76	40	55	54	43	99	54	767
Dumfries . . . . . 5	Eskdalemuir Observatory	Beckley	794	134	135	43	87	80	140	109	37	42	108	182	122	1219
" . . . . . 5	"	"	794	131	138	43	86	81	140	109	37	42	108	182	115	1212
Midlothian . . . . . 4	Boghall (Col. of Agriculture)	Hyeto	646	48	50	58	65	73	121	109	96	48	85	136	49	938
Berwick . . . . . 3	Swinton House	Hyeto	200	42	41	43	79	66	73	83	59	56	50	94	17	703
Ayr . . . . . 3	Kilmarnock (Kay Park)	†	132	99	76	33	50	54	112	75	35	29	65	112	78	818
Renfrew . . . . . 2	Renfrew Aerodrome	Hyeto	33	108	95	44	52	95	121	75	37	29	80	140	77	953
" . . . . . 3	Greenock (Prospect Hill)	Hyeto	200	122	125	40	47	85	123	78	38	35	94	134	114	1035
Argyll . . . . . 4	Glenleven (Blackwater Dam)	Hyeto	1072	187	148	35	125	144	169	167	49	62	166	207	194	1653
Fife . . . . . 3	Leuchars (Training Base)	Hyeto	30	83	38	37	44	64	96	98	50	31	34	125	23	723
Angus . . . . . 1	Kirriemuir (Lintrathen)	Nat. Syphon	700	..	..	..	79	78	104	84	39	..	..	136	..	..
Aberdeen . . . . . 2	Aberdeen (King's College)	Nat. Syphon	48	72	62	32	48	62	56	87	33	23	36	82	46	639
" . . . . . 2	"	Beckley	48	66	61	39	48	55	62	88	33	23	36	82	43	636
Shetland . . . . .	Lerwick Observatory	"	269	125	121	28	71	55	54	86	13	37	82	105	139	916
Cork . . . . . 7	Cork (University College)	Hyeto	64	52	65	167	48	62	66	40	46	29	30	131	43	779
Kerry . . . . . 3	Valentia Observatory	Beckley	42	85	95	94	54	74	92	62	52	52	61	136	91	948
" . . . . . 3	"	"	42	85	96	87	61	74	92	62	51	51	63	133	93	948
† " . . . . . 3	Armagh Observatory	Beckley	209	110	67	56	102	65	112	75	66	78	53	98	69	951
Armagh . . . . . 5	"	"	209	110	67	56	102	65	112	75	66	78	53	98	69	951
Antrim . . . . . 5	Aldergrove Aerodrome	Nat. Syphon	238	85	68	54	68	65	82	47	52	54	50	95	62	782

† Values are for periods ending 24h. on last day of month.

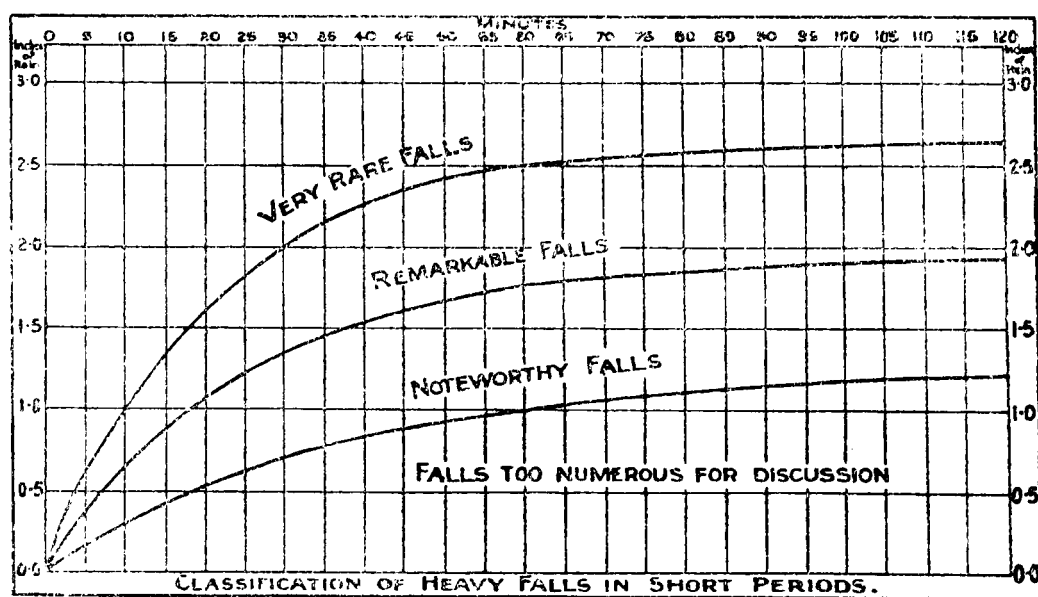
† Private construction.



## 6. HEAVY FALLS IN SHORT PERIODS IN 1931.

Heavy falls of rain in short periods are of considerable economic importance, for they are frequently of such intensity as to cause extensive flooding, often accompanied by much surface erosion and structural damage to property. Considerable damage may occur as a result of the accumulation of flood water below the area of heaviest rainfall. The amount of the damage depends on a number of other factors, such as the shape of the catchment area, the nature of the ground and vegetation, whether the water finally flows into the river or sea at high or low tide and the relative positions of the towns. In towns the floods may be aggravated by the failure of the drainage system to cope with the demands made upon it.

Since 1908, this section of *British Rainfall* has contained a classification of intense falls into three categories designated "worthy of notice," "remarkable," and "very rare." The classification has been effected by reference to a diagram of which a copy is reproduced. This diagram indicates by continuous curved lines the upper and lower limits of rainfall which must fall in stated times in order that the fall may be admitted into one of the three categories.



The diagram was prepared almost exclusively from eye observa-

tions of rainfall duration and from corresponding measurements of rainfall in ordinary rain-gauges.

On pp. 45, 46 of *British Rainfall*, 1926, it was pointed out that the frequency of intense falls above the curve denoting the limit of noteworthy falls is in actual fact much greater for small intervals of time (*i.e.*, the left-hand side of the diagram) than for larger intervals (the right-hand side of the diagram). On this account, the data of Table XV have been divided into two sections, one giving results from eye observations, which are properly comparable with the diagram, and the other giving results from autographic records, which are not truly comparable with the diagram for falls of short duration.

A complete list of the recorded falls of "very rare" intensity of one hour or less is given in Table XIV, where readings of ordinary as well as of autographic gauges are included. There is one entry for 1931 *viz.*, 2.35 inches in 38 minutes for June 14th at Cannock Sewage Works; the previous fall of very rare intensity of one hour or less occurred on September 23rd, 1927.

In Table XV particulars are given of falls recorded in 1931 which reached at least the intensity "worthy of notice." Unlike Table XIV, falls of longer duration than one hour are included, the upper limit being two hours. Not more than one entry is made for the same shower for any station. The entry gives the largest amount recorded with a mean intensity "worthy of notice," "remarkable," or "very rare," as the case may be, an entry at the higher rate being in general preferred. Intense falls of less duration than five minutes are not included in the table as in previous years, since in such cases the error is likely to be relatively large and such falls are not usually of practical importance.

Owing to the large number of intense falls during 1931, 16 entries which would usually have been included, are omitted from Table XV(b). These are intense falls which are given in the first column of Table XVI (*i.e.*, .20 in., in 6 mins. or less) and for which no measurements are available of larger amounts in specified times. The entries omitted are, therefore, intense falls of .20 in., in 6 mins. or less, which are relatively insignificant. All the entries are included in the classification on the next page.

In accordance with practice the geographical distribution of the heavy falls of Table XV (including the 16 entries which were omitted to save space) is given in the following summary. The analysis probably separates the areas of more frequent and intense falls from those relatively immune, although it cannot be expected to indicate the actual relative frequency of intense falls in each area.

*Number of Exceptional Rains of Two Hours' Duration or less.*

		England and Wales.					Scotland.	Ireland.	British Isles.	Per cent of records received.
Average 1868-1931		S.E.	S.W.	N.E.	N.W.	Total.				
		16.3	7.6	4.5	2.6	31.0	2.3	1.6	35.0	1.0
1931	(a) ..	19	23	15	1	58	4	1	63	1.2
	(b) ..	17	8	4	5	34	6	1	41	0.8
	Sums ..	36	31	19	6	92	10	2	104	2.0

(a) Observations made without autographic rain-gauges.

(b) Readings of autographic gauges.

The numbers are most striking for the south-west and south-east of England and Wales. There are only seven entries for Scotland and one for Ireland.

The total number, 104, compares with 91 in 1930 and 79 in 1927. Each of these years gave a larger number of intense falls than occurred in any other year back to 1868. In making the comparison of the two sets of figures with the average values it should be remembered that since 1868 the number of observing stations has steadily increased, while the number of autographic rain-gauges has also increased more especially of recent years. A fairly good indication of the frequency of intense falls in 1931, in relation to the average, is probably provided by comparing the number of observations made without autographic rain-gauges with the average. This indicates that intense falls in short periods in 1931 were more frequent than usual.

A comparison of the intense falls year by year is given in a diagram on page 59 of the Q.J.R. Meteor. Soc., 1931. This diagram indicates that intense falls were relatively frequent in 1924, 1927, 1930 and 1931, during the period 1897 to 1900, and again in 1874 and 1878; while they were relatively infrequent during the periods 1916 to 1923, 1907 to 1909 and 1881 to 1887.

As is usually the case, the bulk of the entries in Table XV are for the three months, June, July and August. In fact, there are only 13 entries for the other months. Previously about two-thirds of the total number of intense falls on record have occurred in these three months. The intense falls in 1931 were fairly evenly distributed amongst these three months.

Table XIV.—*Rainfalls of Very Rare Intensity lasting for One Hour or less.*

Year.	Date.	Div.	Station.	Amount.	Duration	Rate per Hour
				in.	H. M.	in.
1912	May 8	XV	Alexandria .....	.26	0 1½	10.40
1888	Mar. 24	XI	Chepstow, Shirenewton Hall...	.33	0 2	9.90
1917	July 14	IV	Norwich, Ipswich Road.....	.47	0 2½	11.28
1893	Aug. 10	VIII	Preston, Corporation Offices....	1.25?	0 5?	15.00?
1893	June 14	XI	Chepstow, Shirenewton Hall ...	.62	0 5	7.44
1925	May 10	II	Godalming, Charterhouse.....	.60	0 5	7.20
1906	Aug. 2	II	Guildford, Piccard's Rough.....	.89	0 8	6.68
1892	July 3	VIII	Bolton, The Park .....	1.00?	0 9?	6.67?
1927	Sept. 23	V	Chagford, Dartmoor S'torium ..	1.30	0 10	7.80
1902	May 30	III	Cambridge, Sydney Street.....	1.10	0 10	6.60
1878	June 23	I	St. Pancras, Camden Square...	1.04	0 10	6.24
1912	July 21	VII	Wirksworth, Manor House.....	1.00	0 10	6.00
1918	July 16	II	Purley, Oakwood Avenue .....	1.10?	0 11	6.00?
1914	Aug. 14	XI	Guernsey, St. Martin's Road...	1.50	0 15	6.00
1878	June 23	I	St. Pancras, Camden Square...	1.43	0 15	5.72
1927	July 11	I	Balham High Road.....	1.50	0 18	5.00
1875	Aug. 7	II	Canterbury, Harbledown.....	2.12	0 20	6.36
1878	June 23	I	St. Pancras, Camden Square...	1.82	0 20	5.46
1897	June 24	III	Luton Pumping Station.....	1.65	0 20	4.95
1920	May 29	VIII	Leyland, Worden Hall.....	1.65	0 20	4.95
1878	June 23	I	St. Pancras, Camden Square...	2.30	0 28	4.93
1880	July 22	XI	Cowbridge, Ash Hall.....	2.90	0 30	5.80
1915	July 4	XI	Abergavenny, The Chain.....	2.20	0 30	4.40
1918	July 17	I	Shad Thames Pumping Station.	2.07	0 30	4.14
1895	June 27	IX	Middleton-in-the-Wolds .....	2.00	0 30	4.00
1902	Sept. 10	II	Surbiton, Vronvelin.....	2.00	0 30	4.00
1931	June 14	VI	Cannock Sewage Works.....	2.35	0 38	3.71
1920	May 25	IV	Hatfield, Broad Oak, Barrington	2.79	0 45	3.72
1904	July 27	II	Cooling, Broomy Farm.....	2.66	0 45	3.55
1909	Sept. 29	V	Ilfracombe Reservoir.....	2.50?	0 45	3.33?
1895	June 26	V	Marlborough .....	2.71	0 50	3.25
1915	June 30	IV	Mildenhall .....	2.63	0 50	3.16
1903	July 18	VI	Crewe, Betley Hall .....	2.53	0 50	3.04
1905	July 9	III	Enfield, Carisbrooke.....	2.44	0 50	2.93
1911	May 31	II	Epsom, Ashley Road.....	2.44	0 50	2.93
1901	July 29	II	Wadhurst, Lower Cousley Wood	3.25?	0 55	3.55?
1913	June 17	IV	Elvedon Hall.....	2.85	0 58	2.95
1901	July 12	II	Maidenhead, Lowood.....	3.63	1 0?	3.63?
1903	May 30	II	Beddington Corner.....	3.50	1 0	3.50
1911	May 26	II	Fareham, The Mount.....	3.00	1 0	3.00
1897	July 21	IV	Ipswich, Bishops Hill.....	2.95	1 0	2.95
1895	June 26	VI	Worcester, Diglis Lock.....	2.75	1 0	2.75
1909	June 1	XII	Carsphairn, Shiel.....	2.71	1 0?	2.71?
1873	July 28	XVII	Fettercairn.....	2.60	1 0	2.60
1889	June 7	II	Tonbridge, Ferndale.....	2.60?	1 0?	2.60?
1886	July 25	VIII	Sale, Brooklands.....	2.58	1 0	2.58
1899	July 22	V	Dorchester Water Works.....	2.56	1 0?	2.56?
1875	July 22	V	Trowbridge, Sunnyside.....	2.53	1 0	2.53
1875	June 29	III	Cardington.....	2.50	1 0	2.50
1886	July 25	IX	Wakefield, Stanley Vicarage...	2.50	1 0	2.50



Table XV.—*Heavy Falls in Short Periods in 1931.*

County and River Division.	Station.	Date.	Amount.	Dura- tion.	Rate per Hour.
<b>(a) EYE OBSERVATIONS</b>			in.	min.	in.
Dorset .....3	Parkstone (St. Osmund's Road)	June 1	.55	10	3.30
Suffolk .....5	Bury St. Edmunds (Whiting St.)	July 19	.43	10	2.58
Wiltshire ....1	Trowbridge (Town Hall).....	July 6	.29	10	1.74
Leicester ....1	Lutterworth (Leicester Road)..	Sept. 4	.81	14	3.47
Berkshire ...5	Uffington (Woolstone Lodge)..	Nov. 4	.80	15	3.20
Sussex .....5	Eastbourne (West Lodge).....	Aug. 13	.67	15	2.68
Yorks W.R. .7	Rawmarsh .....	May 26	.44	15	1.76
Berwick .....3	Whitsom (Whitsomehill).....	July 9	1.31	20	3.93*
Hertford ....2	Berkhamsted (Anglefield).....	Aug. 4	1.00	20	3.00
Berwick .....3	Coldstream (Lochton).....	July 9	.70	20	2.10
Gloucester...7	Bourton-on-Water (Chardwar)..	June 14	.66	20	1.98
Dorset .....4	Iwerne Minster (Preston House)	June 14	.57	20	1.71
Wiltshire ....3	Warminster (Henford).....	June 14	.65	21	1.86
Surrey .....5	Wimbledon (Worple Road)....	Aug. 5	1.02	22	2.79
Wiltshire ....3	Salisbury (Harnham).....	Aug. 4	1.40	25	3.36*
Cornwall ....3	Launceston (Hexworthy) ....	Aug. 5	.98	25	2.35
Surrey .....5	Merton Park (Mostyn Road)...	Aug. 5	.88	25	2.11
Yorks E.R. .2	Westow Vicarage.....	June 14	1.16	30	2.32
Wiltshire ....2	Kilminster Rectory.....	July 13	1.00	30	2.00
Wiltshire ....3	Salisbury (Manor Road).....	Aug. 4	.91	30	1.82
Yorks W.R.11	Yockwith School.....	July 12	.90	30	1.80
Dorset .....3	Abbotsbury (West Street).....	July 7	1.20	35	2.06
Worcester ...1	Knightwick Sanatorium.....	June 14	.76	35	1.30
Sussex .....5	Hastings (Clive Avenue).....	Aug. 6	.90	37	1.46
Sussex .....5	Heathfield (White Cottage)....	Aug. 5	.93	40	1.40
Surrey .....5	Surbiton (Seething Wells).....	Aug. 5	1.90	45	2.53*
Warwick ....4	Northfield (Wych Elm).....	June 14	1.61	45	2.15*
Surrey .....4	Wimbledon (Trinity Road)....	Aug. 5	1.48	45	1.97
Sussex .....6	Heathfield (Barklye).....	Aug. 5	1.17	45	1.56
Gloucester...4	Blockley.....	June 14	1.16	45	1.55
Cheshire ....1	High Lane (Lyme View).....	July 7	1.03	45	1.37
Wiltshire ....2	Kilminster Rectory.....	June 14	1.02	45	1.36
Middlesex ..2	Tottenham (Gas Works).....	Aug. 5	2.10	50	2.52*
Stafford ....3	Walsall (Gorway).....	June 14	1.80	50	2.16*
Nottingham..5	Harworth Colliery.....	July 14	1.66	50	1.99
Hampshire ..6	Petersfield (Stoner Hill).....	Aug. 6	2.15	55	2.35*
London .....1	Lewisham (Clarendon Road)...	Aug. 5	1.50	55	1.64
Ayr .....4	Ayr Cemetery.....	July 6	2.20	60	2.20*
Surrey .....5	Esher (Halidon) .....	Aug. 5	1.92	60	1.92*
Cavan.....1	Crossdoney (Kevit Castle) ...	July 13	1.85	60	1.85*
Stirling .....5	Lennoxtown.....	July 14	1.40	60	1.40
Kent.....5	Bromley.....	Aug. 5	1.30	60	1.30
Jersey.....	St. Helier (St. Louis Obs'y.)...	Aug. 24	1.30	60	1.30
Northumb'l'd.6	Ilderton (Lilburn Tower G'dns)	July 9	1.28	60	1.28
Yorks E.R. .3	Holme-on-Spalding Moor.....	June 19	1.18	60	1.18
Yorks W.R. .8	Rishworth (Ringstone Res.)...	June 1	1.11	60	1.11
Yorks W.R.10	Burnsall Rectory.....	Aug. 19	1.07	60	1.07
Yorks W.R.11	Tockwith School.....	June 14	1.03	60	1.03
Yorks W.R. .8	Holmfirth (Thongsbridge).....	July 6	1.00	60	1.00
Lincoln.....5	Brigg (Wrawby Road).....	July 12	1.00	60	1.00
Dorset .....3	Puddletown (Clyffe House)....	Aug. 5	1.93	75	1.54*

\* "Remarkable" fall.

Table XV.—*Heavy Falls in Short Periods in 1931—(con.).*

County and River Division.	Station.	Date.	Amount.	Duration.	Rate per Hour.
<b>(a) EYE OBSERVATIONS—(con.)</b>					
Wiltshire....3	Woodford Vicarage .....	Aug. 4	2.17	90	1.45*
Yorks W.R..7	Barnsley (Jordan Hill).....	July 25	1.50	90	1.00
Yorks W.R..8	Holmfirth (Thongsbridge)....	Sept. 4	1.35	90	.90
Stafford....3	Brereton.....	June 5	1.34	90	.90
Somerset....1	Pensford (Hunstrete House)...	July 15	1.20	90	.80
Buckingham..2	Little Kimble.....	Aug. 4	2.12	95	1.34
Hereford ....2	Colwall (The Downs).....	June 14	1.30	100	.78
Shropshire...3	Burwarton Hall.....	July 7	3.04	120	1.52‡
Buckingham..2	Towersey Vicarage.....	Aug. 4	2.65	120	1.33‡
Lincoln.....3	East Kirkby (E. Kirkby Manor)	July 12	1.59	120	.79
Shropshire...3	Bromfield (Warwick House)...	June 14	1.50	120	.75
Somerset....1	Walton (Canok Lodge).....	June 14	1.31	120	.65
<b>(b) AUTOGRAPHIC RECORDS</b>					
Hereford ....1	Ross (County Observatory)....	June 14	.43	6	4.30*
Yorks N.R...2	Felixkirk (Mt. St. John).....	June 17	.27	6	2.70
Middlesex ...2	Palmers Green (Broomfield P'k.)	June 19	.25	6	2.50
Hereford ....1	Ross (County Observatory)....	June 19	.22	6	2.20
Hampshire...4	Calshot (Seaplane Station)....	May 27	.39	7	3.34
Suffolk.....2	Ipswich (Rookwood, Copdock)..	Sept. 3	.35	7	3.00
Surrey .....5	Leatherhead (Dunard Lodge)..	Sept. 3	.28	7	2.40
Renfrew ....2	Renfrew Aerodrome.....	July 14	.39	8	2.93
Suffolk.....2	Ipswich (Rookwood, Copdock)..	Sept. 3	.51	10	3.06
C. Lancs....3	Southport (Hesketh Park).....	June 14	.39	10	2.34
Lincoln.....3	Cranwell Aerodrome.....	July 12	.39	10	2.34
Hereford ....1	Ross (County Observatory)....	July 15	.30	10	1.80
Yorks N.R...2	Catterick Aerodrome.....	Aug. 19	.39	10	2.34
Yorks N.R...2	Felixkirk (Mt. St. John).....	July 6	.41	12	2.05
Warwick ....1	Bidford (Moor Hall).....	June 14	.50	13	2.31
C. Lancs....3	Southport (Hesketh Park)....	Aug. 19	.39	13	1.80
S. Lancs.....2	Liverpool (Monument Place)..	Aug. 19	.78	15	3.12
Sussex .....5	Eastbourne (Wilmington Sq.)..	Aug. 14	.74	19	2.34
Renfrew ....2	Paisley (Coats Observatory)...	July 11	.59	20	1.77
Kent.....1	Dover (Barton Road).....	July 19	.72	30	1.44
Surrey .....5	Richmond (Kew Observatory)..	Aug. 5	1.00	33	1.82
Stafford....3	Cannock Sewage Works.....	June 14	2.35	38	3.71‡
Dumfries....5	Eskdalemuir Observatory.....	June 14	1.26	48	1.58
Flint .....1	Sealand Aerodrome.....	June 14	1.00	58	1.03
London .....1	Eltham (High Street).....	Aug. 14	1.12	60	1.12

\* "Remarkable" fall.

‡ "Very Rare" fall.

The earliest entries in Table XV are for *May* 26th and 27th, but the amounts were relatively unimportant. There are, however, numerous entries in Section 7 for the rainfall of these days. At Cardiff (Penylan) as much as 4.2 inches was recorded for *May* 27th

of which 3·6 inches fell between 19h. 30m.\* and 23h. on the 27th, the falls during successive hours commencing at 19h., 20h., and 21h. being about ·7, 1·4 and 1·1 inches, respectively. In the Isle of Wight the storm during the night of the 27th to 28th was the severest experienced since June, 1910.

In *June* intense falls occurred on the 1st, 5th, 14th, 17th and 19th. There are a number of intense falls for the 14th, the day of the Birmingham tornado, which made its appearance at 14h. 40m. and travelling rapidly from the south to the north-east of Birmingham, caused a very great amount of material damage along a track varying in width from 800 to 200 yards. Altogether the length of the path was from 10 to 12 miles, passing through Greet, Small Heath and Bordesley in a north-easterly direction to the Erdington boundary of the city. The storm ceased about 15h. 15m. The intense falls of the 14th occurred mainly at stations in the Midlands, but entries are also available for stations in Wiltshire, Somerset, Yorkshire, Lancashire, and at Leuchars Aerodrome in Fife and at Eskdalemuir Observatory in Dumfriesshire. At Eskdalemuir Observatory, 2·53 inches was measured at 7h. on the 15th, of which 1·26 inches fell in 48 minutes. The rainfall which accompanied the thunderstorm in the Esk Valley and its neighbourhood is described as of an intensity unparalleled within living memory. Severe floods followed the torrential rain, involving the death of a farmer by drowning and the loss of numerous sheep and cattle. Details of the times of the heavy rains are given in certain cases:—At Westow Vicarage near Kirkham Abbey, 1·16 inches of rain and hail fell between 17h. and 17h. 30m.; at Knightwick Sanatorium, ·76 inch fell during a severe thunderstorm, almost all between 14h. and 14h. 35m.; at Northfield, near Birmingham, 1·61 inches between 14h. 30m. and 15h. 15m.; at Walsall 1·80 inches between 14h. 20m. and 15h. 10m.; at Colwall, near Malvern, 1·30 inches between 13h. 50m. and 14h. 25m.; at Cannock Sewage Works details of the heavy rain are given by the recording chart, *viz.*: 2·35 inches between 14h. 57m. and 15h. 35m. At Ross-on-Wye ·71 inch fell in 30 minutes, of which ·43 inch occurred in 6 minutes, and the rain is described as being the worst since July 13th, 1923; the lower part of the town was flooded, water reaching nearly up to the window-sills of houses at the foot of Broad Street, and manhole covers being forced up by pressure of the storm-water. The entries for Northfield, Walsall and Ross rank as “remarkable,” while that for Cannock is “very rare.”

A severe thunderstorm, accompanied by hail of unusual intensity, occurred on June 19th in the Rickmansworth and Chorley Wood district of Hertfordshire, but no entries are available for the table.

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\* Greenwich Mean Time is used throughout the article.  
Add one hour to get Summer Time.

The chief fall at Rickmansworth as observed by Mr. E. L. Hawke consisted of spheroidal hailstones, mostly from 0·5 inch to 0·7 inch in diameter, and lasted from 15h. 28m. to 15h. 40m. During these 12 minutes the whole country-side became as white as after a winter snowfall; the ground was covered rather more than an inch deep, on the average, and three or four inches deep in places. Several small birds were reported to have been killed by hail in the neighbourhood.

During *July* thunderstorms occurred somewhere in the British Isles on no fewer than 19 days and intense falls are given in the table for 13 days, *viz.*, the 6th, 7th, 9th to 16th, 19th, 25th and 30th. The entry for July 6th at Ayr Cemetery ranks as a "remarkable" fall, 2·20 inches occurring between 14h. 45m. and 15h. 45m. The entries for July 7th are at stations as far apart as Abbotsbury in Dorset (where ·72 inch fell between 10h. 30m. and 11h. 30m.), High Lane near Stockport and Burwarton near Bridgnorth, where 3·04 inches fell between 18h. and 20h. and the entry ranks as "very rare." Intense falls occurred on July 9th at three stations in Berwick or Northumberland. At Whitsomehill, in the south-east of Berwickshire, 1·31 inches fell between 16h. and 16h. 20m.; the intensity ranks as "remarkable." The observer notes this "cloudburst travelled in a narrow belt about  $\frac{3}{4}$  miles wide and for a distance of some  $3\frac{1}{2}$  miles." On July 11th, ·59 inch was measured in 20 minutes at The Coats Observatory, Paisley, and local flooding occurred. On July 12th, 1·00 inch of rain fell at Brigg between 13h. 10m. and 14h. 10m., and 1·59 inches at East Kirkby Manor, near Spilsby, between 14h. and 16h. The entries for July 13th are for Kilmington Rectory, near Frome, and Kevit Castle in Co. Cavan, the latter fall exceeding the "remarkable" limit of intensity. On July 14th, 1·66 inches fell between 14h. 20m. and 15h. 10m. at Harworth Colliery, near Doncaster, and entries are also given for Lennoxton in Stirling, and for Renfrew Aerodrome. At Ellesmere College in Shropshire, 2·19 inches fell in  $3\frac{1}{2}$  hours on the 14th and floods resulted. On July 19th, ·59 inch was measured at Bury St. Edmunds during a short thunderstorm between 11h. 40m. and 11h. 50m., and ·72 inch at Dover between 11h. and 11h. 30m., and on the 25th, 1·50 inches at Barnsley.

During *August* thunderstorms, accompanied locally by heavy rain and flooding, particularly in the south of England, occurred mainly between the 3rd and 9th and between the 14th and 21st. Intense falls are given for the 4th, 5th, 6th, 8th, 13th, 14th, 19th and 23rd. The intense falls of the 4th occurred at stations mainly in Wiltshire and Buckinghamshire. Those at Salisbury (Harnham Hollows) of 1·40 inches in 25 minutes, and at Woodford Vicarage of 2·17 inches in 90 minutes rank as "remarkable," while that at Towersey Vicarage of 2·65 inches in 120 minutes ranks as "very

rare." At Steeple Langford (Woodstock) 4.49 inches fell between 16h. 45m. and 19h. and at Berkhamsted 1.00 inch fell in about 20 minutes, about 18h.

The intense falls on the 5th occurred mainly at stations in the south of London. At Wimbledon (Worple Road) 1.02 inches was recorded between 18h. 43m. and 19h. 5m.; further south at Merton Park .88 inch fell between 18h. 45m. and 19h. 10m.; still further south 1.92 inches fell in 60 minutes at Esher and to the west at Surbiton 1.90 inches fell in 45 minutes and the last two rank as "remarkable" falls.

At Tottenham, in North London, 2.10 inches fell in 50 minutes during a thunderstorm at midday on the 5th, and this ranks as a "remarkable" fall. At Camden Square .80 inch fell at a fairly uniform rate between 16h. 55m. and 17h. 39m., but this does not qualify for inclusion in the table. There are two entries from Heathfield, Sussex. At Heathfield (Barklye) 1.17 inches fell between 15h. 55m. and 16h. 40m., the thunderstorm came from the north-east, and 3 miles to the west the sun shone all the time. The fall at Puddletown, near Dorchester, of 1.93 inches during a thunderstorm from the south-west between 14h. 30m. and 15h. 45m. ranks as "remarkable." At Hexworthy, near Launceston, 2.05 inches fell between 12h. and 17h. 30m., including .98 inch in less than 25 minutes, while there had been a fall of .85 inch on the preceding night. The following comments have been received from Capt. C. J. P. Cave, at Stoner Hill, Petersfield:—

"Seeing that something was probably coming, I put some ink into the hyetograph pen and looked in the rain-gauge to make sure there was no previous rain in it. Fifty-five minutes after the rain began I measured the water in the gauge, which came to 2.15 inches. Mr. A. J. C. Macharness, who has a rain-gauge  $1\frac{1}{2}$  miles away, but 450 feet down the hill, measured 2.90 inches, which must have occurred about the same time. I think there was more rain about a mile to the north and north-east (just to the north of Cockshot Lane), as there was extensive flooding in a very shallow valley (a farmer had to wade up to his armpits), and much gravel carried away. There was also a great deal of hail then; a farmer who was out in it says the hail was up to the horses' fetlocks."

At Hastings (Clive Avenue) .90 inch fell during a thunderstorm between 4h. 23m. and 5h. on the morning of August 6th.

The rainfall of August 8th was most striking at Boston, where 4.96 inches fell in 225 minutes, and further details are given in Section 7. At Berkhamsted (Anglefield) about .30 inch fell in about 5 minutes during a heavy shower with hail about 11h. 53m.

Table XVI.—*Number of Days on which specified amounts of Rain fell in specified times during 1931.*

County.	Place.	0·2 inch.				0·4 inch.				1 inch.			
		6 min. or less.	15 min. or less.	30 min. or less.	60 min. or less.	15 min. or less.	30 min. or less.	60 min. or less.	2 hours or less.	1 hour or less.	2 hours or less.	5 hours or less.	24 hours or less.
London .....	Camden Square.....	0	3	5	10	0	2	3	6	0	0	0	3
Surrey .....	Croydon.....	0	1	5	9	0	0	1	2	0	0	0	3
" .....	Kew Observatory.....	2	4	5	11	1	1	2	4	1	1	1	2
Kent .....	Lympne .....	3	4	5	10	1	3	3	4	0	0	0	1
Hants. ....	Calshot .....	1	5	5	9	1	2	3	4	0	0	1	3
" .....	Worthy Down.....	2	9	14	17	0	0	2	5	0	0	1	3
" .....	South Farnborough .....	1	2	8	16	0	0	2	4	0	0	0	2
Oxford .....	Upper Heyford .....	1	1	3	5	0	0	0	1	0	0	0	0
Suffolk .....	Felixstowe .....	0	1	5	6	0	0	1	2	0	0	0	0
Wilts. ....	Boscombe Down .....	1	3	7	11	0	0	2	4	0	0	1	2
Devon .....	Mount Batten.....	2	5	8	11	1	2	5	6	0	0	1	1
Lincoln .....	Cranwell.....	2	3	4	8	1	2	2	4	0	0	0	3
Lancashire .....	Southport .....	2	3	7	12	2	2	2	4	0	0	0	5
Flint.....	Sealand .....	2	3	4	13	1	1	1	3	1	1	1	7
Anglesey .....	Holyhead .....	0	1	1	9	0	0	0	2	0	0	0	4
Dumfries .....	Eskdalemuir.....	2	4	8	18	1	1	2	7	1	1	3	13
Renfrew .....	Renfrew .....	2	3	5	11	1	1	2	3	0	0	0	5
Fife .....	Leuchars .....	3	5	6	8	0	1	2	4	0	0	0	5
Aberdeen.....	Aberdeen .....	0	2	5	8	0	0	2	2	0	0	2	6
Shetland .....	Lerwick.....	0	0	0	2	0	0	0	0	0	0	0	1
Co. Kerry .....	Valentia Observatory .....	0	0	5	16	0	0	0	9	0	0	0	9
Co. Armagh.....	Armagh Observatory .....	1	4	8	8	0	3	4	5	0	0	0	1
Co. Antrim .....	Aldergrove.....	0	1	3	5	0	1	1	1	0	0	0	1

The falls are not necessarily continuous nor are they always confined to one calendar day. Not more than one fall of each specified amount is credited to any day; if more than the specified amount fell on any day, that part of it which fell in the shortest time is used for the table.

An entry in any of the first three columns under each of the headings 0·2, 0·4 and 1 inch naturally recurs in the column or columns to the right.

On August 14th intense rain occurred to the south-west of London, 2·34 inches falling during a few hours at Worcester Park. During the thunderstorms of both the 5th and 14th the intensity was so great that the lawns of many gardens were submerged.

On August 17th there was a fall of 1·95 inches between 10h. 45m. and 13h. 5m. at South Shields.

On August 19th, 1·07 inches was recorded between 16h. and 17h. at Burnsall Rectory, near Grassington, and caused extensive flooding in the district. At St. Helier, in Jersey, the total from 0h. to 24h. on August 24th was 4·55 inches, of which 1·30 inches fell between 8h. and 9h.

Intense falls on *September* 4th were reported from Thongsbridge, near Huddersfield and Lutterworth in Leicester. At Lutterworth 3·28 inches fell in 73 hours ; about 1·18 inches of this fell in 5 minutes in a heavy storm which caused flooding just after 16h. on the 3rd, and ·81 inch fell in 14 minutes just after 17h. on the 4th (nearly all of which occurred in 9 minutes). Records of heavy rain on *September* 3rd were also reported from Ipswich and Leatherhead.

The last entry in the table is that for *November* 4th, at Uffington to the south of the White Horse Hills.

In the preceding section the material has been provided both from autographic records and from eye observations at any of the 5,000 rainfall stations. Another method of dealing with the frequency of heavy falls of rain is to confine attention to the stations with autographic records and to examine the traces for all the rain which occurs at these stations. That has been done for the stations set out in Table XVI. In the tabulations on which the classification is based, the shortest interval in which ·2 inch (5 mm.) falls is entered for each day on which so much rain occurs. Similarly with falls of ·4 inch and 1 inch. Cases in which a fall of the given amount occupied parts of two days are included, but each fall counted is of less than 24 hours' duration and only one fall of the given amount is credited to each calendar day. In the classification adopted in Table XVI, the first time limit for each of the stated amounts is nearly in accordance with the specification of a noteworthy fall (*see* diagram) and corresponding entries will be found in Table XV.

## 7. HEAVY FALLS ON RAINFALL DAYS IN 1931.

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The daily measurements of rain which are set out in this Section are (a) those of falls of 2.5 inches or more in the rainfall day, and (b) those of falls which amount to at least 7.5 per cent, of the total recorded for the year 1931. A fall of  $2\frac{1}{2}$  inches in a day at any station is sufficiently remarkable to be noticed, but as such heavy falls are more frequent in the normally wet areas of mountain districts than elsewhere, the criterion of  $7\frac{1}{2}$  per cent. was introduced to admit certain falls of less than  $2\frac{1}{2}$  inches in areas where the total rainfall for the year is less than 33.3 inches. In this way daily falls which are heavy in relation to the local standard are not neglected. The entries for November 3rd are so numerous that certain of the less important have been omitted. This is referred to in the Chronicle. It will be seen that the majority of the falls noticed, satisfy criterion (a), but do not satisfy criterion (b). Many of the falls of August 8th did not reach 2.5 inches, although they were more than 7.5 per cent. of the annual totals. On the other hand the majority of the falls of November 2nd and 3rd did not reach 7.5 per cent. of the annual totals, although they reached 2.5 inches. All the falls in The Channel Islands, of August 24th satisfied both criteria simultaneously.

The greatest amount measured in a day in 1931 was 7.25 inches, on November 3rd, at Blaenau-hyddfwr in Breconshire. It will be seen from Table XVII that larger falls have only been recorded in five years since 1913. The highest percentage was 18.9 per cent. at Boston (Black Sluice) in Lincolnshire, on August 8th, the amount of the fall being 6.10 inches.

A table showing the absolute maximum daily rainfall and the absolute maximum daily percentage reported for each year from 1865 to 1921 was published in *British Rainfall*, 1921, p. 86. The portion of that table from 1913, completed by the addition of particulars for the years 1922 to 1931, is printed here. This portion contains the highest values shown in the complete table from 1865 to 1931, both as to amount and percentage; these figures are printed in heavy type.



TABLE XVII.—*Maximum Daily Fall and Maximum Percentage, 1913 to 1931.*

Year.	ABSOLUTE HIGHEST RAINFALL.				ABSOLUTE HIGHEST PERCENTAGE.				Year.
	Depth.	Per cent.	Station.	Div.	Per cent.	Depth.	Station.	Div.	
	in.					in.			
1913 ..	6·06?	<b>26·0?</b>	Doncaster P.S. ....	9	<b>26·0?</b>	6·06?	Doncaster P.S. ....	9	1913
1914 ..	6·35	4·1	Pen-y-Gwryd .....	11	14·8	3·35	Upminster .....	4	1914
1915 ..	7·06	19·7	Dalcross .....	18	19·7	7·06	Dalcross .....	18	1915
1916 ..	8·20	5·7	Kinlochquoich .....	18	13·1	3·91	Portland Bill .....	5	1916
1917 ..	<b>9·56</b>	..	Bruton .....	5	21·8	8·39	Aisholt .....	5	1917
1918 ..	4·95	9·2	Douglas .....	11	12·3	3·36	Woodsetts Grange....	9	1918
1919 ..	4·50	5·9	Corran .....	15	11·1	3·57	Ayr Cemetery .....	15	1919
1920 ..	6·81	5·4	Dungeon Ghyll .....	10	15·6	4·69	Elkington Hall .....	7	1920
1921 ..	6·10	5·2	" .....	10	21·3	3·15	Pulham .....	4	1921
1922 ..	5·14	5·6	Ardgour House .....	15	16·5	4·70	Doncaster (Carr Ho.)..	9	1922
					11·6	4·16	Rugeley (Brindley Bk.)	6	1923
1923 ..	5·57	3·9	Llechwedd Quarry..	11	19·5	<b>9·40</b>	Cannington (Brymore)	5	1924
1924 ..	9·40	19·5	Cannington (Brymore)	5	11·4	2·35	Boston (Fishtoft S.)..	7	1925
1925 ..	4·13	2·8	Snowdon (No. 9)....	9	10·9	4·57	Pembroke Dock .....	11	1926
1926 ..	6·05	9·4	Nantneuadd .....	11	10·7	4·00	Wolverh'ton Town H..	6	1927
1927 ..	6·00	4·6	Llechwedd Quarry ..	11	12·9	3·26	Marton (Southcroft)..	9	1928
1928 ..	7·77	5·3	Oakeley Quarry .....	11	19·1	4·01	Rumburgh Vicarage..	4	1929
1929 ..	8·31	7·2	Rhondda (L. Wen Res)	11	11·0	5·70	Castleton .....	9	1930
1930 ..	5·70	11·0	Castleton .....	9	18·9	6·10	Boston (Black Sluice).	7	1931
1931 ..	7·25	9·2	Blaenau-hydfer .....	11					

The largest entry in each column is shown in heavy type and the smallest in italic type.

Particulars of the 12 largest falls of the year 1931 are given in Table XVIII. The table shows also the year's total at each of the stations and the percentage of that total which is accounted for by the highest daily fall. Only one entry is given for each of the stations included in the table.

TABLE XVIII.—*The largest Daily Rainfalls in 1931.*

Date.	Div.	Station.	Depth.	Per cent. of Year.	Total for Year.
			in.	%	in.
Nov. 3	XI	Trecastle (Blaenau-hydfer) .....	7·25	9·2	78·47
Nov. 3	XI	Llyn-y-fan Fach (Nant Coch) ...	6·52	7·2	91·06
Nov. 3	XI	Cardiff W. W. (Storey Arms) ....	6·40	—	—
Nov. 3	XI	Rhondda (Lluest Wen Res.) ....	6·38	6·8	93·48
Nov. 3	XI	Lake Eigiau (Dam Site) .....	6·20	6·9	89·98
Aug. 8	VII	Boston (Black Sluice) .....	6·10	18·9	32·25
Nov. 3	XI	Rhymney Bridge Res. ....	5·99	9·2	65·24
Nov. 3	XI	Taf Fechan (Pentwyn Res.) ....	5·86	8·6	67·89
Nov. 3	XI	Abertillery (The Park) .....	5·80	9·2	62·85
Aug. 8	VII	Boston (Grand Sluice) .....	5·72	18·2	31·39
Nov. 3	XI	Snowdon (Cwm Dyli) .....	5·71	4·1	139·24
June 5	XXIII	Annalong Valley .....	5·70	8·6	65·90

Two entries of this table qualify for admission to the list of heavy falls of 6·5 inches or more in one day which was printed in *British Rainfall*, 1929, p. 56, viz. :—7·25 inches at Trecastle (Blaenau-hydfer) in Breconshire and 6·52 inches at Llyn-y-fan Fach (Nant Coch) in Carmarthen, both on November 3rd. Nine of the largest falls are for November 3rd.

The total number of heavy falls recorded during 1931 is much larger than usual, and many more than in 1930. The number of falls of 3 inches or more in 1931 for England and Wales, Scotland and Ireland, was 250, 11 and 9, compared with 48, 11 and 7, in 1930.

The total number of falls was comparable with that during 1929, when the corresponding figures for the countries were 244, 9 and 7 respectively. The number of falls of 3 inches or more during 1931 and 1929 exceeded that during any other year since comparable statistics became available in 1915. The number of entries of 4 inches or more during 1931 was 114, the next largest numbers being 68 in 1917 and 40 in 1929. The bulk of the falls of 4 inches or more occurred on November 3rd.

In the tables included in the following account of the heavy falls of the year, a daily fall which is the maximum fall for the year at the station is indicated by ordinary roman type; other falls are in *italics*.

#### CHRONICLE.\*

The amounts in this section cover the 24 hours commencing at 9 a.m. G.M.T. on the day of entry.

The first four and a half months of the year were remarkable for few heavy falls of rain. Such heavy falls as did occur were in general isolated falls in mountainous districts.

#### January 22nd.

*Cumberland*.—Buttermere (Hassness).....2·66 in. or 2·5 per cent.

#### January 31st.

	<i>in.</i> or %		<i>in.</i> or %
<i>Isle of Man.</i>		<i>Isle of Man.</i>	
West Baldwin Res. No. 1. 2·50	3·8	Ramsey (Town Hall) . . . .	2·71 5·0
West Baldwin Res. No. 2. 2·62	3·8		

*Carnarvon*.—Snowdon (Cwm Dyli) .....3·65 in. or 2·6 per cent.

*Dumbartonshire*.—Gareloch head (Ardarroch Gdns.) ..2·76 in. or 3·7 per cent.

*Argyll*.—Mull (Ulva) .....3·01 in. or 4·8 per cent.

The cyclonic rains of January 31st in the Isle of Man were not quite as heavy as those of November 14th, and appreciably less than those of September 17th, 1930.

#### February 24th.

*Inverness*.—Loch Quoich (Kinlochquoich) .....2·92 in. or 2·7 per cent.

#### March 31st.

*Kerry*.—Kilgarvan (Inchimore) .....2·89 in. or 2·7 per cent.

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\* Details of the cloudburst near Bootle on June 14th are given at the end of this Section.

## May 10th.

<i>Cumberland.</i>	<i>in. or %</i>	<i>Carnarvon.</i>	<i>in. or %</i>
Borrowdale (The Moraine) .	2.81 2.8	Snowdon (Cwm Dyli) ....	2.82 2.0
Buttermere (Hassness) ...	2.82 2.7		

## May 11th.

*Inverness.*—Loch Quoich (Kinlochquoich) ..... 3.27 in. or 3.0 per cent.

The first noteworthy heavy fall of the year was on May 27th, when severe thunderstorms, accompanied by unusually heavy rain, occurred over much of Wales, the south-west of England, and in the neighbourhood of the Isle of Wight.

## May 27th.

<i>Devonshire.</i>	<i>in. or %</i>	<i>Devonshire.</i>	<i>in. or %</i>
Bampton (Castle Grove) ..	3.93 8.8	Morebath Manor .....	3.85 8.0
<i>Cornwall.</i> —Launceston (Landue) .....	2.60 in. or 5.1 per cent.		
<i>Somerset.</i>	<i>in. or %</i>	<i>Somerset.</i>	<i>in. or %</i>
Croydon Hall .....	3.40 8.5	Porlock (Bush Steep) ....	2.73 7.3
Bicknoller (Ford) .....	2.87 8.3	Winsford .....	2.93 5.4
Bicknoller (Weacombe Ho) ..	2.75 8.5	Exton (Stone Lodge) .....	2.96 6.3
Williton (The White House) ..	3.01 9.0	Cutcombe (Wheddon Cross) ..	2.90 5.9
Minehead (Blenheim Gardens) .....	3.14 9.2	Brushford Rectory .....	2.50 5.3

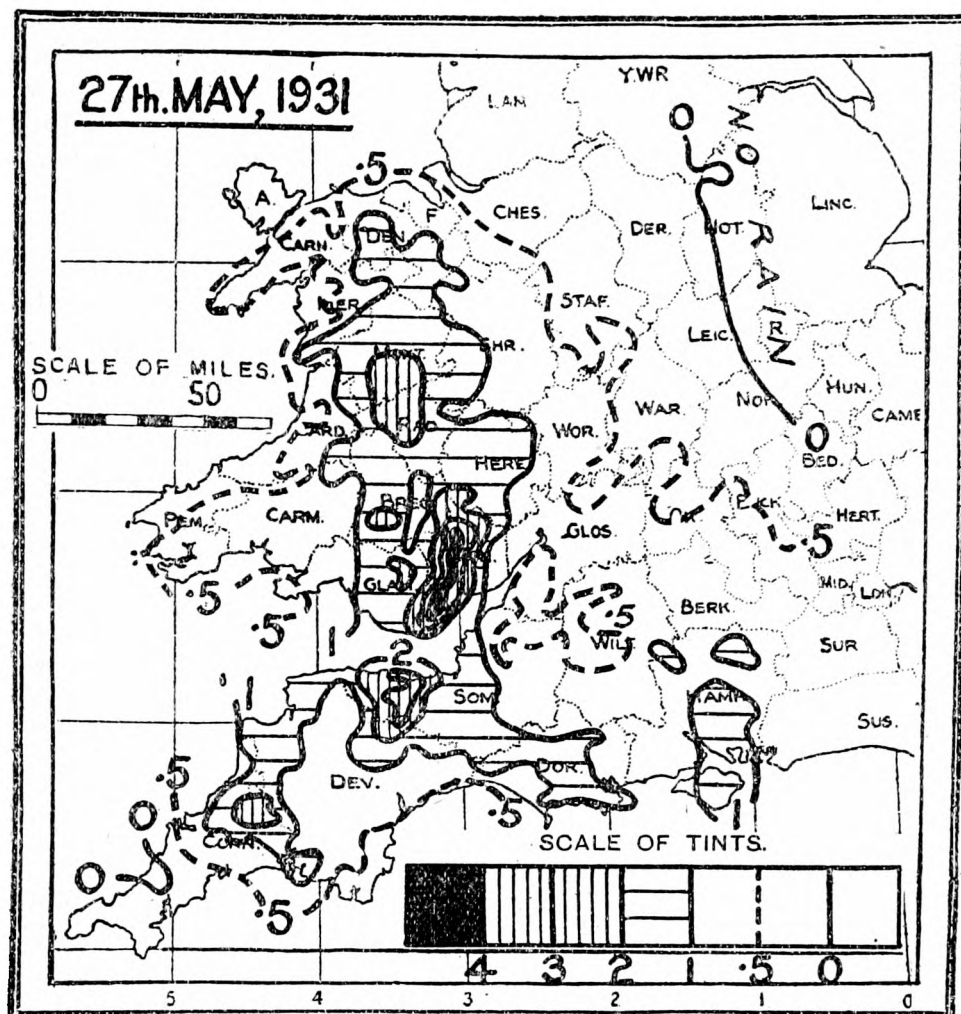
*Herefordshire.*—Vowchurch (Ladywell House) ..... 2.71 in. or 6.9 per cent.

<i>Monmouth.</i>	<i>in. or %</i>	<i>Monmouth.</i>	<i>in. or %</i>
St. Mellons (Druidstone) ..	3.60 8.7	Abersychan (Glansychan) .	4.12 7.0
Machen (Machen Quarry) .	3.67 7.3	Goytre (Goytre Hall) ....	3.91 7.7
Rogerstone (Rhiwderin) ..	3.02 8.6	Blaenavon (Estate Office) .	3.45 5.0
Newport (Stow Park) ....	2.67 6.5	Abergavenny (Plâs Derwen) ..	4.08 8.5
Newport (Alltyn Hospital) ..	2.90 6.7	Abergavenny (Tŷ Clyd) ..	3.49 7.2
Newport (Friar Street) ....	2.72 6.8	Abergavenny (Richmond Road) .....	4.24 9.4
Newport W. W. (Ynis-y-fro Res.) .....	2.80 6.4	Grwyne Fawr (Coed Dias) .	2.66 5.2
Newport W. W. (Pant-y-reos) .....	4.29 8.3	Abergavenny (Larchfield) .	4.24 9.8
		Abergavenny (The Chain) .	3.03 6.9
<i>Glamorgan.</i>	<i>in. or %</i>	<i>Glamorgan.</i>	<i>in. or %</i>
Lower Penarth .....	4.32 11.8	Pontypridd (Lanwood Res.) ..	2.83 4.7
Penarth (Council Offices) ..	4.50 11.4	Cardiff (Tydraw Rd.) ....	4.22 ..
Fairwater (Glan. Ely Hospital) .....	3.60 8.2	Cardiff (Penylan) .....	4.18 9.8
Cardiff (Cogan Pumping Station) .....	4.24 9.6	Cardiff (Heath Filters) ...	4.45 10.0
Cardiff (St. Fagans) .....	2.75 5.8	Llanishen Reservoir .....	4.16 10.1
Cardiff (Trade St. Dépôt) ..	4.36 10.2	Lisvane Reservoir .....	4.40 11.2
Rhubina Reservoir .....	3.55 7.3	Cardiff (Ely P.S.) .....	3.48 8.5
		Cardiff (Roath Park) ....	4.22 9.6

*Breconshire.*—Black Mountains (Dam Site Grwyne Fawr) 2.52 in. or 3.9 per cent.

The distribution of the rainfall of May 27th is shown in the diagram map. The largest totals occurred over a narrow strip stretching from Penarth to Abergavenny where rather more than 4 inches was recorded. More than 3 inches fell over a large area on the other side of the Bristol Channel to the east of Exmoor. Ther

was no rain at all on this day at most stations in the east and north of England.



**Rainfall, 27th May, 1981.**

Measurements of the area over which more than 2 inches fell during May 27th in South Wales between Hay and Barry were as follows :—

	Area. Square Miles.	General Rainfall. inches.	Volume of Rainfall. Square Miles $\times$ inches.
More than 4 inches .....	104	4.16	431.0
3—4 inches .....	218	3.53	770.6
2—3 inches .....	363	2.52	913.8
Total more than 2 inches .....	685		2115.4

The general rainfall of the area of 685 square miles with more than 2 inches was 3·09 inches, corresponding to a volume of 30,630 million gallons, the bulk of which fell in some four hours during the evening. The largest amount was 4·50 inches, recorded at Penarth Council Offices. At Cardiff (Penylan) 4·18 inches was measured, of which 3·6 inches fell in 3½ hours. The amounts recorded in Cardiff for May 27th were the largest recorded there since July 14th, 1875, when 4·84 inches, 4·80 inches and 4·75 inches fell at Lisvane, Pentyrch and Ely respectively. On that occasion the rivers Taff and Ely overflowed their banks in many places and there was considerably damage to hay, etc. (see *Symons's Meteorological Magazine*, 1875, page 102).

The thunderstorm was also severe in parts of Herefordshire, Breconshire and Shropshire. At Hereford the Wye rose rapidly on the morning of the 28th, about 8 ft. in 4 hours, reaching a maximum height of 12 ft. 10 in. but little flooding occurred. At Ross the observer reported a prolonged and awe-inspiring display of forked and sheet lightning, and the fact that the Wye rose 11½ feet and over-flowed. At Ewyas Harold, between Hereford and Abergavenny, and to the east of the Black Mountains, the storm was stated to be the worst within living memory. At Abergavenny, where the storm lasted for three hours, the stream rose rapidly and one woman was drowned. At Llantilio Pertholey, two miles to the north-east of Abergavenny, many tombstones were flattened to the ground by the force of the River Gavenny, a tributary to the River Usk. The railway line between Pontypool and Newport was rendered impassable and through service was not completely restored until the late afternoon of May 30th. At Llandrindod Wells the storm broke about 20h. 30m. and reached its climax at 21h. 15m. The main squares were soon converted into lakes, in places five and six feet deep.

At Watchet, on the other side of the Bristol Channel, the thunderstorm raged from 18h. 30m. to 22h. 30m. A great deal of damage was sustained through huge hailstones, which fell for about 20 minutes about 21h. Many of the stones were mere slabs of ice, ranging between 1 to 1½ inches thick, and besides damaging crops, many windows were broken. The wind was from the south-east and of a velocity of about 5 m.p.h. at the beginning and during the storm. At 21h. it veered to south-west, 5 m.p.h.

#### May 31st.

*Cornwall*.—Launceston (North Hill) .....2·94 in. or 4·7 per cent.

The greater part of the rain fell between about 11h. and 16h. in terrific showers and was very local. Heavy rain also fell locally near Launceston on May 27th but at Launceston (North Hill) only ·77 inch was recorded on that day.

#### June 2nd.

*Cumberland*.—Eskdale Green (Gatehouse) .....2·76 in. or 4·2 per cent.

*Carnarvon*.—Snowdon (Cwm Dyli) .....2·62 in. or 1·9 per cent.

## June 4th.

*Devonshire*.—Woolacombe (Hotel Grounds) .....2.72 in. or 8.0 per cent

At Ilfracombe (Slade Waterworks) 3.68 inches was recorded for June 4th and 5th. The following notes have been supplied by Mr. A. Leigh Barker, observer at Spreacombe Manor, some 4 miles to the S.S.W. of Ilfracombe and at an altitude of 340 feet.

“ The floods around Woolacombe, Georgeham and Branton, following on the thunderstorm of the early morning of the 5th, were of unprecedented severity in that district because of the havoc caused. Most of the rainfall measured at 9h. on the 5th, viz., 2.31 inches, fell between 6h. 30m. and 8h. The stream began to rise about 7h. and from 7h. 30m. to 8h. 30m. we experienced a flood which broke down fences and stone walls, uprooted trees, tore away the river banks and covered the meadows with stones and debris. Spreacombe Manor lies only  $1\frac{1}{4}$  miles below the watershed line, and to account for so great a flood so near the summit of the hills I can only suppose that there was a sudden and far heavier rainfall amounting perhaps to ten inches or more along the high land of Oxford Cross, Pickwell Down and Roadaway. The water streamed down through Spreacombe to Branton and down another valley through Georgeham and Croyde, while some escaped seaward through Woolacombe. The flood water reached Branton about 9h. 30m. Springs which are usually dry from March till December rose during the following day and continued in force for over three weeks.”

## June 5th.

*Carnarvon*.—Snowdon (Llydaw Intake) .....2.60 in. or 1.6 per cent.

*Louth*.—Greenore .....4.43 in. or 10.7 per cent.

*Down*.—Annalong Valley .....5.70 in. or 8.6 per cent.

Although only two stations in the north-east of Ireland recorded falls exceeding 2.50 inches, flooding was widespread, especially in the north of Louth and south of Monaghan. The flooding was especially serious at Carlingford, some 3 miles to the west of Greenore, and also at Dundalk and Ardee. In the Silent Valley (Belfast W.W.) 2.00 inches was recorded.

## June 14th.

<i>Lancashire.</i>	<i>in. or %</i>		<i>Cumberland.</i>	<i>in. or %</i>	
Barrow-in-Furness (Gas Works) .....	3.00	5.8	Keswick (High Hill) .....	2.52	4.3
Barrow-in-Furness (Sewage Works) .....	2.65	5.8	Keswick (Mirehouse) .....	2.52	4.6
Little Urswick (North View)	2.66	4.8	Eskdale Green (Gatehouse)	2.58	3.9
Ulverston (Poaka Beck)...	3.50	5.6			

*Westmorland*.—Patterdale (Greenside Mine) .....2.55 in. or 2.7 per cent.

<i>Dumfries.</i>	<i>in. or %</i>		<i>Stirling.</i>	<i>in. or %</i>	
Eaglesfield (Springkell) ...	2.61	5.7	Grangemouth (Burgh Stables) .....	2.54	7.5
Eskdalemuir Observatory..	2.53	4.1	Bridge of Allan (The Lea)..	2.66	7.1
			Bridge of Allan (Lynwood).	2.71	7.1
			Polmaise Castle .....	2.60	5.6

*Fifeshire*.—Colinsburgh (Balcarres).....2.74 in. or 7.3 per cent.

**June 14th—continued.**

*Perthshire*.—Strath Bran (Glenquaich Lodge) .....2·56 *in.* or 4·7 per cent.

*Angus*.—Brechtin (Argyle St.) .....2·84 *in.* or 8·1 per cent.

*Kincardine*.—Fettercairn (Fasque).....2·51 *in.* or 6·3 per cent.

*Ross and Cromarty*.—Fearn (Geanies).....2·24 *in.* or 9·4 per cent.

On June 14th a tornado, that rare phenomenon in the British Isles, swept across Birmingham. The associated line-squall gave thunderstorms and intense rains in the Midlands, details of which are given in Section 6. The only falls for this day which qualify for mention in this Section occurred, however, in the north of England and in Scotland. More than 2 inches was recorded in the English Lake District, to the north of Dumfries near St. Andrews, to the west of Montrose, over a large area stretching from Falkirk to the Grampians and round Dornoch Firth. Severe flooding was reported from towns as far apart as Wick, Golspie, Perth and Carnoustie. The largest totals were 3·00 inches at Barrow-in-Furness and 3·50 inches at Ulverston. (For further details see the end of this Section.)

**June 16th.**

<i>Glamorgan.</i>	<i>in. or %</i>	<i>Glamorgan.</i>	<i>in. or %</i>
Pontycymmer (Garw Sec. Sch.) .....	2·51 3·1	Pontycymmer .....	2·70 3·2

**July 7th.**

*Devonshire*.—Ermington (Strode) .....2·63 *in.* or 5·6 per cent.

*Shropshire*.—Burwarton Hall.....3·04 *in.* or 6·3 per cent.

<i>Glamorgan.</i>	<i>in. or %</i>	<i>Glamorgan.</i>	<i>in. or %</i>
Rhondda W. W. (Llyn Fawr Res.) old.....	2·54 2·8	Rhondda W. W. (Llyn Fawr Res.) new .....	2·57 2·8

A severe thunderstorm lasting for rather more than 2 hours caused widespread damage at Hitchin on July 7th but the largest measurement was 1·65 inches at High Down, 4 miles to the south-east. At Dunmow, in Essex, 2·15 inches fell in about 2½ hours during a local thunderstorm, the heavy rain being confined to an area of 3 to 4 square miles.

**July 14th.**

*Dorset*.—Broadstone (Sewage Works).....2·25 *in.* or 8·0 per cent.

**July 30th.**

<i>Fifeshire.</i>	<i>in. or %</i>	<i>Fifeshire.</i>	<i>in. or %</i>
Colinsburgh (Cairnie House) .....	2·70 7·4	Colinsburgh (Balcarres) ...	2·57 6·8

The heavy rain at Colinsburgh occurred during a thunderstorm between 12h. 45m. and 16h. 30m.

Thunderstorms occurred over a large part of England during August 3rd to 6th. Two successive depressions travelled across France from south to north bringing air of Mediterranean origin with high temperatures and humidities. The first depression filled up over France while the second travelled across Belgium to the west of Germany. The wind over England and Wales was mainly north-easterly during this period.

## August 4th.

<i>Berkshire.</i>	<i>in. or %</i>		<i>Oxford.</i>	<i>in. or %</i>	
Wallingford (St. Leonards Rectory) .....	2.17	8.3	Oxford (Hincksey Pumping Stn) .....	2.24	8.1
Wallingford (Style Acre)...	2.39	8.6	Wheatfield .....	2.18	7.8
Didcot (Sewage Works) ..	2.42	9.5			
Boars Hill (Sherwood) ....	2.23	8.1	<i>Buckinghamshire.</i>		
Oxford (Kennington Nursery) .....	2.36	8.2	Little Kimble.....	2.20	8.2
			Towersey Vicarage .....	2.73	9.4
<i>Wiltshire.</i> —Steeple Langford (Woodstock) .....	4.49 in. or 12.8 per cent.				
<i>Gloucestershire.</i>	<i>in. or %</i>		<i>Gloucestershire.</i>	<i>in. or %</i>	
Avening (Gatecombe) ....	3.13	8.0	Minchinhampton (Rectory Cottage) .....	2.90	7.3
Nailsworth (Three Corners)	3.03	7.7	Minchinhampton (Camp Field) .....	2.91	6.8
Minchinhampton (The Shard) .....	2.91	7.7			

On August 4th no rain at all fell at most stations in Ireland, Scotland, the north and south-east of England. More than 2 inches was, however, recorded to the south of Oxford, from Didcot to Aylesbury, in the neighbourhood of Stroud and Nailsworth and at isolated stations to the south of Salisbury Plain. At Steeple Langford, 9 miles to the north-west of Salisbury, 4.49 inches fell in 2 hours 15 minutes (see Section 6). There was no rain at all at stations as near as Marlborough, Newbury and Basingstoke.

Captain C. J. P. Cave has kindly forwarded the following comments:—

“ On that day I was sailing in the Solent, or was on shore in the Isle of Wight and I saw the formation of the thunderclouds. Cumulus clouds began to form before noon and over the Hampshire coast it became very dark; there was one very heavy shower about 13h. which reached right across the Solent to Cowes. Otherwise the clouds were over Hampshire. They formed, as far as I could judge, somewhere between the line of the South Downs and the line from Portsmouth to Chichester; from there they slowly drifted westward. But the interesting point was that one could see the end of the line of cumulus in that direction from where I was; and several times I saw small cumulus forming in the rear (*i.e.*, to the east) of the main mass, growing as it drifted westward, and finally becoming a typical thunder cloud with thunder heard from it. This happened as I said quite a number of times. Of course westward it was impossible to see how far the line of cumulo nimbus reached; but it must have been the same line of cloud that caused the thunderstorms in Salisbury and the neighbourhood.”

## August 5th.

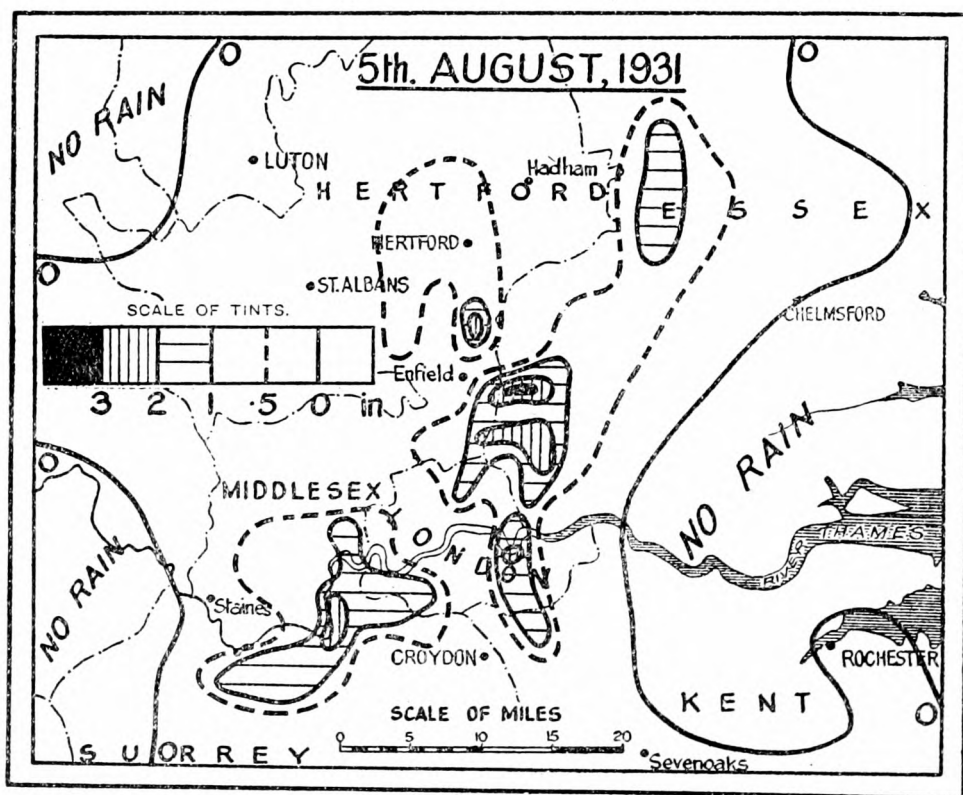
<i>London.</i> —Greenwich (Royal Observatory) .....			2.21 in. or 8.9 per cent.	
<i>Surrey.</i>	<i>in. or %</i>		<i>Surrey.</i>	<i>in. or %</i>
Kingston (County Hall) ..	2.00	8.9	Surbiton (Seething Wells) .	2.05 7.9
<i>Hampshire.</i> —Petersfield (Tilmore) .....	2.42 in. or 7.6 per cent.			
<i>Middlesex.</i> —Tottenham Gasworks .....	2.10 in. or 9.0 per cent.			
<i>Hertfordshire.</i> —Cheshunt Park .....	2.08 in. or 8.0 per cent.			
<i>Essex.</i>	<i>in. or %</i>		<i>Essex.</i>	<i>in. or %</i>
Woodford (Haggard Lane) .	2.18	9.1	Wanstead (Red Bridge) ..	2.47 10.6
Chingford Mill .....	3.36	13.2		



**August 5th—continued.**

<i>Dorset.</i> —Puddletown Vicarage.....	2.60 in. or 6.4 per cent.
<i>Devonshire.</i> —Lydford (Naseby) .....	2.56 in. or 4.4 per cent.
<i>Cheshire.</i> —Delamere (Linmere) .....	2.63 in. or 6.6 per cent.
<i>Denbigh.</i> —Wrexham (Beechley Rd.) .....	2.53 in. or 5.9 per cent.

The distribution of the rainfall of August 5th was typical of that due to thunderstorm rain in that the areas with heavy rain were isolated and arranged in a fairly definite line across the country. More than 2 inches was recorded at Lydford, to the west of Dartmoor, at Puddletown Vicarage, to the north of Dorchester, near Petersfield and over large areas in the neighbourhood of London. More than 2 inches was also recorded over large areas near Wrexham and Northwich. Between these isolated areas of heavy and intense rain large areas received little rain, and as on the 4th, there was no rain at all over most of Ireland, Scotland and the north and south-east of England. No rain was recorded at Windsor and Brentwood, while between these stations which are some 40 miles apart there were four well defined areas with more than 2 inches and as much as 3.36 inches at Chingford Mill near Loughton. The distribution of the rainfall near London is shown in the map and it is of interest in that the heavy rain is in the south-eastern half of London, rather than the north-western half, where most of the earlier heavy rains have occurred. Details as to the intensity of the rain are given in Section 6.



Rainfall, 5th August, 1931.

At Hexworthy, near Launceston, the record does not qualify for mention, but 2·92 inches was recorded for August 4th and 5th and Mr. R. B. Rogers reports:—

“ There was a severe thunderstorm during the night of the 4th to 5th with ·85 inch and another between 12h. and 12h. 25m. on the 5th, when ·98 inch fell, most of it falling in about 15 minutes. A third storm began about 14h. 45m. and 1·07 inches was recorded at 17h. 30m. In all 2·90 inches fell in about 16 hours and the only other record anywhere near this in 25 years is 3·33 inches on October 5th, 1929.”

At Bury St. Edmunds (Westley), 1·67 inches was recorded during just over two hours during a severe thunderstorm.

#### August 8th.

<i>Northamptonshire.</i>		<i>in. or %</i>	<i>Northamptonshire.</i>		<i>in. or %</i>
Rounds (Day School)	....	1·93 8·2	Kettering W. W. (Clover Hill)	.....	2·52 10·1
<i>Cambridgeshire.</i>		<i>in. or %</i>	<i>Cambridgeshire.</i>		<i>in. or %</i>
Stretham Engine	.....	1·99 8·7	Wisbech (Tydd Manor)	...	2·07 8·4
Stretham (Orchard House)	.....	2·30 9·5	Littleport (Highfield House)	.....	2·08 8·5
Wisbech (Queens Road)	...	2·32 9·0	Parson Drove (Clows Cross)	.....	1·85 7·6
<i>Norfolk.</i>		<i>in. or %</i>	<i>Norfolk.</i>		<i>in. or %</i>
Bylaugh Park	.....	2·66 9·3	Downham (Dial House)	..	1·94 8·3
East Bilney Hall	.....	2·54 8·2	Downham (High St.)	.....	2·11 8·6
Hindolveston (School House)	.....	2·40 7·6	Wallington Hall	.....	2·40 9·3
North Walsham (Gunton Park)	.....	2·31 8·4	Wiggenhall (St. German's Sluice)	.....	3·05 10·4
Cromer (Northrepps Hall)	.....	2·75 9·8	East Winch (Holland House)	.....	2·37 8·5
Hanworth Rectory	.....	2·47 8·3	Emneth (Inglethorpe Manor)	.....	2·56 9·7
Melton Constable Park	....	2·78 8·2	Sheringham (Old Coast-guard Ho.)	.....	2·34 8·8
Cromer (The Warren)	....	2·34 8·4	Wimbotsham School	.....	2·40 9·8
Cromer (Gas Works)	.....	2·85 10·1			
Sheringham (Skelding)	... 3·63	9·4			
<i>Leicestershire.</i> —Leicester (Groby Road) ..... 2·76 in. or 8·8 per cent.					
<i>Lincolnshire.</i>		<i>in. or %</i>	<i>Lincolnshire.</i>		<i>in. or %</i>
Tydd (North Level Sluice)	.....	2·27 8·3	Boston (Grand Sluice)	....	5·72 18·2
Spalding (Spalding Marsh)	.....	2·00 7·9	Boston (Bargate End)	....	4·98 16·6
Fishtoft School	.....	3·14 11·9	New Leake (Lade Bank)	..	2·01 8·4
Boston (Black Sluice)	....	6·10 18·9			

The rainfall of August 8th was associated with the regeneration of an old depression during the night of the 7th to 8th, while travelling eastwards across Wales and England. Rather intense cold fronts with hail and thunderstorms developed during the 8th and the rainfall was most remarkable at Boston, where 6·10 inches was recorded at Black Sluice, at the south end of the Borough, and 5·72 inches at Grand Sluice to the north. At Black Sluice ·45 inch fell between 5h. and 9h., 4·96 inches from 9h. to 12h. 45m. and ·74 inches from 12h. 45m. to 16h. and it is estimated that 4·00 inches fell between 10h. 30m. and 12h. 30m., *i.e.*, in two hours. At Grand Sluice 4·96 inches

was recorded between 8h. and 14h. 30m. Mr. F. H. Tomes, Engineer to the Witham and Steeping Rivers Catchment Board makes the following comments :—

“ The point of maximum rainfall appears to have been immediately south of Boston and the worst flooding occurred in the Borough and the parishes of Skirbeck Quarter, Wyberton, Frampton and Kirton. Flooding elsewhere in the district was of a temporary character and the land surfaces were generally clear by the afternoon of the 9th, although the main drains and rivers were swollen. The floods in and surrounding the Borough were intensified by a neap tide which closed the automatic drainage sluices for a long period. For instance, the flood doors at Black Sluice, at the outfall into the River Witham, were closed from 8h. 45m. until 15h. 25m. and low lying streets were flooded in places to a depth of four feet.”

The storm was associated with the rapid passage of a deep depression directly across England from the Bristol Channel to East Anglia. The greatest rainfall previously recorded in one day during the last 60 years occurred on September 29th, 1883, when 3·10 inches fell at Boston (High Street) and Boston (Grand Sluice). As much as 4·31 inches was recorded at Skegness for that day.

The heavy rainfall of August 8th, 1931, was confined mainly to the neighbourhood of the Wash. More than 2 inches was recorded at Leicester, Kettering, near Ely between Cromer and N. Walsham, and over a large area stretching from Sleaford to Swaffham. In the latter area falls of 3 inches or more were confined to the south of King's Lynn and the neighbourhood of Boston.

#### August 14th.

<i>London.</i>	<i>in. or %</i>	<i>Surrey.</i>	<i>in. or %</i>
Streatham (Arragon Gardens .....	2·15 8·2	Sutton (Sewage Works) ..	2·03 8·2
Streatham (Conyers Road)	1·96 7·9	Worcester Park (Kings-	
Eltham (High St.) .....	2·04 8·4	mead Avenue) .....	2·34 8·7

*Gloucestershire.*—Somerford Keynes (Manor House) .. 2·62 *in.* or 8·1 per cent.

The intense rain of August 14th in the south-west of London is mentioned in Section 6, and is of interest because of the similarity to that of the 5th in that area.

#### August 16th.

*Westmorland.*—Kentmere Head Reservoir .....

*Carnarvon.*—Snowdon (Cwm Dyli) .....

#### August 18th.

<i>Devonshire.</i>	<i>in. or %</i>	<i>Devonshire.</i>	<i>in. or %</i>
South Brent (Badworthy) .	2·81 3·6	South Brent (Didworthy) ..	2·52 3·5

*Durham.*—South Shields (South Pier Works) .....

*Midlothian.*—Oxenfoord Castle .....

The total rainfall during the five days August 16th to 20th at Oxenfoord Castle Gardens was 6·41 inches.

## August 24th.

<i>Jersey.</i>	<i>in. or %</i>	<i>Jersey.</i>	<i>in. or %</i>
Pontac (St. Clements) ....	3.32 9.8	Trinity Rectory .....	2.92 8.9
St. Saviour (Petit Menage)	2.96 8.3	St. Aubins (Belle Vue) ...	3.02 8.6
Grouville .....	3.13 8.2	St. Helier (St. Louis Obs.)..	3.76 10.6
St. Helier (Harbour Office)	3.24 9.3		
St. Brelade (La Sergenté)..	3.37 9.7	<i>Guernsey.</i>	<i>in. or %</i>
St. Lawrence (Little Grove)	3.81 10.2	St. Andrew (Vauxbelets	
Millbrook (St. Helier W.W.)	2.95 7.9	College) .....	2.70 8.4
St. Ouen's Manor .....	2.81 8.1	Castel (King's Mills) .....	2.67 8.1

*Herm.*—Herm ..... 2.88 *in.* or 9.2 per cent.

The heavy rainfall in the Channel Islands was associated with a series of depressions which travelled eastwards across northern France. The gales were unusually severe over the western parts of the English Channel for August. The rainfall was persistent rather than intense and was more remarkable in Jersey where, during the 40 hours from 18h. on the 23rd to 10h. on the 25th, the total amount was no less than 4.53 inches. The amount for the 24th seems to have exceeded 2.50 inches everywhere in Jersey, the largest totals occurring in the neighbourhood of St. Aubin's Bay. In Guernsey the totals varied from about 1.30 inches in the north to rather more than 2.50 inches between Cobo and La Corbiere.

## September 3rd.

<i>London.</i>	<i>in. or %</i>	<i>London.</i>	<i>in. or %</i>
Kensington (Harley		Fulham (Bishops Park) ...	1.73 8.1
Gardens) .....	2.13 8.4	Kensington Gardens .....	1.95 8.2
<i>Middlesex.</i> —Teddington (Holmesdale) .....	2.02 <i>in.</i> or 7.9 per cent.		
<i>Cambridgeshire.</i> —Chatteris (Aylesby House) .....	1.86 <i>in.</i> or 8.0 per cent.		
<i>Suffolk.</i> —Rumburgh Vicarage .....	1.90 <i>in.</i> or 7.7 per cent.		
<i>Rutland.</i> —Hambleton Manor .....	2.63 <i>in.</i> or 9.9 per cent.		
<i>Lincolnshire.</i> —Spalding (Pode Hole) .....	2.08 <i>in.</i> or 8.1 per cent.		
<i>Nottinghamshire.</i>	<i>in. or %</i>	<i>Derbyshire.</i>	<i>in. or %</i>
Bagthorpe (Isolation		Derby (Wild St.) .....	2.58 7.1
Hospital) .....	2.35 8.1	Baslow (Over End) .....	2.80 7.0
Papplewick (Waterworks)	2.35 7.6	Codnor (Cross Hill) .....	2.57 6.8
Mansfield (Rainworth		Mackworth Vicarage .....	3.45 9.6
W.W.) .....	2.84 8.8		
Mansfield (Carr Bank) ....	2.54 7.4	<i>Cheshire.</i>	<i>in. or %</i>
Mansfield (Debdale Hall) .	2.66 7.6	Nantwich (Dorfold Hall)..	2.51 6.0
Ollerton (Boughton W. W.)	2.40 7.7		
<i>Yorkshire.</i>	<i>in. or %</i>	<i>Denbighshire.</i>	<i>in. or %</i>
Kirby Malzeard (Hawsett).	2.52 5.9	Penmaenmawr (Plas Uchaf)	3.00 7.4
Kirby Malzeard (Bagwith		Llanefydd (Glascoed Res.)	2.85 8.9
Brae) .....	2.51 6.5	Abergele (Sea Road) .....	2.32 7.6
Masham Moor (Somerside)	2.89 6.7		
Masham Moor (Low Houses)	2.51 5.5	<i>Waterford.</i>	<i>in. or %</i>
Masham Moor (Roundhill		Kilmacthomas (Comragh	
Res.) .....	3.05 6.6	House) .....	2.87 4.3

## September 3rd—continued.

<i>Wicklow.</i>			<i>Wicklow.</i>		
	<i>in.</i>	<i>or %</i>		<i>in.</i>	<i>or %</i>
Roundwood (Vartry Lodge)	4.90	9.3	Blessington Rectory . . . . .	2.90	6.5
Roundwood . . . . .	4.20	8.1	Newcastle (Killadreenan) ..	3.51	7.5
Delgany (Elsinore) . . . . .	3.20	6.7			
<i>Dublin.</i>			<i>Dublin.</i>		
	<i>in.</i>	<i>or %</i>		<i>in.</i>	<i>or %</i>
Shankhill (Sherrington)...	2.50	6.8	Lusk (Nevitt) . . . . .	2.96	8.8
Carrickmines (Claremount) .	2.97	7.7	Dublin (Ringsend P.S.) . . .	3.01	8.9
Stillorgan (Vartry House) .	3.28	8.8	Dublin (Fitzwilliam Square)	2.93	9.5
Stillorgan (Farmleigh) . . . .	3.05	8.3	Dublin (Wellington Rd.) ..	2.91	8.8
Kingstown (Harbour Yard)	2.80	7.9			
Rathfarnham Castle . . . . .	3.21	9.8			
Dublin (Trinity College)...	2.92	9.4			
Dublin (Phoenix Park) . . . .	2.72	8.9			
Glasnevin (Botanic			<i>Down.</i>	<i>in.</i>	<i>or %</i>
Gardens) . . . . .	3.05	9.0	Silent Valley . . . . .	3.13	5.4
			Annalong Valley . . . . .	2.66	4.0

*Meath.*—Dunboyne (Stirling, Clonee) . . . . . 2.60 *in.* or 7.5 per cent.

One of the outstanding features of the weather of September was the abnormally heavy falls during the first four days which gave rise to widespread and severe floods, particularly in the Midlands and north of England. The rainfall was associated with a deep and complex depression which, situated off the south-west of Ireland on the 1st, moved slowly eastward and by the morning of the 4th was centred over the southern North Sea. The rainfall of the 3rd exceeded 2 inches near London, over a number of areas between Denbigh, Spalding and Pateley Bridge as well as along the east coast of Ireland. More than 3 inches was recorded to the north of Pateley Bridge near Derby and over part of the Wicklow and Mourne Mountains and to the north of Dublin. At Roundwood (Vartry Lodge) the total reached 4.90 inches.

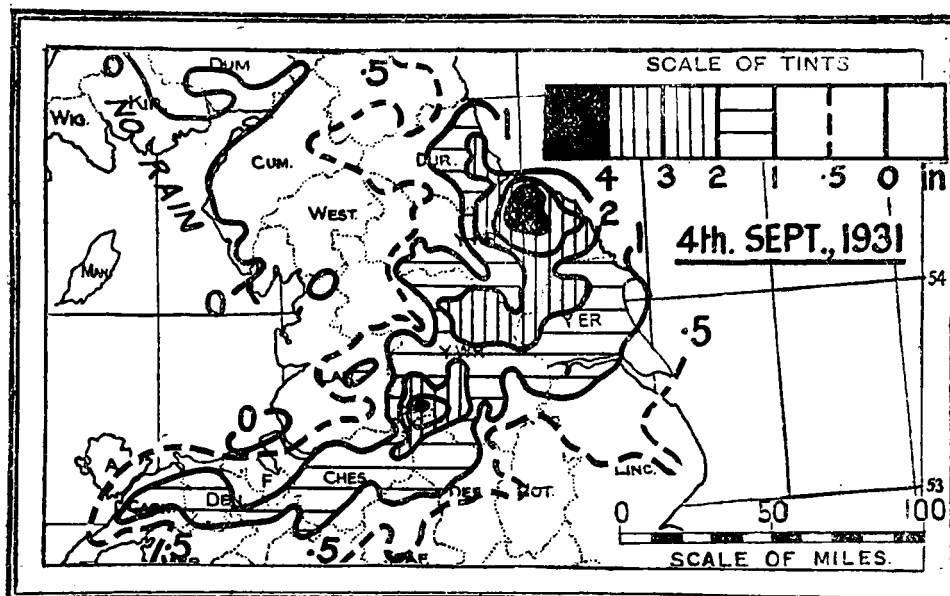
## September 4th.

<i>Yorkshire.</i>			<i>Yorkshire.</i>		
	<i>in.</i>	<i>or %</i>		<i>in.</i>	<i>or %</i>
Greenfield (Chew Mount) ..	4.23	6.4	Dewsbury (Mitchell Laithes		
Greenfield (Yeoman Hey) ..	2.62	4.1	Sewage Works) . . . . .	2.30	7.5
Little Don Valley (Under-			Seacroft (Leeds City		
bank Res.) . . . . .	2.70	6.3	Hospital) . . . . .	2.75	8.3
Little Don Valley (Bridge			Harewood House . . . . .	2.68	6.9
Lane) . . . . .	2.87	5.8	Spofforth Sewage Works ..	2.61	7.2
Langsett Moor (Upper Mid-			Wetherby (Ribston Hall) ..	2.64	7.5
hope) . . . . .	3.02	6.5	Harrogate (Beaver Dyke		
Langsett Moor (Swinden			Res.) . . . . .	2.50	5.9
Lodge) . . . . .	2.72	5.0	Harrogate (Irongate Bridge)	2.77	7.1
Langsett Moor (Flouch Rd.)	3.04	5.9	Knaresborough (Goldsbro'		
Dunford Bridge Reservoir	3.39	5.5	Hall) . . . . .	3.00	8.5
Penistone (Scout Dike Res.)	2.79	6.5	Knaresborough (Water		
Penistone (Ingbirchworth			Tower) . . . . .	2.94	7.0
Res.) . . . . .	2.54	5.6	East Harlsey (Harlsey Hall)	2.56	7.8
Penistone (Broadstone) . . .	2.57	5.8	Pickering (Hungate Hall) ..	3.11	8.6
Holmebridge (Yateholme			East Ayton (Derwent		
Res.) . . . . .	2.87	4.1	House) . . . . .	2.61	7.7
Holmebridge (Yateholme			Egton Bridge (Bridgeholme)	3.34	8.3
Farm) . . . . .	2.79	4.0	Glaisdale (The Gables) . . .	3.81	8.5

## September 4th—continued.

<i>Yorkshire.</i>			<i>Yorkshire.</i>		
	<i>in.</i>	<i>or %</i>		<i>in.</i>	<i>or %</i>
Danby (School House) ...	4.43	10.4	Marton-in-Cleveland (South-	2.24	7.9
Castleton .....	5.01	11.7	leigh) .....		
Danby Lodge .....	4.43	10.3	Marton-in-Cleveland (Gar-	2.46	8.5
Whitby (Park Hall, Aislaby)	2.58	7.6	theen) .....	2.98	5.5
Guisborough (Lockwood			Holmfirth (Thongsbridge)		
Res.) .....	4.38	10.8	Middlesbrough (Albert		
Ingleby Manor .....	4.23	11.1	Park) .....	2.33	8.3
Thornton Dale (High Dalby					
Ho.) .....	2.95	8.6	<i>Durham.</i>		
Whitby (Mulgrave Castle).	2.51	7.3	Hurworth Burn (Crookfoot		
Terrington (The Cliff) ....	2.84	8.3	Res.) .....	1.98	7.8
Kildale Hall .....	4.97	12.1	Shotton (New Winning		
Crathorne Hall Gardens ..	2.50	8.1	P.S.) .....	2.44	8.0
Nunthorpe (The Box).....	2.65	8.4	Easington (Mill Hill Res.)..	2.42	8.2

The heavy rainfall of September 4th was confined to the northern half of England and the distribution is shown on the accompanying map.



Rainfall, 4th September, 1931.

Referring to the flood in the river Derwent during the night of the 4th to 5th, Mr. John Hunter, the observer at Belper (Quarry Bank) states:—

"I believe this to be the greatest experienced since that of February 8th, 1881."

The following comments from Mr. R. H. Rastall of Turnerdale Hall, Whitby, are of special interest in connexion with his comments on the heavy rainfall in that area during July 20th to 23rd, 1930, as given on page 66 of *British Rainfall*, 1930:—

"On September 4th, 1931, there occurred an almost precisely similar flood to that of July 20th to 23rd, 1930. On the earlier occasion the Press

reported incorrectly that a lifeboat was used, but on the latter occasion a lifeboat really was used to rescue the same two old women! However, the employment of the lifeboat was not very successful; it ran into a telephone pole, when one of the crew fell overboard and was considerably injured. After knocking down a long length of wooden fencing it was found that the lifeboat could not be got to the flooded cottage and the people were finally rescued in a small boat, in which they could have got away hours before without any difficulty.

There were some remarkable features about this flood. It began to rain about 17h. on September 3rd and by 13h. 30m. on September 4th the river had risen at Grosmont Priory to 21 feet above its level on the day before. The real point is that this year 20 hours of rain produced a rise of the river only 9 inches lower than that due to nearly 4 days rain in 1930. The damage this time was on the whole rather worse than that of last year, but owing to the much more widespread character of the floods it attracted much less notice."

#### September 11th.

*Mayo*.—Delphi Lodge .....2·86 in. or 2·6 per cent.

#### October 1st.

*Inverness*.—Loch Quoich (Kinlochquoich) .....2·60 in. or 2·4 per cent.

#### October 4th.

*Inverness*.—Loch Quoich (Kinlochquoich) .....3·00 in. or 2·8 per cent.

*Argyll*.—Mull (Glencannel) .....3·15 in. or 3·4 per cent.

At Kinlochquoich, at the head of Loch Quoich, the total rainfall during the 13 days September 30th to October 12th amounted to 14·98 inches and for the 8 days from September 30th to October 8th as much as 12·77 inches. The heavy rain was accompanied by mild weather and strong south-westerly to westerly winds, associated with depressions whose centres passed well to the north of Scotland. This wet weather ended the remarkable fine spell in the west of Scotland. During 63 days, from July 29th to September 29th, the total rainfall at Kinlochquoich only amounted to 3·37 inches, an extremely small total for a shooting lodge in the heart of the glens.

#### November 1st.

*Mayo*.—Aasleagh House .....2·90 in. or 2·6 per cent.

The most widespread heavy rain of the year occurred on November 2nd and 3rd. On the 1st and 2nd the south and east of England lay within the influence of an anticyclone over the Continent and brilliant weather was enjoyed. Meanwhile unsettled conditions were spreading from the north-west and heavy rain was experienced in Ireland, in the west of Scotland, and the English Lake District on the 2nd. By the morning of the 3rd a complex depression lay to the north-west of Ireland and Scotland causing widespread heavy rain, strong winds and gales over the southern half of the country.

A weather map corresponding with observations made at 7h. on November 3rd is reproduced.

### November 2nd.

*Cumberland.*—Penrith (Watermillock, Gatesgarth) ... 3.34 in. or 6.3 per cent.

<i>Westmorland.</i>	<i>in. or %</i>	<i>Westmorland.</i>	<i>in. or %</i>
Patterdale (Greenside Mine)	3.35 3.5	Kentmere Head Reservoir	2.89 2.9
Rydal (High Close) .....	2.67 3.0	Grasmere (The Wray) ....	2.81 3.0
Rydal (The Hall) .....	2.63 3.0		

*Breconshire.*—Ystradgynlais (Ynisedwyn House) ... 3.20 in. or 5.0 per cent.

*Carnarvon.*—Snowdon (Llydaw Intake) ..... 4.25 in. or 2.7 per cent.

<i>Argyll.</i>	<i>in. or %</i>	<i>Argyle.</i>	<i>in. or %</i>
Glenleven (Blackwater Dam S) .....	2.85 3.1	Glenleven (Kinlochleven) ..	3.65 3.8
<i>Inverness.</i>	<i>in. or %</i>	<i>Kerry.</i>	<i>in. or %</i>
Loch Quoich (Kinloch-quoich) .....	2.61 2.4	Kilgarvan (Inchimore) ....	5.00 4.6
Loch Arkaig (Glendessary)	2.80 2.6		
Glenleven (Blackwater Dam N) .....	2.95 3.2	<i>Mayo.</i>	<i>in. or %</i>
Kinlochleven (Kinlochmore Lo) .....	2.74 2.9	Delphi Lodge .....	2.97 2.7
		Aasleagh House .....	2.53 2.2

No rain at all was recorded for the 2nd at stations along the east coast of Great Britain and in the extreme south-east of England. Falls of more than 2 inches were recorded in the mountains of Kerry and Connemara, in Snowdonia and the English Lake District and in the Western Highlands of Scotland. More than 3 inches was recorded at Patterdale, on Snowdon and in Loch Aber.

### November 3rd.

<i>Dorset.</i>	<i>in. or %</i>	<i>Devonshire.</i>	<i>in. or %</i>
Sherborne (Barton Gardens)	2.27 7.6	Bovey Tracey (Edymead) .	3.45 8.0
Broadwindsor (Blackdown)	2.50 ..	Moretonhampstead (Bullaton) .....	4.11 9.0
<i>Devonshire.</i>	<i>in. or %</i>	Moretonhampstead (Mar-	
Whitchurch (Langstone) ..	3.26 5.4	don) .....	3.03 7.0
Tavistock .....	3.27 5.9	North Bovey (Manor House)	3.71 7.0
Tavistock (The Library) ..	3.25 6.5	Christow (Kennick) No. 1 .	3.35 7.0
Mary-Tavy (Blackdown) ..	3.72 5.9	Christow (Kennick) No. 2 .	3.62 7.9
Lydford (Naseby) .....	3.35 5.7	Chagford (Fernworthy) ....	5.11 7.4
South Brent (Badworthy) .	3.10 4.0	Chagford (Metherall) .....	5.49 8.3
Dartmoor (Fox Tor) .....	3.93 5.9	Bovey Tracey (Whiddon) ..	3.45 7.7
Dartmoor (Swincombe Valley) .....	3.16 4.4	Moretonhampstead (Stin-	
Princetown (Wydemeet) ..	3.66 5.5	hall) .....	4.12 7.9
Princetown (H.M. Prison) .	5.39 6.2	Christow (Laployd) .....	4.24 8.6
Postbridge (Archerton) ..	4.25 5.3	Chagford (Thornworthy) ..	4.40 6.4
Postbridge (Warren House Inn) .....	5.17 7.1	Chagford (Huish) .....	3.90 7.6
Ilsington .....	3.51 6.6	Parkham (Melbury Res.) ..	4.30 7.2
Bovey Tracey (Hedgebar-		Holne .....	4.52 6.7
ton) .....	3.90 6.4	Okehampton (Grammar School) .....	3.00 6.1
		Okehampton (Uplands) ...	3.30 6.1



## November 3rd—continued.

<i>Cornwall.</i>		<i>in. or %</i>	<i>Cumberland.</i>		<i>in. or %</i>
St. Ives (Cemetery) . . . . .	2.76	6.4	Keswick (High Hill) . . . . .	4.87	8.4
St. Ives (Liscoruah) . . . . .	2.57	6.0	Portinscale (High Moss) . . . . .	4.64	7.0
Truro W. W. (Lower Tre- gurrow) . . . . .	2.50	5.3	Threlkeld (Blencathra Sana- torium) . . . . .	3.47	5.1
Launceston (North Hill) . . . . .	2.82	4.5	Loweswater . . . . .	3.06	..
Launceston (Pendruc- combe) . . . . .	2.51	4.7			
Bolventor Vicarage . . . . .	3.56	4.7	<i>Westmorland.</i>	<i>in. or %</i>	
Wendron (Ninemaidens) . . . . .	2.65	4.7	Patterdale (Greenside Mine) . . . . .	5.26	5.6
			Penrith (Lowther Castle) . . . . .	3.65	8.4
<i>Somerset.</i>	<i>in. or %</i>		Bowness (Dawstone) . . . . .	3.13	4.7
Chard (High St. Council School) . . . . .	2.65	6.4	Windermere (Nurseries) . . . . .	3.18	4.8
Coker Court Gardens . . . . .	2.59	7.8	Windermere Hammar- bank) . . . . .	3.68	5.5
Ilminster (Whitelackington) . . . . .	2.78	8.8	Windermere (Holehird) . . . . .	4.00	5.5
Yeovil (Reckleford School) . . . . .	3.20	10.7	Windermere (Brockhole) . . . . .	3.70	5.4
Porlock (Bush Steep) . . . . .	2.70	7.2	Ambleside (Wansfell) . . . . .	3.73	5.0
West Porlock (Underway) . . . . .	3.09	7.3	Ambleside (White Craggs) . . . . .	4.26	5.5
Winsford . . . . .	2.79	5.1	Ambleside (Market Square) . . . . .	4.01	5.1
Cutcombe (Wheddon Cross) . . . . .	2.54	5.1	Rydal (The Stepping Stones) . . . . .	5.41	6.4
			Rydal (High Close) . . . . .	4.75	5.4
<i>Gloucestershire.</i>	<i>in. or %</i>		Rydal (The Hall) . . . . .	5.23	6.0
St. Briavels House . . . . .	3.30	6.7	Kendal (Greenside) . . . . .	3.30	6.3
Lydney (Clanna Cottage) . . . . .	2.57	6.1	Kendal (Burneside) . . . . .	3.55	5.7
			Kendal (Skelsmergh) . . . . .	3.04	4.9
<i>Lancashire.</i>	<i>in. or %</i>		Kendal (Potter Fell) . . . . .	4.50	5.3
Edenfield (Scout Moor Res.)			Kentmere Head Reservoir . . . . .	4.30	4.4
No 2 . . . . .	3.15	4.9	Grasmere (The Wray) . . . . .	5.28	5.7
Bacup (L.M.S.R.) . . . . .	3.14	5.2			
Rusland Hall . . . . .	3.15	4.9	<i>Monmouth.</i>	<i>in. or %</i>	
Hawkshead (Tower Bank, Sawrey) . . . . .	3.70	5.1	Blackwood . . . . .	4.40	8.8
Ambleside (Skelwith Fold) . . . . .	5.30	6.1	Abertillery (The Park) . . . . .	5.80	9.2
Hawkshead (Bettyfold) . . . . .	3.13	3.9	Tredegarr (Laboratory) . . . . .	4.68	7.9
			Ebbw Vale (Iron Works) . . . . .	5.22	9.5
<i>Yorkshire.</i>	<i>in. or %</i>		Newport W. W. (Pant-yr- eos Res.) . . . . .	3.80	7.4
Slaidburn (Croasdale Valley) . . . . .	3.00	4.7	Usk (Monmouth Agric. Inst.) . . . . .	3.34	8.0
Soyland Moor (Rishworth Drain) . . . . .	3.10	4.8	Abersychan (Glansychan) . . . . .	3.80	6.5
Walsden (Ramsden Res.) . . . . .	3.21	5.2	Goytre (Goytre Hall) . . . . .	4.16	8.2
Todmorden (Sourhall Hospital) . . . . .	3.52	5.2	Blaenavon (Estate Office) . . . . .	5.46	7.9
Halifax W. W. (Gorple) . . . . .	3.16	5.7	Abergavenny (Plâs Derwen) . . . . .	4.04	8.4
			Abergavenny (Tŷ Clyd) . . . . .	4.30	8.9
<i>Cumberland.</i>	<i>in. or %</i>		Grwyne Fawr (Coed Dias) . . . . .	3.21	6.3
Ullswater (Hallsteads) . . . . .	3.92	7.2	Abergavenny (Larchfield) . . . . .	3.35	7.7
Penrith (Hutton John) . . . . .	3.09	6.5	Abergavenny (The Chain) . . . . .	3.60	8.2
Borrowdale (The Moraine) . . . . .	5.24	5.2			
Keswick (Lingholm Gardens) . . . . .	5.05	7.1	<i>Glamorgan.</i>	<i>in. or %</i>	
Keswick (Derwent Island) Old gauge . . . . .	4.78	7.2	Rhondda W. W. (Llyn Fawr Res.) old . . . . .	5.50	6.1
Keswick (Derwent Island) New gauge . . . . .	4.54	7.3	Rhondda W. W. (Llyn Fawr Res.) new . . . . .	5.42	5.9
			Ystradyfodwg (Tyntyla Hospital) . . . . .	3.43	5.9

## November 3rd—continued.

<i>Glamorgan.</i>	<i>in. or %</i>		<i>Breconshire.</i>	<i>in. or %</i>	
Fairwater (Glan. Ely Hospital) .....	3.00	6.9	Cardiff W. W. (Storey Arms Field) .....	6.40	..
Treharris (Service Res.)...	4.32	7.6	Taf Fechan (Pentwyn Res. S) .....	5.86	8.6
Mountain Ash (Darranlas Res.) .....	5.46	8.4	Cardiff W. W. (Cantref)...	5.10	7.2
Mountain Ash (Maesydderwyn).....	5.02	8.4	Cardiff W. W. (Beacons Res.) .....	4.98	6.4
Rhondda (Castel Nos Res.)			Taf Fechan (Neuadd No. 1)	4.65	6.1
old g. ....	5.38	6.9	Taf Fechan (Neuadd No. 1 A) .....	5.05	6.0
Rhondda (Castel Nos Res.)			Taf Fechan (Neuadd No. 4)	5.03	6.0
new g. ....	5.68	6.7	Taf Fechan (Neuadd No. 11) .....	4.96	6.4
Rhondda (Lluest Wen Filter) .....	3.26	5.7	Taf Fechan (Neuadd No. 11A) .....	5.10	6.2
Rhondda ((Lluest Wen Res.) .....	6.38	6.8	Talybont (Ffynonwen) ...	4.73	7.6
Merthyr Tydfil (Penybryn Filters) .....	5.26	8.7	Talybont (Aberclydach)...	4.60	9.2
Dowlais (Gwernllwyn) ...	3.20	6.6	Crickhowell (Gwernvale)..	4.03	9.1
Dowlais (Garth Filter Beds)	4.44	7.7	Talybont (Ashford).....	4.45	9.8
Rhymney Bridge Reservoir	5.99	9.2	Crickhowell (Dan-y-Parc).	4.34	9.8
Treherbert (Tynywaun)...	5.33	5.8	Trecastle (Blaenau-hydfer)	7.25	9.2
Ystalyfera (Wern House)..	3.29	4.6	Brecon (Tairbull School)...	4.95	9.2
			Brecon (Ffrwdgrech) .....	4.56	9.8
<i>Carmarthen.</i>	<i>in. or %</i>		Black Mountains (Blaen-y-cwm) .....	4.25	6.9
Llandilo (Dynevor Castle)..	3.28	6.3	Black Mountains (Dam Site Grwyne Fawr) .....	4.36	6.8
Llandilo (Bryneithen) ...	3.34	6.3	Swansea W. W. (Cray Res.)	4.44	6.1
Llyn-y-fan Fach (Nant Coch) .....	6.52	7.2			
Llyn-y-fan Fach (Troed-y-foel) .....	5.35	7.2	<i>Radnor.</i>	<i>in. or %</i>	
Abergorlech .....	3.39	5.9	New Radnor (Harpton Court) .....	2.75	5.9
Llandovery (Nantyrhogfaen)	2.85	5.0	Birmingham W. W. (Nant-gwillt No. 1).....	3.90	6.1
Llanddeusant (Pontcrynfe)	3.98	6.9	Birmingham W. W. (Tynant) .....	3.82	5.6
Carmarthen (The Friary)..	2.53	4.8	Rhayader (Penralley) ....	2.67	5.5
			Birmingham W. W. (Tyrmynydd) .....	3.75	5.9
<i>Pembroke.</i>	<i>in. or %</i>				
Mynachlogddû C. School..	2.77	4.3	<i>Montgomery.</i>	<i>in. or %</i>	
			Lake Vyrnwy (Bank Cynon Isaf).....	3.10	5.5
<i>Cardigan.</i>	<i>in. or %</i>		Lake Vyrnwy.....	3.00	4.8
Abergwesyn (Nantneuadd)	4.23	6.1			
Birmingham W. W. (Abergwngu) .....	2.60	3.8	<i>Denbighshire.</i>	<i>in. or %</i>	
Lampeter (Falcondale)....	2.96	5.8	Chirk Castle .....	3.00	7.1
Cardigan County School...	2.57	6.2	Llanfihangel-glyn-myfyr ..	3.00	5.5
			R. Alwen (Alwen Filter House) .....	2.62	4.6
<i>Breconshire.</i>	<i>in. or %</i>		R. Alwen (Alwen Dam)....	2.79	4.7
Swansea W. W. (Nant-yr-wydd) .....	4.45	5.5	Bettws-y-Coed (Rhydycrena) .....	3.55	6.5
Ystradfellte Reservoir ....	5.53	7.0	Pentre Voelas (Voelas Hall)	2.73	4.7
Aberdare (Nanthir Res.)...	5.48	8.6	Llangollen (Vivod) .....	2.75	6.4
Taf Fechan (Pontsticill)...	5.25	8.8			
Cardiff W. W. (Llwynon Res.) .....	5.37	8.4			
Cardiff W. W. (Pontardaf) .....	5.48	8.4			

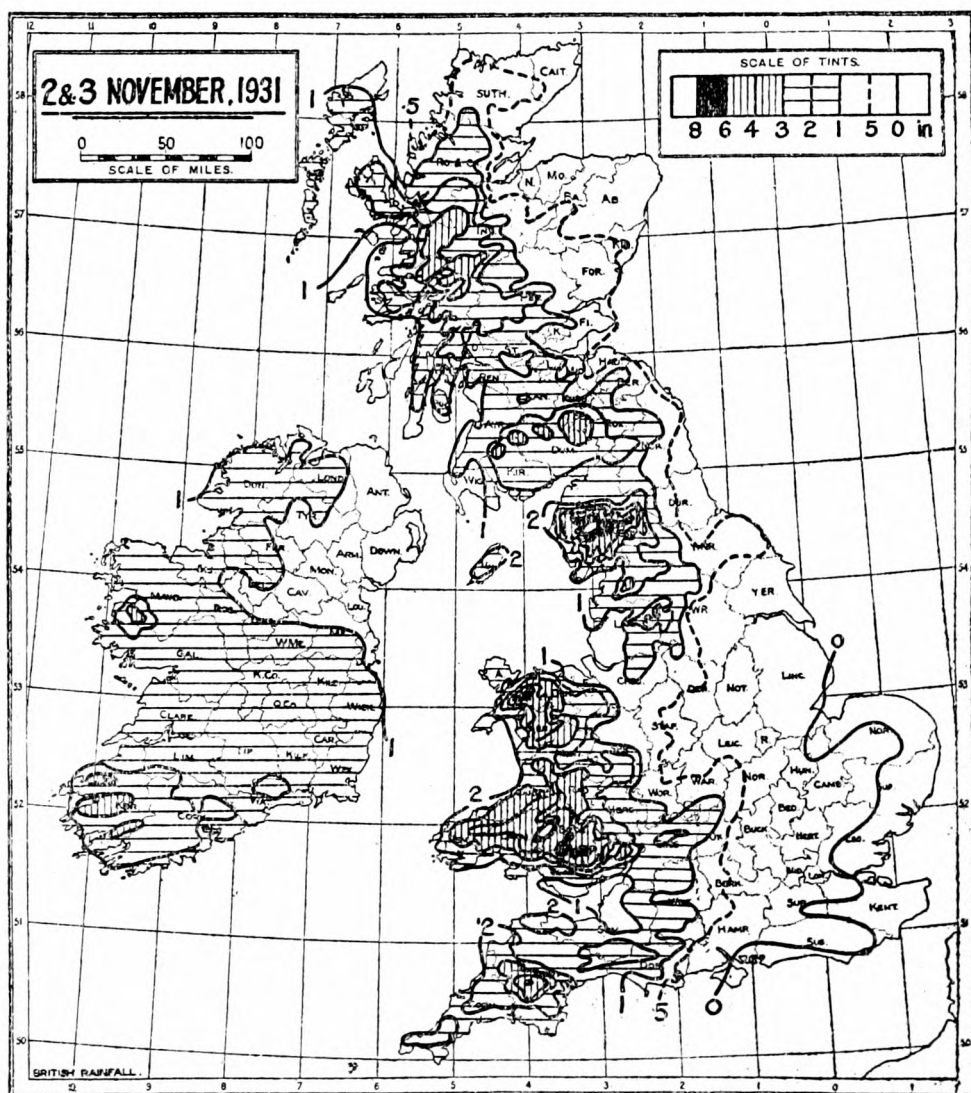
## November 3rd—continued.

<i>Merioneth.</i>	<i>in.</i>	<i>or</i>	<i>%</i>
Llanuwchllyn .....	3.95		6.1
Llanderfel (Pale Gardens) .	3.03		5.9
Tan-y-bwlch (Dol-y-Moch)	2.60		3.4
Blaenau Festiniog (Oakeley Q.) .....	4.11		3.6
Blaenau Festiniog (Llech-wedd Q.) .....	4.26		3.5
Dolgelly (Dol'rhyd).....	3.23		4.6
Festiniog (Hafod Fawr)...	4.00		4.7

<i>Carnarvon.</i>	<i>in.</i>	<i>or</i>	<i>%</i>
Trefriw Wells .....	3.76		6.4
Lake Eigiau (Dam Site)...	6.20		6.9

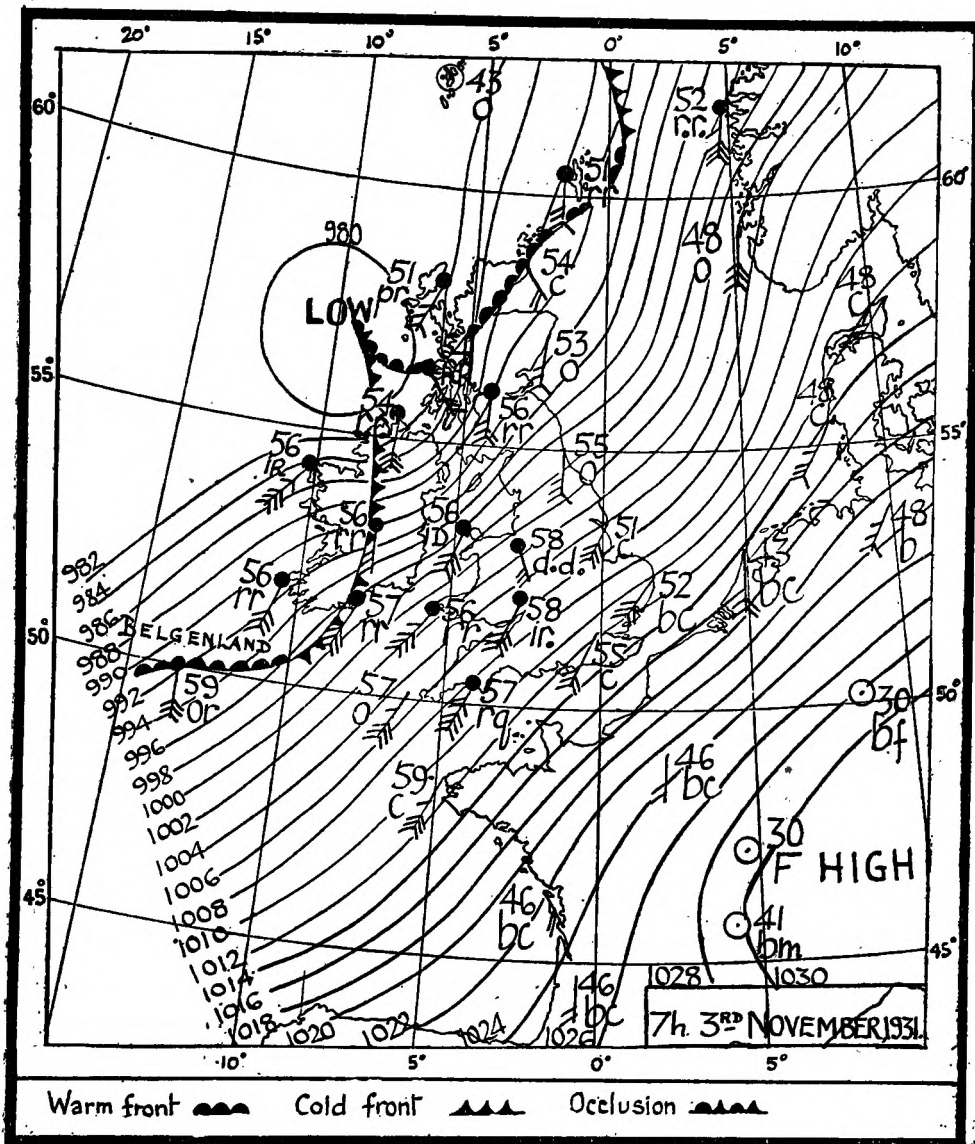
<i>Carnarvon.</i>	<i>in.</i>	<i>or</i>	<i>%</i>
Tyn-y-Groes (Dolcrwm)...	2.97		5.7
Tyn-y-Groes (Roe Wen)...	2.91		5.5
Llandwrog (Glynllivon Fort) .....	2.50		4.7
Bethesda (St. Ann's Vicar-age) .....	2.91		4.5
Snowdon (Llydaw Intake).3.00			1.9
Bethesda (Penrhyn Q.)....	3.27		4.6
Snowdon (Cwm Dyli).....	5.71		4.1

<i>Dumfries.</i>	<i>in.</i>	<i>or</i>	<i>%</i>
Eskdalemuir Observatory .	2.77		4.5



Rainfall, 2nd and 3rd November, 1931.

In order to reduce the number of entries for this day, falls less than 3 inches have been omitted in the case of certain counties and less than 4 inches in the case of Brecon. Details of the number of falls omitted are given below :—Devonshire 9, Lancashire 9, Yorkshire 13, Cumberland 3, Westmorland 5, Monmouth 5, Glamorgan 3 and Brecon 10.



Synoptic Chart, 3rd November, 1931, 7h.

**BAROMETER.**—Isobars are drawn for intervals of 2 millibars, 1,000 millibars=29·53 mercury-inches

**WIND.**—Direction is shown by arrows flying with the wind. Force, on the scale 0 to 12, is indicated by the number of feathers. A circle indicates calm.

**TEMPERATURE** is given by figures in degrees Fahrenheit.

**WEATHER** is indicated by the following notation :—

b, blue sky; bc, sky partly clouded; c, generally cloudy; o, overcast sky; p, passing showers; r, rain; d, drizzle; h, hail. Capital letters indicate "intense"; suffix ° indicates "slight" repetition of letters indicates continuity; i denotes intermittent. ●=rain.

Some rain fell on the 3rd nearly everywhere in the British Isles, apart from the extreme south-east of England, and a very much larger area recorded an inch or more than on the 2nd. As much as 2 inches was recorded over much of the Devon-Cornwall peninsula, over most of Wales and in the English Lake District. More than 4 inches was recorded over Dartmoor, South Wales, Snowdonia and the English Lake District.

A map is reproduced showing the distribution of the total rainfall of November 2nd and 3rd over the British Isles. The wide variation between the falls along the east coast and those recorded in the mountainous regions of the west of Great Britain are worthy of special comment.

Some of the largest totals for November 2nd and 3rd are set out below:—

County.	Station.	NOVEMBER.		
		2nd.	3rd.	Total 2nd & 3rd.
		ins.	ins.	ins.
Brecon . . . . .	Trecastle (Blaenau-hydfer) . . . . .	2·36	7·25	9·61
Carmarthen ..	Llyn-y-fan Fach (Nant Coch) . . . . .	2·16	6·52	8·68
Westmorland .	Patterdale (Greenside Mine) . . . . .	3·35	5·26	8·61
Westmorland .	Grasmere (The Wray) . . . . .	2·81	5·28	8·09
Westmorland .	Rydal (The Hall) . . . . .	2·63	5·23	7·86
Cumberland ..	Borrowdale (The Moraine) . . . . .	2·35	5·24	7·59
Glamorgan ..	Rhondda (Lluest Wen Res.) . . . . .	1·16	6·38	7·54
Cumberland ..	Keswick (Lingholm Gdns.) . . . . .	2·45	5·05	7·50
Westmorland .	Rydal (High Close) . . . . .	2·67	4·75	7·42
Westmorland .	Rydal (The Stepping Stones) . . . . .	1·85	5·41	7·26
Carnarvon ...	Snowdon (Llydaw Intake) . . . . .	4·25	3·00	7·25
Carmarthen ..	Llyn-y-fan Fach (Troed-y-foel) . . . . .	1·87	5·35	7·22
Westmorland .	Kentmere Head Res. . . . .	2·89	4·30	7·19
Cumberland ..	Portinscale (High Moss) . . . . .	2·44	4·64	7·08

On November 2nd more than 2 inches fell over 1,769 square miles to the north-west of the Caledonian Canal, the general rainfall over that area being 2·37 inches ; more than 2 inches fell over 466 square miles in Loch Aber, the general rainfall being 2·62 inches. In the latter area 59 square miles recorded more than 3 inches, the general rainfall being 3·34 inches. More than 2 inches fell over 344 square miles in the English Lake District, the general rainfall over that area being 2·58 inches, while more than 3 inches was recorded over an area of 26 square miles, the general rainfall being 3·17 inches.

Measurements of the heavy rainfall for the 3rd over the Devon-Cornwall Peninsula, over Wales and the English Lake District are set out below :—

DEVON-CORNWALL PENINSULA.			SOUTHERN HALF OF WALES.		
	Area. Square miles.	General Rainfall inches.		Area. Square miles.	General Rainfall inches.
More than 4 inches ..	126	4.50	More than 6 inches ..	78	6.34
3—4 inches.....	266	3.48	4—6 inches.....	770	4.78
			3—4 inches.....	1358	3.42
Total more than 3 in.	392		2—3 inches.....	2435	2.51
			Total more than 2 in.	4641	

NORTHERN HALF OF WALES.			ENGLISH LAKE DISTRICT.		
	Area. Square miles.	General Rainfall inches.		Area. Square miles.	General Rainfall inches.
More than 4 inches ..	148	4.70	More than 4 inches ..	337	4.52
3—4 inches.....	740	3.42	3—4 inches.....	418	3.46
2—3 inches.....	1110	2.47	2—3 inches.....	1010	2.49
Total more than 2 in.	1998		Total more than 2 in.	1765	

The general rainfall of the 392 square miles over the Devon-Cornwall Peninsula was 3.81 inches, of the 4,641 square miles over the southern half of Wales 3.22 inches, of the 1,998 square miles over the northern half of Wales 2.99 inches and of the 1,765 square miles over the English Lake District 3.11 inches.

The rainfall in the English Lake District fell in 36 hours, and Derwentwater and Bassenthwaite were joined in one great lake. Considerable erosion occurred in that district as the heavy rain ran off the steep slopes. Such erosion is not uncommon in that region, although the most striking occurrence was as long ago as August 22nd, 1749. At Princetown Prison rain fell at a fairly steady rate of about 0.2 inches per hour for 23 hours. The chart for the recording rain-gauge for this day is reproduced in the *Meteorological Magazine*, 1931, p. 294. In the Elan Valley (Birmingham W. W.) more water was discharged over Caban Dam in 24 hours than in any similar period since before 1908.

#### November 10th.

<i>Kent.</i>			<i>Kent.</i>		
	<i>in.</i>	<i>or %</i>		<i>in.</i>	<i>or %</i>
Wye (Agricultural College)	2.11	8.4	Selling (Luton) .....	2.06	7.6
Selling (Grove House) ....	1.89	7.5	Goudhurst (Gore Court) ..	1.98	7.6

**November 14th.**

<i>Isle of Man.</i>	<i>in. or %</i>	<i>Isle of Man.</i>	<i>in. or %</i>
West Baldwin Res. No. 1	2.56 3.9	West Baldwin Res No. 2	3.00 4.3

On November 14th a small secondary depression caused heavy rains in Wales and the Isle of Man. As much as 2.42 inches fell at Douglas, in 22 hours on the 13th and 14th.

**November 17th.**

<i>Down.</i> —Foffany Reservoir	2.88 in. or 3.3 per cent.
<i>Mayo.</i> —Aasleagh House	2.98 in. or 2.6 per cent.

**November 22nd.**

<i>Angus.</i> —Glenogil W. W.	2.75 in. or 6.9 per cent.
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**November 23rd.**

<i>Cumberland.</i> —Borrowdale (The Moraine)	2.58 in. or 2.6 per cent.
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<i>Westmorland.</i>	<i>in. or %</i>	<i>Westmorland.</i>	<i>in. or %</i>
Rydal (High Close)	2.81 3.2	Kendal (Potter Fell)	2.71 3.2
Rydal (The Hall)	2.66 3.1	Grasmere (The Wray)	3.68 4.0

<i>Carmarthen.</i> —Llyn-y-fan Fach (Nant Coch)	2.90 in. or 3.2 per cent.
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<i>Carnarvon.</i> —Lake Eigiau (Dam Site)	2.70 in. or 3.0 per cent.
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<i>Isle of Man.</i>	<i>in. or %</i>	<i>Isle of Man.</i>	<i>in. or %</i>
West Baldwin Res. No. 1	2.50 3.8	Ramsey (Town Hall)	3.75 6.9
West Baldwin Res. No. 2	2.57 3.7	Ramsey (North Promenade)	3.45 6.4

<i>Ayrshire.</i> —Irvine (Gailes)	2.74 in. or 6.8 per cent.
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<i>Dumfries.</i> —Gubhill School	2.52 in. or 4.5 per cent.
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On November 22nd a deep secondary to a complex depression in the North Atlantic travelled north-eastwards across the country, causing strong winds and heavy rains in Ireland and the west of Great Britain. There was serious flooding in several parts of Scotland, in western Ireland and again in the Isle of Man.

**December 2nd.**

<i>Cumberland.</i> —Borrowdale (The Moraine)	3.02 in. or 3.0 per cent.
----------------------------------------------	---------------------------

<i>Westmorland.</i> —Grasmere (The Wray)	2.63 in. or 2.8 per cent.
------------------------------------------	---------------------------

<i>Carnarvon.</i> —Snowdon (Llydaw Intake)	3.00 in. or 1.9 per cent.
--------------------------------------------	---------------------------

<i>Ayrshire.</i> —New Cumnock (Power Station)	2.62 in. or 2.7 per cent.
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<i>Stirling.</i> —Stronachlachar (Invergyle)	2.95 in. or 3.6 per cent.
----------------------------------------------	---------------------------

<i>Argyll.</i>	<i>in. or %</i>	<i>Argyle.</i>	<i>in. or %</i>
Ardgour House	2.60 2.5	Glenleven (Kinlochleven)	3.35 3.5
Carnoch	3.06 3.7	Loch Eck (Benmore)	2.57 2.6
Glenleven (Blackwater Dam)	2.70 3.0		

**December 2nd—continued.**

*Perthshire.*—Glen Almond (Auchnafree) .....2·53 *in.* or 3·7 per cent.

<i>Inverness.</i>	<i>in. or %</i>		<i>Inverness.</i>	<i>in. or %</i>	
Loch Quoich (Kinloch- quoich) .....	3·24	3·0	Glenleven (Blackwater Dam) .....	2·51	2·8
Loch Arkaig (Glendessary)	3·05	2·9	Kinlochleven (Kinlochmore Lo).....	3·09	3·2

**December 3rd.**

*Inverness.*—Loch Quoich (Glenquoich) .....2·73 *in.* or 2·5 per cent.

The total rainfall recorded at Kinlochquoich for December 2nd to 4th amounted to 6·83 inches.

**December 23rd.**

<i>Lancashire.</i>	<i>in. or %</i>		<i>Westmorland.</i>	<i>in. or %</i>	
Hawkshead (Tower Bank, Sawrey).....	2·65	3·6	Ambleside (White Craggs). Rydal (The Stepping Stones) .....	2·52	3·3
Hawkshead (Bettyfold) ...	2·55	3·2	Rydal (The Hall) .....	2·69	3·2
<i>Inverness.</i> —Loch Quoich (Kinlochquoich) .....				2·92	3·4
				3·00	2·9

**THE CLOUDBURSTS NEAR BOOTLE (CUMBERLAND)**

**JUNE 14th, 1931.**

The following details of the cloudbursts near Bootle (Cumberland), June 14th, 1931, have been kindly supplied by Mr. F. Hudleston :—On the afternoon of Sunday, June 14th, 1931, thunderstorms and very heavy rain occurred over the whole of north-western England and cloudbursts were reported at various places in Cumberland especially in Corney Fell and Waberthwaite Fell, near the market town of Bootle, where the damage caused by the resulting floods was of unprecedented extent.

The Meteorological Office has supplied me with the catches on June 13th, 14th and 15th of the 104 rain-gauges in Cumberland, Westmorland and North Lancashire (*i.e.*, about 2,000,000 acres) and I have summarised the catches of June 14th, as follows :—

6 gauges, mostly in the Upper Eden Valley, caught from 0·67 to 1 *in.*

28 gauges, mostly to the south of Kendal, caught from 1 to 1½ *in.*

36 gauges, mostly in the outer part of the Lake District, caught from 1½ to 2 *in.*

27 gauges, mostly in the inner Lake District, caught from 2 to 2½ *in.*

6 gauges, mostly in the Scafell area, caught from 2½ to 3 *in.*  
1 gauge, at Ulverston (Poaka Beck), caught 3·50 *in.*



The previous day, Saturday, June 13th, was wet at 102 of these stations but the top catch was only 0.38 inch at Rosthwaite, which is nothing to worry about in the Lake District, but Monday, June 15th, was decidedly wet all over north-west England and some half a dozen stations in the Scafell, Skiddaw and Helvellyn area recorded catches between 1.06 and 2.18 inches.

The general rainfall on June 14th over the whole area of 2,000,000 acres, judging from the distribution of the records before us must have been quite  $1\frac{1}{2}$  inches, so that the total rain we got that Sunday evening was 300 million tons, which at the average supply of 30 gallons per day per head of population (*i.e.*, approximately 1 ton per week per person) is about sufficient for a whole year's supply for the population of greater London, *i.e.*, 6 million people, and most of it fell in less than two hours.

Road traffic was held up at innumerable low lying spots and many slips occurred in steep banks of roadsides which added to the confusion, but the damage done by floods was much greater at the little market town of Bootle than at any other place. We have, unfortunately, no rain-gauge records from places near Bootle, but a gauge at Muncaster Castle, 5 miles north of Bootle is reported to have caught 2.68 inches, while Ulverston (Poaka Beck), 10 miles away to the south-east got the top record of 3.50 inches. My own gauge here at Hutton John, 33 miles north-east of Bootle, caught 1.87 inches in less than two hours that evening and nearly every gauge between me and Bootle that sends daily returns to the Meteorological Office was in excess of mine.

The scouring action of a cloudburst flood must be seen before one can appreciate it, but I know of no figures to put forward in illustration of the difference between a cloudburst flood and a big winter flood, except what I myself was able to obtain last year after I had sent in my article to *British Rainfall*, 1930, on the Stainmore cloudbursts of June 18th, 1930. The farmer at Spuring End showed me a place in the gorge of the Borrowdale Beck between the waterfall and the farm road bridge, *i.e.*, more than a mile below the scar marked C in the map *British Rainfall*, 1930, p. 287, where the flood had actually touched the root of a certain thorn tree; I took a carefully levelled cross-section here which gave an area of six hundred and twenty five square feet. Now the water-way through the stone arched bridge that used to carry the farm road of Spuring End over this same beck was less than forty square feet, yet it had sufficed for many generations to deal with winter floods and withstand them even if it got "drowned." There was nothing whatever left of this bridge or its abutments after 17h on June 18th, 1930, and the bed of the stream was laid bare down to the limestone rock.

On June 14th, 1931, cloudbursts were reported on Muncaster

Fell, Waberthwaite Fell and Corney Fell, all of them near Bootle. The water from Muncaster Fell flowed into the river Esk and nothing particular seems to have been noted, save that the rain-gauge at Muncaster Castle caught the 2.68 inches mentioned above and 2.58 inches were caught on Eskdale Green just north-east of Muncaster Fell and 4 miles from Muncaster Castle. The cloudburst on Waberthwaite Fell brought down sufficient debris to obstruct its natural waterway down to the Esk, which diverted much of the intense rainfall into the gathering ground of the river Annas and so past Corney Church where a short length of road was converted into a bye-pass channel and the whole of its "road metal" was carried away. The cloudbursts on Corney Fell and Stoneside Fell went down Buckbarrow beck, Kinmont beck and Crookby beck into the river Annas so that almost all the rain falling to the west of the watershed line from Waberthwaite Fell to Black Combe concentrated on Bootle.

The surface soil of the hillsides seems to be mainly of glacial deposit covered with a carpet of strong, tough, mountain grass, and I could not find, or even hear of, any "scars" such as I saw in the peat moss of Knipe Moor and described in *British Rainfall*, 1930, but the scouring out of the banks of the three becks mentioned above was on a bigger scale than anything I saw along the Borrowdale beck at Stainmore a year and a half ago.

Buckbarrow Bridge carrying the old (disused) fell-road from Broughton to Ravenglass over the Buckbarrow beck (a tributary of Kinmont beck) was demolished by the flood down the upper part of the beck and a new channel cut into the cliff of glacial deposit on the right hand bank a few chains below the bridge, with a curiously piled up *new left-hand* bank consisting of boulders up to one or two tons weight. I observed an exactly similar bank of boulders some 20 feet away from this left hand bank which was of ancient standing and covered with lichens, which I take to be evidence of some former flood of much the same volume, and therefore, proof that this western slope above Bootle has been the scene of other cloudbursts many years ago.

The fell above Buckbarrow Bridge rises to 1,750 feet above sea level; the bridge itself is on the 800-foot contour while the alluvial land on the left bank of the Annas at Bootle is barely 60 feet above sea level. The distance from Buckbarrow Bridge to Bootle measured along the Kinmont beck is about  $2\frac{1}{2}$  miles and the rapid descent of the stream, which had ample power to transport boulders along its bed for about  $1\frac{1}{2}$  miles, had flattened out before its junction with the Annas at Cross House. The flood was therefore only able to carry comparatively fine gravel and mud when it reached Bootle and the farms round the town, where it and the Crookby beck, which drains the north-western slopes of Black Combe, deposited their gravel and

mud impartially over many acres of good pasture land and on the gardens of Mr. Grice's house at Millholme, which lie on the left bank of the Annas. The house itself is on the higher right-hand bank of the river and the flood waters did not quite rise to the level of the entrance door.

The main road for the whole distance between Millholme Bridge (over the river Annas) to Brookfield, a 500-foot length of level alluvium with high ground at each end of it, was crossed by a stream of water a foot or two deep, which stopped all road traffic for some hours as the Millholme bridge was quite inadequate to pass the flood through it. On the downstream or south side of this road many fields were completely covered with water but little or no permanent damage resulted for most of the gravel and mud had been deposited on the land north of the road where hedges and turf dykes had improvised many settling ponds. Both the Annas river and Crookby beck have been banked up in times past so that in many places the beds of these streams are as high as the land outside; the Crookby beck breached its left-hand bank below Fellside Bridge—some 500 yards east of Bootle—and this relieved the main channel of the Annas through the little town but increased the trouble in the meadows between the Annas and the hillside east of it.

I am myself inclined to doubt if the rainfall near Bootle on June 14th, 1931, was at any spot quite so intense as what must have occurred on Stainmore on June 18th, 1930, at the big scars lettered A and C on the map in *British Rainfall*, 1930, p. 287. The far greater damage to land at Bootle seems to be due to the fact that the configuration of the hills there collected all the rainfall into one channel that happened to be surrounded by cultivated lands, whereas the rain on Knipe Moore had two outlets into Yorkshire, which ran into two entirely separate reservoirs, as well as three or four outlets into Westmorland which only met the river Eden at places where its channel was far larger than that of the Annas at Bootle. I can put forward no positive evidence in support of this doubt but I cannot believe that a widespread thunderstorm like that on June 14th, 1931, is likely to have the same degree of power to produce cloudbursts as might be inherent in a very concentrated thunderstorm similar to the one over Stainmore on June 18th, 1930.

The most stupendous cloudburst known to have occurred in the Lake District is that of the night August 22nd to 23rd, 1749, on the northern and western slopes of Great Dodd. It is on record that all that night the farmers near Mell Fell were leading their corn home as is customary when they fear ill weather and no rain fell there. Yet Mell Fell is only 3 or 4 miles east of Mosedale beck where the greatest devastation occurred, which even now furnishes the most impressive example, in these parts, of a cloudburst flood.

## 8. MONTHLY RAINFALL IN 1931.

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Information as to the rainfall of the months of 1931 is set out in this section in various forms:—

(1) Table XIX gives generalized values of the monthly and annual rainfall over the British Isles as a whole and also over the constituent countries separately.

(2) On page 81 details are given of some of the largest and smallest monthly totals of rainfall reported during 1931.

(3) In Table XX the monthly and annual totals of rainfall are set out for 400 stations, distributed evenly over the British Isles.

(4) Table XXI gives the monthly and annual falls expressed as percentages of the averages for 1881 to 1915. It is confined to 150 stations, uniformly distributed over the British Isles, for which averages are available. At the end of this table, general monthly and annual percentage values are given for the British Isles and for each of the constituent countries.

(5) A set of twelve maps showing the distribution of the actual rainfall in each month, is reproduced in this article. A thirteenth map on a larger scale depicting the distribution of rainfall for the whole year is also reproduced. These maps were originally drawn on the much larger scale of 19 miles to the inch, and values from as many as possible of the 5,000 separate stations were plotted on each map before the isohyetal lines were drawn. Details which would tend to confuse the maps on the small scale of the reproductions have been eliminated.

(6) A second set of twelve maps showing cartographically the distribution of the percentage monthly values given in Table XXI and in the rainfall table published month by month in the *Meteorological Magazine* is also reproduced in this article. The corresponding percentage map for the whole year appears later in Section 10.

### *General Monthly Rainfall.*

The general monthly values given in Table XIX have been computed by applying the percentage values given at the end of Table XXI to the average general values for the period 1881 to 1915. These computed values have been subsequently slightly adjusted in order that the totals for the year should agree with the totals given in Table XXIII which are based on a more exact determination as explained in the text accompanying that table.

Table XIX.—*General Rainfall for 1931, computed from the average, 1881–1915, by applying the general percentage values given in Tables XXI and XXIII to the General Average Values.*

	England.	Wales.	England and Wales.	Isle of Man.	Scotland.	Ireland.	British Isles.
	in.	in.	in.	in.	in.	in.	in.
January .. ..	2.9	5.1	3.2	6.0	6.3	3.7	4.2
February .. ..	3.0	5.2	3.3	3.6	5.0	3.9	3.9
March... ..	0.8	1.3	0.8	1.0	1.7	3.1	1.6
April .. ..	3.6	4.2	3.7	1.9	3.1	3.1	3.5
May .. ..	3.3	5.1	3.5	4.2	4.3	4.5	4.0
June .. ..	3.4	4.8	3.6	6.2	5.3	4.9	4.4
July .. ..	4.2	4.3	4.2	3.0	5.1	4.2	4.5
August .. ..	4.6	5.4	4.8	4.2	3.0	3.5	4.2
September .. ..	2.9	3.6	3.0	4.0	2.1	3.2	3.0
October .. ..	1.2	2.1	1.3	2.6	4.2	2.5	2.4
November .. ..	4.5	9.8	5.2	11.0	7.2	8.1	6.5
December .. ..	1.6	3.2	1.8	3.5	5.0	3.4	3.0
Year .....	36.0	54.1	38.4	51.2	52.3	48.1	45.2

It is shown in Table XIX that the general monthly rainfall over the British Isles as a whole, varied from 1.6 inches in March to 6.5 inches in November.

The general rainfall over the British Isles for March, 1931, was 1.6 inches and less rain has occurred during March in only four other years, in the series back to 1870, viz., those of 1929, 1900, 1893 and 1892 with .6, 1.4, 1.1 and 1.4 inches respectively. April, 1931, was the wettest April since that of 1925 and May, 1931, the wettest May also since 1925. June 1931, was the wettest June on record with but four exceptions, viz., those of 1928, 1912, 1879 and 1872. July, 1931, was the wettest July since that of 1924. Although the rainfall of August, 1931, slightly exceeded the average, that month was drier than the August of any of the previous four years. October, 1931, was the driest October in the series with but four exceptions and December, 1931, the driest December with only nine exceptions. The general rainfall of November, 1931, was 6.5 inches and the only wetter November in the series was November, 1929, with 7.2 inches, although November, 1877, also gave 6.5 inches.

So far as England and Wales is concerned, serial values back to 1727 are given in an article in Part IV. These statistics are of interest in comparison with those for 1931, which are also given. They emphasize, for example, the unusual dryness of October, 1931, over England and Wales, for we have to go back to October, 1809, to find a markedly drier October, although the Octobers of 1922, 1879 and 1834 were about as dry. Less rain than that of March, 1931, occurred during March on 18 occasions during the last 205 years.

August, 1931, was the fifth successive wet August and November the sixth wet November over the country generally.

Table XIX shows that March was the driest month in each country except in Ireland where October was slightly drier. The next driest month was October in England and Wales, April in the Isle of Man, September in Scotland and March or April in Ireland. The wettest month was August in England, but November elsewhere.

The corresponding general monthly percentage values are given at the end of Table XXI. There were only four months, March, September, October and December in which the general precipitation over the British Isles was below the average. The deficiency was greatest in March, October and December and the excess greatest in May, June and November. The period August to October was noteworthy for the deficiency of rainfall in Scotland, while in Ireland the rainfall exceeded the average in only six months.

*Extremes of Monthly Rainfall at Individual Stations.*

(a) *Monthly Totals.*—More than 30 inches was recorded in November on Snowdon. The largest totals were 30·50 inches at Llyn Llydaw Copper Mines and 30·20 inches at Grib Goch. As much as 28·26 inches was recorded for the same month at Sprinkling Tarn at the head of Borrowdale. The next largest monthly totals were recorded in July, when 22·75 inches was measured at Sprinkling Tarn. The total for December at Loch Quoich (Kinlochquoich) at the head of the River Garry was 22·15 inches.

On the other hand no measurable rain was recorded during March at the following stations:—

Hertfordshire ..	..	Ware (Chadwell Spring).
Buckinghamshire ..	..	Weston Turville.
Buckinghamshire ..	..	Newport Pagnell (Lathbury).
Oxfordshire ..	..	Nettlebed (Joyce Grove).
Warwickshire ..	..	Southam (Stockton House).

(b) *Monthly percentage totals.*—Monthly totals of more than three times the average were recorded in August at Boston. At Boston (Black Sluice, Skirbeck), the total was 8·02 inches and 336 per cent. of the average. The large total was mainly due to the fall of 6·10 inches on the 8th (see Section 7). Other large totals were 292 at Cardiff (Ely) for May, mainly due to the heavy fall of 3·48 inches for May 27th; 290 at Hawkedon Rectory for April, when rain fell on 22 days, although more than ·40 inch was recorded on one day only, the 12th, when 1·01 inch fell and 289 at Ulverston (Poaka Beck) for June, when 3·50 inches fell on the 14th.

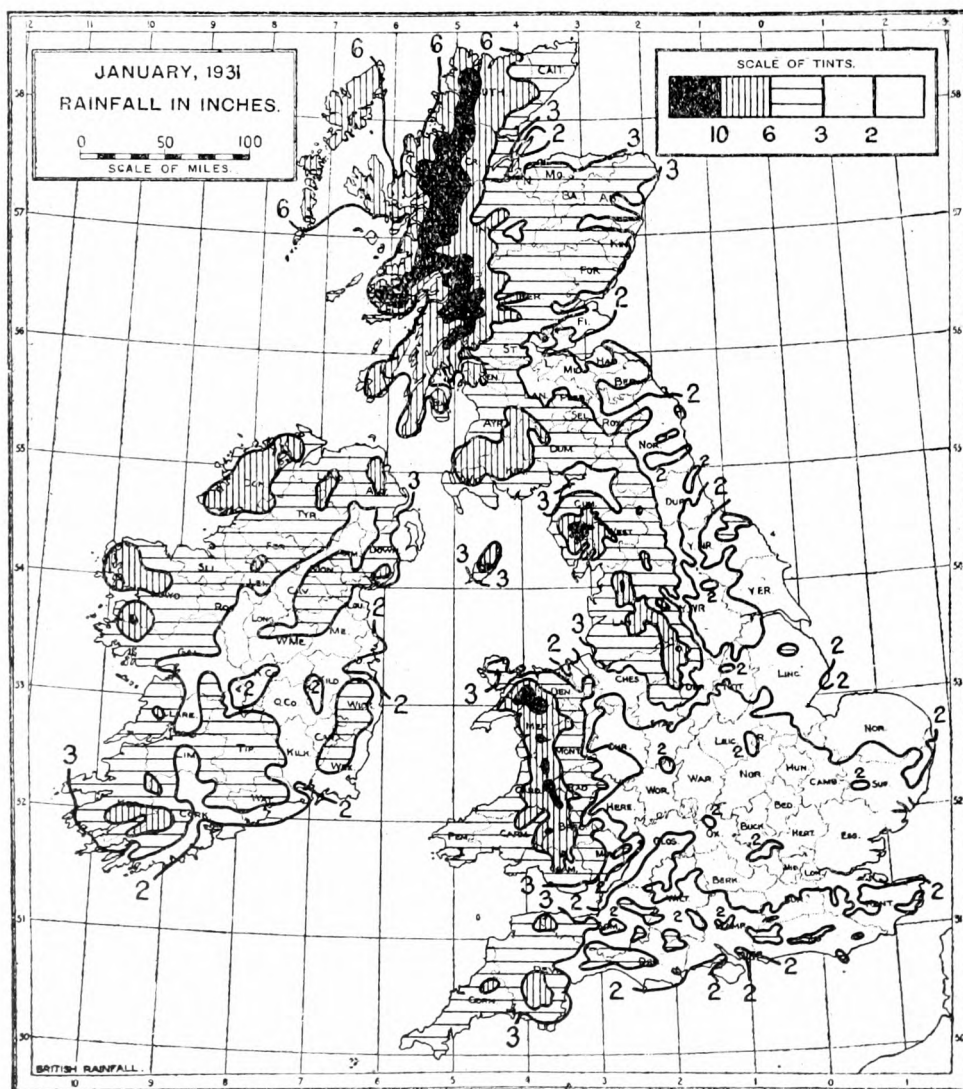
The smallest percentage values occurred in March, when less than 5 per cent. was recorded in the southern central regions of England and Wales, e.g., 2 per cent. at Alcester (Ragley Hall) in Warwickshire and 4 per cent. at Pitsford (Sedgebrook) in Northamptonshire. Only 6 per cent. was recorded at Derby and 7 per cent. at Achnashellach in the Western Highlands.

*The Rainfall and Weather of the Individual Months.*

\* \* Maps showing the distribution of mean pressure and the movements of the centres of depressions for each month are published in the *Monthly Weather Report*.

**January.**—The first half of January was cold with much fog and light precipitation, the second half, mild, wet and windy with moderately heavy precipitation during the last week. There were, however, frequent bright periods and a prominent feature of the weather of the month was the pronounced excess of sunshine recorded in most districts.

In the south-west of Ireland the mean pressure was 1 mb. above the normal but elsewhere it was below the normal, the deficit reaching



**Rainfall, January, 1931.**

6 mb. at Yarmouth. The prevailing winds varied from south-west to north-west and were frequently strong during the second half of the month.

The rainfall was less than the average over a large part of the southern central districts of England and Wales, extending from Derby to the Isle of Wight; over a large part of the northern Pennines, stretching from Sheffield to Keswick; over the southern central districts of Scotland, stretching from Loch Eil to the Cheviots and over

southern and central Ireland. Stations with less than half the average were confined to the extreme south of Co. Cork. More than 150 per cent. was recorded in a number of areas, e.g., near Dolgelly, in South Lancashire, the Isle of Man, the west of Ayrshire, along the Angus coast, in parts of Moray and Sutherland and in the extreme north of Ireland.

At Dunmanway in Co. Cork the total was 3·18 inches compared with an average of 6·25 inches. During the first 18 days only ·11 inch was recorded. Some of the largest percentage values were 199



Rainfall, January, 1931, as per cent. of average.

per cent. at Lairg, where 6·52 inches was recorded, and where ·50 inch or more fell on the 1st, 15th, 16th, 19th and 30th; and 184 per cent. at Manchester, where the total was 4·63 inches on 22 days, the largest entry being ·58 inch for the 23rd.

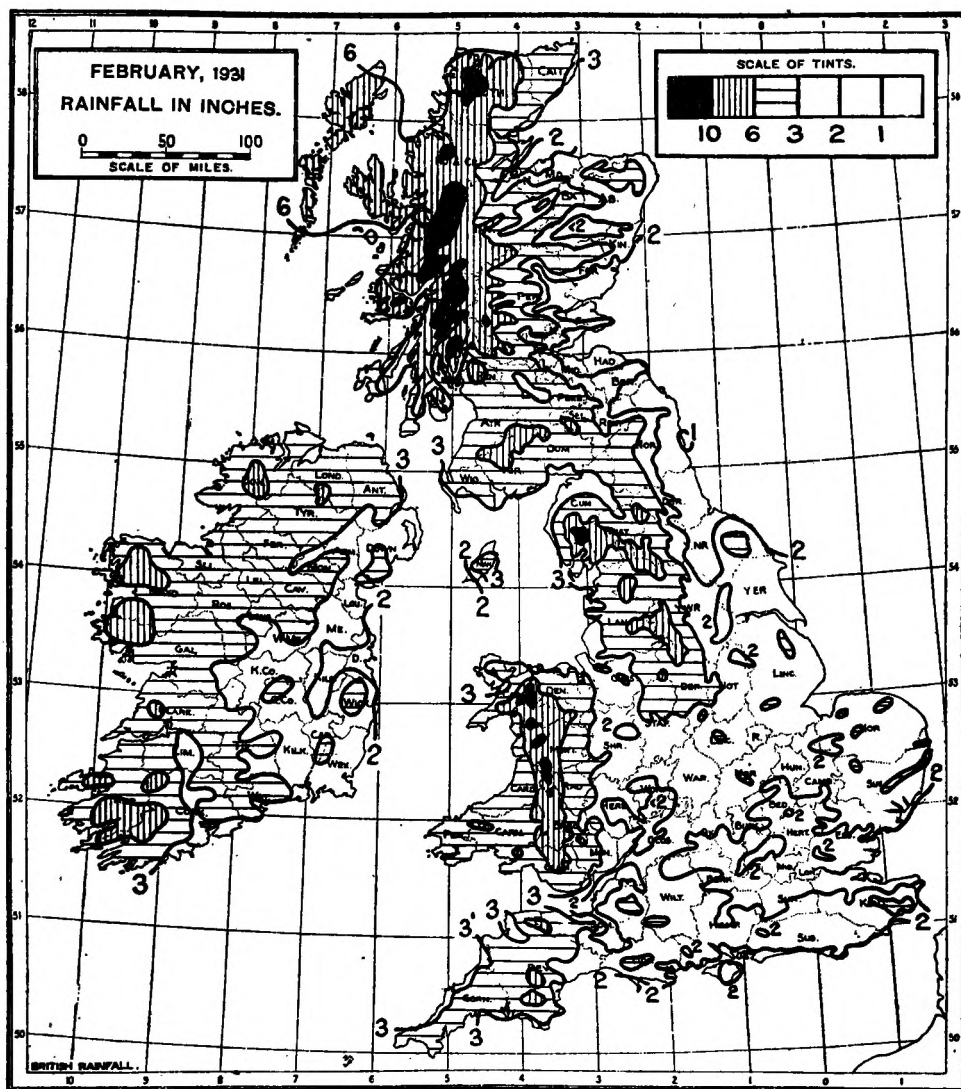
An interesting feature of the map of the rainfall in actual inches is the large area with more than 10 inches in the Western Highlands. In this area at Cluanie Lodge, in Glen Moriston, the rainfall reached 16·46 inches. On Snowdon as much as 22 inches was recorded.



**February.**—Squally, westerly or north-westerly winds and frequent wintry precipitation were the chief features of the weather of the month. Monthly mean temperatures were, as a rule, however, within  $1^{\circ}\text{F.}$  of the normal.

Monthly mean pressures exceeded the normal in the extreme south of Ireland and in the Channel Isles; elsewhere they were below the normal, the deficiency reaching 7 mb. at Lerwick.

The precipitation took the form of snow, sleet or hail. At

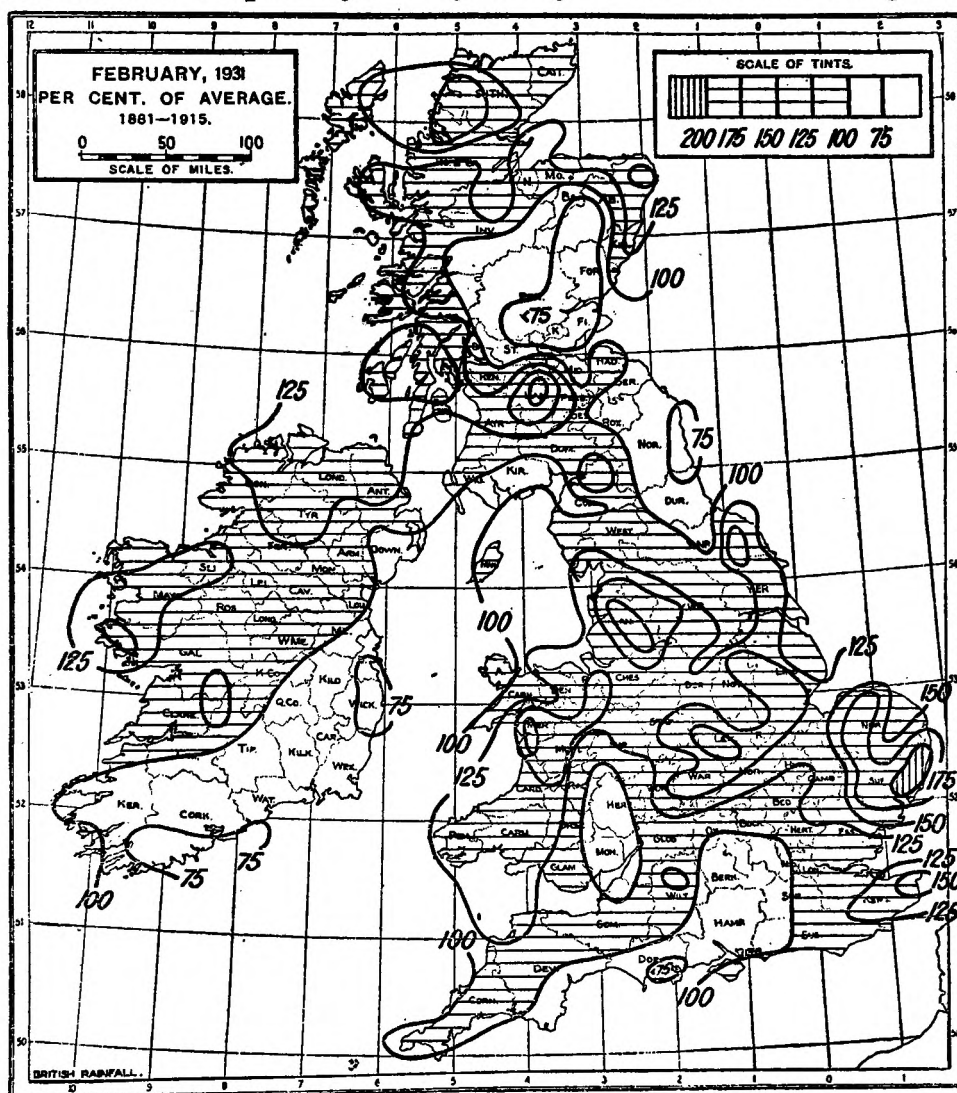


**Rainfall, February, 1931.**

Dalwhinnie, 1,176 ft. and Braemar, 1,120 ft. there were 23 and 14 days respectively on which snow fell, while at both places snow lay throughout the month. At Deerness snow fell on 17 days, this being the largest number in February since 1898. Owing to the stormy conditions many roads in the north were blocked by snow. On the 16th snow lay to a depth of 12 inches at Dalwhinnie.

The rainfall was less than 75 per cent. over five well marked areas:—near Swanage, part of Co. Cork and Co. Wicklow, the coast

of Northumberland and a large part of the east of Scotland. Falls of more than 175 per cent. occurred in East Anglia, near Dolgelly, near Leicester, in South Lancashire, in Lanark, and Sutherland. At Rendlesham Hall, in Suffolk, the total was 214 per cent. of the average. The rainfall in actual inches was 2.99 inches on 20 days, compared with 1.83 inches at Camden Square (London) on 18 days. The rainfall at Dolgelly, with 192 per cent. in February, calls for special comment especially as in January the rainfall was 160 per cent.

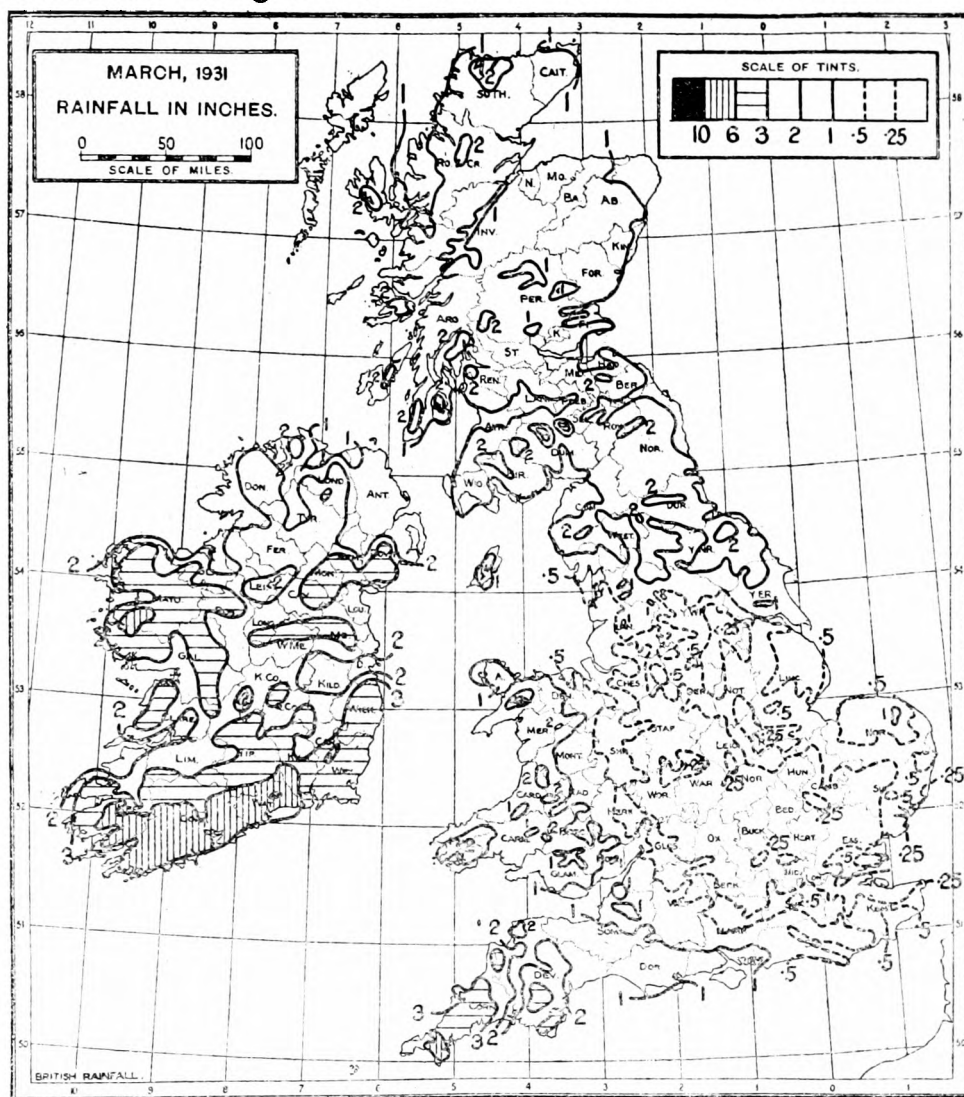


**Rainfall, February, 1931, as per cent. of average.**

The total rainfall for these two months was 17.64 inches on 47 days of which 2.79 inches fell on February 24th and 25th. Manchester recorded 199 per cent. in February and 184 per cent. in January, but the total rainfall was only 8.45 inches on 44 days, the largest amount on any day being about half an inch.

The percentage value at West Calder (Addiewell) in Midlothian was 183 compared with 60 at Loch Leven Sluice in Kinross. The totals were 4.85 and 1.70 inches respectively, the former station recording 2.60 inches more during the period February 5th to 15th.

**March** was on the whole cold, and, except in south-east Ireland and the extreme south-west of England, dry and sunny. There was an unusual prevalence of south-easterly to north-easterly winds, whilst other noteworthy features were the spell of wintry weather between the 6th and 10th and the unusually mild weather around about the 20th and on the 26th and 27th. Few absolute droughts were recorded during 1931 but such as did occur were confined mainly



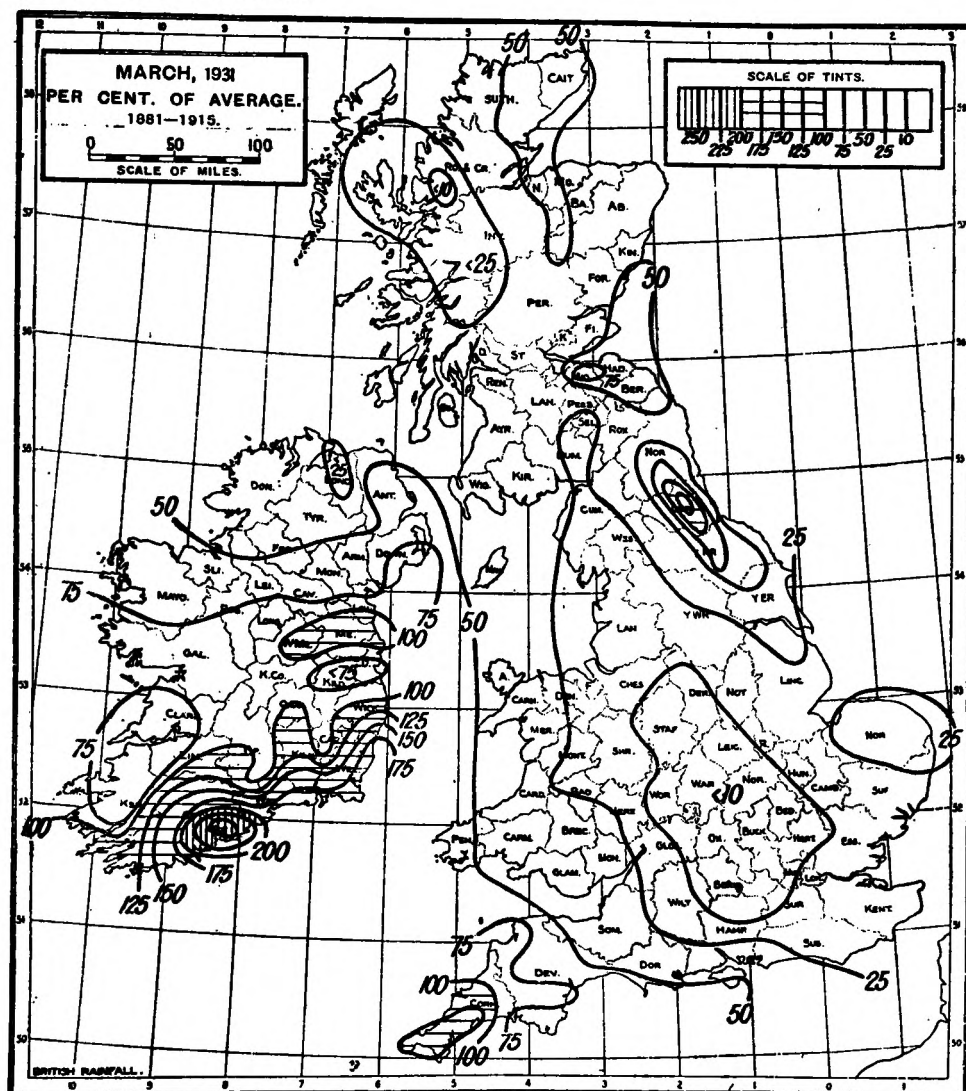
**Rainfall, March, 1931.**

to March. Precipitation in the form of snow occurred frequently during the first half of the month.

The mean pressure distribution for the month differed markedly from the normal. In the south-west monthly means of pressure were below the normal, the deficit amounting to 4 mb. at Cahirciveen and 3 mb. at Scilly. Pressure increased towards the east and north and at Lerwick the mean pressure was 10 mb. above the normal. As a result winds between south-east and north-east predominated.

The total rainfall for the month exceeded the average over only a small part of the British Isles, viz., parts of Cornwall and Durham, the south-east of Ireland and over much of Co. Meath. At Glanmire

(Lota Lodge) near Cork as much as 263 per cent. of the average was recorded. There was less than half the average over by far the greater part of England and Wales and of Scotland as well as in the north of Ireland, while less than 10 per cent. occurred in central districts in England and in part of Ross-shire. A few isolated stations recorded no measurable rain at all and details of these stations are given earlier in this Section.

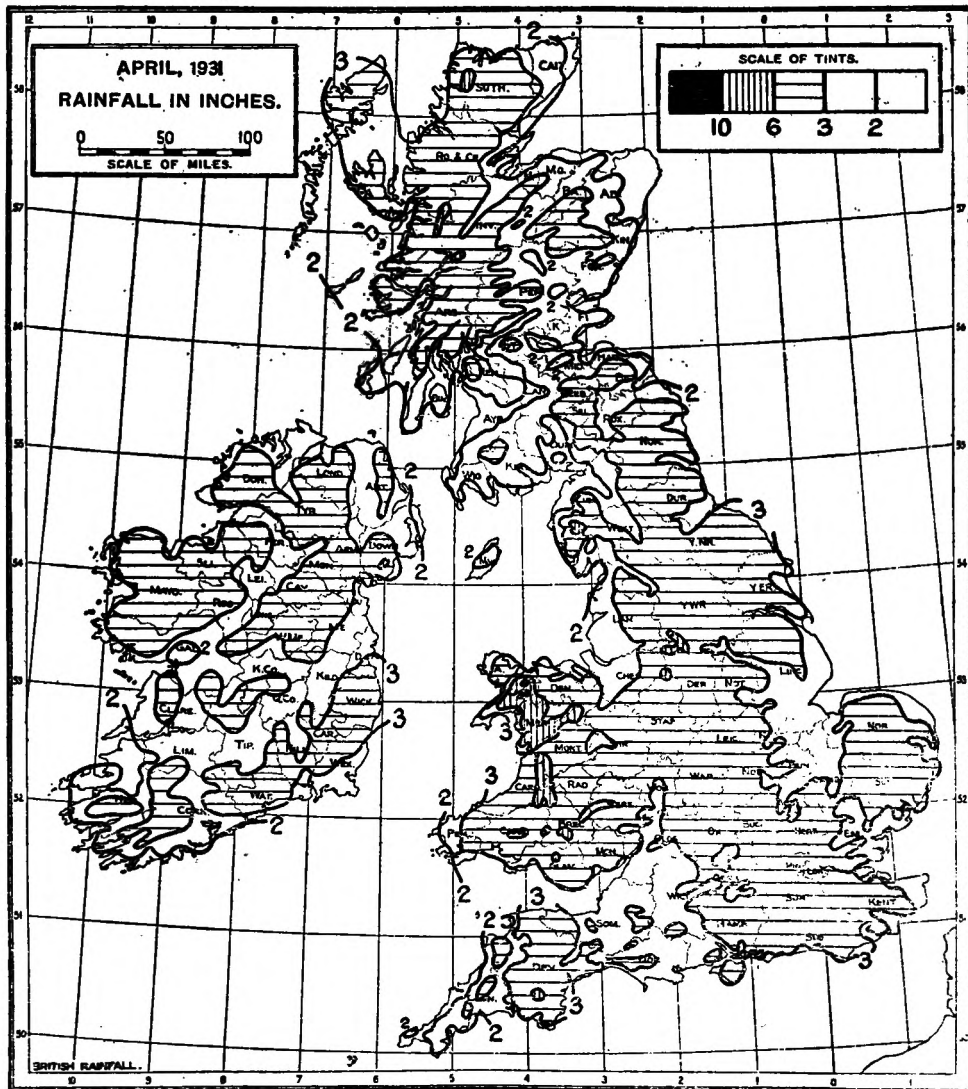


**Rainfall, March, 1931, as per cent. of average.**

At Cork (University College), with 8·01 inches, the month was the wettest March since 1867 when the total was 8·03 inches, while at Oxford (Radcliffe Observatory) with ·14 inch it was the driest March since before 1870 with the one exception of that of 1929 with ·04 inch. At Glenquoich, in the Western Highlands, rain fell on 11 days and there was only one wetter March since at least 1868, namely, that of 1924. At Glanmire (Lota Lodge) the actual rainfall was 8·16 inches and the wettest periods being March 2nd to 5th with 3·10 inches and March 28th to 31st with 4·03 inches. The large percentage at Ushaw College, in Durham, was due to a thunderstorm on the 22nd when 1·71 inches was recorded.



**April** was on the whole unsettled and dull with a pronounced excess of precipitation over the eastern half of England and Wales and also in the east of Scotland and of Ireland. Associated with these unsettled conditions, monthly means of pressure were from 1 to 2 mb. below the normal except in the extreme south-west of Ireland, where they were slightly above the normal. There was a considerable prevalence of north-westerly to northerly winds over England and Wales. No heavy falls on rainfall days in April qualify for mention

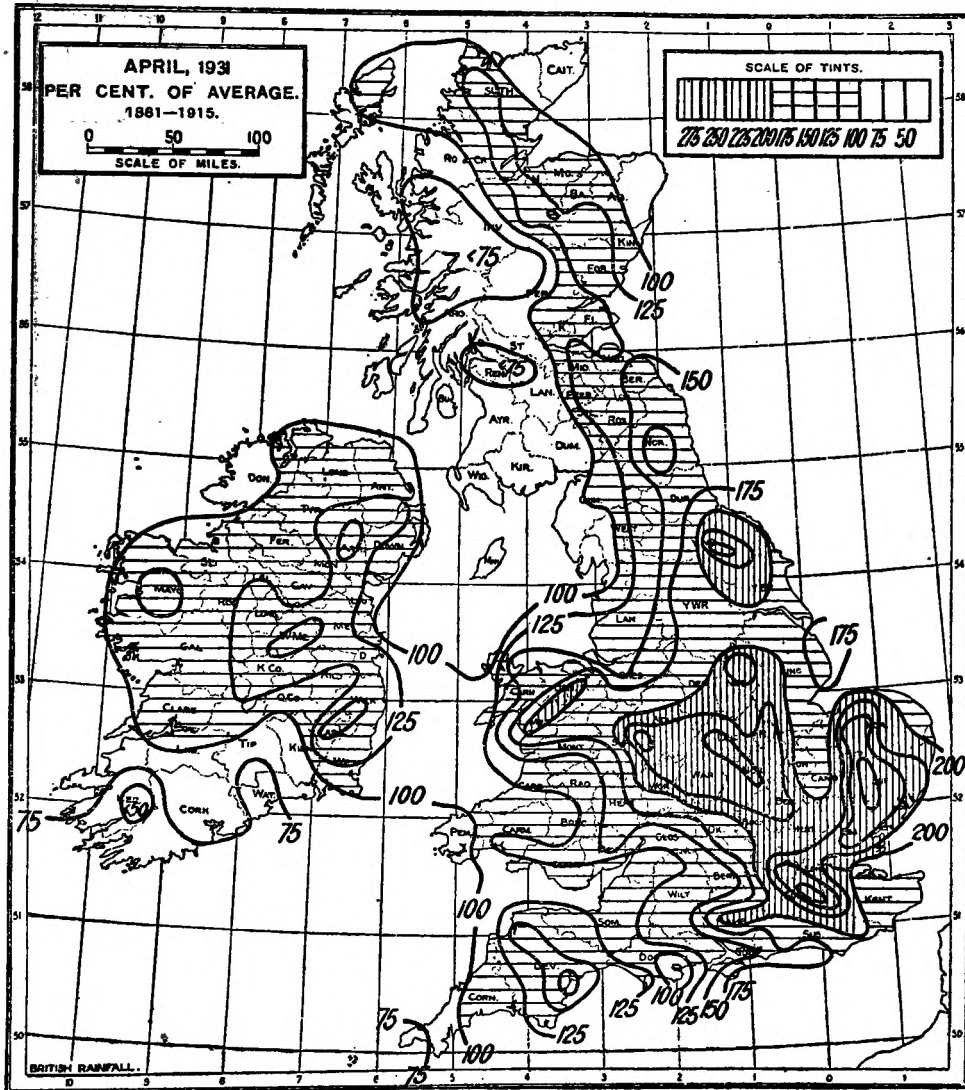


**Rainfall, April, 1931.**

in Section 7 and there were no wet spells at any of the selected stations (see Section 4).

The total rainfall was above the average over nearly the whole of England and Wales, over most of Ireland and over the eastern half of Scotland. The rainfall over a large part of the Western Highlands was less than 75 per cent., while near Killarney there was rather less than 50 per cent. Falls of 200 per cent. or more were confined to England and Wales, while over 250 per cent. was recorded in the north Yorkshire Wolds and over a number of areas in the south-eastern half of England. At Reigate the total was 300 per cent., the actual

rainfall being 5·02 inches. The wettest periods at this station were the 1st to 3rd with ·94 inches, 15th to 20th with 2·05 inches and the 24th to 26th with 1·43 inches. At Hawkedon Rectory, in Suffolk, with 290 per cent., the total was 4·46 inches and a rain-spell was recorded from the 15th to 29th when 3·73 inches fell. At Felixkirk (Mount St. John) some 4½ miles to the east of Thirsk, with 254 per cent., the total was 4·25 inches and rain fell on each day from the 15th to 28th, including 1·36 inch on the 17th.



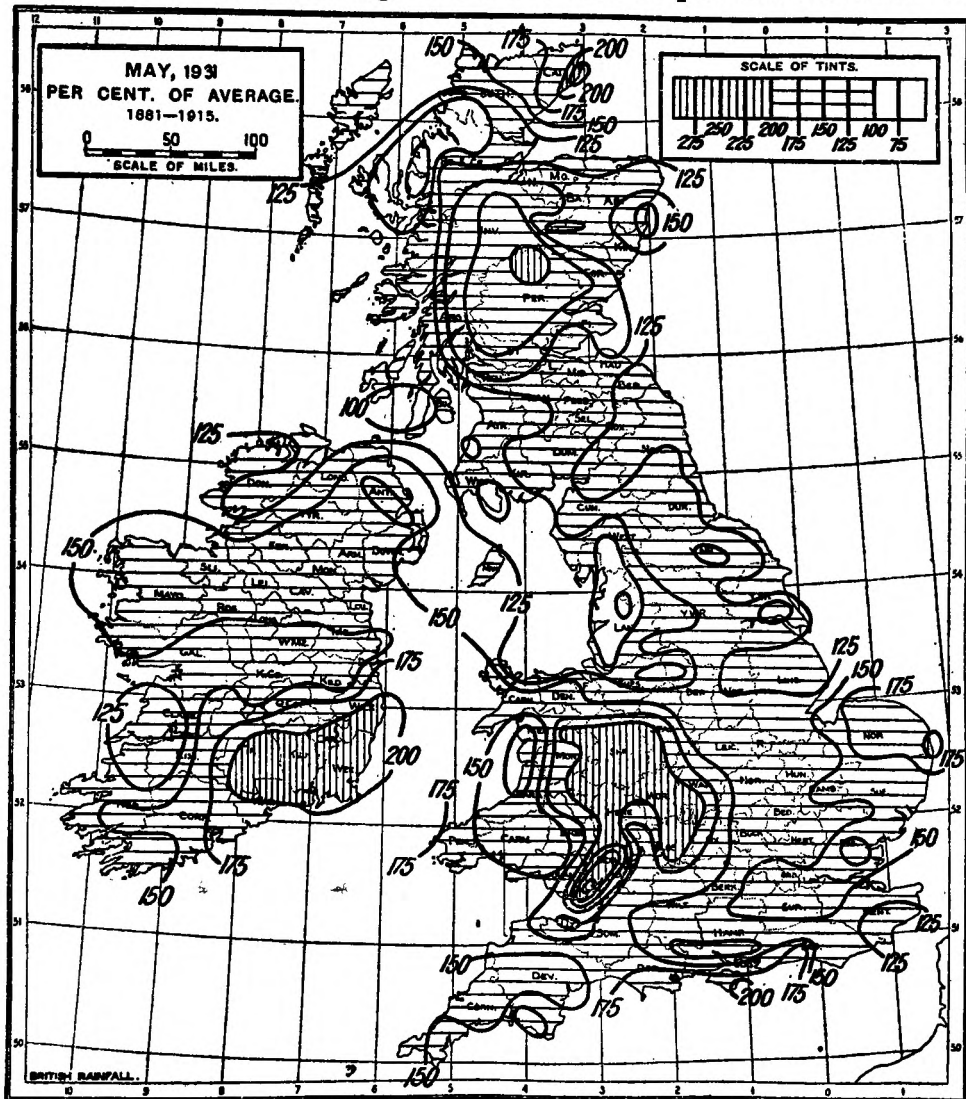
Rainfall, April, 1931, as per cent. of average.

An unusual feature of the map of the rainfall in inches is the fairly uniform distribution of the areas with 3 inches or more over the country. During this month the rainfall in inches over the south-east of England was comparable with that of the west of Scotland, whereas usually the south-eastern half is much drier. At Glenquoich, in the Western Highlands, with 73 per cent., the total rainfall was 4·75 inches, and it was noteworthy that the rainfall of only one day exceeded ·40 inches at that station.

The general number of rain-days over the British Isles was 19 or 4 more than the average.



Scotland and north-west of Ireland. The smallest percentage values were 72 at Stonyhurst College, 73 at Girvan (Pinmore) and 62 at Loch Torridon (Bendamph) in Ross-shire. More than twice the average was recorded in part of Perthshire, in the south-east of Ireland, over a large area draining to the Bristol Channel, and at Ventnor and Lowestoft. At Blair Atholl in Perthshire, with 213 per cent., the total was 4·32 inches and the large total was due to persistent rains. Rain

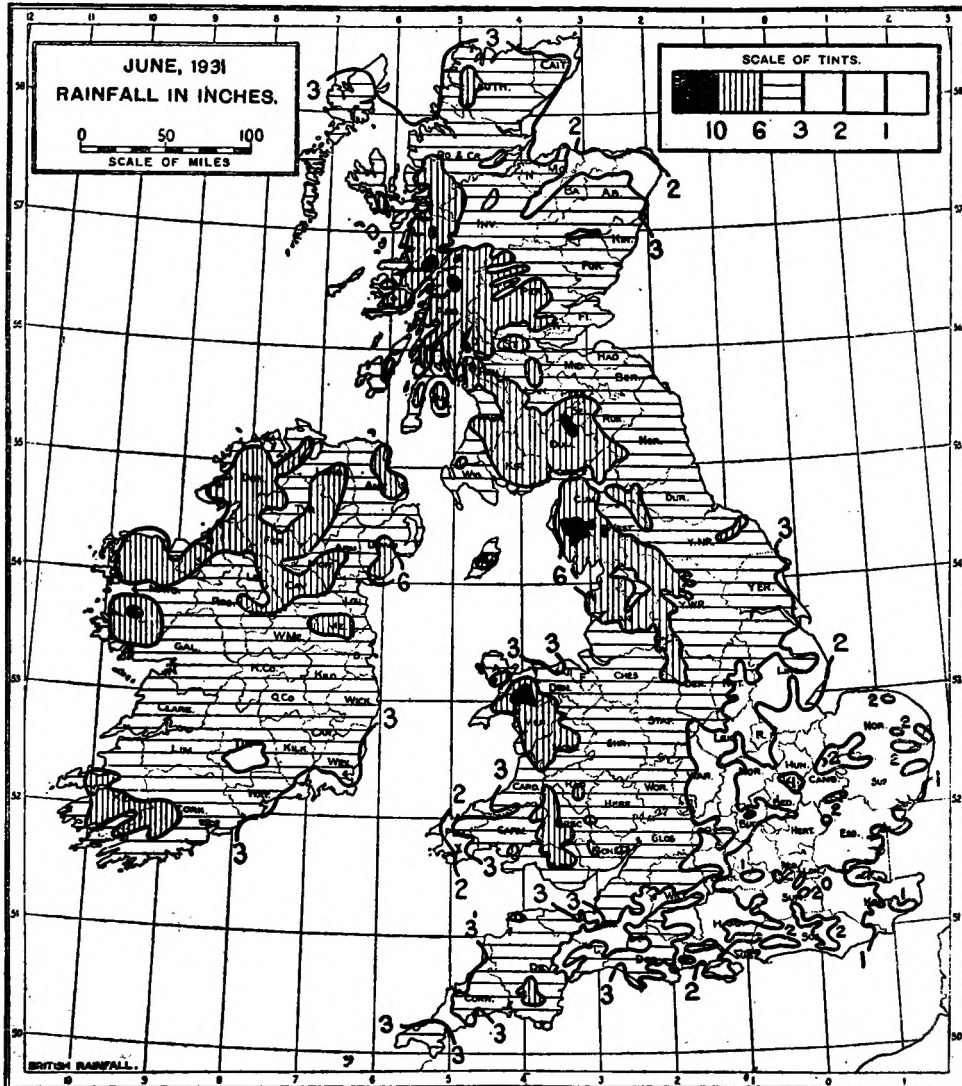


**Rainfall, May, 1931, as per cent. of average.**

fell on 25 days, the largest amount being only ·80 inch on the 28th. The percentage values at Ventnor and Lowestoft were 217 and 207 respectively. The large total of 3·69 inches at the former station was due to frequent heavy rains including a fall of 1·18 inches on the 27th. The incidence of the rainfall during the month at Lowestoft was quite different and the total of 3·11 inches was constituted mainly by the falls of ·79 inch, ·45 inch, ·46 inch and ·82 inch on the 3rd, 16th, 28th and 30th respectively. At Gorey (Courtown House), with 220 per cent., the total was 4·89 inches and of this 2·55 inches fell during the 27th to 31st.



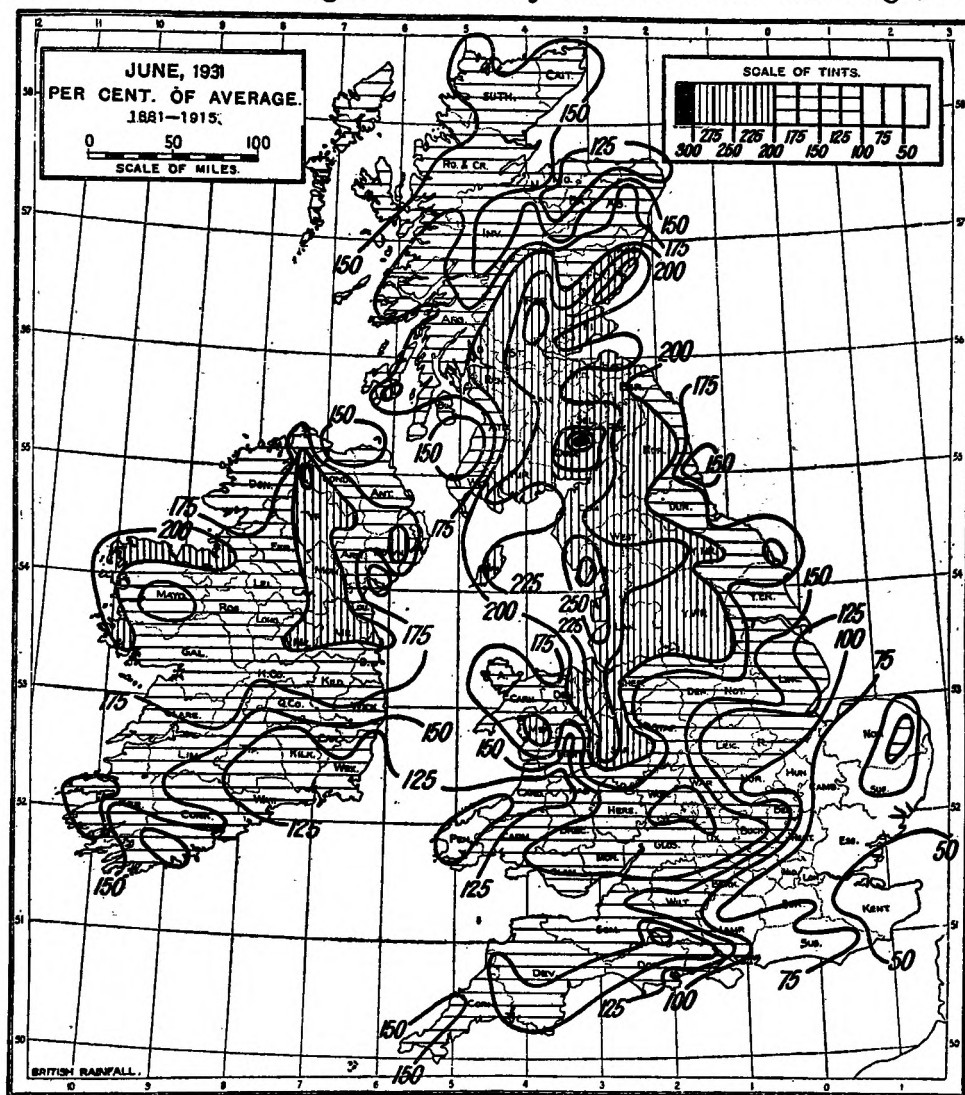
**June.**—Unsettled, dull and wet weather with severe thunderstorms on the 5th, 14th and 19th prevailed during the first three weeks followed by anti-cyclonic conditions and fine weather generally during the last week. Notable incidents in the month's rainfall were the tornado which visited Birmingham on the 14th and the widespread severe thunderstorms and floods on that day. The mean pressure at 7h. was generally 1 mb. or 2 mb. below the normal in the west and north and slightly above the normal in the south.



**Rainfall, June, 1931.**

The total rainfall was above the average everywhere in the British Isles except in the extreme south-west of Wales and in the south-east of England. Less than half the average occurred over most of Kent. At Lympne Aerodrome, with 45 per cent. for the month, there was a partial drought from June 11th to July 13th (see Section 3). On the other hand more than twice the average was recorded over a large area stretching from Shropshire to Perthshire and over two large areas in the northern half of Ireland. At Eskdalemuir Observatory, in Dumfriesshire, the total was 10·24 inches or 325 per cent. of the average.

Of this total 2·53 inches was measured for the 15th, as a result of intense rain which caused severe flooding (see Section 6), while 1·38, 1·51 and 1·44 inches occurred on the 10th, 15th and 18th respectively. At Crieff, with 271 per cent., the total rainfall was 7·16 inches and of this 2·38 inches fell on the 14th. The rainfall of the 8th to 10th amounted to 2·11 inches and of the 13th to 15th as much as 3·61 inches. At Ulverston (Poaka Beck) in Lancashire, with 289 per cent., the total was 9·35 inches, and again the entry for the 14th was large, being

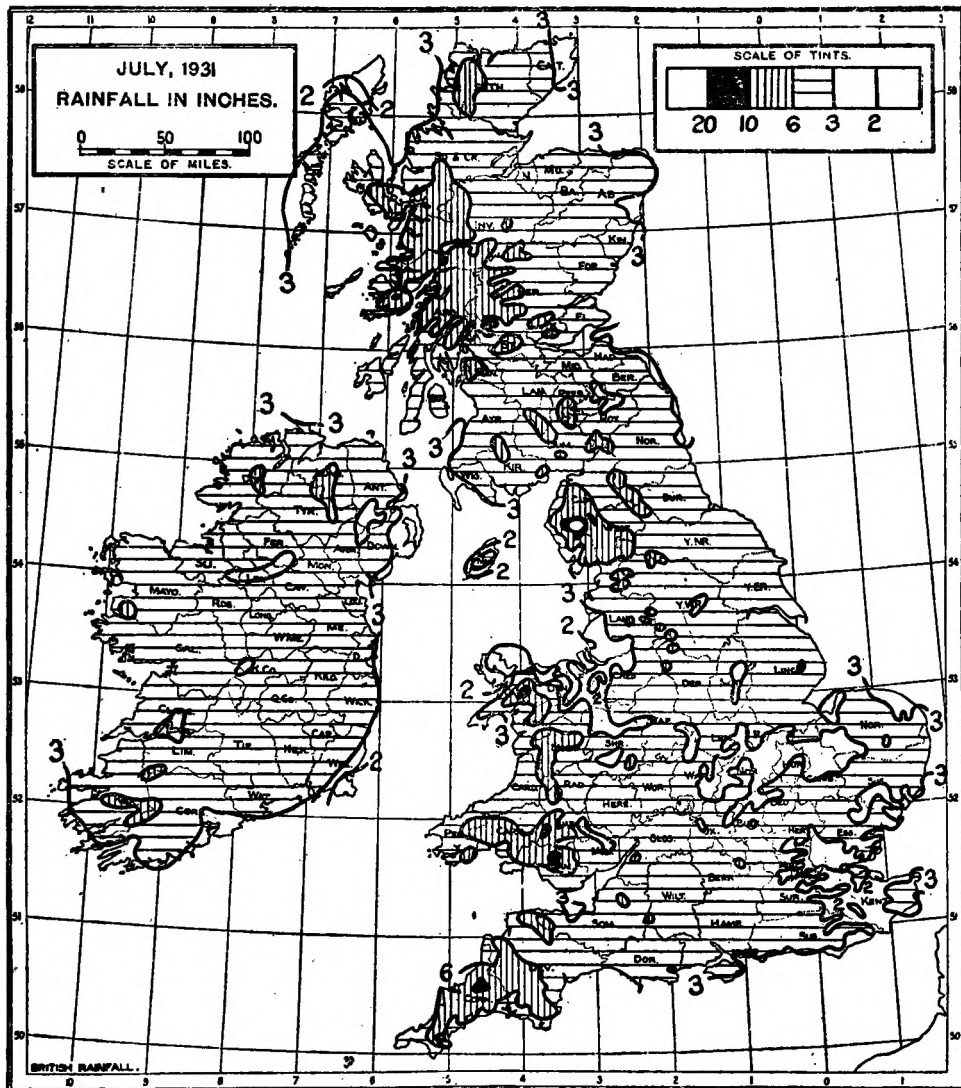


Rainfall, June, 1931, as per cent. of average.

3·50 inches. At Londonderry (Creggan Reservoir) with 240 per cent., the total was 6·76 inches, but the entry for the 14th was only ·47 inch, larger amounts occurring on the 2nd, 5th, 7th, 8th and 10th, no one of which was of importance.

The map of the rainfall in inches shows a range of rather less than 1 inch in the east of Kent to over 10 inches over areas in the west of Great Britain and in Connemara. The areas with more than 10 inches in Dumfriesshire and to the south of Greenock are unusual features.

**July** was similar to June in that sunshine was generally deficient and rainfall above the average almost everywhere. The belt of high pressure which covered the British Isles at the end of June gave way on July 1st before a depression advancing from the Atlantic. This disturbance was centred off our north-west coasts till the fifth, when it gave place to another system which formed westward of Ireland and moved eastward across the country causing thunderstorms in many



**Rainfall, July, 1931.**

districts. Until the end of the month a series of disturbances followed one another in rapid succession, several members of which passed directly across the British Isles. The fair intervals between the depressions were of brief duration, no district being free from rain for more than a day or two at a time. Many places experienced severe thunderstorms accompanied by heavy rain and thunderstorms occurred somewhere in the British Isles on no fewer than 19 days. A good many entries qualify for mention as intense falls in short periods (see Section 6), but only a few falls were large enough to include in Section 7.

As a result of the general cyclonic character of the month, the mean pressure was everywhere below the normal, the deficiency ranging from 4·5 mb. at Scilly (St. Mary's) to 8·5 mb. at Wick.

The total rainfall was less than the average over North Wales and much of the land draining to the Irish Sea, in the extreme south of Ireland and the extreme north-west of Scotland. Amongst the smallest percentage values were 51 at Llandudno, 65 at Holyhead and



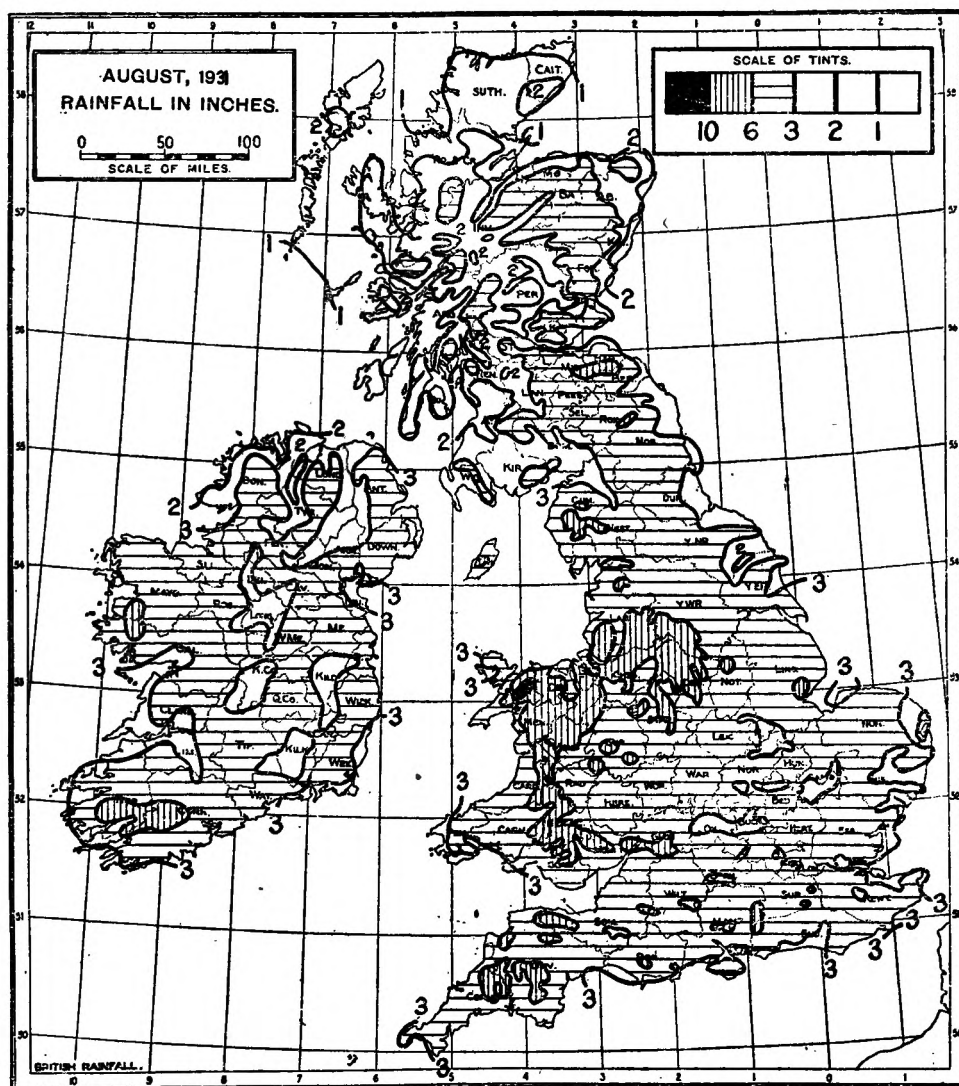
**Rainfall, July, 1931, as per cent. of average.**

68 at Stornoway. At Llandudno the total was 1·22 inches and the largest fall on any day was ·33 inch on the 18th. On the other hand more than twice the average was recorded over small areas in Glamorganshire, Berkshire, the east of Kent and in the north of Perthshire as well as over larger areas near the Wash and in Devon and Cornwall. At Boston, with 235 per cent., and a total of 5·18 inches rain on 21 days, the largest entries for any day were not remarkable, being 1·38 inches and 1·02 inches for the 14th and 26th respectively.



**August.**—The outstanding feature of the weather of the month was the pronounced excess of precipitation in England and Wales, and the lack of sunshine during the first three weeks. In marked contrast the north and west of Scotland and neighbouring islands enjoyed in the main dry and sunny weather.

The mean pressure distribution was quite abnormal and the usual gradient from south to north was reversed. Pressure was high to



**Rainfall, August, 1931.**

the north of the British Isles and decreased southwards. In the Shetlands pressure was as much as 10 mb. above the normal. Southwards pressure decreased, the deficiency exceeding 3 mb. in the extreme south of England. There was a conspicuous prevalence of northerly to easterly winds in northern districts.

The total rainfall was below the average over most of Scotland and Ireland, over the north-west and along the north-east coasts of England, and over the south-west of Wales. Less than 25 per cent. was recorded in parts of Argyll and Ross-shire as well as in the Orkneys and Shetlands. On the other hand falls of more than 150 per cent. were widespread over England, while more than 200 per cent. was

recorded in the neighbourhood of the Wash, over a large area from London to Hastings, and in the east of Kent and in the south of Herefordshire. At Boston, with 336 per cent. the total was 8·02 inches and of this 6·10 inches fell on the 8th (see Section 7). At Camden Square (London), with 228 per cent., rain fell on 18 days, amounts ranging between ·68 inch and 1·01 inch occurring on the 5th, 7th, 14th and 18th. August, 1931, with 5·03 inches, was the wettest



**Rainfall, August, 1931, as per cent. of average.**

August there back to 1879 with one exception, viz., 1916 with 5·57 inches. The total at Lerwick, on the other hand, was only ·21 inch. At Deerness the total was ·51 inch or 18 per cent., this being the driest August in Orkney since 1880, while in the Shetlands there was less than 10 per cent. of the average. Over both Scotland and Ireland the general rainfall was below the average and August was the first dry month there since March. Over England and Wales the run of wet months continued, however, until October.

The distribution shown by the map of the rainfall in actual inches is most unusual in that the north-western half of the country was the driest part of the country.

**September.**—Apart from warm days at the beginning and about the middle of the month, the days were mostly rather cold. During the first few days cyclonic conditions associated with heavy rain in most districts prevailed, but thereafter the month was mainly dry though dull, the predominating feature being the persistence of high pressure to the west or over the British Isles, the prevailing winds being north-westerly to north-easterly and mainly light to moderate.



**Rainfall, September, 1931.**

In all districts monthly mean pressures exceeded the normal, the excess ranging from 8·7 mb. at Malin Head to 3·9 mb. at Yarmouth.

The distribution shown by the percentage map was more complicated than usual. Over England and Wales the range was from rather less than 75 per cent. over part of the east of Kent, a large area near the Bristol Channel and in the north-west of England to just over 275 per cent. in parts of Yorkshire. The rainfall was less than the average over practically the whole of Scotland, the range being from 123 per cent. at Port William, in Wigtownshire, to 22 per cent. at Achnashellach in Ross-shire. Over Ireland rather more than half

the total area received less than the average. The smallest percentage values occurred in Co. Cork, where many stations recorded less than half the usual amount. At Dublin, Fitzwilliam Square, with 252 per cent., the rainfall was 4·84 inches, of which 2·93 inches fell on the 3rd.

At Middlesbrough, with 278 per cent., the total was 4·62 inches, of which 2·33 inches fell on the 4th and 4·13 inches on the 1st to 4th inclusive. At Llangynhafal (Plâs Drâw) in Denbighshire, with 246 per



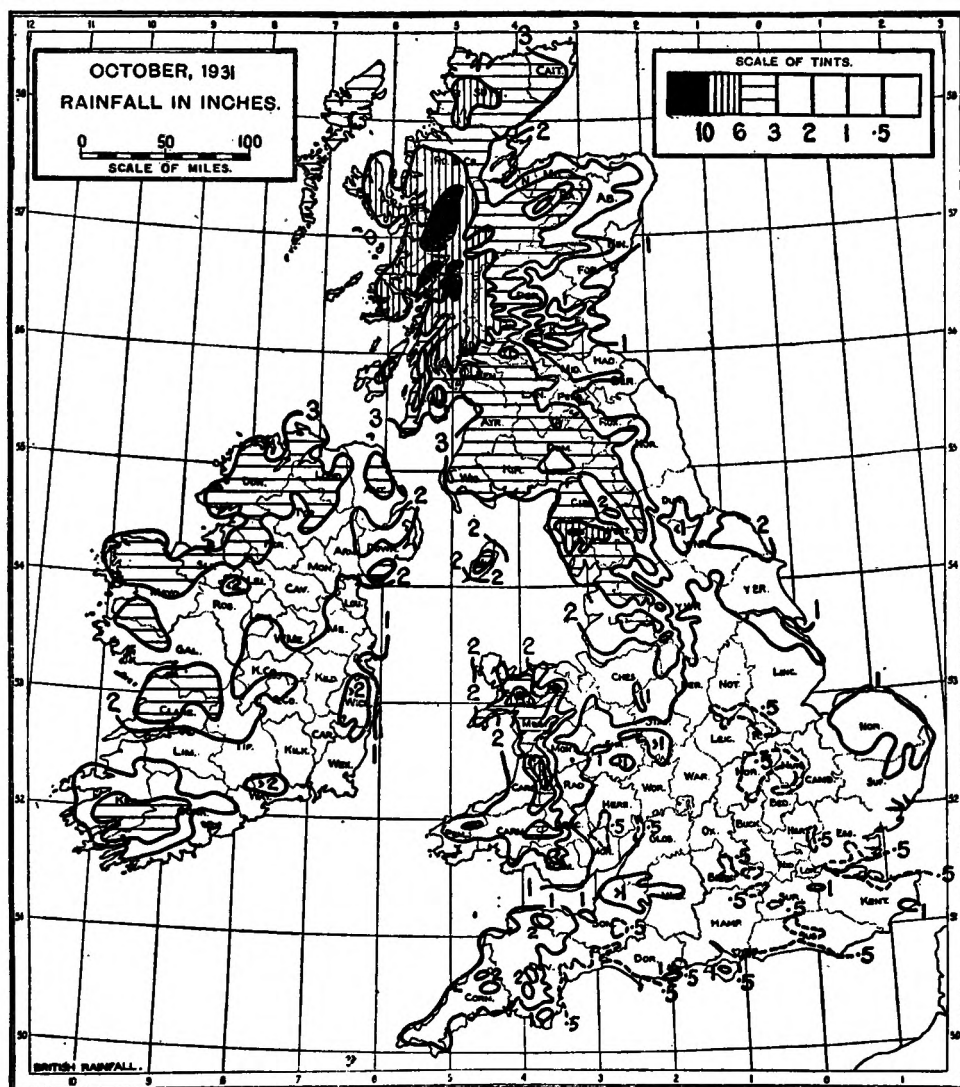
Rainfall, September, 1931, as per cent. of average.

cent., the total was 5·46 inches of which 3·76 inches was measured for the three days 2nd to 4th. A map showing the distribution of the rainfall of September 4th is given in Section 7, more than 4 inches falling over the Cleveland Hills on that day. At Achnashellach, in Ross-shire, the total rainfall August to September was only 3·10 inches compared with an average of 13·93 inches and rain was recorded on only 25 days.

The distribution on the map of the rainfall in inches is somewhat similar to that for August in that the rainfall in many parts of Scotland was less than that in England and Wales.



**October.**—Following a generally dull wet summer, October provided a pleasant contrast, being dry and sunny, especially in the southern half of the country. Unsettled mild weather with south-westerly to westerly winds prevailed during the first ten days. Heavy rain fell in Scotland and Ireland during this period and at Kinloch-quoich, at the head of the River Garry, the total October 1st to 12th was as much as 13·67 inches. After the 10th conditions became



**Rainfall, October, 1931.**

anticyclonic in the south and by the 15th a large anticyclone covered the British Isles. The days were dry and sunny but less mild, with frequent fog in the east and south-east of England. The mean pressure exceeded the normal by 7 or 8 mb. over the greater part of England and Wales.

The distribution shown by the percentage map is of a fairly common type and is associated with a marked excess in the mean pressure over England and Wales and pressure gradient steeper than usual over Scotland. The range on the percentage map is from 8 at Abergavenny to 137 at Loch Quoich (Glenquoich). The rainfall

exceeded the average only in the Western Highlands and to the south of Wick. The rainfall along much of the east coast of Scotland was, however, less than 50 per cent. Over rather more than half the total area of the British Isles the rainfall was less than half the average, while over much of the southern half of England and Wales there was less than one quarter. At Abergavenny the total rainfall for the 51 days September 12th to November 1st only amounted to .47 inch

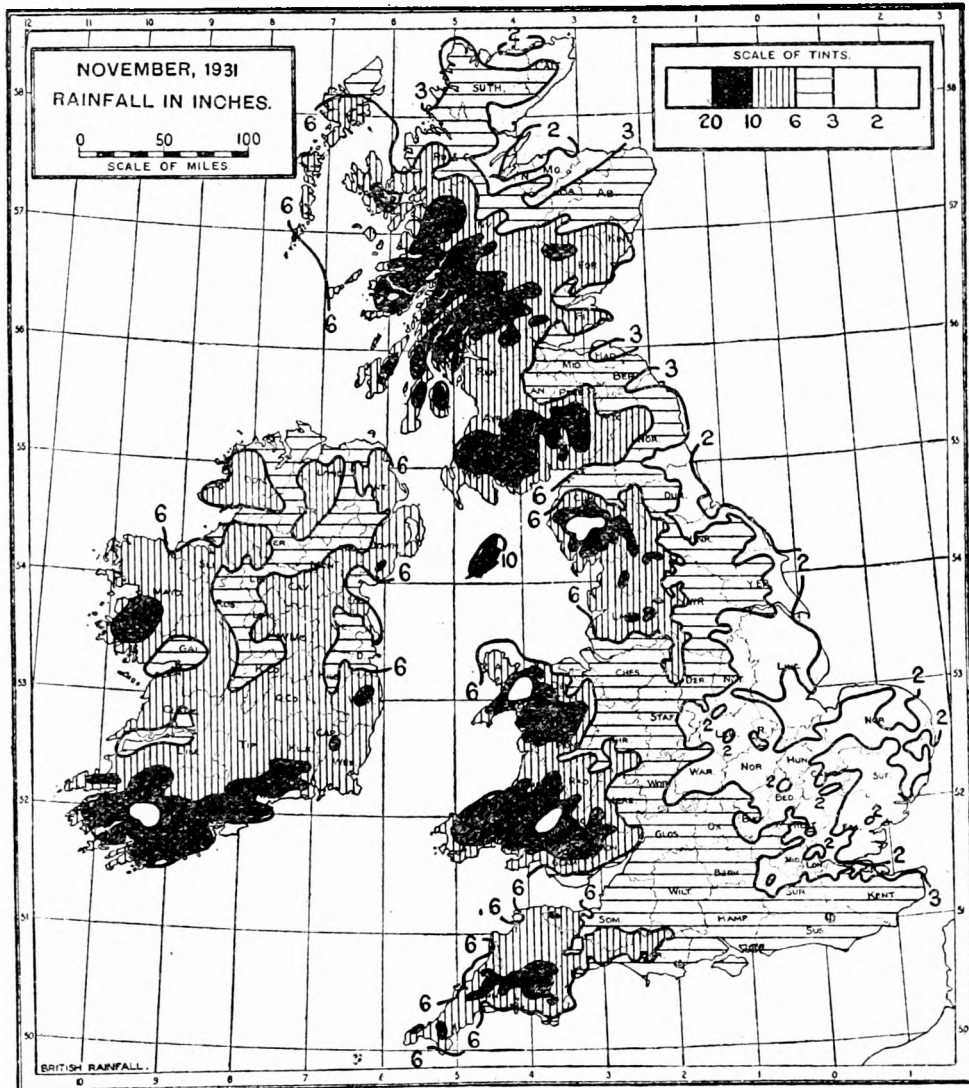


**Rainfall, October, 1931, as per cent. of average.**

and this period ranks, therefore, as a partial drought. The total .34 inch was the smallest at Abergavenny (Larchfield) in any October since the record commenced there in 1863.

The map of the rainfall in inches shows that over appreciable areas in the southern half of England and Wales the total rainfall was less than half an inch, while on Snowdon, in the English Lake District and over a large area in the Western Highlands more than 10 inches were recorded. At Loan at the head of the River Garry the total almost reached 20 inches.

**November.**—A remarkable feature of November was the prevalence of southerly winds. The month was unusually mild and in most parts rather dull. The intense and persistent high pressure over the Continent diverted depressions from their normal eastward course, most of them passing to the north-east between Scotland and Ireland. The distribution of the mean pressure for the month was very abnormal, the mean pressure being below the normal in all parts of the

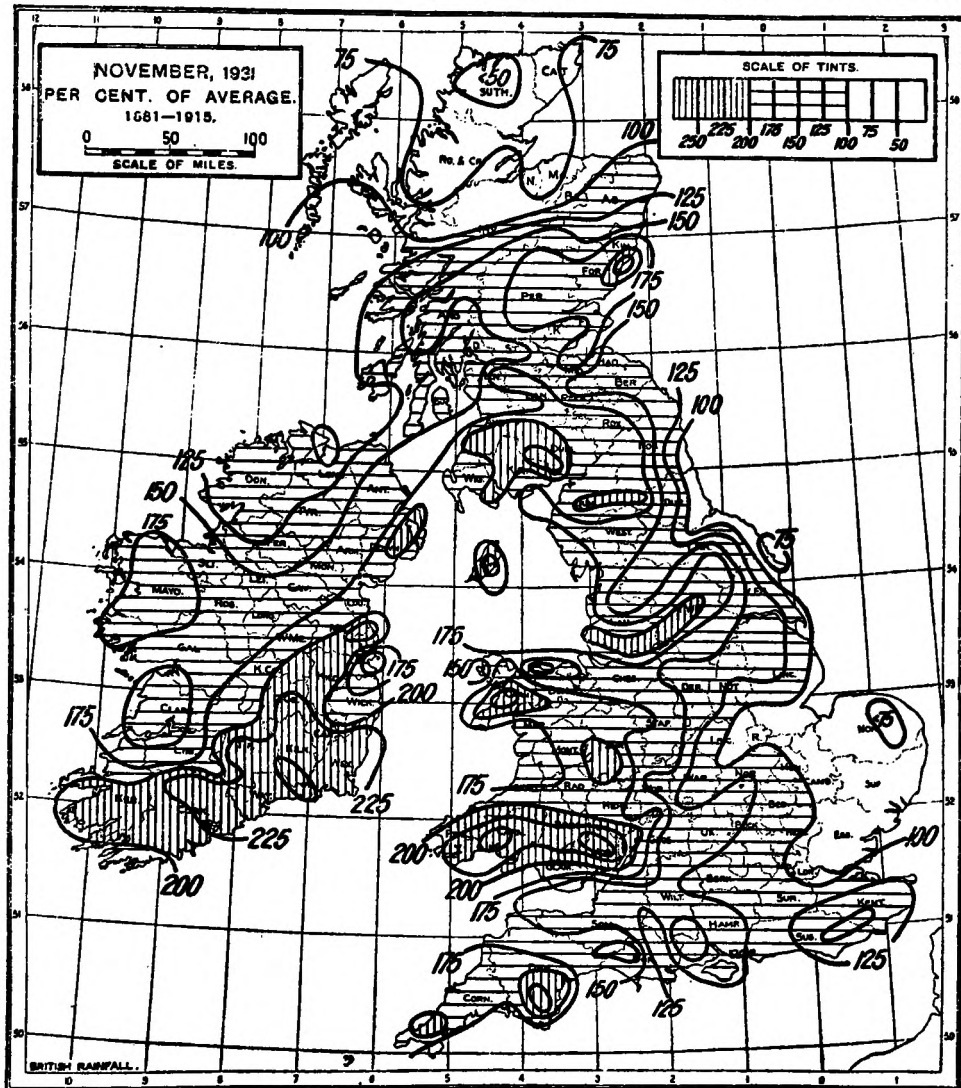


**Rainfall, November, 1931.**

British Isles, the deficiency ranging from 3·4 mb. at Yarmouth to 12·6 mb. at Malin Head. Unusually heavy rain fell in most districts on the 2nd and 3rd, the total at Treacastle (Blaenau-hydfer) being as much as 9·61 inches. The heavy rains of these two days are dealt with in Section 7.

The total rainfall for the month exceeded the average everywhere except in the north of Scotland and along the east coast of England including East Anglia and the Fen District. In part of Sutherlandshire there was less than 50 per cent. On the other hand more than twice the average was recorded in the south of Cornwall, over Dartmoor,

South Wales, Shropshire, North Wales, from Southport to Sheffield, in part of the English Lake District, over part of the Southern Uplands, at Montrose and over much of the south-east of Ireland. Some of the largest percentage values were 274 at Waterford (Gortmore), 269 at Abergavenny and 255 at Carmarthen. At Waterford, with 10·15 inches, rain fell on 24 days, the largest amounts being 1·48 on the 3rd and 1·39 on the 23rd, at Abergavenny (Larchfield), with 10·26 inches



**Rainfall, November, 1931, as per cent. of average.**

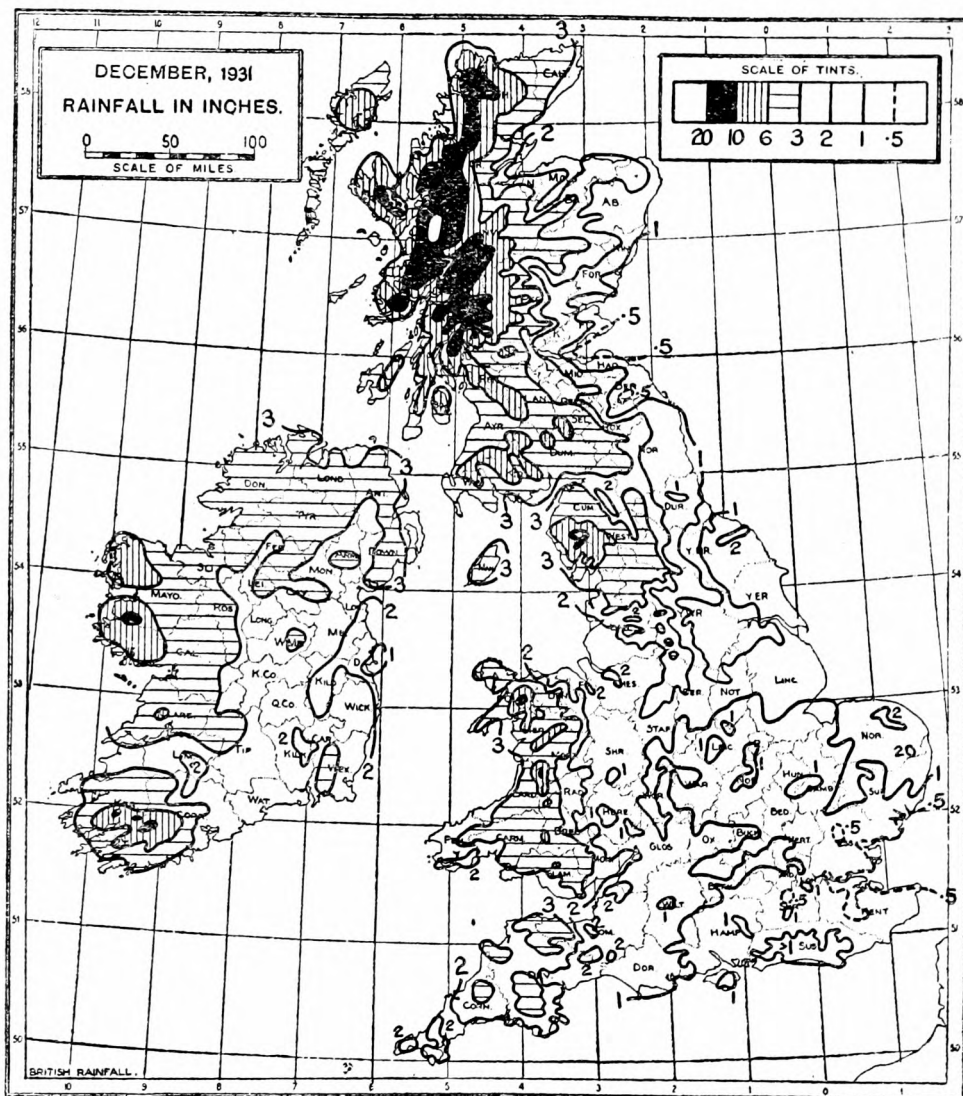
and 3·35 inches on the 3rd, the month was the wettest month since November and December, 1929, when as much as 12·22 and 12·41 inches respectively was recorded. At Carmarthen, with 12·70 inches, rain fell on 27 days with 3·92 inches for the 2nd to 4th and 3·29 inches for the 23rd to 26th. At Southport (Hesketh Park) with 205 per cent., the month was the wettest November in 61 year's observations, with the exception of November, 1890.

The map of the rainfall in inches shows that falls of rather less than 2 inches occurred in parts of the south-east of England. More than 30 inches was recorded on Snowdon.



**December** was characterised by high pressure and unusually mild and mostly dull weather with a marked deficiency of precipitation. During the month the tracks of the main depressions lay well to the north of the British Isles, so that heavy rain was confined to northern districts. Westerly winds predominated.

The total rainfall was less than the average over the whole of England and Wales, over most of Ireland, and over the eastern half

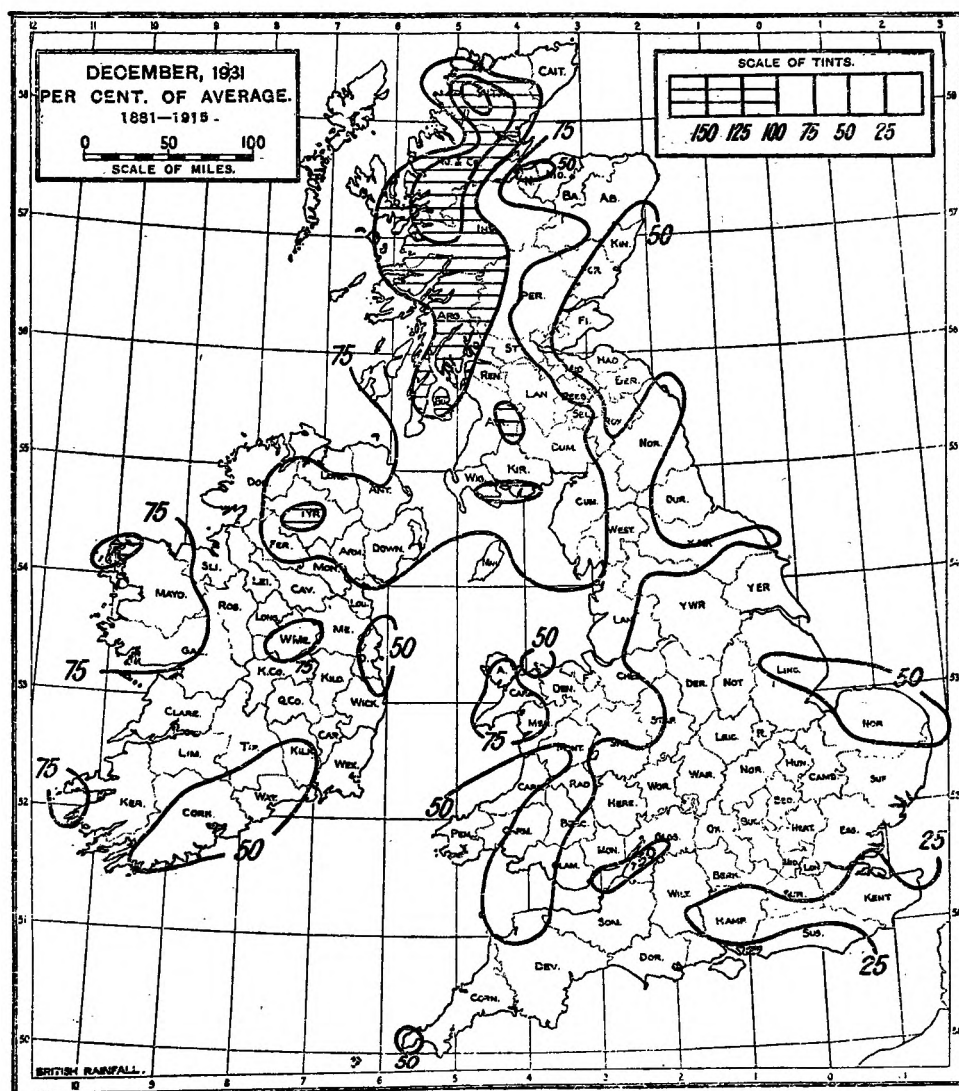


**Rainfall, December, 1931.**

of Scotland. Falls of less than 50 per cent. were widespread, especially over the south-eastern and central districts of England and Wales, while less than 25 per cent. was recorded over a large area stretching from the Kent coast to the New Forest. Rather more than 150 per cent. was recorded over part of Sutherlandshire. The range in Table XXI is from 19 per cent. at Tenterden, in Kent, to 163 at Loch More (Achfary). At Tenterden, with .58 inch, the total rainfall for the 23 days from December 9th to 31st was .11 inch and that period ranks as a dry spell. It was the driest December since the record

commenced there in 1863. At Loch More (Achfary), the total was 15·05 inches and rain fell on 27 days. The period November 30th to December 14th ranks as a wet spell, and gave 7·93 inches, while 6·89 inches was recorded from the 22nd to 31st. At Marchmont House, in Berwickshire, with ·75 inch, it was the driest December since 1868 with the one exception of that of 1926 with ·61 inch.

Rain spells occurred at a number of stations, especially in Scotland



**Rainfall, December, 1931, as per cent. of average.**

and Ireland during the latter half of November and first half of December, while dry spells were common in the eastern half of England and occurred near Dublin, Aberdeen and in the neighbourhood of the Moray Firth from about December 6th to 31st (see Sections 3 and 4).

The map of the rainfall in inches shows that while less than half an inch was recorded in the neighbourhood of the Thames Estuary and near the Firth of Forth, more than 20 inches was recorded in the Western Highlands.

Table XX.—*Monthly Rainfall at 400 Stations in the British Isles during 1931.*

## ENGLAND

County and River Division.	Station.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total.
London.....	2 St. Pancras (Camden Square) .....	in. 1.34	in. 1.83	in. .23	in. 3.71	in. 2.67	in. 1.41	in. 3.00	in. 5.03	in. 2.70	in. .66	in. 1.99	in. .82	in. 25.39
Surrey .....	6 Haslemere (U.D.C. Depot) .....	3.08	2.92	.61	3.92	3.25	2.32	4.17	5.09	2.65	.60	4.57	.84	34.02
" .....	6 Woking (The Green) .....	1.35	1.43	.28	4.14	2.78	1.58	3.56	4.88	1.83	.70	2.75	.65	25.93
Kent.....	1 Tenterden (Ashenden) .....	2.24	2.65	.34	3.00	1.90	.86	2.29	3.63	2.25	.63	4.55	.58	24.92
" .....	1 Folkestone (Cherry Gdns.) .....	3.25	2.56	.70	3.06	2.00	.81	2.96	4.68	1.52	.79	4.25	.76	27.34
" .....	2 St. Peters (Hildersham House) .....	2.26	2.33	.36	2.57	2.46	.80	4.48	4.35	1.29	.97	3.00	.63	25.50
" .....	3 Teynham (New Gardens) .....	1.81	2.01	.12	3.49	2.41	1.39	2.23	2.57	1.83	.44	3.20	.42	21.92
" .....	4 Rochester (Knight's Place) .....	1.87	1.77	.26	3.87	2.90	1.15	2.56	3.64	1.80	.47	(2.70)	(.40)	(23.39)
" .....	5 Westerham (Town) .....	2.48	2.92	.39	5.21	3.02	1.59	3.20	4.83	1.93	.83	4.11	.80	31.31
Sussex .....	1 Bognor Regis (Waterloo Square) .....	2.37	1.65	.75	2.73	2.67	1.51	2.82	3.09	1.91	.51	3.25	.90	24.16
" .....	3 Worthing (Beech House Park) .....	2.29	1.88	.48	2.69	3.51	1.20	3.47	2.96	2.14	.25	3.97	.96	25.80
" .....	4 Balcombe (The Gables) .....	2.98	2.72	.62	4.20	3.22	2.44	4.01	4.12	2.36	.78	5.13	1.07	33.65
" .....	5 Eastbourne (Wilmington Sq.) .....	2.76	2.21	.65	3.43	2.07	1.56	2.51	4.71	1.77	.69	4.69	1.04	28.09
" .....	5 St. Leonards (Gensing Gdns.) .....	2.77	2.18	.48	3.55	2.29	1.11	3.08	3.89	1.71	.76	5.15	.93	27.90
" .....	7 Crowborough (Uckfield Lodge) .....	2.84	2.88	.78	4.14	3.19	2.22	3.59	4.16	3.11	.79	5.19	.98	33.87
Hampshire.....	1 Totland Bay (Aston House) .....	2.05	1.74	1.33	2.44	3.00	2.49	3.48	2.94	2.04	.73	4.14	.78	27.16
" .....	4 Stockbridge (Houghton Lodge) .....	2.13	2.22	.50	3.27	3.10	2.84	3.25	4.15	2.63	.73	3.79	.88	29.49
" .....	5 Bishops Waltham (Park Ho.) .....	2.06	1.90	.75	2.99	3.23	1.87	4.05	4.87	1.80	.62	4.08	.71	28.93
" .....	8 Sherborne St. John .....	1.36	1.72	.18	3.05	3.26	1.58	3.72	4.36	1.51	.77	3.40	.72	25.63
Berkshire .....	4 Bucklebury Place .....	1.41	1.65	.13	3.09	2.69	1.85	3.47	4.43	1.64	.50	2.66	.83	24.35
" .....	5 Upton (Manor House) .....	1.08	1.12	.11	2.57	2.89	1.93	3.42	4.22	2.02	.43	2.69	.76	23.24
Hertfordshire...	2 St. Albans (County Museum) .....	1.83	1.62	.09	3.13	3.65	1.26	3.36	4.59	2.16	.59	2.88	1.20	26.36
" .....	3 Royston (Therfield Rectory) .....	1.86	1.96	.15	3.42	2.76	1.30	4.94	4.60	2.40	.68	2.56	.89	27.52
Buckinghamshire	3 Slough (Upton) .....	1.29	1.44	.15	3.71	2.71	1.38	3.33	4.10	2.24	.59	2.72	.62	24.28
" .....	3 Hampden House .....	1.90	2.27	.21	3.89	3.03	1.63	4.15	5.12	2.92	.83	4.02	1.02	30.99
" .....	5 Wolverton (St. George's Vic.) .....	1.19	1.98	.14	3.79	3.13	1.92	2.99	3.34	2.61	.66	2.81	1.04	25.60
Oxfordshire .....	2 Wootton Rectory .....	1.53	1.71	.16	3.22	3.54	3.04	3.30	2.38	2.33	.71	3.43	1.11	26.46
Northamptonshire	1 Naseby Reservoir .....	1.37	2.39	.22	3.33	2.38	2.30	2.92	2.93	3.00	.58	2.48	.88	24.78
" .....	4 Wellingborough (Swanspool) .....	1.36	2.70	.12	3.12	2.60	1.41	3.00	3.85	2.68	.38	2.38	.82	24.42
Huntingdonshire	1 St. Ives (Slepe House) .....	1.53	2.40	.16	2.39	2.14	1.06	2.85	3.47	2.47	.42	2.08	1.10	22.07
Bedfordshire ...	3 Shefford Council School .....	1.48	2.24	.11	3.55	2.79	1.70	5.06	4.96	2.66	.70	2.69	.96	28.90
Cambridgeshire.	2 Littleport (Highfield House) .....	2.00	2.04	.26	2.26	3.09	2.33	2.75	3.95	2.28	.80	1.99	.63	24.38

Table XX.—(con.) Monthly Rainfall—ENGLAND—(con.).

County and River	Station.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total.
		in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.
Cambridgeshire.	3 Parson Drove (Clows Cross).....	2.05	2.28	.33	2.16	2.37	1.99	2.96	3.29	3.78	.65	1.76	.87	24.49
Essex	2 Leigh (Brick House).....	1.06	1.45	.34	2.93	2.70	.99	3.09	3.71	1.37	.49	1.80	.42	20.35
"	2 North Weald (Canes).....	1.95	1.77	.11	3.51	2.68	1.46	3.27	4.82	1.74	.69	2.35	.66	25.01
"	3 Bradwell-on-Sea (Bradwell Hall)...	1.90	1.92	.49	2.74	2.11	1.18	3.13	3.69	1.77	.62	1.48	.54	21.58
"	4 Gt. Bardfield (South Lodge).....	1.86	2.29	.16	2.79	2.74	1.36	3.59	3.61	1.72	.63	1.78	.73	23.26
Suffolk	1 Hawkedon Rectory.....	2.21	2.92	.24	4.46	2.77	1.56	3.15	4.66	2.38	.85	2.04	1.16	28.40
"	2 Ipswich (Coptdock).....	1.76	2.46	.21	3.17	2.42	1.41	2.87	2.83	2.52	.76	1.68	.68	22.77
"	3 Orford (The Gables).....	1.88	2.77	.39	3.21	2.62	1.18	3.18	3.35	1.65	.80	1.66	.92	23.61
"	3 Halesworth Rectory.....	2.02	2.98	.45	3.72	2.72	1.98	3.17	3.44	3.01	1.12	1.87	1.43	27.91
"	4 Yarmouth (Burgh Hall).....	2.31	2.45	.34	3.32	4.01	1.93	3.78	3.60	1.86	1.25	2.34	1.77	28.96
"	5 Bury St. Edmunds (Westley Ho.)..	1.94	2.62	.21	3.82	3.40	1.29	4.11	4.85	2.18	.83	1.97	1.06	28.28
Norfolk	1 Diss (The Cedars).....	1.56	2.77	.19	3.89	2.95	1.58	4.18	2.80	1.59	.80	1.56	1.08	24.95
"	1 Wymondham.....	2.12	2.41	.30	3.33	3.70	1.40	3.03	2.98	1.74	.80	1.91	1.50	25.22
"	2 Acle.....	2.40	2.67	.45	3.46	4.53	2.04	4.76	2.33	2.33	1.27	2.03	1.47	29.74
"	3 Sandringham House Gardens.....	2.50	3.23	.75	3.44	3.42	1.48	3.27	3.19	3.32	1.07	2.08	1.56	29.31
"	3 Langham Episcopi Vic. ....	2.42	2.52	.70	3.28	4.30	1.67	2.91	3.52	2.88	1.13	1.68	1.71	28.72
"	4 Thetford (Waterworks).....	1.82	2.66	.28	4.06	2.68	1.55	3.11	4.67	1.99	1.00	1.97	1.10	26.89
"	4 Little Dunham (Dunham Cot.)....	2.62	3.04	.85	4.28	3.68	1.45	3.91	2.91	2.32	1.61	2.57	1.55	30.79
Wiltshire	1 Bradford (Manvers House).....	1.96	2.37	.55	2.48	2.64	2.40	4.93	4.59	1.93	1.25	3.95	1.32	30.37
"	2 Mere (Charnage).....	3.13	3.09	1.04	2.52	2.89	3.29	4.32	4.48	1.78	.77	4.40	1.17	32.88
"	3 Larkhill (School of Artillery)....	1.91	2.09	.47	2.35	2.52	2.28	4.52	2.65	1.31	.61	3.93	.73	25.37
"	5 Marlborough College.....	2.28	2.89	.37	3.04	3.44	3.24	4.10	4.22	2.29	.78	4.68	1.51	32.84
Dorsetshire	3 Weymouth (Springfield).....	2.06	1.77	1.40	2.16	3.50	2.81	3.31	3.06	1.51	.48	4.65	1.14	27.85
"	3 Beaminster (Farrs).....	3.73	2.95	1.26	3.14	3.22	3.83	4.15	3.90	2.01	.59	8.56	1.58	38.92
"	4 Winterbourne (Whitchurch Vic.)...	2.75	2.64	1.26	2.89	3.81	3.96	4.73	4.04	2.23	.56	5.90	1.73	36.50
"	4 Wimborne (Codford House).....	2.34	2.02	1.09	2.40	3.26	2.83	4.57	3.15	1.41	.80	4.75	1.10	29.72
South Devonshire	3 South Brent (Beechfield).....	6.94	6.66	2.97	4.61	4.08	6.81	8.04	5.69	2.78	1.23	10.66	4.08	64.55
"	5 Teignmouth (Den Gardens).....	2.84	1.85	2.00	3.53	2.62	3.13	3.48	3.11	1.83	.38	6.88	1.46	33.11
"	6 Crediton (Okefield).....	3.21	2.54	2.26	3.85	4.25	2.79	3.64	3.70	1.34	.81	6.16	1.86	36.41
"	7 Ottery St. Mary (West Hill).....	3.05	2.62	2.00	3.60	3.23	3.60	4.48	4.95	1.31	.56	7.41	1.79	38.60
North Devonshire	1 Ilfracombe (Langleigh).....	3.77	3.58	1.41	2.79	3.92	5.67	5.56	5.27	2.44	1.29	8.23	2.42	46.35
"	3 Okehampton (Uplands).....	5.33	4.50	2.06	4.61	3.27	3.31	7.27	5.76	3.48	1.63	9.88	3.11	54.21



Table XX.—(con.) Monthly Rainfall—ENGLAND—(con.).

County and River Division.	Station.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total.
		in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.
North Devonshire	Dolton (Hilliers).....	3.70	3.47	1.93	3.06	3.05	3.16	4.79	4.13	1.84	1.18	6.71	2.93	39.95
Cornwall.....	Redruth (Trewirgie).....	4.52	3.52	5.28	2.37	4.01	3.11	6.82	4.48	3.48	1.20	10.79	2.17	51.75
"	Newquay (Mount Wise).....	3.52	2.93	2.70	1.31	2.43	2.21	7.46	3.50	2.69	1.06	5.63	1.71	37.15
"	Bude (School House).....	3.09	2.42	2.47	1.79	2.15	2.86	5.28	5.37	2.36	1.11	5.94	1.75	36.59
"	Penzance (Morrab Gardens).....	5.32	4.16	4.37	1.67	3.26	3.67	5.17	3.10	3.05	1.07	8.31	2.82	45.97
"	St. Austell (Trevarna).....	5.28	4.17	5.06	3.30	3.44	3.37	7.47	4.81	3.23	1.15	8.72	2.10	52.10
"	Liskeard (Penmilder).....	5.28	4.46	2.28	2.25	3.37	3.53	6.91	5.44	2.52	1.55	8.90	2.43	48.92
"	Bolvontor Vicarage.....	9.35	6.84	3.68	4.15	5.45	4.74	10.63	7.74	5.31	2.32	12.32	3.80	76.33
"	Devonport (Empacombe).....	4.85	3.36	2.47	2.88	4.36	4.66	5.04	3.92	1.35	.85	6.93	2.12	42.79
"	Tresco Abbey.....	3.73	2.23	3.60	.98	2.69	2.64	4.39	3.33	2.71	.88	7.05	1.62	35.85
Somersetshire..	Long Ashton (Research Stn.).....	2.25	2.27	.86	2.72	3.47	3.50	4.45	3.96	2.95	1.12	4.69	2.23	34.47
"	Street (Portway).....	2.02	2.28	.93	2.21	3.27	2.99	4.02	4.14	1.57	.54	3.57	1.48	29.02
"	Burnham (Chalbury).....	2.20	2.25	.92	2.46	3.59	3.23	4.19	4.37	1.95	.74	4.29	1.16	31.35
"	Taunton (The Park).....	2.15	1.34	1.15	2.31	3.34	2.67	2.95	3.71	1.29	.45	4.47	1.56	27.39
"	Brushford Rectory.....	4.87	4.11	1.26	4.08	4.71	3.39	4.93	5.40	2.81	1.27	7.56	2.57	46.96
Gloucestershire..	Nailsworth (Three Corners).....	2.25	2.40	.48	3.02	3.91	3.77	5.15	7.74	2.75	.77	5.35	1.83	39.42
"	Cheltenham (Montpellier Gdns.)...	1.56	2.39	.37	3.25	3.39	4.19	3.73	3.96	2.33	.74	4.07	1.05	31.03
"	Blockley.....	1.73	2.73	.11	4.11	4.38	4.30	4.29	5.88	2.35	.87	4.20	1.15	36.10
"	Lechlade (Claydon House).....	1.50	1.81	.18	3.05	4.82	3.08	3.08	3.53	1.46	.65	3.40	1.27	27.83
Herefordshire...	Ross (Birchlea).....	1.58	1.75	.47	2.91	3.43	3.35	4.48	5.15	1.86	.61	5.29	1.35	32.23
"	Weobley School.....	1.62	1.94	.81	3.21	4.25	4.19	3.39	3.89	1.69	.67	5.82	1.02	32.50
Shropshire.....	Bromfield (Warwick House).....	2.02	2.34	.51	3.52	4.89	4.90	5.03	5.10	1.54	.87	6.74	1.09	38.55
"	Culmington Manor.....	2.10	2.29	.37	3.62	4.86	4.63	2.50	5.13	2.08	.97	6.16	1.87	35.58
"	Much Wenlock (Willey Park).....	1.57	1.84	.26	3.89	4.65	4.06	4.31	5.30	2.66	.94	3.99	1.18	34.65
Staffordshire..	Kingswinford (Ashwood P.S.).....	1.64	2.42	.12	4.08	4.25	4.39	3.68	5.38	2.18	.87	3.71	.85	33.57
"	Market Drayton (Old Springs).....	2.25	2.52	.19	3.69	4.37	3.96	3.09	5.42	3.34	1.20	4.61	1.57	36.21
"	Lichfield (St. John Street).....	1.40	2.23	.11	3.29	3.43	3.25	3.13	5.23	2.73	.87	2.98	.75	29.40
"	Stafford (Corporation Depot).....	2.03	2.69	.20	4.19	3.71	4.91	3.36	5.49	3.51	.90	3.89	1.29	36.17
"	Ashbourne (Mayfield House).....	3.89	3.94	.20	4.00	3.17	4.43	3.90	5.48	3.19	1.02	5.04	1.90	40.16
Worcestershire..	Malvern (Free Library).....	1.44	2.09	.18	3.50	4.41	4.20	3.02	5.20	2.39	.95	4.44	1.10	32.92
"	Bewdley (C.E. School).....	2.07	1.96	.27	3.69	4.49	4.40	2.95	4.23	1.89	.76	3.75	.77	31.23
"	Redditch (Hewell Gardens).....	1.66	2.46	.23	3.58	4.05	3.98	4.26	5.65	2.96	.87	3.38	1.10	34.18

Table XX.—(con.) Monthly Rainfall—ENGLAND—(con.).

County and River Division.	Station.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total.
Warwickshire ..	1 Warwick Castle Gardens .....	in. 1.45	in. 2.57	in. .08	in. 3.79	in. 2.93	in. 2.79	in. 2.97	in. 3.65	in. 2.39	in. .62	in. 2.46	in. .81	in. 26.51
" ..	1 Coventry (Keresley Grange) .....	1.60	3.00	.27	3.99	3.23	2.73	3.84	4.36	2.90	.84	3.25	1.19	31.20
Leicestershire ..	4 Loughborough (Nan Pantan Res.) ..	1.61	2.86	.09	3.42	3.49	3.49	3.82	4.54	1.90	.57	2.62	.89	29.30
" ..	4 Belvoir Castle Gardens .....	1.79	2.45	.31	3.31	3.07	2.28	4.41	3.30	2.69	.54	1.89	.76	26.80
Rutlandshire ....	1 Uppingham (Ridlington) .....	1.58	2.72	.17	3.74	2.58	2.32	3.35	2.98	3.72	.63	2.22	.96	26.97
Lincolnshire ....	2 Market Deeping (Wilsthorpe) .....	1.42	2.43	.32	2.44	2.71	1.95	2.59	3.25	3.32	.55	1.37	.57	22.92
" ..	3 Boston (Black Sluice, Skirbeck) .....	2.42	2.53	.35	2.57	2.61	2.48	5.18	8.02	2.67	.65	1.89	.88	32.25
" ..	3 Sleaford (Kesteven Mental Hos.) .....	2.44	3.21	.53	2.90	3.88	3.56	4.39	3.94	2.85	.64	2.44	1.14	31.92
" ..	3 Hackthorn Hall .....	2.92	2.20	.40	3.38	2.36	3.11	4.11	4.18	3.23	.69	2.68	1.15	30.41
" ..	4 Skegness (Marine Gardens) .....	2.37	1.69	.27	2.23	2.02	1.89	4.29	3.14	2.92	.94	1.58	1.32	24.66
" ..	4 Louth (Westgate) .....	2.54	2.32	.54	2.92	2.15	2.63	3.91	3.65	1.82	.82	2.79	1.24	27.33
" ..	5 Brigg (Wrawby Road) .....	2.15	2.44	.43	3.17	2.51	3.62	4.49	4.48	2.68	1.12	2.65	1.07	30.81
Nottingham ....	2 Newark .....	2.47	2.66	.40	3.24	2.90	2.93	4.30	3.97	3.28	.58	2.27	1.07	30.07
" ..	5 Mansfield (West Bank) .....	2.18	2.88	.24	4.07	3.12	4.78	4.11	5.27	4.26	.74	3.91	1.41	36.97
Derbyshire .....	5 Littleover (The Knoll) .....	1.78	2.93	.27	3.10	3.02	3.57	3.76	5.39	2.55	.68	2.63	1.31	30.99
" ..	6 Matlock Bath (Lower Tower) .....	3.01	3.83	.15	3.92	3.16	4.37	4.15	6.54	4.06	.64	5.53	1.49	40.85
" ..	6 Buxton (Devonshire Hospital) .....	6.84	5.19	.24	5.50	3.02	5.76	4.44	6.63	4.02	2.27	6.86	2.02	52.79
Cheshire .....	1 Altrincham (Burlington Cot.) .....	4.66	3.45	.17	2.33	2.88	5.45	3.79	8.53	3.27	1.69	5.71	1.44	43.37
" ..	2 Northwich (Winnington) .....	2.79	2.65	.46	2.60	2.88	5.19	2.48	7.13	4.02	1.48	4.63	1.40	37.71
" ..	4 Eccleston .....	1.83	1.95	.43	2.51	3.07	4.93	1.83	5.88	4.09	1.55	4.65	1.44	34.16
" ..	4 Neston (Vine House) .....	2.39	2.04	.29	2.33	2.46	5.20	1.88	5.97	3.12	1.23	3.49	1.41	31.81
South Lancashire	3 Bolton (Queen's Park) .....	7.20	6.02	.48	3.99	2.85	6.36	4.09	6.22	3.45	3.08	8.07	2.56	54.37
Central "	1 Burnley (Swinden) .....	6.96	5.53	.53	4.20	2.89	6.47	4.37	4.98	4.62	2.84	8.06	2.63	54.08
" ..	3 Southport (Hesketh Park) .....	3.43	2.79	.37	2.47	2.06	5.91	2.69	4.58	3.58	2.41	6.45	1.82	38.56
North "	1 Ulverston (Poaka Beck) .....	6.00	4.75	.61	2.70	3.55	9.35	7.08	4.59	2.73	4.69	10.85	5.51	62.41
" ..	4 Lancaster (Greg Obsy.) .....	4.70	3.77	.56	2.25	2.16	6.59	5.92	3.56	3.56	3.80	7.14	3.96	47.97
" ..	5 Barton (Newsham House) .....	4.24	3.61	.41	2.62	2.24	5.99	4.21	4.68	3.44	2.84	7.05	2.85	44.18
Yorkshire, W.R.	2 Settle (Gas Works) .....	4.92	5.08	.59	3.56	2.44	5.67	3.77	3.52	2.03	2.08	9.11	3.57	46.34
" ..	7 Sheffield (Weston Park) .....	2.40	3.28	.21	3.30	3.08	4.40	4.10	5.72	3.32	.79	4.12	1.41	36.13
" ..	7 Doncaster (Avenue Road) .....	1.78	2.03	.62	3.29	2.57	6.31	5.18	5.24	3.10	.83	3.16	1.02	35.13
" ..	8 Meltham (Harewood Lodge) .....	5.62	6.77	.49	4.89	3.26	5.38	4.10	6.03	4.84	2.29	6.64	2.62	52.93
" ..	9 Leeds (Wortley Reservoir) .....	1.85	2.38	.27	3.12	2.65	5.37	3.71	3.88	3.89	1.04	4.60	1.03	33.79
" ..	10 Ilkley (Spence's Garden) .....	2.92	4.24	.48	3.69	3.53	6.87	3.41	4.20	3.76	1.48	6.55	1.50	42.63

Table XX.—(con.) *Monthly Rainfall—ENGLAND—(con.)*.

County and River Division.	Station.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total.
Yorkshire, W.R.	York (Cherry Hill) .....	1.87	1.64	.50	3.43	2.34	3.67	3.68	3.31	3.56	.96	3.94	.91	29.81
"	Buckden .....	4.14	6.64	1.09	3.99	3.11	6.30	4.06	4.49	2.87	3.25	8.34	4.15	52.43
"	Knaresborough (The Abbey) .....	2.14	2.22	.79	3.16	3.10	4.47	4.75	3.51	5.42	1.06	4.34	1.12	36.08
E.R.	Birdsall Gardens .....	3.11	2.70	1.08	3.62	2.95	3.87	4.08	2.33	4.33	1.31	3.96	1.33	34.67
"	Pattingham (Rose Cottage) .....	2.60	2.32	.55	3.03	2.87	2.65	4.66	3.99	2.41	1.53	1.88	1.34	29.83
"	Holme-on-Spalding Moor .....	2.20	2.51	.96	3.34	2.44	5.23	3.45	3.50	2.65	1.41	3.75	.86	32.30
"	Beverley (E. Riding Mental Hosp.) ..	2.29	2.59	1.09	3.39	2.81	3.97	3.80	2.82	3.22	1.34	3.54	1.18	32.04
"	Bridlington (Corpn. Nurseries) .....	2.98	2.65	.57	3.13	2.40	2.93	3.53	2.94	3.87	1.75	2.38	1.58	30.71
N.R.	Masham Moor (Roundhill Res.) .....	2.81	3.40	1.06	4.73	3.93	5.77	3.33	4.77	6.22	1.64	6.23	2.47	46.36
"	Felixkirk (Mount St. John) .....	2.61	1.72	1.80	4.25	2.93	4.76	3.80	3.40	4.54	1.25	4.37	1.38	36.81
"	Reeth (Arkengarthdale) .....	3.15	3.29	1.53	2.95	2.57	4.74	4.91	5.31	2.22	1.55	6.30	2.72	41.24
"	Thornton Dale (High Dalby Ho.) ..	2.49	2.52	1.19	3.77	1.92	3.70	3.81	3.04	5.56	2.03	2.95	1.13	34.11
"	Whitby (Mulgrave Castle) .....	3.08	2.17	1.15	3.53	1.82	6.41	3.39	2.86	4.83	1.59	1.71	1.80	34.34
"	Middlesbrough (Albert Park) .....	1.70	1.16	1.25	2.87	2.30	3.29	4.78	2.15	4.62	1.21	1.87	.96	28.16
"	Burnhope (Lodgegill Mine) .....	(5.45)	(5.95)	(2.25)	5.00	3.90	7.20	6.50	5.30	3.15	4.35	8.20	4.85	(62.10)
Durham .....	Durham (Houghall) .....	2.07	1.12	1.61	3.04	2.65	3.32	4.00	1.99	4.14	.98	2.33	1.13	28.38
"	Weardale W.W. (Waskerley) .....	2.34	2.30	1.30	3.66	3.47	4.48	3.57	4.21	2.80	1.48	3.42	1.45	34.48
"	Sunderland (W. Hendon Ho.) .....	2.58	1.28	1.27	3.19	2.65	3.19	4.16	3.05	3.59	1.48	2.06	1.42	29.92
Northumberland	Corbridge (Howden Dene) .....	2.20	1.83	1.34	3.42	3.39	4.61	3.89	3.98	1.14	1.16	2.45	1.30	30.71
"	Bellingham (High green) .....	2.29	2.51	1.70	3.79	2.94	4.69	5.08	4.12	1.32	2.02	6.06	2.28	38.80
"	Morpeth (Cockle Park) .....	2.28	1.08	.95	3.52	2.75	3.48	3.16	3.17	1.90	1.21	3.86	1.04	28.40
"	Fontburn Res. (Tynemouth W.W.) ..	3.33	1.75	1.35	3.61	3.14	5.32	3.36	3.19	2.29	1.45	4.69	1.55	35.03
"	Wooperton .....	2.35	2.37	1.45	3.24	2.44	4.00	3.91	2.96	3.02	1.27	4.86	1.75	33.62
"	Ilderton (Lilburn Tower Gdns.) .....	2.65	1.52	1.23	3.17	2.42	4.03	3.77	2.67	2.58	1.06	4.34	1.85	31.29
Cumberland .....	Penrith (Laurel Bank) .....	3.45	2.74	1.03	2.22	2.18	4.36	4.01	3.09	1.62	2.07	5.40	2.38	34.55
"	Geltsdale .....	2.80	3.52	1.30	2.56	2.10	5.24	6.86	3.55	1.55	3.57	4.77	2.33	40.15
"	Carlisle (Scaleby Hall) .....	2.59	3.00	1.20	2.21	2.60	6.12	4.23	2.72	1.43	2.96	5.31	2.52	36.89
"	Borrowdale (The Moraine) .....	9.93	8.47	1.70	4.56	7.63	10.67	11.12	5.24	3.53	9.32	19.10	9.99	101.26
"	Keswick (Derwent Island) .....	5.72	4.52	1.03	3.10	4.44	7.47	7.40	4.28	2.63	3.85	12.38	5.54	62.36
"	St. Bees (Fern Bank) .....	4.23	2.99	.99	1.62	2.58	5.90	5.14	4.40	3.00	2.36	8.63	5.53	47.37
Westmorland .....	Kirkby Stephen (Eden Place) .....	3.55	2.92	.86	2.76	2.56	4.95	3.53	3.09	1.41	2.26	6.29	2.69	36.87
"	Appleby (Castle Bank) .....	3.32	2.98	.90	2.67	3.02	4.62	5.51	3.65	1.32	2.78	6.79	2.75	40.31
"	Kendal (Highgate) .....	4.76	4.38	.77	2.61	2.57	7.32	6.05	3.83	2.24	4.52	9.17	4.67	52.89

Table XX.—(con.) *Monthly Rainfall—MONMOUTH AND WALES, AND THE ISLANDS.*

County and River Division.	Station.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total.
Monmouth . . . . .	Newport W.W. (Nantypriidd) . . . . .	3.21	2.63	1.01	3.58	5.42	4.47	4.04	5.04	2.18	in. .86	in. 8.19	in. 2.75	in. 43.38
" . . . . .	Abergavenny (The Chain) . . . . .	2.90	2.93	1.03	3.98	5.74	4.20	2.79	5.84	1.78	.43	10.62	1.94	44.18
Glamorgan . . . . .	Swansea (Victoria Park) . . . . .	5.36	5.06	1.13	3.24	4.51	4.02	8.00	3.94	3.01	1.76	9.10	3.10	52.23
" . . . . .	Bridgend (Eiwr Graig) . . . . .	4.11	4.85	1.06	3.37	4.52	3.81	5.38	4.14	2.89	1.42	7.43	2.65	45.63
" . . . . .	Treherbert (Tyn-y-waun) . . . . .	10.18	9.00	1.20	6.27	6.28	8.45	10.94	8.01	3.46	3.33	18.11	6.03	91.26
" . . . . .	Cardiff (Roath Park) . . . . .	3.10	3.35	1.17	3.16	8.53	3.44	4.51	4.72	1.58	1.10	6.46	2.71	43.83
Carmarthen . . . . .	Carmarthen (The Friary) . . . . .	4.62	4.84	1.22	3.73	3.84	4.09	6.39	3.20	2.92	2.14	12.70	2.86	52.55
" . . . . .	Abergorleach . . . . .	7.18	5.45	1.29	2.61	4.88	5.23	5.83	4.92	2.58	2.32	13.08	4.12	59.49
Pembroke . . . . .	Saundersfoot (Hean Castle) . . . . .	3.91	3.57	2.03	2.64	3.83	3.24	4.63	2.94	3.09	1.27	8.30	1.85	41.30
" . . . . .	Haverfordwest (Grammar School) . . . . .	5.34	4.90	2.20	2.55	4.16	2.37	5.80	3.12	4.43	2.25	11.55	2.69	51.36
" . . . . .	Fishguard (Langton, Dwrbach) . . . . .	4.60	4.10	1.39	2.47	3.22	2.00	4.81	3.41	3.76	2.41	11.35	2.82	46.34
Cardigan . . . . .	Aberystwyth (Plant Breeding Stn.) . . . . .	3.89	4.22	1.49	3.74	3.64	4.04	4.12	3.39	3.79	2.72	7.02	3.44	45.50
" . . . . .	Cardigan (County School) . . . . .	3.60	3.17	1.17	3.19	2.69	2.32	3.11	4.39	3.14	1.81	10.63	1.99	41.21
" . . . . .	Lampeter (Falcondale) . . . . .	5.66	4.38	.88	3.64	3.65	3.04	4.24	4.13	3.73	2.27	11.44	3.74	50.80
" . . . . .	Plynlimon . . . . .	13.00	14.00	3.00	9.00	11.50	9.50	9.50	11.50	5.00	6.50	8.50	12.50	113.50
Brecon . . . . .	Swansea W.W. (Cray Res.) No. 1 . . . . .	6.42	5.37	1.19	5.30	7.48	7.27	8.26	7.08	3.06	2.38	15.34	4.06	73.21
" . . . . .	Birmingham W.W. (Cors-yr-hwch) . . . . .	12.00	10.20	2.20	7.42	7.10	6.30	7.90	8.75	4.50	4.65	15.26	7.00	93.28
Radnor . . . . .	Llandrindod Wells (Disserth Rec.) . . . . .	4.29	4.31	.82	3.24	6.48	5.09	4.06	4.79	2.29	1.60	8.11	2.48	47.56
Montgomery . . . . .	Newtown (Penarth Weir) . . . . .	3.05	3.85	.99	4.02	6.10	4.60	3.47	3.94	2.52	1.16	5.72	1.87	41.29
" . . . . .	Llandysilio Rectory . . . . .	1.30	2.57	.58	3.17	5.21	2.85	1.68	5.38	2.23	.75	4.53	1.37	31.62
" . . . . .	Lake Vyrnwy . . . . .	6.25	7.59	1.17	5.54	6.48	5.09	4.44	5.64	3.21	1.96	10.30	4.50	62.17
Flint . . . . .	Rhyl Sewage Works . . . . .	1.81	2.60	.45	2.49	2.41	2.84	1.06	3.68	3.54	1.35	4.42	1.20	27.85
Denbigh . . . . .	Wrexham (Packsaddle Res.) . . . . .	3.12	3.16	.79	3.62	4.11	4.88	1.98	6.76	4.49	1.43	6.38	1.68	42.40
" . . . . .	Llangynhafal (Plâs Drâw) . . . . .	2.77	3.11	.54	3.84	3.63	4.64	1.54	6.77	5.46	1.43	4.90	1.98	40.61
" . . . . .	Pentre Voelas (Voelas Hall) . . . . .	6.41	6.21	1.44	4.44	4.06	3.97	4.28	5.88	4.36	2.23	10.96	3.55	57.79
Merioneth . . . . .	Festiniog (Hafod Fawr) . . . . .	11.29	8.97	1.77	6.18	5.20	8.49	6.78	7.01	5.59	4.46	14.02	6.13	85.89
" . . . . .	Dolgelly (Bryntirion) . . . . .	9.10	8.54	1.38	7.38	4.05	7.29	5.71	6.38	4.72	4.46	10.59	5.49	75.09
Carnarvon . . . . .	Llandudno . . . . .	2.29	2.69	.81	2.88	2.15	3.02	1.22	4.27	3.92	1.86	3.81	1.41	30.33
" . . . . .	Bethesda (Penrhyn Quarries) . . . . .	6.56	5.49	1.60	6.56	3.61	4.89	4.34	9.02	6.42	4.49	13.88	4.79	71.65
" . . . . .	Pwllheli (Bodfean Hall Gardens) . . . . .	4.51	4.05	1.47	3.07	4.38	4.89	3.49	4.40	3.80	2.09	10.20	2.82	49.17
" . . . . .	Snowdon (Cwm Dyli) . . . . .	16.30	15.39	1.78	10.53	7.93	13.88	11.55	10.71	7.35	10.55	22.65	10.62	139.24

Table XX.—(con.) *Monthly Rainfall—MONMOUTH AND WALES—(con.)*.

County and River Division.	Station.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total.
Anglesey.....	Holyhead (Salt Island).....	in. 2.61	in. 2.39	in. 1.28	in. 1.85	in. 3.39	in. 4.10	in. 1.71	in. 2.74	in. 3.08	in. 1.97	in. 6.14	in. 2.27	in. 33.53
"	Llanerchymedd (Llwydiarth Esgob)	3.23	3.03	1.21	3.24	3.68	4.16	1.99	4.48	3.93	2.76	7.10	3.05	41.86
<b>ISLE OF MAN.</b>														
Isle of Man.....	Douglas (Borough Cemetery).....	6.04	3.61	1.01	1.85	3.75	6.00	2.89	4.07	4.14	2.59	11.08	3.57	50.60
"	Ramsey (North Promenade).....	7.19	2.85	.95	2.00	3.67	3.93	1.96	3.89	3.19	2.14	18.09	4.30	54.16
<b>CHANNEL ISLANDS.</b>														
Jersey.....	St. Aubins (Belle Vue).....	3.69	4.00	2.39	2.08	2.00	1.87	2.41	7.17	3.05	.68	4.61	1.21	35.16
Guernsey.....	St. Martin's (Les Blanchés).....	3.41	3.08	2.87	1.99	2.42	1.35	3.43	6.56	2.44	.55	4.08	1.56	33.74
Sark.....	Pointe Robert.....	3.42	2.08	3.17	1.64	2.24	1.95	3.73	4.48	2.01	.57	4.35	1.00	30.64
Alderney.....	St. Anne (Grosnez House).....	3.86	4.12	2.60	2.67	1.74	1.76	2.26	6.89	2.14	.67	3.53	1.49	33.73
<b>SCOTLAND.</b>														
Wigtownshire..	3 Whithorn (Glasserton).....	3.97	3.27	.75	1.95	2.47	5.79	2.87	3.78	2.42	2.77	9.42	4.06	43.52
"	3 Port William (Monreith).....	4.22	2.79	1.01	1.92	2.24	5.31	3.61	3.74	3.60	2.97	8.77	4.55	44.73
"	4 Kirkcowan (Craighlaw).....	6.34	4.73	1.42	2.47	3.40	5.65	3.95	3.23	3.03	3.65	9.98	6.25	54.10
Kirkcudbrightsh'.	3 Dalry (Glendarroch).....	6.25	4.89	1.45	2.37	4.53	6.25	4.24	2.10	1.46	3.45	13.37	5.54	55.90
"	4 Dalbeattie (Kirkennan).....	5.14	3.89	1.24	1.85	4.45	6.90	5.12	3.23	.77	3.91	10.05	4.86	51.41
Dumfriesshire..	3 Moniaive (Glencrosh).....	7.32	5.81	.84	2.14	3.98	6.94	4.39	2.19	1.75	3.32	12.22	5.89	56.79
"	4 Dalton (Kirkwood).....	4.05	3.51	.87	2.33	3.36	7.33	6.22	2.55	2.20	3.63	11.46	4.43	51.94
"	5 Langholm (Ewes, Sandyhaugh).....	5.42	4.17	.97	3.31	4.67	7.16	5.32	3.22	1.92	4.52	9.32	4.96	54.96
"	5 Eskdalemuir Observatory.....	5.11	5.93	1.12	3.15	4.59	10.24	5.74	1.80	1.46	5.34	11.26	5.76	61.50
Roxburghshire..	3 Jedburgh (Jedneuk).....	1.35	1.61	.89	2.37	2.11	5.34	2.74	3.83	1.50	1.70	3.40	.62	27.46
Selkirkshire....	4 Caddonfoot (Fairnilee).....	2.32	3.35	1.14	3.02	3.31	6.01	2.58	4.54	1.14	2.02	5.91	1.80	37.14
Peeblesshire....	1 Edin. W.W. (Victoria Lodge).....	4.54	4.20	1.03	3.27	3.66	6.46	4.68	3.56	1.00	3.98	8.21	5.10	49.67
"	2 Stobo Castle.....	3.39	3.45	.90	2.70	2.85	5.08	4.19	3.28	1.17	2.54	4.78	2.39	36.72
Berwickshire...	2 Earnsclough Burn (Blythe Rig).....	2.31	3.23	2.45	4.66	2.89	4.71	3.90	6.31	2.11	2.27	4.59	1.90	41.33
"	4 Marchmont House.....	2.38	1.76	1.43	3.19	2.68	4.49	4.63	3.34	1.87	1.43	3.81	.75	31.76
Haddingtonshire	5 North Berwick Reservoir.....	2.04	1.71	1.29	1.62	3.00	4.31	4.29	4.46	1.34	1.81	3.34	.57	29.78
Midlothianshire.	5 Pentland Hills (Harperrig).....	2.72	2.97	1.73	2.91	3.69	5.49	4.41	4.96	1.68	3.26	5.67	2.94	42.43

Table XX.—(con.) Monthly Rainfall—SCOTLAND—(con.).

County and River Division.	Station.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total.
		in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.
Midlothianshire. 5	Edinburgh (Royal Observatory)...	1.94	1.85	1.30	2.02	2.77	4.25	3.57	5.58	1.98	1.41	4.16	1.06	31.89
Lanarkshire.... 4	Gartcosh (Gartloch Hospital).....	3.31	3.89	1.27	2.07	3.89	5.41	5.81	2.67	1.33	3.06	6.25	3.42	42.38
"..... 5	Douglas (Kilncroft).....	5.06	4.22	.61	2.10	2.23	5.86	4.11	2.32	.99	3.85	3.65	5.66	40.66
"..... 5	Strathaven (East Overton Ho.).....	3.85	3.84	.94	1.17	2.48	5.28	4.77	2.11	1.37	5.29	7.16	6.17	44.43
Ayrshire..... 3	Dalry (Munnock Reservoir).....	4.84	4.49	1.38	2.24	4.55	6.18	4.93	2.16	1.99	4.27	8.60	4.92	50.55
"..... 6	Maybole (Culzean Castle Gardens)...	3.83	4.20	.97	1.46	2.39	6.31	3.53	1.89	1.24	3.53	7.60	4.44	41.39
"..... 8	Colmonell (Knockdolian).....	7.07	3.64	1.03	1.43	1.98	4.40	2.55	2.16	1.96	3.57	10.38	5.50	45.67
"..... 13	Glen Afton (Ayr Sanatorium).....	6.86	6.43	1.38	2.70	3.22	6.58	4.45	4.21	1.41	4.78	11.31	6.70	60.03
Renfrewshire... 2	Houston Manse .....	5.49	4.82	1.49	2.05	4.94	5.59	5.61	1.83	1.32	4.20	7.92	5.68	50.94
Dumbartonshire 2	Cardross (Kilmahew).....	4.81	4.47	.82	1.94	4.38	5.65	3.80	1.82	1.43	4.32	7.54	5.03	46.01
Stirlingshire... 1	Falkirk (Westbank Garden).....	2.68	2.87	1.45	2.17	4.15	5.90	4.45	3.54	1.25	3.06	6.16	3.27	40.95
Buteshire..... 1	Port Bannatyne (Ettrickdale).....	7.28	6.26	1.51	2.44	4.03	5.99	5.22	2.84	2.40	4.73	8.31	5.35	56.36
"..... 3	Arran (Dougarie Lodge).....	5.14	3.99	1.39	2.14	3.28	4.66	3.83	1.43	2.06	4.06	8.84	4.21	45.03
Argyllshire..... 2	Loch Sunart (Glenborrodale).....	6.88	7.50	1.33	3.74	4.35	5.82	6.04	3.28	2.86	6.25	11.15	9.20	68.40
"..... 2	Acharacle (Shielbridge).....	6.75	7.26	1.11	3.20	4.98	4.94	5.25	3.38	1.82	6.70	9.22	9.05	63.66
"..... 3	Morvern (Kingairloch).....	10.57	10.11	1.75	4.84	8.18	7.69	6.75	2.12	3.43	9.92	12.64	14.45	92.45
"..... 5	Glen Etive .....	12.88	12.44	.97	4.28	7.67	10.70	7.39	2.09	2.41	12.24	11.90	13.66	98.63
"..... 6	Dalmally (Manse of Glenorchy).....	11.11	9.08	1.40	3.93	3.88	7.60	7.70	1.49	2.37	6.90	9.92	12.34	77.72
"..... 7	Oban .....	5.72	5.22	1.21	2.19	3.23	4.09	4.11	1.05	1.85	5.84	8.60	6.61	49.72
"..... 10	Campbeltown (South Park).....	7.95	4.15	2.63	1.98	3.12	5.77	4.29	2.41	2.34	3.72	9.95	5.15	53.46
"..... 10	Skipness (Claonaig).....	5.90	5.51	1.77	2.17	3.95	4.99	4.33	2.08	2.51	5.97	7.19	5.33	51.70
"..... 11	Ardishaig (Canal Office).....	9.24	7.77	1.54	3.33	3.22	6.10	5.24	1.54	2.51	6.50	9.86	7.11	63.96
"..... 11	Ardinglas .....	9.32	8.81	1.32	4.12	4.70	6.63	6.02	2.11	2.46	6.63	12.10	9.84	74.06
"..... 12	Loch Eck (Benmore).....	11.84	10.90	2.73	4.98	7.48	9.31	6.28	3.03	4.05	8.35	15.71	12.75	97.41
"..... 14	Islay (Ardbeg).....	5.64	5.37	1.08	2.28	2.77	5.41	4.98	1.86	2.99	5.04	5.59	4.87	47.88
"..... 14	Jura (Ardfin).....	7.07	6.32	1.89	2.56	2.97	5.95	4.85	1.72	2.55	5.57	8.35	5.55	55.35
"..... 14	Mull (Bunessan).....	5.43	4.91	1.72	2.32	3.86	3.72	3.49	1.02	2.58	4.93	8.62	3.92	46.52
"..... 14	Mull (Benmore).....	(14.40)	(13.00)	(3.00)	4.80	11.40	13.30	13.20	2.40	(5.50)	(9.30)	20.40	17.80	128.50
"..... 14	Mull (Glencannel).....	11.53	10.44	2.22	3.86	5.37	7.25	7.07	1.87	4.55	10.75	13.62	14.85	93.38
"..... 14	Tiree (Cornaigmore Sch.).....	5.53	4.62	1.45	2.28	3.44	3.90	3.59	1.04	2.30	3.93	6.58	3.46	42.12
"..... 2	Kirkcaldy (Munro Street).....	2.04	1.83	1.18	1.98	3.24	4.87	5.22	2.29	1.72	1.32	6.08	1.03	32.80
Fifehire..... 3	Cupar (Fife and Kinross Asylum)...	3.85	1.72	1.16	1.93	3.26	4.22	5.78	2.40	1.33	1.01	6.68	.71	34.05

Table XX.—(con.) *Monthly Rainfall*—SCOTLAND—(con.).

County and River Division.	Station.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total.
Perthshire	Loch Drunkie.....	5.30	6.50	1.10	2.75	7.35	6.00	6.00	2.05	2.30	6.60	11.00	7.30	64.25
"	Glengyle.....	8.00	8.70	1.70	4.10	7.20	8.50	7.00	2.30	2.95	9.15	15.30	9.80	84.70
"	Glendevon (Tormaukin).....	4.16	4.30	1.49	2.72	5.25	6.74	6.67	3.80	2.25	4.74	10.79	3.98	56.89
"	Lochearnhead (Edinchip).....	5.24	6.13	1.65	3.30	5.84	6.09	6.47	2.58	2.06	5.35	13.08	7.83	65.62
"	Crieff (Strathearn Hydro).....	3.47	1.86	1.22	2.39	4.74	7.16	4.82	1.68	1.39	1.75	8.66	2.79	41.93
"	Aberfeldy (Dall Avon).....	3.51	2.39	.88	2.60	3.68	4.69	4.73	2.35	1.14	1.80	7.11	2.81	37.69
"	Loch Rannoch (Dall).....	4.59	3.84	.96	2.62	3.34	4.26	3.55	2.46	1.18	3.20	7.68	5.63	43.31
"	Glen Bruar (Bruar Lodge).....	3.75	3.90	1.55	2.63	4.51	5.15	6.04	2.40	1.88	3.58	7.46	4.02	46.87
"	Kirkmichael (Ballintuin Ho.).....	4.55	3.05	1.19	2.73	4.99	5.06	3.79	1.81	1.05	1.82	9.19	3.12	42.35
Angus (Forfar)	Kettins School.....	3.26	1.16	1.02	2.16	4.44	3.98	3.64	3.35	1.24	1.22	5.33	1.21	32.01
"	Arbroath (W. Cemetery).....	2.94	1.27	1.18	1.72	3.28	4.22	4.49	1.78	1.11	.98	5.16	1.20	29.33
"	Glen Prosen (Pearsie House).....	3.54	2.23	1.36	2.70	3.96	5.82	4.60	3.95	1.06	1.21	7.45	1.69	39.57
Kincardineshire	Marykirk (Balmakewan).....	3.85	1.91	1.22	2.20	2.93	4.26	4.40	1.56	1.22	.89	6.39	1.46	32.29
"	Strachan (Bridge of Dye).....	3.65	2.01	1.76	3.11	4.00	4.49	4.43	4.61	1.69	1.44	8.35	1.79	41.43
Aberdeenshire	Glen Muick.....	3.76	2.12	1.91	3.64	5.29	3.76	4.79	4.30	1.94	2.66	9.18	3.45	46.70
"	Ballater (Irrigation Farm).....	3.35	1.12	1.34	2.88	2.62	2.43	3.84	5.10	1.60	1.74	5.04	1.64	32.70
"	Logie Coldstone School.....	2.69	1.38	1.15	2.58	3.12	3.34	4.03	3.00	1.60	1.81	3.58	1.73	30.01
"	Aberdeen (King's College).....	3.06	2.80	1.14	1.54	4.59	2.98	2.93	1.87	.89	1.53	4.39	1.39	29.11
"	Craibstone (Woodlands Field).....	2.95	2.21	1.24	1.71	3.98	3.52	2.98	2.36	1.36	1.35	4.26	1.34	29.26
"	Haddo House.....	3.08	2.67	.98	1.62	3.46	2.76	3.41	1.84	1.30	2.14	3.55	2.21	29.02
"	Peterhead (Forehill Works).....	3.82	2.51	1.34	1.68	3.65	2.06	3.06	2.45	1.30	1.88	3.90	2.27	29.92
"	Huntly (Cruchie).....	2.62	2.12	1.06	1.29	2.43	3.15	3.61	3.14	1.77	2.09	3.01	1.66	27.95
Banffshire	Turriff (Forglen Gardens).....	3.69	3.05	.72	1.47	3.12	2.17	3.15	2.48	1.53	2.71	2.83	2.49	29.41
Morayshire	Gordon Castle.....	2.70	2.41	1.05	1.92	2.58	2.44	4.06	2.42	1.63	2.67	2.28	1.74	27.90
"	Grantown-on-Spey.....	3.88	2.11	1.31	2.27	4.02	2.64	5.53	2.84	1.69	.99	2.24	1.57	31.09
"	Aberlour (Wester Elchies).....	3.42	2.34	1.62	1.84	3.17	2.32	4.59	3.61	1.98	2.37	2.29	1.45	31.00
Nairnshire	Nairn (Achareidh).....	3.08	1.92	1.48	1.74	2.50	3.45	4.77	2.24	1.50	2.33	1.71	1.32	28.04
Inverness-shire	Cluny Castle.....	2.87	2.44	.98	2.57	3.43	3.52	6.17	2.30	1.73	3.58	5.46	4.68	39.73
"	Alvie Manse.....	3.47	2.42	1.06	2.76	2.64	2.85	4.16	2.22	1.47	3.10	3.16	2.33	31.64
"	Loch Ness (Foyers).....	4.66	4.36	.96	2.55	4.75	3.00	4.50	1.52	1.44	3.81	3.43	4.32	39.30
"	Loch Quoich (Glenquoich).....	13.23	10.96	1.14	4.75	8.22	8.89	9.54	2.74	2.63	13.72	11.96	21.62	109.40

Table XX.—(con). **Monthly Rainfall—SCOTLAND—(con.)**.

County and River Division.	Station.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total.	
Inverness-shire.	Loch Nevis (Inverie Gdns.)	8.61	5.73	1.77	3.76	6.49	7.45	9.00	1.88	2.49	9.08	8.35	9.65	74.26	
	Arisaig House.	7.66	7.00	1.34	2.68	3.77	5.76	6.63	2.42	1.76	7.37	7.27	8.46	62.12	
	Glenleven (Corrour Station)	7.00	5.80	.71	3.33	7.05	5.80	6.03	1.60	1.71	7.90	10.78	13.45	71.16	
	Fort William (Glasdrum)	7.43	7.33	.81	3.11	6.27	6.10	5.11	3.31	1.58	9.51	11.01	11.33	72.90	
	Hyskier	8.26	6.18	4.04	3.00	6.11	4.76	3.85	2.39	1.61	4.07	6.32	5.02	55.61	
	Skye (Kyleakin, Dunringell)	8.44	7.17	1.20	2.99	4.62	4.85	6.07	1.63	1.56	6.11	8.55	9.28	62.47	
	Skye (Portree)	9.60	8.59	1.67	4.24	4.60	5.08	4.91	1.97	1.38	7.45	9.31	8.72	67.52	
	Skye (Dunvegan)	7.62	8.38	1.90	3.68	4.31	5.21	4.51	1.31	1.80	5.67	8.39	6.14	58.92	
	Barra (Skallary)	5.98	5.98	1.44	2.50	2.51	3.40	3.85	3.85	1.21	1.85	3.54	7.88	5.39	45.53
	N. Harris (Amhuinnsuidh Castle)	7.42	8.22	1.86	3.77	3.33	4.81	4.15	4.15	2.30	2.91	5.46	7.52	5.89	57.64
Ross & Cromarty		16.46	11.81	1.21	6.75	10.43	7.54	7.42	3.40	2.55	14.01	9.90	19.75	111.23	
	Glenmoriston (Cluanie Inn)		6.43	4.63	1.06	2.68	2.29	2.83	1.50	1.33	2.44	2.26	3.94	34.67	
	Strathpeffer		1.86	2.62	1.29	1.82	3.73	4.05	1.64	1.35	1.40	1.63	1.25	24.50	
	Cromarty House		5.64	4.37	1.58	3.32	2.99	3.85	2.18	1.50	2.67	3.12	4.30	39.55	
	Alness (Ardross Castle)		10.72	9.00	1.50	4.68	4.11	5.38	1.11	1.81	6.91	5.09	11.27	66.76	
	Braemore (Loch a' Bhraoin)		8.44	8.05	1.79	3.42	3.28	3.11	.64	1.15	4.37	3.18	4.84	44.29	
	Ullapool		13.47	9.69	.71	4.42	6.93	5.43	2.52	1.80	7.18	6.87	12.74	75.93	
	Loch Carron (Dunhulladale)		11.86	7.79	.49	4.49	6.09	6.48	1.53	1.57	7.54	5.87	13.98	73.63	
	Achnashellach														
	Stornoway		7.64	6.97	1.53	3.35	3.16	2.07	1.38	1.66	5.00	4.88	5.69	47.01	
Sutherlandshire	Lairg		6.52	5.40	1.78	2.89	3.48	3.57	1.22	1.03	4.00	2.14	5.99	40.97	
	Golspie (Technical School)		3.59	3.14	1.44	3.03	3.84	(3.30)	(1.06)	.33	2.46	2.25	4.05	31.15	
	Skerray (Borgie)		6.48	6.25	2.60	3.41	3.60	4.40	.89	1.82	4.45	2.21	5.63	45.30	
	Tongue		6.61	4.65	2.10	3.71	3.07	3.51	1.08	1.78	3.61	2.04	4.41	39.08	
	Melvich		5.97	4.63	1.41	2.49	2.93	4.55	1.04	1.13	3.88	1.61	4.21	38.23	
	Loch More (Achfary)		14.29	12.05	1.69	7.07	6.37	7.21	1.79	3.65	7.64	3.83	15.05	86.15	
Caithness-shire	Wick		3.13	2.88	1.17	1.82	2.87	2.93	1.07	.94	2.93	2.64	2.80	30.09	
	Thurso (Buckies)		5.46	4.41	1.78	2.37	2.70	3.87	.99	1.52	3.91	2.80	5.10	38.72	
Orkney	Pomona (Deerness)		5.30	4.33	1.99	2.38	2.06	1.54	.51	.81	(4.50)	2.73	5.64	(36.53)	
Shetland	Lerwick Observatory		4.25	5.45	.72	2.79	2.15	3.66	.37	1.21	3.44	5.40	5.46	37.56	



Table XX.—(con.) *Monthly Rainfall—IRELAND.*

County and River Division.	Station.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total.
		in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.
Co. Cork . . . . .	4 Garinish Island . . . . .	4.59	6.02	5.86	2.35	5.97	5.00	4.61	3.69	2.42	3.93	12.92	6.01	63.37
" . . . . .	6 Castletownshend (Seafeld) . . . . .	2.83	3.66	6.22	1.76	3.20	3.76	3.79	2.45	1.34	1.37	10.90	2.70	43.98
" . . . . .	6 Dunmanway (The Rectory) . . . . .	3.18	3.65	7.67	2.31	4.80	4.34	3.53	3.20	1.31	2.13	12.70	3.94	52.76
" . . . . .	7 Cork (University College) . . . . .	1.67	2.62	8.01	2.72	4.36	3.27	2.73	4.74	.87	1.17	9.85	2.25	44.26
" . . . . .	9 Mallow (Longueville) . . . . .	1.97	2.76	4.96	2.10	3.66	3.04	3.40	3.60	1.74	1.74	9.26	2.27	40.50
" . . . . .	9 Kanturk (Castlecarr) . . . . .	2.59	3.69	3.88	2.33	3.86	3.55	4.00	3.10	1.19	1.54	7.56	1.93	39.22
Co. Kerry . . . . .	3 Cahirciveen (Valentia Obs.) . . . . .	3.19	5.11	4.31	3.11	4.69	5.80	3.84	3.57	2.61	2.52	12.22	5.09	56.06
" . . . . .	3 Killarney (Flesk Mills) . . . . .	4.10	4.72	3.02	2.18	(4.67)	(4.29)	4.17	4.39	3.68	2.53	13.75	4.10	55.60
" . . . . .	3 Killorglin (Callinafercy) . . . . .	3.17	5.30	2.79	1.84	4.17	4.16	3.69	5.33	2.54	2.44	9.25	4.62	49.30
" . . . . .	3 Bally McElligott Rectory . . . . .	3.50	3.42	2.01	1.66	3.84	3.49	4.04	3.62	2.76	1.93	7.90	3.26	41.43
" . . . . .	4 Darrynane Abbey . . . . .	3.42	4.52	4.43	1.81	4.01	6.59	3.30	3.56	2.52	2.23	10.78	3.63	50.80
" . . . . .	4 Kenmare (Dromore Castle) . . . . .	4.54	7.03	6.26	2.20	5.97	5.61	4.86	5.19	3.13	3.74	11.95	6.38	66.86
Co. Waterford . . . . .	3 Waterford (Brook Lodge) . . . . .	1.99	2.16	5.05	2.36	4.81	2.64	3.23	2.73	3.35	1.85	9.63	(2.00)	41.80
" . . . . .	3 Carrick-on-Suir (Seskin) . . . . .	2.71	2.89	7.53	4.02	5.83	3.78	5.04	2.72	4.37	1.20	11.51	2.50	54.10
Co. Tipperary . . . . .	1 Nenagh (Traverston) . . . . .	3.09	3.95	2.99	3.22	6.09	4.82	4.37	3.41	2.40	2.46	9.52	3.40	49.72
" . . . . .	1 Nenagh (Castle Lough) . . . . .	3.13	4.26	2.54	2.76	4.23	4.44	4.55	3.07	3.13	2.61	7.23	2.73	44.68
" . . . . .	3 Cahir (Abbey) . . . . .	3.03	3.13	2.85	1.97	5.55	2.69	3.45	3.21	2.12	1.39	8.32	2.07	39.78
" . . . . .	3 Cashel (Ballinamona) . . . . .	3.24	2.93	3.52	2.13	6.10	2.80	3.87	3.63	2.68	1.67	8.91	2.23	43.71
" . . . . .	4 Roscrea (Timoney Park) . . . . .	2.52	1.96	2.84	2.75	4.63	3.71	4.59	2.75	2.20	1.37	8.40	2.41	40.13
Co. Limerick . . . . .	2 Abbeyfeale (Springmount School) . . . . .	3.93	4.06	2.31	1.89	3.76	3.13	3.30	3.72	2.82	1.97	7.96	2.93	41.78
" . . . . .	2 Knocklong (Kilfrush) . . . . .	3.20	3.55	2.43	2.47	3.70	4.98	5.08	3.87	2.21	1.71	7.06	2.28	42.54
" . . . . .	2 Foynes (National School) . . . . .	3.24	3.63	1.88	2.92	2.80	4.32	2.00	2.45	1.75	1.77	4.93	2.43	34.12
" . . . . .	2 Limerick (Mulgrave Street) . . . . .	3.19	3.40	2.39	2.82	4.22	5.52	4.72	3.15	1.69	2.10	7.36	3.21	43.77
Co. Clare . . . . .	2 Kilkee (Marine Parade) . . . . .	3.41	4.34	2.70	2.00	3.03	3.84	3.63	2.53	3.02	2.29	7.34	4.24	42.37
" . . . . .	2 Inagh (Mount Callan) . . . . .	6.51	7.25	4.36	3.00	4.41	5.48	5.11	3.20	3.80	4.39	8.65	6.26	62.42
" . . . . .	3 Tuamgraney (Raheen Ho.) . . . . .	3.32	5.20	3.42	3.17	4.31	4.83	4.64	4.26	2.13	3.01	8.72	3.42	50.43
Co. Wexford . . . . .	2 Foulks Mill (Longraigue) . . . . .	2.71	2.60	4.43	2.74	5.05	2.93	3.75	3.14	3.73	1.67	10.14	3.34	46.23
" . . . . .	3 Johnstown Castle . . . . .	2.75	2.79	3.33	2.43	4.44	3.51	2.82	2.96	3.41	1.57	7.55	2.69	40.25
" . . . . .	3 Enniscorthy (Woodbrook) . . . . .	4.03	3.52	6.49	4.41	7.75	3.75	3.77	4.44	4.67	1.60	10.80	3.37	58.60
" . . . . .	4 Gorey (Courtown House) . . . . .	2.54	2.30	4.21	2.80	4.89	2.60	3.96	2.52	4.70	1.25	8.37	2.53	42.67
Co. Kilkenny . . . . .	2 Kilkenny Castle . . . . .	2.20	2.02	2.65	1.73	4.56	3.01	5.33	2.17	2.33	1.56	7.51	1.61	36.68

Table XX.—(con.) Monthly Rainfall—IRELAND—(con.).

County and River Division.	Station.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
		in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.
Co. Wicklow ...	4 Newcastle (Killadreenan) .....	2.90	1.91	4.12	4.00	5.66	4.55	2.32	4.55	6.20	.69	8.19	1.74	46.83
"	5 Blessington Rectory. ....	3.02	2.51	1.27	3.69	3.64	4.51	4.95	3.78	6.39	1.99	6.11	2.99	44.85
Co. Carlow .....	2 Bagnalstown (Fenagh House) .....	2.20	2.19	1.82	3.49	5.27	3.45	4.36	2.98	2.86	1.51	8.24	2.47	40.84
"	3 Hacketstown Rectory. ....	2.97	2.45	3.24	4.50	5.35	4.80	4.57	2.96	2.96	2.05	7.03	2.58	45.54
Co. Leix .....	2 Abbey Leix (Blandsfort) .....	2.41	2.37	2.74	2.75	4.36	4.42	3.44	3.97	4.36	1.90	8.34	2.41	43.47
"	3 Mountmellick (Summer Grove) .....	2.90	3.09	2.04	2.61	3.42	5.55	3.70	3.53	2.93	1.98	7.57	2.94	42.26
Co. Offaly .....	1 Birr Castle .....	1.85	2.53	2.11	3.03	2.81	4.01	3.92	2.55	2.50	1.97	6.16	2.07	35.51
"	1 Ferbane (Turraun Peat Works) .....	1.72	2.32	2.07	2.18	2.95	4.61	3.67	2.39	2.35	1.57	5.68	2.68	34.19
Co. Kildare .....	2 Straffan House .....	2.18	1.91	1.35	2.38	2.59	4.06	4.38	2.83	4.11	1.75	6.51	2.07	36.12
Co. Dublin .....	2 Howth Castle .....	1.59	1.25	2.37	2.86	4.06	4.76	2.69	3.75	4.04	1.23	4.76	.84	34.20
"	3 Balbriggan (Ardgillan) .....	2.08	1.85	2.19	1.97	2.93	4.39	3.72	3.73	3.95	1.20	6.65	1.25	35.91
Co. Meath .....	2 Dunboyne (Stirling, Clonee) .....	2.06	1.54	2.15	2.46	2.31	4.26	3.64	3.46	4.47	1.29	5.14	1.98	34.76
"	4 Summerhill House. ....	2.15	1.84	2.73	2.77	3.15	5.82	4.28	3.41	2.60	1.52	6.58	2.42	39.27
"	4 Kells (Headfort) .....	2.55	2.89	2.89	3.71	4.33	5.80	3.54	3.60	3.52	1.87	6.17	2.74	43.61
Co. Westmeath. 1	1 Mullingar (Belvedere House) .....	2.87	3.01	2.99	3.64	3.47	5.42	4.39	3.62	3.74	2.38	6.69	3.07	45.29
"	1 Mullingar (Ballynegall Gdns.) .....	3.13	3.41	3.06	3.75	3.46	5.46	4.27	3.67	2.51	2.27	6.84	3.06	44.89
"	1 Castlepollard (Pakenham Hall) .....	2.89	2.99	3.12	4.06	3.97	5.21	4.14	3.37	3.21	1.80	5.71	2.74	43.21
Co. Louth .....	2 Dundalk (Aughneskea Reservoir) ..	3.11	2.96	3.13	3.00	4.43	5.20	3.59	2.62	2.57	2.66	5.89	2.82	41.98
Co. Longford ...	2 Ballymahon (New Castle) .....	3.19	2.78	3.57	3.31	3.86	5.48	3.37	3.61	3.24	1.70	6.74	2.74	43.59
"	2 Castle Forbes Gardens .....	2.29	3.24	2.53	3.20	4.41	4.76	4.66	2.80	2.44	2.27	6.03	2.60	41.23
Co. Galway ....	3 Galway (Grammar School) ..	2.69	3.64	2.52	1.83	4.51	4.46	4.24	2.65	1.88	2.92	5.03	4.10	40.47
"	3 Ballynahinch Castle .....	5.07	7.98	4.76	3.67	5.67	7.54	4.76	4.02	3.91	2.93	10.83	7.19	68.33
"	3 Portumna .....	1.57	2.53	2.44	2.54	3.23	4.10	3.72	3.18	2.23	1.81	5.57	2.25	35.17
"	5 Ahascragh (Clonbrock) .....	2.96	3.74	3.12	3.10	4.07	5.16	3.98	3.58	2.51	2.85	6.38	3.44	44.89
Co. Roscommon	4 Strokestown (Castlenode) .....	2.89	3.09	3.34	3.33	4.21	6.67	4.04	3.87	1.91	2.33	5.69	2.79	44.16
"	4 Boyle .....	4.26	3.90	2.23	3.02	3.92	5.71	2.85	3.48	2.46	1.72	5.41	2.32	41.28
Co. Mayo .....	2 Castlebar Rectory .....	6.02	6.36	3.33	5.14	5.37	6.18	4.39	4.76	2.96	3.46	8.95	5.62	62.54
"	3 Blacksod Point .....	6.06	4.94	2.09	2.74	4.92	5.71	4.51	4.15	4.91	3.91	8.35	6.44	58.73
"	4 Mallaranny .....	6.55	7.49	3.64	4.24	5.90	6.77	5.70	3.89	5.23	4.70	8.91	6.30	69.32
"	5 Aasleagh House .....	12.07	11.42	7.23	5.95	9.83	10.07	5.98	7.09	7.40	5.96	18.89	11.54	113.43
"	5 Delphi Lodge .....	10.63	9.80	6.45	5.83	8.26	10.23	7.32	8.32	8.31	5.88	17.46	10.97	109.46
"	6 Tourmakeady (Drimbaun) .....	5.94	5.84	4.55	3.42	7.19	5.44	3.17	3.37	2.75	2.66	10.64	5.85	60.82

Table XX.—(con.) *Monthly Rainfall—Ireland—(con.)*.

County and River Division.	Station.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total.
		in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.
Co. Sligo.....	2 Collooney (Markree Obsy).....	5.02	4.42	1.81	2.98	4.73	5.97	4.44	4.33	2.70	3.24	6.64	3.49	49.77
".....	2 Sligo (Ard-na-veagh).....	4.94	4.22	1.59	3.04	4.10	6.38	4.53	3.50	3.10	2.53	5.71	3.29	46.93
Co. Leitrim.....	5 Cloone.....	3.97	4.37	1.81	2.72	3.50	6.73	2.99	3.24	2.53	2.41	7.28	3.17	44.72
Co. Cavan.....	1 Crossdoney (Kevit Castle).....	2.89	3.12	2.77	4.09	3.95	6.68	4.35	2.92	3.01	2.30	6.51	2.98	45.57
".....	1 Belturbet (Cloverhill).....	2.43	2.96	1.68	2.46	3.98	5.10	3.01	3.37	1.84	2.07	4.96	2.33	36.19
Co. Fermanagh.....	1 Enniskillen (Portora School).....	3.69	3.52	1.54	2.15	4.33	5.53	5.00	2.67	3.31	2.71	5.54	2.87	42.86
".....	1 Belleek (Heronshaw).....	5.48	4.58	1.13	2.71	3.07	6.25	5.21	3.49	3.22	2.76	5.91	4.64	48.45
Co. Armagh.....	3 Lurgan (Belle Vue).....	2.14	2.13	1.06	2.25	3.05	3.91	2.51	2.84	1.63	1.59	4.76	2.39	30.26
".....	5 Armagh Observatory.....	2.74	2.68	1.44	3.35	3.61	5.00	5.74	2.06	1.96	1.98	4.70	2.58	37.84
Co. Down.....	1 Newry (Bridge Street House).....	2.80	3.24	2.11	3.31	4.06	4.02	3.61	2.75	2.48	2.41	6.99	3.47	41.25
".....	2 Silent Valley (Belfast W.W.).....	4.22	2.99	4.26	3.83	6.04	7.37	4.57	4.61	5.03	3.19	7.92	4.43	58.46
".....	2 Seaford.....	3.15	2.26	2.47	3.03	3.85	5.59	2.74	3.63	3.87	1.97	7.99	3.34	43.89
".....	4 Donaghadee (Coastguard Station).....	2.58	2.59	1.19	1.88	3.58	3.78	2.71	3.30	2.32	2.06	6.61	2.95	35.55
Co. Antrim.....	1 Belfast (Queen's University).....	3.18	2.73	1.30	2.91	4.22	4.94	2.90	3.55	1.81	2.07	5.74	3.00	38.35
".....	2 Glenarm Castle.....	6.00	4.67	1.73	3.35	5.05	5.91	4.08	3.68	2.15	2.96	6.86	4.30	50.74
".....	3 Ballycastle (Magherintemple).....	5.46	4.31	1.25	2.23	2.08	4.26	3.98	2.07	1.92	2.78	4.61	3.02	37.97
".....	5 Aldergrove Aerodrome.....	2.91	2.88	1.39	2.27	3.56	3.73	2.87	3.14	1.72	2.44	5.30	2.74	34.95
".....	5 Ballymena (Harryville).....	4.41	4.57	1.93	2.99	5.34	4.46	4.19	3.13	2.30	3.02	6.33	3.32	45.99
Co. Londonderry.....	1 Londonderry (Dunruadh).....	5.04	4.18	1.09	2.17	3.22	6.43	4.16	1.89	3.27	3.26	4.65	3.67	43.03
".....	5 Glenedra Lodge.....	6.93	5.63	2.21	4.26	6.22	5.91	6.17	4.11	3.28	4.69	8.57	4.71	62.69
".....	5 Limavady (Drenagh).....	4.01	3.75	.50	2.50	2.89	3.71	3.71	2.21	2.56	2.48	5.78	2.48	34.30
Co. Tyrone.....	2 Castlecaulfield (Parkanaur).....	3.83	3.18	2.71	3.83	5.38	6.18	4.60	2.36	1.72	2.81	5.30	3.05	45.43
".....	3 Omagh (Edenfel).....	3.49	4.32	1.48	3.19	3.92	5.90	5.54	2.36	1.87	2.89	4.84	4.40	44.20
".....	3 Sion Mills (Sion House).....	4.48	5.16	1.27	2.84	3.90	5.72	4.34	1.78	2.50	3.24	5.63	3.92	41.78
Co. Donegal.....	1 Malin Head.....	3.96	4.18	1.20	2.24	2.36	4.93	3.00	1.41	3.01	4.18	4.86	2.81	38.14
".....	3 Milford (The Manse).....	6.29	4.53	1.24	2.66	3.39	4.39	3.42	2.59	2.68	2.39	5.01	3.50	42.09
".....	3 Dunfanaghy (St. Patrick's).....	5.08	5.17	1.29	2.43	2.71	4.87	4.71	1.70	2.69	3.19	4.66	4.14	42.64

Table XXI.—*Monthly Rainfall in 1931; the Average, 1881–1915, being taken as 100.*

County and River Division.	Station.	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year.
		%	%	%	%	%	%	%	%	%	%	%	%	%
London.....	St. Pancras (Camden Square).....	72	110	13	241	152	70	126	228	148	25	84	34	104
Kent.....	Tenterden (Ashenden).....	104	134	16	185	121	45	110	159	105	18	151	19	91
"	St. Peter's.....	131	157	22	186	148	46	215	210	66	31	121	26	107
"	Edenbridge (Falconhurst).....	87	111	23	220	125	61	130	194	100	19	147	22	97
Sussex.....	Compton (Compton House).....	108	97	39	173	125	87	127	131	109	16	121	23	89
"	Brighton W.W. (Lewes Road).....	115	107	29	162	146	92	157	115	120	14	150	58	99
Hampshire.....	Ventnor (Royal National Hosp.).....	100	115	61	193	217	87	142	169	89	19	133	28	101
"	Fordingbridge (Oaklands).....	93	96	39	134	119	159	167	161	89	18	161	26	96
"	Sherborne St. John.....	58	79	8	172	168	74	167	180	74	22	119	22	89
Hertfordshire....	Royston (Therfield Rectory).....	108	127	8	218	142	53	196	179	128	25	110	38	109
Buckinghamshire	Slough (Upton).....	69	85	9	259	161	67	173	189	127	21	123	25	102
Oxfordshire.....	Oxford (Magdalen College).....	69	99	7	190	154	174	136	191	156	25	133	41	113
Northamptonshire	Pitsford (Sedgebrook).....	78	149	4	252	132	95	150	112	207	18	126	33	107
Cambridgeshire..	March.....	123	146	13	189	127	70	117	126	181	25	95	36	99
Essex.....	Chelmsford (County Laboratory)...	120	119	14	255	185	66	149	174	100	25	77	28	102
Suffolk.....	Hawkedon Rectory.....	127	192	13	290	150	75	129	180	123	31	90	48	114
"	Rendlesham Hall.....	109	214	17	246	155	74	152	159	83	32	92	39	106
"	Lowestoft (Secondary School).....	119	196	30	188	207	65	178	120	119	42	94	63	112
Norfolk.....	Norwich (Eaton).....	123	144	30	203	185	113	127	137	110	33	73	69	106
"	Little Dunham (Dunham Cot.).....	134	188	45	264	190	65	142	107	101	52	99	64	113
Wiltshire.....	Calne (Castleway).....	85	126	18	120	169	164	189	144	89	18	149	39	105
Dorsetshire.....	Weymouth (Westham House).....	78	82	61	131	197	145	186	150	71	14	146	33	97
South Devonshire	Teignmouth (Den Gardens).....	98	71	77	177	143	160	146	136	92	10	220	36	105
"	Cullompton.....	108	112	61	145	150	142	160	133	60	15	164	44	101
North Devonshire	Barnstaple (N. Dev. Athenæum)...	112	132	80	154	164	142	200	118	72	23	153	52	108
"	Okehampton (Uplands).....	105	103	50	144	122	119	224	136	107	27	186	44	105
Cornwall.....	Penzance (Morrab Gardens).....	140	125	137	69	148	165	190	98	104	23	182	50	112
"	St. Austell (Trevarna).....	123	109	147	117	142	130	223	133	101	22	177	34	114
Somersetshire...	Litton (Sherborne Res.).....	97	116	30	103	157	120	156	127	56	38	132	32	93
Gloucestershire..	Cirencester (Gwynfa).....	82	106	11	144	204	157	146	169	100	20	148	53	108
Shropshire.....	Church Stretton (Wolstaston).....	102	104	17	162	212	230	155	190	113	27	217	44	128
Staffordshire....	Market Drayton (Old Springs).....	102	146	9	213	200	163	115	164	165	39	176	56	125

Table XXI.—*Monthly Rainfall in 1931; the Average, 1881–1915, being taken as 100 (con.)*

County and River Division.	Station.	Jan.	Feb.	Ma r.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year.
		%	%	%	%	%	%	%	%	%	%	%	%	%
Worcestershire ..	1 Malvern (Free Library).....	65	116	9	194	204	181	132	180	124	32	176	40	119
Warwickshire ...	1 Alcester (Ragley Hall) .....	59	162	2	234	213	178	171	151	152	32	119	39	123
" ..	4 Birmingham (Edgbaston) .....	99	146	9	231	184	155	138	172	135	33	158	33	121
Leicestershire ...	4 Belvoir Castle Gardens.....	101	147	17	216	145	119	181	126	144	20	85	31	107
Lincolnshire.....	3 Boston (Black Sluice, Skirbeck) ..	149	173	22	190	148	136	235	336	152	24	95	41	141
" ..	3 Lincoln (Skellingthorpe Hall) .....	137	154	12	212	112	134	174	178	229	26	130	68	126
Derbyshire.....	6 Derby (L.M. & S. Rly.) .....	79	168	6	222	139	148	147	224	127	24	132	44	120
S. Lancashire....	3 Manchester (Whitworth Park).....	184	199	14	171	126	212	112	213	131	50	211	43	136
C. " ..	1 Stonyhurst College .....	159	184	14	125	72	225	109	96	78	77	144	68	110
C. " ..	3 Southport (Hesketh Park) .....	135	133	17	134	99	272	94	132	130	68	205	56	121
N. " ..	1 Ulverston (Poaka Beck) .....	139	129	16	90	112	289	156	85	64	85	196	100	120
Yorkshire, W.R. .	7 Rotherham (Sitwell Vale) .....	87	110	12	167	158	209	166	192	195	23	165	30	122
" ..	9 Bradford (Lister Park) .....	89	155	18	179	111	220	119	122	184	36	206	44	117
" ..	10 York (Cherry Hill).....	107	110	30	217	117	172	148	130	220	36	191	40	123
" ..	3 Hull (Pearson Park) .....	128	145	30	199	155	167	161	139	204	41	127	44	123
" ..	1 Leyburn (Bolton Hall) .....	98	120	35	187	143	224	102	149	180	34	121	46	110
" ..	2 Felixkirk (Mount St. John) .....	131	102	91	254	156	217	139	119	249	43	178	57	139
" ..	5 Scarborough .....	141	120	41	200	106	206	137	81	226	65	64	66	114
" ..	6 Middlesbrough (Albert Park).....	106	89	80	209	120	174	187	78	278	40	88	49	119
Northumberland.	3 Newcastle (Town Moor) .....	123	72	49	160	121	131	129	116	100	34	89	41	94
" ..	4 Hallington (Fawcett) (Newc. W.W.)	88	94	81	199	135	220	144	145	54	43	125	52	111
" ..	6 Ilderton (Lilburn Tower Gdns.)...	128	76	46	160	105	195	153	95	109	29	129	70	103
Cumberland.....	1 Carlisle (Scaleby) .....	104	135	49	113	109	243	129	66	53	89	177	79	110
" ..	2 Keswick (Derwent Island) .....	107	90	23	102	134	248	182	79	58	66	205	81	109
Westmorland.....	1 Appleby (Castle Bank) .....	104	101	34	137	137	202	174	111	52	80	205	69	115
Monmouthshire...	3 Abergavenny (Larchfield) .....	80	77	35	152	263	165	108	194	61	8	269	40	116
Glamorganshire..	3 Ystalyfera (Wern House) .....	107	136	28	128	136	164	205	111	68	36	208	57	110
" ..	5 Cardiff (Ely Pumping Station) .....	90	108	29	117	292	144	142	98	62	14	143	49	98
Carmarthenshire.	2 Carnarthen (The Friary) .....	105	131	32	136	139	143	182	69	84	37	255	50	109
Pembrokeshire ..	4 Haverfordwest (Grammar School)...	116	141	65	97	166	88	181	75	125	42	230	47	111
Radnorshire.....	1 Birmingham W.W. (Tyrmyndd)...	122	128	41	138	180	122	122	105	74	34	179	52	103
Montgomeryshire	3 Llangurig (Dernol).....	108	164	23	141	151	109	107	82	91	34	132	43	93

Table XXI.—*Monthly Rainfall in 1931; the Average, 1881–1915, being taken as 100 (con.)*

County and River Division.	Station.	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year.
		%	%	%	%	%	%	%	%	%	%	%	%	%
Montgomeryshire	Lake Vyrnwy (Bank Cynon Isaf)...	91	152	22	160	185	143	103	109	85	29	174	50	101
Flintshire	Northop (Soughton Hall) .....	134	152	17	180	147	241	75	189	161	37	161	57	124
Merionethshire	Dolgelly (Bryntirion) .....	160	192	28	202	122	209	134	113	111	73	171	80	128
Carnarvonshire	Llandudno .....	89	129	37	159	113	149	51	141	172	52	232	45	101
"	Llandwrog (Glynllivon Park).....	110	102	34	142	163	190	76	111	112	52	232	76	114
Anglesey	Holyhead (Salt Island) .....	90	98	49	89	173	191	65	86	115	49	148	55	96
Isle of Man	Douglas (Borough Cemetery).....	178	110	34	75	148	243	94	105	125	56	232	71	121
Channel Islands	Guernsey, St. Peter Port (Grange Rd.)	136	141	116	103	148	75	162	292	93	13	110	39	107
Wigtownshire	Port William (Monreith).....	129	91	35	87	95	226	128	97	123	75	203	100	116
Kirkcudbrightshire	Dalry (Glendaroch) .....	112	96	32	77	144	225	118	44	40	66	224	78	103
"	Auchencairn (Torr House) .....	145	107	32	79	124	215	146	64	39	88	158	108	107
Dumfriesshire	Dumfries (Crichton Roy. Inst.) ....	139	80	29	78	132	257	146	63	58	62	241	88	113
Roxburghshire	Hawick (Wolfelee).....	95	82	36	131	106	210	141	115	78	61	185	47	103
Peebleshire	Stobo Castle .....	113	125	31	129	126	217	145	92	46	74	144	63	105
Berwickshire	Marchmont House .....	106	85	54	158	109	194	152	101	78	37	127	27	99
Haddingtonshire	North Berwick Reservoir .....	119	110	69	116	151	260	166	141	64	61	149	27	117
Midlothianshire	West Calder (Addiewell).....	92	183	41	82	142	225	115	92	42	87	164	91	111
"	Edinburgh (Univ. Eng. Lab.) .....	97	79	83	148	133	221	122	172	79	50	187	42	119
Ayrshire	Girvan (Pinmore).....	174	111	33	75	73	147	95	52	45	79	202	89	101
"	Glen Afton (Ayr Sanatorium) ....	134	146	33	90	107	219	106	78	36	94	203	105	113
Renfrewshire	Shaws W.W. (Loch Thom).....	121	115	36	71	147	218	120	44	41	122	145	108	105
Argyllshire	Loch Sunart (Glenborrodale) .....	97	125	24	89	122	181	130	58	46	95	149	106	99
"	Lochgilphead (Poltalloch) .....	129	153	34	84	116	184	97	32	47	101	163	90	101
"	Inveraray Castle Gardens.....	103	141	26	89	161	177	120	25	34	130	122	111	100
"	Islay (Ardbeg) .....	136	150	30	89	99	211	138	45	77	119	118	93	106
Kinross-shire	Loch Leven Suice .....	60	60	39	121	149	217	183	74	62	58	173	40	98
Perthshire	Loch Dhu .....	74	95	30	86	190	203	110	39	44	101	169	101	99
"	Crieff (Strathearn Hydro).....	86	53	38	109	190	271	162	40	49	45	200	62	103
"	Blair Atholl (Blair Castle Gdns.)...	104	94	34	73	213	218	221	32	54	74	182	74	109
Angus (Forfar)	Dundee (Eastern Necropolis).....	151	72	46	125	164	250	181	100	50	45	198	35	115
"	Montrose (Sunnyside Asylum).....	169	101	58	122	140	251	169	73	87	30	226	37	117
Aberdeenshire	Balmoral (Castle Gdns.) .....	119	53	47	147	136	178	147	126	65	64	141	82	105
"	Aberdeen (King's College) .....	140	137	47	82	197	174	104	68	40	51	149	43	99

Table XXI.—*Monthly Rainfall in 1931 ; the Average, 1881–1915, being taken as 100 (con.)*

County and River Division.	Station.	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year.
		%	%	%	%	%	%	%	%	%	%	%	%	%
Aberdeenshire ... 4	New Deer Schoolhouse	150	153	37	80	127	108	126	102	76	59	118	65	97
Morayshire ..... 2	Gordon Castle	134	126	45	110	122	120	127	76	65	85	79	65	94
" ..... 3	Grantown-on-Spey	160	100	50	115	172	117	180	89	68	33	75	58	100
Nairnshire ..... 2	Nairn (Golf Course)	158	103	73	104	138	179	165	82	58	88	62	48	104
Inverness-shire .. 3	Alvie Manse	124	111	46	157	121	150	166	71	59	107	100	79	104
" .. 6	Loch Ness (Foyers)	111	134	30	118	195	135	149	50	49	113	88	97	103
" .. 7	Loch Quoich (Glenquoich)	96	106	12	73	150	181	149	33	30	137	98	148	99
" .. 13	Arisaig House	124	141	29	75	109	177	134	42	29	125	108	116	99
" .. 17	Fort William (Glasdrum)	77	97	12	70	157	170	106	54	25	133	135	112	93
Ross and Cromarty 4	Alness (Ardross Castle)	148	132	48	137	115	170	133	74	51	69	78	104	103
" 7	Ullapool	183	189	43	110	79	139	98	18	31	90	60	77	92
" 9	Achnashellach	123	107	7	79	133	153	126	23	22	94	64	139	87
" 10	Stornoway	148	156	37	111	144	136	68	35	42	96	84	91	94
Sutherlandshire.. 1	Laig	199	174	57	125	116	167	114	39	36	107	54	149	110
" 4	Tongue	168	133	63	96	156	150	115	34	56	86	44	89	95
" 5	Loch More (Achfary)	196	183	26	146	125	172	135	31	63	98	45	163	114
Caithness-shire .. 2	Wick	127	127	52	91	237	159	111	39	38	99	84	91	101
Orkney ..... 6	Pomona (Deerness)	154	144	71	115	238	112	60	18	28	119	69	135	103
Co. Cork ..... 7	Dunmanway (The Rectory)	51	62	157	56	141	124	91	68	32	35	205	49	86
" ..... 9	Glanmire (Lota Lodge) No. 1	52	81	263	97	178	160	100	107	41	33	240	43	110
" ..... 3	Mallow (Longueville)	51	81	171	86	165	138	136	116	73	48	248	46	109
" ..... 3	Cahiriveen (Valentia Obsy.)	58	98	95	85	148	181	102	75	63	45	224	77	101
" ..... 3	Gap of Dunloe (Gearhameen)	88	93	67	66	154	140	118	113	85	50	193	56	98
" ..... 3	Waterford (Gortmore)	63	83	172	104	222	105	104	81	119	35	274	59	112
" ..... 1	Nenagh (Castle Lough)	79	137	82	110	171	181	145	78	111	77	180	59	113
" ..... 3	Cahir (Abbey)	76	90	99	74	221	114	116	89	83	36	225	44	101
" ..... 2	Foynes (Coolnanes)	87	109	65	118	120	160	93	60	64	52	137	55	90
" ..... 4	Gorey (Courtown House)	81	82	182	128	220	107	135	76	190	35	240	66	123
" ..... 2	Kilkenny Castle	69	80	116	79	206	124	189	62	101	50	244	47	111
" ..... 2	Bagnalstown (Fenagh Ho.)	70	86	75	152	214	139	138	85	116	45	246	66	117
" ..... 2	Abbey Leix (Blandsfort)	73	88	105	105	179	171	110	101	160	54	250	65	119

Table XXI.—*Monthly Rainfall in 1931; the Average, 1881–1915, being taken as 100 (con.)*

County and River Division.	Station.	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year.
		%	%	%	%	%	%	%	%	%	%	%	%	%
Co. Offaly .....	Birr Castle .....	65	110	88	141	126	174	133	67	109	68	199	63	109
" Kildare .....	Straffan House .....	85	88	58	120	117	179	155	75	184	62	208	68	115
" Dublin .....	Balbriggan (Ardgillan) No. 1 .....	91	94	109	99	141	218	137	109	194	44	231	43	124
" Meath .....	Kells (Headfort) .....	81	107	105	148	160	219	111	87	132	56	181	72	118
" Westmeath ..	Mullingar (Belvedere) .....	89	108	111	154	142	208	138	87	140	76	196	83	125
" Longford .....	Castle Forbes Gardens .....	69	114	86	134	171	184	149	68	85	70	167	65	110
" Galway .....	Ballynahinch Castle .....	82	156	93	104	157	213	115	73	82	49	181	96	112
" .....	Ahascragh (Clonbrock) .....	76	121	94	122	146	184	114	85	81	78	158	73	108
" Mayo .....	Blacksod Point .....	119	122	51	94	174	205	143	91	127	78	160	105	118
" .....	Westport House .....	110	128	71	136	163	169	103	104	77	62	188	76	112
" .....	Delphi Lodge .....	107	116	78	102	137	178	110	97	110	62	168	90	111
" Sligo .....	Collooney (Markree Observatory) ..	129	129	53	113	173	203	129	100	80	80	157	73	115
" Cavan .....	Belturbet (Cloverhill) .....	81	113	61	107	160	209	96	91	74	71	159	63	105
" Armagh .....	Armagh Observatory .....	109	121	61	160	152	198	199	57	80	73	166	82	119
" Down .....	Newry (Bridge Street House) .....	83	112	69	123	161	148	116	72	93	70	190	83	108
" .....	Seaford .....	100	74	85	116	146	202	86	97	141	55	211	81	115
" Antrim .....	Belfast (Queen's University) .....	111	111	51	130	183	199	98	96	71	63	170	82	111
" .....	Ballymena (Harryville) .....	119	141	61	113	187	153	122	73	74	82	156	75	111
" Londonderry ..	Londonderry (Creggan Reservoir) ..	165	170	30	103	119	240	120	45	99	92	109	85	111
" .....	Limavady (Drenagh) .....	125	131	17	110	126	143	119	58	87	72	94	66	93
" Tyrone .....	Omagh (Edenfel) .....	99	145	47	121	151	209	163	55	61	79	127	104	110
" Donegal .....	Milford (The Manse) .....	168	139	36	104	136	160	104	62	82	60	115	74	100
England .....	(general mean*, 57 stations) .....	107	127	33	183	149	147	154	148	124	34	142	45	..†
Wales .....	" " 13 " .....	108	132	34	142	172	158	119	114	102	38	187	54	..
England and Wales ..	" " 70 " .....	108	128	33	175	153	149	148	143	120	34	150	47	..
Scotland .....	" " 43 " .....	128	118	40	103	142	187	133	65	52	84	134	85	..
Ireland .....	" " 35 " .....	90	109	90	112	162	172	124	82	100	60	189	69	..
British Isles † .....	" " 150 " .....	110	120	49	138	152	165	138	106	96	55	155	63	..

\*The "general" values given in the last six rows are obtained by taking the means of the percentage values for the stations.

† Including Isle of Man and St. Peter Port, Guernsey. ‡ See Table XXIII.



## 9. SEASONAL RAINFALL, 1930-31.

There are definite advantages in considering the rainfall of the winter and summer separately. One defect of the calendar year



Rainfall, Winter Half-year, as per cent. of average.

as a unit of time for rainfall purposes is that part of a winter is included in one calendar year and the other part in another year.

Winter rainfall has a special economic importance, for, except in the wettest areas, the summer rainfall is, for the most part, lost by evaporation or absorbed by vegetation.

In this section the rainfall of the winter season, 1st October, 1930, to 31st March, 1931, and of the summer season, 1st April,



**Rainfall, Summer Half-year, as per cent. of average.**

1931, to 30th September, 1931, is dealt with, as well as the rainfall of the whole seasonal year, 1st October, 1930, to 30th September, 1931. It is natural to associate a summer season with the preceding rather than with the following winter season, since the water required in summer for replenishing streams and for the needs of animal and vegetable life is derived, in part, from that which has been naturally

stored during the previous winter season. One section of *British Rainfall* has been devoted to this subject since the volume for 1908, and three maps and Table XXII similar to those introduced in that volume, are now reproduced.

Table XXII contains rainfall values for each of these two seasons for the stations shown in Section 8 on Monthly Rainfall. The values



Rainfall, Seasonal Year, as per cent. of average.

are expressed as percentages of the average fall for the season and the station. The table gives in the fourth column the corresponding percentages for each station for the whole of the seasonal year. These last figures are not always the mean of the percentages for the two seasons, but often show a bias towards the winter value rather than that of the summer. This is due to the fact that the

average rainfall for the winter is, in general, greater than that for the summer.

The *winter* half-year comprised three wet months, October and November, 1930 and February, 1931, two months of normal rainfall December, 1930 and January, 1931 and a very dry month, March, 1931. The general rainfall during the winter over the whole country was 7 per cent. in excess of the average. The winter of 1930 to 1931 was therefore appreciably drier than that of 1929 to 1930 with 34 per cent. in excess of the average. The map shows that the rainfall of the winter 1930 to 1931 exceeded the average over the western half of England and Wales, over the west and north of Scotland and over practically the whole of Ireland. There was more than 130 per cent. at Manchester, Dolgelly, Douglas and Nairn and over a large area in the extreme north-west of Scotland. On the other hand only 75 per cent. was recorded at Sherborne St. John and at Slough.

The general rainfall of the winter 1930 to 1931 over the British Isles amounted to 25·3 inches, which is 1·9 inches in excess of the average.

Over England and Wales the *summer* half-year consisted of six wet months, but over Scotland the rainfall of August and September, and over Ireland that of August, was appreciably below the average. One of the main features of the incidence of the rainfall during 1931 was the large number of heavy falls during the summer months over most of England and Wales. This was mainly due to the unusual prevalence of cyclonic rains. The more congenial weather in the north-west of Scotland during the late summer, which continued during much of October, stands out in marked contrast. The map shows that the rainfall of the summer exceeded the average, everywhere over England and Wales, over the eastern half of Scotland and over the whole of Ireland, except parts of the south-west. Falls of 150 per cent. and more were confined to England and Wales, and occurred over a large area stretching from London and Cardiff in the south to Chester and Middlesbrough in the north. Falls of 170 per cent. occurred in four well marked areas, but the most striking was that near Boston, where the total rainfall was 23·53 inches, 12·25 inches or 110 per cent. in excess of the average. This excess was due in part to the heavy rainfall of August 8th, when 6·10 inches was recorded (see Section 7). The smallest percentage values occurred in the west of Scotland, less than 80 per cent. being recorded in parts of the west of Ayrshire and Ross and Cromarty.

The general percentage value over the British Isles for the summer of 1931 was 129 per cent. The only wetter summers during the last fifty years were those of 1927 and 1924, with 135 and 144 per cent. respectively. The occurrence of the three wettest summers on record within the last eight years is worthy of comment. There was an

excess during 1931 in England and Wales of 46 per cent., in Scotland 8 per cent. and in Ireland 21 per cent. The rainfall over England and Wales was therefore comparable with that during the other recent wet summers of 1927 and 1924 with 145 and 147 per cent. respectively. Over Ireland the summer of 1931 was wetter than any other summer since that of 1924.

The general rainfall of the summer of 1931 over the British Isles amounted to 23·6 inches.

The map for the *seasonal year* naturally presents features similar to those of the seasonal maps. Thus the large excesses for the year, stretching across the southern Pennines from Dolgelly and Worcester in the west to Boston and Middlesbrough in the east, is accounted for largely by the unusually wet summer in that region. The smallest percentage values occurred in the Western Highlands of Scotland and in the south of Co. Cork and in these regions the rainfall of both the winter and summer was less than the average. The largest percentage values for the seasonal years were:—151 at Boston, 147 at Manchester, 145 at Felixkirk near Thirsk, and 143 at Soughton Hall in Flintshire. On the other hand the smallest percentage values occurred at Achnashellach in Ross-shire with 87, Dunmanway Rectory in Co. Cork with 89 and at Fort William with 90 per cent.

The general rainfall over the British Isles during the seasonal year was 48·9 inches, 3·9 inches less than that for the previous seasonal year. The only other wetter seasonal years in the series are those of 1926 to 1927, 1911 to 1912 and 1882 to 1883.

In *British Rainfall*, 1927, p. 125, a table was reproduced of the serial general values of seasonal rainfall for the British Isles from 1881 to 1927 and these statistics have been continued back to 1870. The changes in the seasonal distribution of rainfall become more apparent by taking the mean of successive groups of 10 years. These mean values show that initially the excesses were contributed mainly by wet summers; then followed a period with dry winters; from 1893 to 1910 the rainfall of both the summers and winters approximated closely to the average; subsequently wet winters predominated, while in recent years the excesses have been contributed mainly by wet summers.

In *British Rainfall*, 1926, p. 125, values are given for England and Wales, Scotland and Ireland separately back to 1906-1907. In Scotland the summer of 1930 was the tenth consecutive wet summer, and the total rainfall during the last ten years practically amounts to as much as usually falls in eleven and a half years. Recent winters in Ireland are also remarkable for during the last 20 years, *i.e.*, since the winters of 1911 and 1912, there has been an excess on all but three occasions.

Table XXII.—Seasonal Rainfall, 1930–31, in relation to the Average, 1881–1915.

Station.†	Winter 6 Months, Oct. 1930– Mar. 1931.		Summer 6 Months, Apr. 1931– Sept. 1931.		Twelve Months, Oct. 1930– Sept. 1931.		Station.†		Winter 6 Months, Oct. 1930– Mar. 1931.		Summer 6 Months, Apr. 1931– Sept. 1931.		Twelve Months, Oct. 1930– Sept. 1931.	
	Per cent. of Average.		Per cent. of Average.		Per cent. of Average.				Per cent. of Average.		Per cent. of Average.		Per cent. of Average.	
St. Pancras (Camden Square).....	85		158		120		St. Austell (Trevarna).....		124		142		131	
Tenterden (Ashenden).....	98		120		107		Litton (Sherborne Res.).....		100		121		109	
St. Peter's .....	103		146		123		Cirencester (Gwynfa).....		86		154		117	
Edenbridge (Falconhurst) .....	88		138		109		Church Stretton (Wolstaston)...		103		180		139	
Compton (Compton House).....	95		124		110		Market Drayton (Old Springs)...		105		166		135	
Brighton W.W. (Lewes Road)....	110		131		119		Malvern (Free Library).....		96		170		132	
Ventnor (Royal National Hosp.)..	107		145		122		Alcester (Ragley Hall).....		103		180		142	
Fordingbridge (Oaklands).....	94		138		111		Birmingham (Edgbaston).....		101		168		134	
Sherborne St. John.....	75		139		103		Belvoir Castle Gardens.....		89		153		121	
Royston (Therfield Rectory).....	95		153		124		Boston (Black Sluice, Skirbeck)..		94		210		151	
Slough (Upton).....	75		159		114		Lincoln (Skellingthorpe Hall)....		98		170		134	
Oxford (Magdalen College).....	91		166		128		Derby (L.M.& S. Rly) .....		97		169		133	
Pitsford (Sedgebrook).....	85		152		118		Manchester (Whitworth Park)...		131		163		147	
March .....	88		131		110		Stonyhurst College.....		124		114		119	
Chelmsford (County Laboratory).	94		149		120		Southport (Hesketh Park).....		125		140		132	
Hawkedon Rectory.....	104		153		128		Ulverston (Poaka Beck).....		120		127		123	
Rendlesham Hall.....	98		140		118		Rotherham (Sitwell Vale).....		83		181		130	
Lowestoft (Secondary School)....	96		144		119		Bradford (Lister Park).....		102		154		125	
Norwich (Eaton).....	87		143		114		York (Cherry Hill).....		90		162		127	
Little Dunham (Dunham Cot.)..	102		137		119		Hull (Pearson Park).....		98		167		132	
Calne (Castleway) .....	103		147		124		Leyburn (Bolton Hall).....		100		161		125	
Weymouth (Westham House)....	103		144		120		Felixkirk (Mount St. John).....		111		180		145	
Teignmouth (Den Gardens).....	108		142		122		Scarborough.....		101		151		125	
Cullompton.....	112		133		121		Middlesbrough (Albert Park)....		96		165		131	
Barnstaple (N. Dev. Athenæum)..	117		139		126		Newcastle (Town Moor).....		81		125		103	
Okehampton (Uplands).....	117		158		133		Hallington (Fawcett).....		98		147		122	
Penzance (Morrab Gardens).....	121		127		123		Ilderton (Lilburn Tower Gardens)		95		133		113	

† For Counties see Table XXI, pp. 119–123.

Table XXII.—Seasonal Rainfall, 1930-31, in relation to the Average, 1881-1915—(con.).

Station.†	Winter 6 Months, Oct. 1930- Mar. 1931.		Summer 6 Months, Apr. 1931- Sept. 1931.		Twelve Months, Oct. 1930- Sept. 1931.		Station.‡	Winter 6 Months, Oct. 1930- Mar. 1931.		Summer 6 Months, Apr. 1931- Sept. 1931.		Twelve Months, Oct. 1930- Sept. 1931.	
	Per cent. of Average.		Per cent. of Average.		Per cent. of Average.			Per cent. of Average.		Per cent. of Average.		Per cent. of Average.	
Carlisle (Scaleby) .....	103		114		109		Girvan (Pinmore) .....	121		78		103	
Keswick (Derwent Island) .....	104		125		113		Glen Afton (Ayr Sanatorium) .....	125		100		115	
Appleby (Castle Bank) .....	106		135		118		Shaws W.W. (Loch Thom) .....	117		98		109	
Abergavenny (Larchfield) .....	93		160		121		Loch Sunart (Glenborrodale) .....	106		95		101	
Ystalyfera (Wern House) .....	115		134		123		Lochgilphhead (Poltalloch) .....	129		85		110	
Cardiff (Ely Pumping Station) ..	92		135		111		Inveraray Castle Gardens .....	110		89		102	
Carmarthen (The Friary) .....	111		121		115		Islay (Ardbeg) .....	128		104		117	
Haverfordwest (Grammar School)	115		120		117		Loch Leven Sluice .....	76		129		99	
Birmingham W.W. (Tyrryndd) ..	109		121		114		Loch Dhu .....	91		103		96	
Llangurig (Dernol) .....	115		110		113		Crieff (Strathearn Hydro) .....	86		128		104	
Lake Vyrnwy (Bank Cynon Isaf).	119		128		123		Blair Atholl (Blair Castle Gardens)	113		126		119	
Northop (Soughton Hall) .....	124		165		143		Dundee (Eastern Necropolis) .....	107		141		124	
Dolgelly (Bryntirion) .....	138		145		141		Montrose (Sunnyside Asylum) ..	116		135		125	
Llandudno .....	116		130		122		Balmoral Castle Gardens .....	96		131		111	
Llandwrog (Glynllivon Park) .....	112		128		118		Aberdeen (King's College) .....	111		108		109	
Holyhead (Salt Island) .....	110		115		112		New Deer Schoolhouse .....	116		104		111	
Douglas (Borough Cemetery) .....	133		128		131		Gordon Castle .....	111		102		106	
Guernsey, St. Peter Port .....	141		148		144		Grantown-on-Spey .....	102		124		113	
Port William (Monreith) .....	116		124		120		Nairn (Golf Course) .....	135		120		128	
Dairy (Glendarroch) .....	104		100		102		Alvie Manse .....	110		115		113	
Auchencairn (Torr House) .....	112		105		109		Loch Ness (Foyers) .....	114		112		113	
Dumfries (Crichton Roy. Inst.) ..	110		118		114		Loch Quoich (Glenquoich) .....	106		92		101	
Hawick (Wolfelee) .....	96		129		110		Arisaig House .....	117		85		103	
Stobo Castle .....	111		123		116		Fort William (Glasdrum) .....	91		87		90	
Marchmont House .....	99		130		114		Alness (Ardoss Castle) .....	126		110		120	
North Berwick Reservoir .....	90		148		120		Ullapool .....	133		74		110	
West Calder (Addiewell) .....	104		113		108		Achnashellach .....	92		79		87	
Edinburgh (Univ. Engin. Lab.) ..	100		146		124								

† For Counties see Table XXI, pp. 119-123.



Table XXII.—Seasonal Rainfall, 1930-1931, in relation to the Average, 1881-1915—(con.).

[illegible]

\* Obtained by taking the means of the percentage values for the stations.

† In percentage values for the stations.  
‡ For Counties see Table XXI, pp. 119-123.

† Including Isle of Man and St. Peter Port, Guernsey.



## 10. THE TOTAL FALL OF RAIN IN 1931 AND ITS RELATION TO THE AVERAGE.

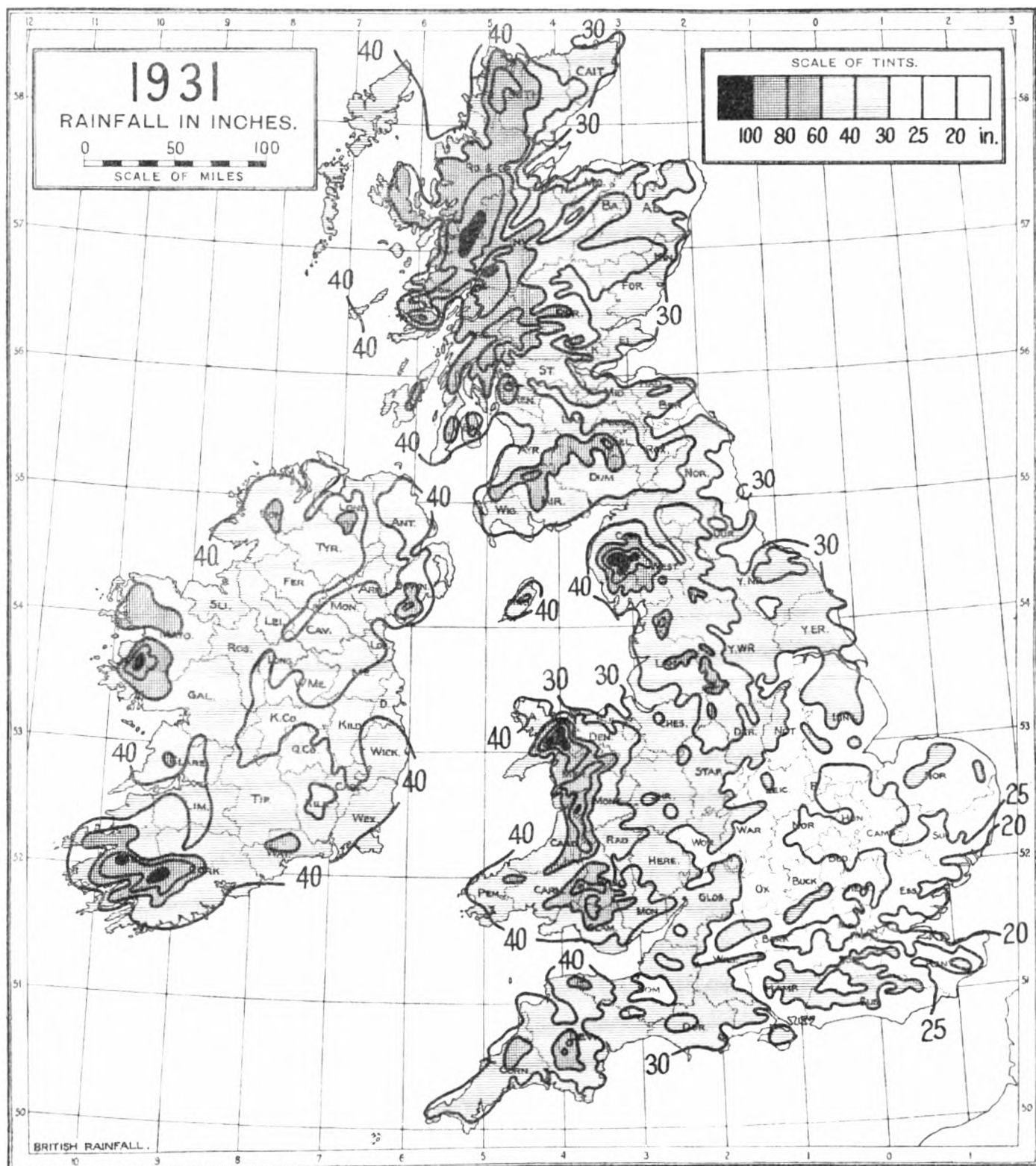
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The total rainfall for the year is given for over 5,000 stations in the British Isles in the General Table, Part III of this volume. As many of these totals as practicable have been plotted on a map on the scale of 19 miles to the inch. In the districts of relatively few rainfall stations, each record has been plotted, while in the more thickly represented areas some have had to be omitted. Isohyetal lines, or lines of equal rainfall amount, have been drawn giving a cartographical presentation of the distribution of the rainfall of the year over the land. The map is reproduced on a smaller scale as the folding plate opposite this page. Such a map is dominated by the orography of the country to such an extent that not only is it complicated in itself, but it also closely resembles its predecessors, the differences being noticeable only after detailed examination and comparison. The characteristics of a particular year are brought out better by a map such as that opposite p. 136, in which the percentage ratio of the rainfall for the year to the average is shown. It has been coloured so that blue areas represent regions where the fall in 1931 was more than the average, and red areas represent regions where the fall in 1931 was less than the average. The statistics on which the latter map is based are set out in Tables XXI and XXIV.

The percentage map for 1931 shows by means of continuous lines the places where the values of the rainfall were, respectively, 90, 100, 110, 120, 130 and 140 per cent. of the average values.

The total rainfall was less than the average over appreciable areas in each country. These areas were largest in the south-east of England and the north-west of Scotland, but less than the average was also recorded in the south-west of Ireland, along parts of the north-east coasts of Great Britain, in Anglesey, in South Wales, North Devon, in Northamptonshire and to the east of Plinlimon. Rather less than 90 per cent. was recorded over a number of small areas, *e.g.*, near Wareham and Newbury, from Brighton to Midhurst, near Lympne Aerodrome, Felixstowe and Achnashellach (in the Western Highlands) and near Dunmanway in Co. Cork. Some of the smallest percentage values given in Tables XXI and XXIV are 82 at Felixstowe, 86 at Dunmanway, 87 at Lympne Aerodrome, at Newbury and at Achnashellach.

The areas with the largest excesses occurred across the central portions of the British Isles. More than 120 per cent. occurred over





a large part of England and Wales stretching from Snowdon and Stratford-on-Avon in the west, almost to the coast between the Wash and the Cleveland Hills in the east, as well as over four well marked but much smaller areas in central and eastern Ireland, and also in the Isle of Man. Falls of more than 130 per cent. were confined to England apart from a small area in Wales to the west of Chester. The largest percentage value was 141 at Boston.

The main feature of the distribution of the rainfall of 1931 was the area across the Southern Pennines with a rainfall markedly in excess of the average. This was mainly due to the unusual prevalence of cyclonic rains, especially in the summer months. The more congenial weather in the north-west of Scotland during the late summer and autumn stands out in marked contrast, and accounts for the deficiency of rainfall in that area. The dry October and December in the south-east of England was mainly responsible for the small annual totals in that region.

Use is made of the percentage values at the 271 stations of both Tables XXI and XXIV to derive general values of the total rainfall for the year over the British Isles and over the larger divisions separately. These values are set out in the following table:—

TABLE XXIII.—*General Rainfall, 1931, compared with average.*

Countries.	No. of Stations.	Average 35 years 1881-1915.	1931	
			Per cent.	Rainfall.
		in.		in.
England .....	136	32·67	110	36·0
Wales.....	24	50·14	108	54·1
England and Wales.....	160	35·23	109	38·4
Scotland .....	61	50·32	104	52·3
Ireland .....	48	43·30	111	48·1
British Isles† .....	271	41·41	109	45·2

† Including Isle of Man and Guernsey, St. Peter Port.

For the British Isles as a whole, the rainfall of 1931, was 9 per cent. in excess of the average. During the sixty-four years from 1868 the rainfall of 1931 has been exceeded on fifteen occasions, and of these five occurred during the last eight years.

The rainfall over the British Isles as a whole has reached or exceeded the average for the period 1881 to 1915 in each of the last ten years. The accumulated excess has amounted to 99 per cent. of the average annual amount. In the last ten years we have



fact that during 1931 the rainfall in the north-west of Scotland was below the average ; while in Snowdonia the rainfall was 120 per cent. and in the English Lake District about 110 per cent., it is reasonable to conclude that if the wettest spots in each of these localities had been equally well represented by rain-gauges during 1931 Snowdonia would still have given the largest annual totals, while the English Lake District would have ranked second.

Some of the smallest totals for the year are set out below :—

				Inches.
England ..	Essex, Dovercourt	..	..	17·27
	Suffolk, Felixstowe Aerodrome	..	..	17·42
	Essex, St. Osyth (Wigborough Wick)	..	..	18·11
	Kent, Reculver	..	..	18·14
Scotland ..	Elgin, Duffus (Hopeman Lodge)	..	..	21·00
Ireland ..	Dublin, Dublin (Phoenix Park)	..	..	30·63

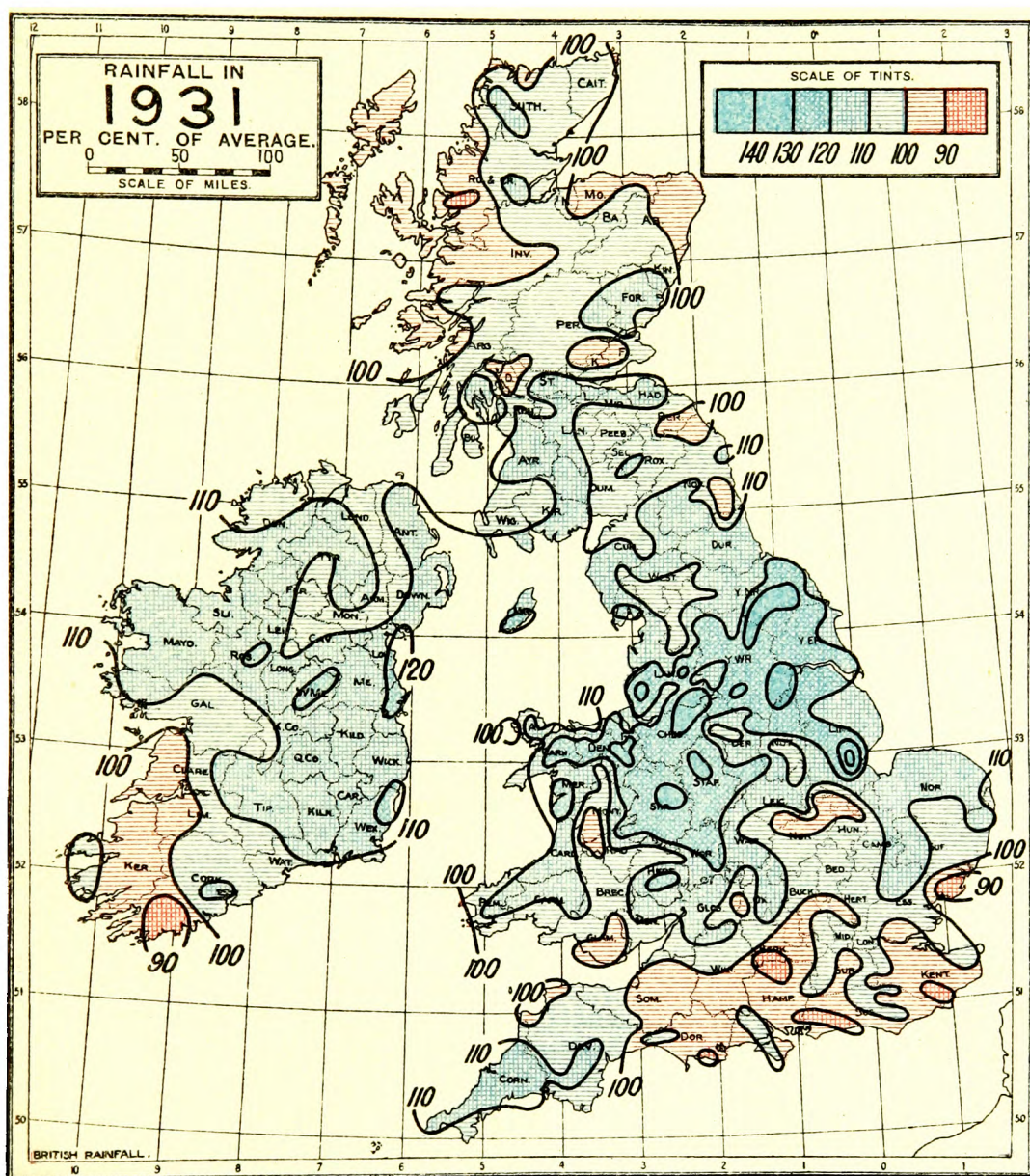
TABLE.—XXIV.—*Rainfall of 1931 as Percentage of Average, 1881-1915.\**

County.	Station.	Per cent. of Average.	County.	Station.	Per cent. of Average.
<b>ENGLAND.</b>					
Surrey . . .	Reigate (Wray Park Rd.) . . .	103	Yorks W.R.	Goole . . . . .	131
Kent . . . .	Folkestone (Cherry Gardens) . .	91	" "	Wakefield (Clarence Park) . . .	125
" " " "	Lympne Aerodrome . . . . .	87	" " " "	Skipton (Chelker Res.) . . . . .	124
" " " "	Rochester (Knights Place) . . .	90	" E.R.	Spurn Head . . . . .	114
Sussex . . .	Patching Farm . . . . .	92	" " "	Pattrington . . . . .	128
" " " "	Horsham (Wimblehurst) . . . .	97	" " " "	Lowthorpe (The Elms) . . . . .	114
" " " "	St. Leonards (Gensing Gardens) .	98	" N.R.	Pickering (Hungate Hall) . . . .	135
Hampshire	Totland Bay (Aston House) . . .	95	" " "	Guisborough (Lockwood Res.) .	126
" " " "	Portsmouth (Victoria Park) . . .	91	Durham . .	Barnard Castle (County Schl.) .	120
" " " "	Grayshott . . . . .	100	" " " "	Ushaw (St Cuthbert's College) .	113
Berkshire .	Wellington College . . . . .	91	North'ld .	Morpeth (Cockle Park) . . . . .	97
" " " "	Newbury (Greenham Common) . .	87	" " " "	Howick Hall . . . . .	111
Hertford . .	Harpenden (Rothamsted) . . . .	103	Cumberl'd .	Penrith (Newton Rigg) . . . . .	109
Oxford . . .	Leafield (Wireless Station) . . .	98	" " " "	Mealsgate (Quarry Hill) . . . . .	110
N'hants . .	Wellingtonborough (Swanspool) .	101	" " " "	Ravenglass (The Grove) . . . . .	118
" " " "	Oundle (Milton Road) . . . . .	91	Westmor'l'd	Grasmere (The Wray) . . . . .	105
Bedford . .	Woburn (Crawley Mill) . . . . .	108	<b>WALES.</b>		
Cambridge	Cambridge (Botanic Gardens) . .	106	Monmouth	Tredegar . . . . .	99
Essex . . . .	Elsenham (Gaunts End) . . . . .	110	Glamorgan	Gorseinon (Penllergaer) . . . . .	107
" " " "	Shoeburyness (New Ranges) . . .	100	Carmarth'n	Llanddeusant (Pontcrynfe) . . . .	103
" " " "	Bradwell-on-Sea . . . . .	104	Pembroke .	Pembroke (Stackpole Court) . . .	109
Suffolk . . .	Felixstowe Aerodrome . . . . .	82	" " " "	St. Ann's Head . . . . .	94
" " " "	Bury St. Edmunds (Westley Ho.)	113	" " " "	Fishguard (Langton, Dwrbach) .	102
Norfolk . .	Cromer . . . . .	118	Montgom'y	Newtown (Penarth Weir) . . . . .	118
" " " "	Wells (Holkham Hall) . . . . .	119	Denbigh . .	Wrexham (Pack Saddle Res.) . .	132
Wiltshire . .	Landford (Northlands) . . . . .	100	" " " "	Denbigh (Garn) . . . . .	114
" " " "	Marlborough College . . . . .	102	Merioneth	Corwen (Rug Gardens) . . . . .	109
Dorset . . .	Bere Regis (Bloxworth House) . .	95	Anglesey . .	Llanerchymedd . . . . .	110
" " " "	Beaminster (Farrs) . . . . .	103			
Devon S. . .	Plymouth (The Hoe) . . . . .	107	<b>SCOTLAND.</b>		
" " " "	Tavistock . . . . .	119	Dumfries . .	Langholm (Ewes) . . . . .	103
" " " "	Sidmouth (Sidmount) . . . . .	101	Roxburgh .	St. Boswells (The Fens) . . . . .	109
" N. . . .	Torrington (Enfield) . . . . .	102	Midlothian	Moorfoot Hills (Gladhouse R.) .	106
Cornwall . .	Newquay (Mount Wise) . . . . .	112	Ayr . . . .	Maybole (Culzean Castle Gdns.)	114
" " " "	Falmouth Observatory . . . . .	105	Renfrew . .	Paisley W.W. (Backthornley-muir.)	111
" " " "	Tresco Abbey . . . . .	107	" " " "	Glasgow (Queen's Park) . . . . .	109
Somerset . .	Chew Magna . . . . .	98	Argyll . . .	Corran Lighthouse . . . . .	102
" " " "	Batheaston Reservoir . . . . .	105	" " " "	Glen Etive . . . . .	105
" " " "	Somerton (Butleigh Court) . . .	95	" " " "	Mull of Kintyre . . . . .	107
" " " "	Milverton (Spring Grove) . . . .	102	" " " "	Loch Eck (Benmore) . . . . .	112
Gloucester .	Cheltenham (Montpellier Gns.) .	117	" " " "	Lismore (Mosedale) . . . . .	96
Hereford . .	Hereford (Belmont Abbey) . . . .	121	Perth . . . .	Glengyle . . . . .	106
" " " "	Leominster (Fairholme) . . . . .	109	" " " "	Perth (Wellshill Cemetery) . . .	100
Shropshire .	Shifnal (Hatton Grange) . . . . .	130	" " " "	Kirriemuir (Lintrathen) . . . . .	115
Stafford . .	Leek (Wall Grange) . . . . .	124	Aberdeen . .	Ellon (Esslemont House) . . . .	98
Worcester . .	Bromsgrove (Tardebigge Res.) . .	124	Banff . . . .	Keith Station . . . . .	105
" " " "	Stourport (Lincombe Lock) . . .	122	Inverness .	Dalwhinnie (Drumochter Lo.) . .	114
Warwick . .	Ryton-on-Dunsmore (Ryton Ho.)	112	Ross . . . .	Strathpeffer . . . . .	106
Leicester . .	Kibworth Beauchamp . . . . .	97	<b>IRELAND.</b>		
" " " "	Thornton Reservoir . . . . .	115	Cork . . . .	Cork (University College) . . . .	111
Lincoln . . .	Spalding (Pode Hole) . . . . .	110	Kerry . . . .	Darrynane Abbey . . . . .	99
" " " "	Skegness . . . . .	104	Tipperary	Cashel (Ballinamona) . . . . .	119
" " " "	Louth (Westgate) . . . . .	98	Wexford . .	Foulkesmill (Longraigue) . . . .	118
Nottingham'm	Nottingham (Strelley) . . . . .	126	Carlow . . .	Hacketstown Rectory . . . . .	115
" " " "	Worksop (Hodsock Priory) . . . .	127	Dublin . . .	Dublin (Phoenix Park) . . . . .	111
Derby . . . .	Buxton (Devonshire Hosp.) . . . .	109	W'meath . .	Athlone (Twyford House) . . . .	115
Cheshire . .	Runcorn (Weston Point) . . . . .	116	Galway . . .	Galway (Grammar School) . . . .	101
" " " "	Woodhead Reservoir . . . . .	127	Roscomm'n	Strokestown (Castlenode) . . . .	126
Lancs. C. . .	Burnley (Swinden) Lower g. . . .	126	Mayo . . . .	Aasleagh House . . . . .	119
" " " "	Wigan W.W. (Worthington) . . . .	124	Armagh . . .	Lurgan (Belle Vue) . . . . .	102
" " " "	Blackpool (Met. Observatory) . . .	117	Down . . . .	Donaghadee (Coastguard Stn.) .	114
" N. . . .	Garstang (Grizedale Res.) . . . .	118	" " " "	Banbridge (Milltown) . . . . .	103
Yorks W.R.	Slaidburn (Dunsop Houses) . . .	112			

\*See also Table XXI, pp. 119-123.



# RELATION OF RAINFALL IN 1931 TO THE AVERAGE OF 1881-1915.



H.M.S.O. Press, Kingsway W.C.2.

AIR MINISTRY, METEOROLOGICAL OFFICE.

The area coloured Red had rainfall below the average. that coloured Blue had rainfall above the average.





## II.—EVAPORATION AND PERCOLATION IN 1931.

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The *evaporation gauges* in use are square tanks sunk in the ground, and the evaporation which is measured is that from a free water surface. The standard gauge at Camden Square is 6 ft. square and 2 ft. deep, and is sunk so that the lip projects about 3 inches. The routine consists of the daily measurement of the level of the water below a mark fixed in the tank. From the difference between consecutive daily measurements, is deducted the rainfall for the same period, as measured in an adjacent rain-gauge. The net depression of the water-level in the tank during the interval of 24 hours is taken to be a measure of the evaporation. Sometimes in winter the "evaporation" comes out as a small negative quantity; this is regarded as due to the condensation of water from the superincumbent air, and the corresponding measurements are marked "c" in the tables. So far as is practicable, the level of the water is kept about 2 to 3 inches below the top of the lip. This necessitates water being added in summer and syphoned off in winter. During the winter months there is some difficulty in getting a reading when the water freezes. In such cases the ice is broken away from the side of the tank and the measurement of the water-level is made while the ice is floating. If this cannot be done any morning, owing to the thickness of the ice, a measurement is made as soon as possible (on a subsequent morning), and the amount of evaporation calculated over the whole period. The evaporation is small in winter, so that little information is lost by adopting this procedure.

The accuracy of the measurements of evaporation depends on the depth of water caught as rain in the evaporation tank being identical with that measured directly in the rain-gauge alongside. Some of the factors which are likely to vitiate the measurements of evaporation were discussed in *British Rainfall*, 1925, pp. 127–128.

The list of stations given in Table XXV, for which details of the evaporation are available for 1931, is the same as last year, apart from the exclusion of a record at Edinburgh.

Four evaporation tanks were maintained during the year by the Engineer, Cardiff Water Works, at Llanishen Reservoir, near Cardiff, and at three stations in the Upper Taff Valley, some 25 to 30 miles to the north-west. These are at Llwynon, Cantref Reservoir and Beacons Reservoir. The tanks are near the main river at altitudes of 860, 1,080 and 1,340 feet respectively, and the two extreme stations are only five miles apart. The annual totals were 24.56, 11.36, 8.97

and 12·00 inches, and in view of the wide variation, the monthly totals are not included in Table XXV, pending further investigation. As already pointed out the reliability of the evaporation record depends on the tank and rain-gauge catching similar samples of the precipitation. At Llanishen Reservoir the evaporation tank is at the top of a bank, in order to be as near the reservoir as possible. It is probable that the large figures for the evaporation are due to the gauge catching more rain than the tank, and possibly also to water being blown out of the tank. The site of the tank at Beacons was modified during the year to bring the exposures of the tank and rain-gauge into greater accord and the records at Beacons and Llwynon probably give a fair indication of the evaporation from a free water surface in that region.

An account of the difficulties which have arisen in connection with the determination of the evaporation at Valentia Observatory, Co. Kerry, is given in an article in Part IV.

The evaporation from a free water surface at each station shows a well-marked seasonal variation. The amount is large in the six summer months, April to September, and much smaller in the remaining months of the year. During 1931, most stations recorded less evaporation than usual, this being associated with the deficiency of sunshine, which was experienced in most parts of the country. The mean deficiency of sunshine during the year over the country as a whole was 11 per cent. compared with 5 per cent. in 1930. April, June, July and September were particularly dull. In July the loss over the greater part of the country amounted to one-third of the normal amount for that month.

The monthly and annual means for the twelve stations are set out in the last column of the table. For the year the mean evaporation is 14·6 inches. This is smaller than the corresponding values for any year since before 1919. The largest value was 20·6 inches in 1921. As much as 12·2 inches or 83 per cent. of the total was evaporated in the six summer months. There is a fairly uniform change from a maximum in June and July to a minimum in December and January.

The monthly evaporation values for the 47 years, 1885 to 1931, at Camden Square (London) are set out in Table XXVII. For 1931 the evaporation of 13·13 inches was 2·37 inches less than the average for the 35 years (1885–1919). The total evaporation was less than that recorded in any other year back to 1894 and there were only four years in the series with less evaporation. The evaporation was less than the average in each month except March, October and December, the three driest months of the year over the country as a whole.

In Table XXVI the amount of water which percolates through

a definite depth of soil is given. The stations in operation during 1931 are the same as in 1930. Details of the percolation gauges and the type of soil are set out in the footnotes and in *British Rainfall*, 1924, p. 128. The difference between percolation and rainfall is largely to be accounted for by evaporation, but evaporation as determined in this way (known as "calculated evaporation") is not strictly comparable with that given in the earlier table. There is no free water surface present in the percolation gauge, but during dry periods the surface soil is nearly dry, so that practically no evaporation can take place. The calculated evaporation, as obtained from the percolation gauges, was less than that of recent years but greater than that of the famous dry year 1921, when for long periods no evaporation at all could take place from the gauges. The mean value in 1931 was 13.21 inches compared with 11.67 inches in 1921.

At Compton, no rain percolated through the gauge (which consists of 10 inches of soil, on which grass is grown, over 2 feet of well-rammed chalk) from the 20th June to the 17th August (inclusive), while at Craibstone the percolation for the four months July to October only amounted to three-quarters of an inch.

The percolation as measured at Compton has been related to the changes in the level of a well there, in a paper by Mr. D. Halton Thomson, Water Engineer at Portsmouth, read before the Institution of Water Engineers recently. The percolation is counted each year from the recommencement of the autumn percolation. It is found that the annual amounts of percolation, arrived at from considering the rainfall and the well levels, are in striking accord with those shown by the percolation gauge. The mean annual percolation for the 10 years 1921 to 1930, arrived at by either of these two methods, corresponds to a mean loss of  $17\frac{1}{4}$  inches.

The percolation gauges at Rothamsted and Craibstone require special comment. At Rothamsted rather more rain passed through the 40-inch and 60-inch gauges than through the 20-inch gauge. It is reasonable to conclude therefore that the 20-inch gauge at Rothamsted is of sufficient depth to give a good indication of the water likely to go into "permanent storage." At all stations there is an appreciable amount of percolation during the summer months, but the percolation was greatest during November.

At Craibstone the drainage through gauge number 3 during the period January to March slightly exceeded the rainfall. This was due to the heavy rainfall at the end of 1930.

The photograph (see frontispiece) is taken looking towards the north-north-west, and shows the general exposure of the percolation gauges at Rothamsted. The gauges were set up in 1870 in arable soil. The site is in "Great Field," more than  $\frac{1}{4}$  mile to the south-west of the Laboratory. In the nearest gauge the depth of the earth

is 20 in. The next two gauges are 40 in. and 60 in. deep respectively, while the fourth gauge is for the measurement of rainfall. This gauge was erected in 1873, and replaced an older one of the same area set up in 1853. Both gauges were kept in use for some years before the older one was dismantled. All the four gauges are one-thousandth of an acre in area. In the construction of the percolation gauges the soil was not disturbed when the gauges were made, brickwork walls being built round the block of soil and perforated plates driven underneath. The soil below was removed for the installation of collecting vessels. The rims of the gauges were finished with cement and there is a rough knife edge. The soil is a rather heavy loam with a reddish-yellow sub-soil over chalk. The soil and sub-soil contain numerous flints.

The gauges are, therefore, about 6 ft. 7 in. square, and they are situated about 6 ft. to the west of an open wire fence of 4 in. mesh and 3 ft. high. The distances between the gauges are 2 ft. 6 in., 1 ft. and 15 ft. respectively. The rim of the 20 in. percolation gauge is rather higher above ground level than the other gauges, as in the construction the natural level of the soil was not altered. The earth inside each gauge is rather above the level of the outside ground and about 4 in. below the top of the rim of the gauge. Occasionally, some soil in the form of worm-casts is washed through the gauges on to the collecting funnel, from which it is periodically removed. The surface of the soil has always been kept free from vegetation by carefully removing seedling weeds. Any patches of moss are scuffed with a light rake, and left on the surface, where they eventually die. Stones drawn into small heaps over their burrows by worms are redistributed from time to time. The vertical rim of the rain-gauge is of thick glass  $2\frac{1}{2}$  in. deep with a knife edge at the top. The rim is about 1 ft. above the level of the surrounding ground but rather more than this on the southern side. The funnel is of metal and slopes down only slightly to the centre. The 5 in. standard rain-gauge is shown just beyond the big rain-gauge, the Hyetograph is just to the west and the 8 in. standard gauge still further to the west, on flat grass land in the centre of the plot. The 5 in. gauge is 4 ft. beyond the big rain-gauge and the rim is about level with that of the big gauge.

Access to the gauges, for the purpose of making measurement, is obtained by means of the pits to the east of the percolation gauges and to the south of the rain-gauge. The photograph shows the cover to the first pit in position, but removed to allow of access in the case of the two further percolation gauges. The ladders used in descending these pits are also shown.

Two thermometer screens also appear in the photograph.

Table XXV.—*Evaporation in 1931.*

List of Stations.	County.	Observer.	Particulars of Tank.			
			Height above		Side.	Capacity.
			Ground.	Sea Level.		
			ft. in.	ft.	ft. in.	Gals.
Camden Square.	London . . . . .	Royal Meteor. Soc. . .	0 3	111	6 0	450
Otterbourne . .	Hampshire . . . . .	E. C. Rodda, Esq. . .	0 3	112	6 0	450
Petersfield . . .	" . . . . .	C. J. P. Cave, Esq.* . .	0 3	747	4 0	250
Ormesby St. M..	Norfolk . . . . .	Gt. Yarmouth W.W. . .	0 3	21	6 0	450
Kennick . . . . .	South Devon . . . . .	S. C. Chapman, Esq. . .	0 3	835	6 0	450
Southport . . . .	Gen. Lancashire. . . .	J. Baxendell, Esq. . .	0 3	37	3 0	112
Ardsley, No. 1	Yorkshire, W.R. . . .	C. C. Smith, Esq. . .	0 3	395	6 0	450
" No. 2	" " . . . . .	" " . . . . .	0 3	326	6 0	450
Lower Laithe . .	" " . . . . .	M. R. Barnett, Esq. . .	0 6	772	6 0	450
Harrogate . . . .	" " . . . . .	A. S. West, Esq. . . . .	0 3	589	6 0	450
Talla Water . .	Peebles . . . . .	Messrs. Leslie & Reid	0 3	904	6 0	450
Glencorse Filters	Midlothian . . . . .	" " . . . . .	0 3	639	6 0	450

1931.	Camden Square.	Otterbourne.	Petersfield.	Ormesby St. Michael.	Kennick.	Southport.	Ardsley No. 1.
	in.	in.	in.	in.	in.	in.	in.
January . . . . .	.03	c .03	.13	.20	.27	.01	.09
February . . . . .	.22	.32	.04	.35	.57	.33	.18
March . . . . .	.88	1.30	1.05	.89	.78	.76	.99
April . . . . .	1.03	1.33	1.37	1.57	1.64	1.34	1.61
May . . . . .	1.92	2.16	1.81	2.23	2.24	1.86	2.36
June . . . . .	2.69	2.70	2.43	2.92	2.87	2.39	2.54
July . . . . .	2.60	2.78	2.32	2.60	2.87	2.72	2.95
August . . . . .	1.75	2.60	2.26	2.39	2.73	2.28	2.75
September . . . . .	.97	1.48	1.40	1.45	1.56	1.07	1.37
October . . . . .	.68	.91	.74	.94	.83	.56	.97
November . . . . .	.12	.25	.35	.33	.36	.15	.27
December . . . . .	.24	.13	.14	.38	.24	.13	.24
Year . . . . .	13.13	15.93	14.04	16.25	16.96	13.60	16.32
Average, 1908-1931 . .	15.10	19.42	..	..	18.76	..	17.30
Difference . . . . .	-1.97	-3.49	..	..	-1.80	..	-.98

1931.	Ardsley No. 2.	Lower Laithe.	Harrogate.	Talla Water.	Glencorse.	..	Mean of 12 Records.
	in.	in.	in.	in.	in.	in.	in.
January . . . . .	.06	c .28	.39	.02	( .05)	..	.08
February . . . . .	.08	c .10	.77	( .30)	( .25)	..	.28
March . . . . .	.97	.06	.48	.75	( .70)	..	.80
April . . . . .	1.38	1.45	1.68	1.13	1.17	..	1.39
May . . . . .	2.16	2.17	2.41	2.32	1.97	..	2.13
June . . . . .	2.33	1.98	2.57	2.29	1.91	..	2.47
July . . . . .	2.64	2.42	2.96	2.09	1.63	..	2.55
August . . . . .	2.33	2.14	2.73	2.42	1.67	..	2.34
September . . . . .	1.13	1.19	1.59	1.06	1.21	..	1.29
October . . . . .	.80	.71	1.01	.50	.73	..	.78
November . . . . .	.17	.16	.72	.33	.21	..	.28
December . . . . .	.13	.10	.40	.08	.23	..	.20
Year . . . . .	14.18	12.00	17.71	13.29	11.73	..	14.59
Average, 1908-1931 . .	..	..	19.11	15.61	..	..	..
Difference . . . . .	..	..	-1.40	-2.32	..	..	..

NOTE.—In the Table, "c" indicates an excess of condensation over evaporation.

\* Per Royal Meteorological Society.

Table XXVI.—*Rainfall, Percolation and Calculated Evaporation in 1931.*

(Unless otherwise stated the size of the percolation gauges is 3 ft. × 3 ft. × 3 ft.)

1931.	Compton, Sussex.		¶ Rothamsted, Herts.			
	Rainfall.	Percolation.	Rainfall.	Percolation **		
				20 in. Soil.	40 in. Soil.	60 in. Soil.
	in.	in.	in.	in.	in.	in.
January .....	3.44	3.24	1.57	1.23	1.32	1.32
February .....	2.55	2.56	1.70	1.18	1.33	1.30
March.....	1.09	1.03	.08	.07	.17	.16
April .....	3.46	1.80	3.22	1.54	1.68	1.67
May .....	2.78	.12	2.44	.88	.97	.99
June .....	2.16	.89	1.45	.01	.05	.04
July .....	3.59	.00	3.79	1.44	1.67	1.70
August .....	4.05	1.66	3.28	1.61	1.68	1.66
September .....	3.04	1.68	1.98	.83	.90	.86
October .....	.75	.00	.57	.00	.01	.01
November .....	4.60	3.97	3.00	2.42	2.43	2.38
December .....	.98	1.14	1.00	.64	.70	.66
Year .....	32.49	18.09	24.06	11.85	12.91	12.75
Calculated Evaporation .....	..	14.40	..	12.21	11.15	11.31

1931.	Harrogate, Yorks.		Craibstone, Aberdeen.			
	Rainfall.	Percolation.	Rainfall.	Percolation. §		
				1* 40 in. Soil.	2† 40 in. Soil.	3‡ 40 in. Soil.
	in.	in.	in.	in.	in.	in.
January .....	1.80	1.69	3.49	2.58	2.54	2.58
February .....	2.39	2.81	2.63	2.75	2.68	2.83
March.....	.78	1.03	1.36	2.06	2.26	2.24
April .....	3.24	1.56	1.78	.28	.24	.39
May .....	3.20	.92	4.09	1.19	1.20	1.23
June .....	5.42	4.30	3.66	2.58	2.49	2.38
July .....	3.14	.56	3.06	.01	.02	.03
August .....	3.45	1.63	2.30	.64	.74	.71
September .....	5.56	3.94	1.45	.06	.12	.12
October .....	.89	.04	1.39	.01	.02	.01
November .....	4.92	4.23	4.54	3.28	3.44	3.37
December .....	1.20	1.18	1.34	.59	.61	.51
Year .....	35.99	23.89	31.09	16.03	16.36	16.40
Calculated Evaporation .....	..	12.10	..	15.06	14.73	14.69

¶ Area of gauges one thousandth of an acre.

§ The gauges were under pasture.

† Manured.

\*\* Through bare unworked soil.

• Unmanured.

‡ Manured and limed.

Table XXVII.—*Evaporation at Camden Square, London, 1885–1931.*

	Jan. in.	Feb. in.	Mar. in.	April in.	May. in.	June. in.	July. in.	Aug. in.	Sept. in.	Oct. in.	Nov. in.	Dec. in.	Total in.
1885.....	·20	·38	·86	1·71	1·98	2·77	3·29	2·25	1·13	·77	·17	·11	15·62
1886.....	·23	·13	·53	1·59	1·78	2·93	3·12	1·86	1·46	·63	·27	·12	14·65
1887.....	c·07	·29	·76	1·72	1·79	3·68	3·76	2·54	1·25	·78	·21	·07	16·78
1888.....	·07	·37	·48	1·16	2·71	2·24	1·44	1·90	1·17	·60	·43	·03	12·60
1889.....	·03	·18	·62	1·07	1·76	2·97	2·34	1·96	1·52	·42	·29	c·13	13·03
1890.....	·08	·19	·50	1·44	2·63	2·14	2·33	2·02	1·27	·79	·31	·04	13·74
1891.....	·03	·16	·73	1·35	1·66	2·83	2·34	1·67	1·00	·62	·20	·22	12·81
1892.....	·05	·09	·60	1·88	2·65	3·05	2·84	2·20	1·01	·36	·02	·20	14·95
1893.....	c·03	·01	·92	2·33	3·06	3·62	3·12	2·85	1·48	·70	·11	·01	18·18
1894.....	c·04	·28	·83	1·17	2·10	2·48	2·49	1·91	·97	·37	·20	·11	12·87
1895.....	·14	·64	·36	1·26	3·06	3·31	3·07	2·12	1·27	·54	·19	·07	16·03
1896.....	·16	·24	·64	1·57	3·06	3·21	3·63	1·96	·68	·47	·18	·00	15·80
1897.....	·23	·21	·76	1·23	2·99	2·48	3·60	2·49	·99	·63	·26	c·14	15·73
1898.....	·19	·37	·51	1·28	1·56	2·10	2·96	2·53	1·73	·45	·11	·16	13·95
1899.....	·04	·28	·52	1·24	2·34	3·67	4·03	3·78	2·01	·45	·41	·11	18·88
1900.....	·03	·16	·80	1·46	2·35	2·85	4·25	2·61	1·61	·89	·24	·15	17·40
1901.....	·13	·24	·60	1·98	3·25	3·85	3·37	3·19	1·42	·64	·31	c·05	18·93
1902.....	·16	·15	·71	1·75	1·78	2·33	3·30	1·71	1·47	·69	·28	·27	14·60
1903.....	·26	·39	·97	1·57	2·24	2·79	3·35	2·53	1·51	·86	·29	·12	16·88
1904.....	c·09	·26	·54	1·68	1·81	3·32	4·06	2·86	1·20	·50	·26	·02	16·42
1905.....	·17	·35	·65	1·14	3·19	2·49	3·65	2·23	1·24	·78	·09	·16	16·14
1906.....	·06	·21	·73	1·90	1·90	3·53	3·65	3·46	2·38	·78	·27	·16	19·03
1907.....	·21	·38	1·02	1·27	1·93	2·47	2·65	2·24	1·72	·49	·27	·19	14·84
1908.....	·05	·27	·56	1·32	2·23	3·77	2·75	2·47	1·25	·48	·29	·14	15·58
1909.....	·14	·30	·30	1·85	2·93	1·70	2·60	2·23	·84	·76	·17	·16	13·98
1910.....	·22	·17	·80	1·43	2·52	2·57	2·00	2·12	1·42	·76	·19	·10	14·30
1911.....	·15	·32	·59	1·77	2·58	3·34	4·60	3·19	1·96	·64	·37	·02	19·53
1912.....	·24	·16	·79	2·34	2·44	2·49	2·55	1·69	1·41	·39	·33	·12	14·95
1913.....	·10	·32	·77	1·25	2·49	3·13	2·15	2·09	1·07	·61	·36	·32	14·66
1914.....	·09	·24	·52	1·84	2·56	2·93	2·72	1·99	1·68	·70	·28	·05	15·60
1915.....	·11	·13	·66	1·65	2·90	3·15	2·50	1·76	1·61	·56	·25	c·03	15·25
1916.....	·19	·34	·30	1·61	2·32	2·20	2·23	2·34	1·20	·76	·34	c·04	13·79
1917.....	·11	·17	·53	1·18	3·06	3·01	2·81	1·95	1·16	·75	·34	·12	15·19
1918.....	·14	·27	·85	·89	2·38	3·01	2·59	2·04	1·69	·40	·24	·16	14·66
1919.....	c·12	·13	·66	1·06	2·94	3·39	1·90	2·78	1·53	·61	·08	·06	15·02
1920.....	·20	·24	·78	·85	2·71	2·85	2·09	2·00	1·04	·66	·04	·00	13·46
1921.....	·20	·28	·96	1·91	3·04	3·66	4·17	2·56	1·72	·72	·19	·28	19·69
1922.....	·16	·31	·96	1·20	2·93	3·36	2·09	1·74	1·11	·66	·27	·14	14·93
1923.....	c·01	·16	·65	1·26	2·16	2·16	3·59	2·79	1·24	·73	·24	·02	14·99
1924.....	c·17	·28	·73	1·28	2·27	2·91	3·21	1·82	1·11	·59	·33	·11	14·47
1925.....	·12	·30	·83	1·30	2·34	3·48	2·61	1·58	1·01	·56	·37	·00	14·50
1926.....	c·03	·12	1·03	1·06	2·07	2·50	2·51	2·12	1·34	·74	·20	·05	13·71
1927.....	·05	·19	·65	1·45	2·91	2·64	2·01	1·75	1·08	·37	·29	·13	13·52
1928.....	c·04	·23	·70	1·33	2·15	3·04	4·08	2·17	1·67	·57	·36	·03	16·29
1929.....	·20	·29	·64	1·53	2·66	2·93	3·42	2·22	1·81	·80	·27	·14	16·91
1930.....	·13	·26	·90	1·07	1·82	3·07	2·85	1·98	1·16	·71	·28	·08	14·31
1931.....	·03	·22	·88	1·03	1·92	2·69	2·60	1·75	·97	·68	·12	·24	13·13
Average													
1885–1919...	·10	·25	·66	1·51	2·43	2·91	2·97	2·33	1·38	·62	·25	·09	15·50
Difference 1931	—·07	—·03	+·22	—·48	—·51	—·22	—·37	—·58	—·41	+·06	—·13	+·15	—2·37

NOTE.—c indicates condensation.





METEOROLOGICAL OFFICE, AIR MINISTRY

BRITISH RAINFALL ORGANIZATION

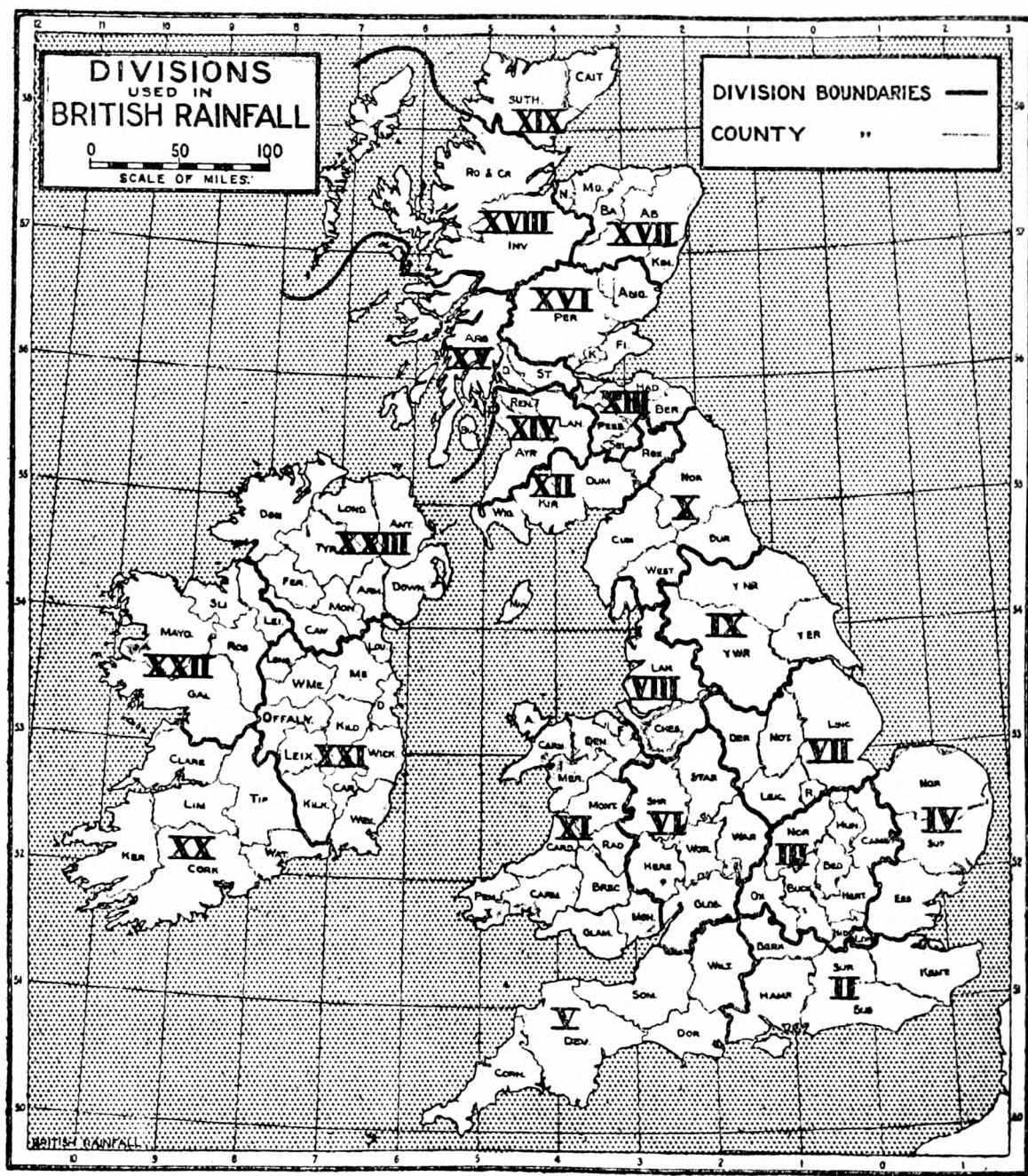
# BRITISH RAINFALL, 1931

PART III

*General Table of*  
**TOTAL RAINFALL IN 1931**

AT STATIONS IN GREAT BRITAIN  
AND IRELAND WITH THE NAMES OF  
THE OBSERVERS OR OTHER AUTHORITIES  
FOR THE OBSERVATIONS

*Issued by the Authority of  
the Meteorological  
Committee*



## GENERAL TABLE OF TOTAL RAINFALL IN 1931.

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### EXPLANATORY NOTE

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The Divisions of Great Britain in the General Table are the same as those adopted by the Registrars-General of England and Scotland. They are shown on the map facing this page.

The counties are divided up into numbered areas, corresponding to the river-basins. An account of these river-divisions for England and Wales was given in a special article in Part I of *British Rainfall*, 1910 (pp. 37-66), and a similar article on the river-divisions of Scotland and Ireland appeared in Part I of *British Rainfall*, 1911 (pp. 40-72), with detailed maps showing all the river-divisions in each Division. Reprints of these articles are available. The areas of the river basins of the Great Ouse and tributaries in Norfolk and Cambridge were redetermined in 1928; the values printed in this volume and in the volume for 1927 differ slightly from those published in *British Rainfall* from 1910 to 1926. The sequence of river divisions in Great Britain proceeds anti-clockwise from the Solway Firth. For example, in the West Riding of Yorkshire we have four divisions for rivers flowing to the Irish Sea, followed by eight divisions for rivers tributary to the Humber.

The stations in each river-division are arranged nearly in the order of their latitude from South to North. For convenience, the first name defining a station is that of a place which can be found on any large scale map; occasionally it is an adjoining county. The second name is added to fix the site of observation more closely, *e.g.*, "Haslemere (Clammer Hill)" means Clammer Hill, near Haslemere.

In some cases the records have been received from a local rainfall organization. This has been indicated by a footnote.

In the column headed "Diameter," figures in old style type indicate the length of the sides of rectangular gauges.

The letter D signifies that daily observations have been received and are complete for the year; d, that less complete daily records have been received; w indicates that weekly readings have been received, and m that the gauge is read only once a month, usually on the 1st.

(R) denotes that the gauge is a mechanical one the correct reading of which depends on the mechanism being in working order.

(A) denotes that the amount of rainfall is taken from the chart of an autographic instrument.

(+A) denotes that the amount of rainfall is taken from an ordinary gauge and that an autographic instrument is also in use.

Where two or more gauges are maintained at the same station the comparison of the records is seldom of general interest. The rule has now been adopted that in such cases only one record will normally be published in *British Rainfall*. The use of mechanical gauges for measuring the total rainfall is not recommended by the Meteorological Office and the number of records marked (R) or (A) is therefore small.

Gauges which have been inspected and found to be over-exposed on moorland have been so marked. It is likely that there are other gauges (notably some of those at lighthouses) which are also over-exposed.

The column for the total rainfall in millimetres, which was a feature of the corresponding table in the volumes for the years 1914 to 1925, has been omitted since 1926, and the space thus set free is devoted to a column for average annual totals, expressed in inches, to the nearest tenth of an inch. The averages are printed in ordinary type if they are either the mean of the annual values for the standard period 1881 to 1915, or, in the case of shorter records, if they have been reduced by the accepted method to the standard period. If the computation has been made outside the office the average is printed in italics, since it may subsequently be revised slightly. The average is also given in italics if it is the mean for twenty or more years other than the standard period or if the mean has been weighted to some other period. Averages for the standard period of 35 years 1881 to 1915, are always preferred for entry in the table. Many of the averages printed in italics have been kindly computed by Mr. H. P. Cornish of Keswick and these are weighted to the standard period 1881 to 1915.

A few entries of total rain will be found in brackets—indicating that the values have been corrected, *e.g.*, when snow has been lost, when the amount for a short period has been computed from other records, or when the gauge has been moved a short distance during the year. A record is not as a rule printed if the gauge has been moved more than a mile, or if there is a greater difference than 50 ft. of altitude between the two positions.

A note of interrogation (?) implies doubt, not necessarily error. The absence of information is indicated by ..







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Carlow .....	258	Kilkenny .....	257	Roscommon .....	261
Cavan .....	262	Leitrim .....	262	Sligo.....	261
Clare .....	256	Leix .....	258	Tipperary .....	255
Cork .....	254	Limerick .....	256	Tyrone .....	265
Donegal .....	265	Londonderry ....	264	Waterford.....	255
Down .....	263	Longford.....	260	Westmeath .....	260
Dublin .....	259	Louth .....	260	Wexford .....	257
Fermanagh .....	262	Mayo .....	261	Wicklow .....	257
Galway .....	260	Meath .....	259		



## ENGLAND AND WALES.

## DIVISION I—LONDON. (Area, 117 sq. mi.)

STATIONS.	AUTHORITIES.	Diam.	Rain-gauge			Average Rain-fall.	1931.		
			Height of Rim above Ground.	Height of Ground above Sea Level.			Rain-fall.	Days with .01 in. or more.	Days with .04 in. or more.
1.—THAMES.—Right Bank Tributaries. 67 sq. mi.									
BERMONDSEY.									
D Southwark Park.....	London County Council...	5	1	0	9	..	22.05	124	111
LAMBETH.									
D Brockwell Park.....	London County Council....	5	1	0	144	..	22.80	145	103
d Brixton Hill Reservoir.....	Met. Water Board.....	5	1	1	121	..	24.20	170	117
BATTERSEA.									
D Battersea Park.....	London County Council...	5	1	0	13	..	23.47	153	111
WANDSWORTH.									
D Streatham (Arragon Gardens)....	L. C. Johnson, Esq., F.R.S..	5	1	0	200	..	26.25	167	114
D Streatham (Conyers Road) .....	Met. Water Board.....	5	1	0	119	23.6	24.72	165	109
D Streatham Hill Reservoir.....	Met. Water Board.....	5	1	0	205	..	24.05	164	116
D Putney Heath Reservoir.....	Met. Water Board.....	5	1	6	179	24.9	26.43	167	117
D Balham High Road.....(+A)...	E. J. Elford, Esq., C.E....	5	1	6	89	..	25.12	163	109
D Southfields (Coronation Gds)(+A)	E. J. Elford, Esq., C.E....	5	1	6	37	..	25.88	161	105
D Larkhall Rise.....	The Late Guy M. Quiller, Esq.	5	1	1	55	..	22.71	162	102
CAMBERWELL.									
D Nunhead (Nunhead Reservoir)...	Met. Water Board.....	5	1	0	175	23.1	22.12	160	108
DEPTFORD.									
D Telegraph Hill.....	London County Council...	5	1	0	135	..	21.34	142	96
d Waterworks .....	Met. Water Board.....	5	1	0	20	23.0	(21.73)	(123)	(102)
GREENWICH.									
D Deptford Pumping Station (+A)	London County Council....	8	1	0	18	24.9	22.29	136	105
D Royal Observatory.....	Sir F. W. Dyson, F.R.S....	8	0	5	149	23.5	24.93	161	100
D Westcombe Park Road.....	Rev. T. R. Price.....	8	1	3	154	..	23.66	182	100
LEWISHAM.									
D Forest Hill Reservoir.....	Met. Water Board.....	5	1	0	337	25.9	26.59	185	129
D Clarendon Road.....	G. E. Dacey, Esq.....	5	1	0	98	..	26.30	175	109
WOOLWICH.									
D Eltham (High Street).....	Met. Water Board.....	5	1	0	245	24.3	24.16	151	105
2.—THAMES.—Left Bank Tributaries. 50 sq. mi.									
KENSINGTON.									
D Harley Gardens.....	Mrs. Hamlyn Price.....	5	1	5	29	..	25.26	174	124
D Hoiland House.....	Mr. P. B. Rintoul.....	5	1	0	69	24.9	24.31	143	113
D Cam House Gardens.....	Lord Phillimore.....	5	3	0	100	..	23.27	139	105
D Campden Hill Reservoir.....	Met. Water Board.....	5	1	0	142	27.5	22.79	148	109
D Kensington Palace.....(+A)...	The Meteorological Office...	8	1	0	80	..	24.55	172	115
HAMMERSMITH.									
D The Creek.....	London County Council...	5	3	0	19	..	24.02	145	114
FULHAM.									
D Hammersmith Cemetery.....	R. J. Brown, Esq.....	5	1	0	17	..	23.31	143	104
D Bishops Park .....	(+A) A. F. Holden, Esq., C.E....	5	0	11	15	..	24.44	149	106

## DIVISION I—LONDON—(con.).

STATIONS.	AUTHORITIES.	Diam.	Rain-gauge				1931.		
			Height of		Average		Rain-fall.	Days with ·01 in. or more.	Days with ·04 in. or more.
			Rim	Ground	Ground	Rain-fall.			
			above	above	Sea Level.				
			in.	ft. in.	ft.	in.	in.		
<b>2.—THAMES.—Left Bank Tributaries—(con.).</b>									
<b>CHELSEA.</b>									
D Physic Garden.....	W. Hales, Esq.....	5	1 0	20	23·8	24·62	146	112	
D Oakley Street.....	A. Hampton Brown, Esq... 5	1 0	25	..	23·39	170	112		
D St. Luke's Gardens.....	W. R. Manning, Esq., C.E.. 5	1 0	25	24·9	23·53	165	111		
<b>WESTMINSTER.</b>									
D Western Pumping Station.....	London County Council... 8	1 0	19	23·5	21·72	143	104		
D King's Scholar's Pond P.S. ....	London County Council... 8	11 6	31	..	22·67	161	104		
D Buckingham Palace.....	Mr. A. J. Cole .....	5	8 0	35	24·9	23·34	155	111	
D Kensington Gardens.....	Prof. S. M. Dixon.....	5	1 0	78	..	23·70	145	112	
D St. James's Park.....(+A)...	The Meteorological Office ... 8	1 0	27	22·4	23·62	170	112		
D Spring Gardens.....	London County Council... 8	6 0	35	24·0	22·61	153	108		
<b>ST. MARYLEBONE.</b>									
<b>HAMPSTEAD.</b>									
D Barrow Hill Reservoir.....	Met. Water Board.....	5	1 0	175	25·2	24·93	163	122	
D Kidderpore Reservoir.....	Met. Water Board.....	5	1 0	328	24·8	24·15	124	103	
D Observatory.....	E. L. Hawke, Esq.....	8	1 0	450	..	27·08	225	122	
D Golders Hill Park.....	London County Council... 5	1 0	350	..	27·36	172	121		
<b>ST. PANCRAS.</b>									
D Camden Square.....(+A)...	Royal Meteorological Soc... 8	1 0	110	24·5	25·39	165	113		
D Camden Square.....Snowdon..	Royal Meteorological Soc... 5	1 0	110	24·5	25·39	165	113		
M Camden Square.....	Royal Meteorological Soc... 5	1 0	110	..	25·44	..	..		
<b>STOKE NEWINGTON.</b>									
D New River Filter Beds.....	Met. Water Board.....	5	1 3	101	24·6	24·08	146	111	
D New River Reservoirs.....	Met. Water Board.....	5	1 0	105	25·4	23·56	146	108	
<b>HACKNEY.</b>									
D Clapton Pond.....(+A)...	P. Holt, Esq., C.E.....	5	1 0	69	24·2	22·45	152	104	
<b>FINSBURY.</b>									
D New River Head.....	Met. Water Board.....	8	1 0	95	23·5	22·94	138	107	
<b>BETHNAL GREEN.</b>									
d Victoria Park.....	London County Council... 5	1 0	43	..	21·68	..	115		
<b>POPLAR.</b>									
D Isle of Dogs (Island Gardens)....	London County Council. 5	1 0	18	..	21·53	142	103		
D Old Ford Pumping Station.....	Met. Water Board.....	8	0 9	19	23·7	21·97	159	106	
D Old Ford (Penstock House) (+A) ..	London County Council... 8	1 0	43	23·6	22·53	143	103		
<b>WOOLWICH.</b>									
D N. Woolwich Pumping Stn. (+A) ..	London County Council... 8	0 9	12	22·9	21·71	125	103		
D Barking Outfall.....	London County Council... 8	0 9	9	21·8	22·17	149	105		

## DIVISION II—SOUTH-EASTERN COUNTIES

SURREY. (Area, 725 sq. mi.)

## 1.—ARUN. 45 sq. mi.

D Haslemere (Clammer Hill).....	Mrs. Glennie .....	5	1 6	400	35·8	32·11	169	124	
D Haslemere (Furnace Place) .....	F. J. Barlow, Esq.....	5	1 0	..	..	30·85	159	122	
D Haslemere (Grayshurst).....	C. W. Dixon, Esq.....	5	1 0	621	..	30·55	161	118	
D Hambledon (Rossall).....	L. R. Furneaux, Esq. ....	5	1 0	250	..	27·44	171	118	

## 2.—MEDWAY. 50 sq. mi.

D East Grinstead (Lockeridge).....	Lt.-Col. J. F. Forbes, D.S.O. 5	1 0	320	..	31·61	188	120		
D Dormans Park (Chartham Park) ..	I. D. Margary, Esq. ....	5	1 0	270	..	30·02	184	115	

## DIVISION II—SOUTH-EASTERN COUNTIES—(con.).

STATIONS.	AUTHORITIES.	Diam.	Rain-gauge			Average fall.	1931.		
			Rim	Height of	Ground		Rain-fall.	Days with	Days with
				above	above			or	or
				Ground.	Sea Level.			more.	more.
SURREY—(con.).		in.	ft. in.	ft.	in.	in.			
2.—MEDWAY—(con.).									
D Dormans Park (Hill Crest).....	Dr. H. R. Mill .....	5	1 0	320	..	31·67	166	118	
D Lingfield (Felcourt).....	R. McAlpine, Esq.....	5	1 3	225	..	27·16	166	119	
D S. Godstone (Hartsridge).....	F. E. Goad, Esq.....	5	0 10	450	..	29·67	174	123	
D Bletchingley (North Park Farm).....	H. C. Millen, Esq.....	5	1 0	300	..	31·47	178	129	
D Oxted (Stone Hall).....	W. P. Metcalfe, Esq.....	5	1 5	320	..	29·28	187	127	
D Oxted (West Heath).....	Norman W. Grieve, Esq....	8	1 2	500	..	31·11	177	130	
3.—THAMES—Darent. 22 sq. mi.									
Limpsfield (Kent Hatch Res.).....	A. E. Cornwall-Walker, Esq. 5	1 0	664	..	(29·30)	..	..	..	
D Westwood (Pumping Station).....	A. E. Cornwall-Walker, Esq. 5	1 0	418	..	28·77	166	118		
Tatsfield School.....	The Headmaster .....	5	1 3	741	..	34·67	..	..	
Chelsham (Ledgers).....	Mrs. H. A. Daniell.....	5	1 5	620	..	31·89	..	..	
D Farleigh (Croydon Ment. Hosp.).....	Croydon Corporation.....	8	1 0	100	..	30·16	145	126	
Chelsham (Fairchildes).....	A. S. Daniell, Esq.....	5	0 8	600	33·7	28·49	..	..	
D Addington (Hares Bk. Pump. Sta.).....	Croydon Corporation.....	8	1 0	331	..	29·73	190	137	
D Addington Hills Reservoir.....	Croydon Corporation.....	8	1 0	472	29·4	27·48	153	128	
D Norwood (Auckland Road).....	Miss J. Cooper.....	5	1 5	230	23·7	25·48	157	109	
4.—THAMES—Wandle. 71 sq. mi.									
D Kingswood (Margery Hall Res.).....	W. Vaux Graham, Esq., C.E. 5	1 0	691	..	29·82	174	128		
M Woldingham Reservoir ( <i>New G</i> ).....	A. E. Cornwall-Walker, Esq. 5	1 0	841	..	34·11	..	..		
D Caterham Reservoir.....	A. E. Cornwall-Walker, Esq. 5	1 0	704	34·6	31·80	194	129		
D Caterham Valley (Croydon Rd.).....	A. M. Worfolk, Esq.....	5	6 0	435	..	35·78	175	130	
D Tadworth (Glade House).....	W. J. Saunders, Esq.....	5	1 0	545	..	30·57	192	134	
D Chelsham & Woldingham W.W.....	A. E. Cornwall-Walker, Esq. 5	1 0	479	..	31·81	177	130		
D Woldingham (Marden Park).....	J. F. N. Grange, Esq.....	5	1 0	500	..	34·61	178	131	
D Caterham Valley Depot.....	A. E. Cornwall-Walker, Esq. 5	1 0	431	..	33·26	196	134		
d Warlingham (Council School).....	W. P. Jeal, Esq.....	5	1 0	600	..	(27·80)	..	..	
d Coudsdon (Netherne Ment. Hosp.).....	The Clerk and Steward....	8	0 10	540	..	29·89	170	119	
D Banstead (Burgh Heath).....	Capt. E. R. Taylor.....	5	1 0	571	32·6	29·90	170	132	
D Banstead (Burgh Heath Res.).....	W. Vaux Graham, Esq., C.E. 5	1 0	570	32·7	28·61	176	127		
M Chipstead (How Green Res.).....	W. Vaux Graham, Esq., C.E. 5	1 0	528	..	30·26	..	..		
D Kenley Pumping Station.....	A. E. Cornwall-Walker, Esq. 5	1 0	275	..	28·72	174	128		
Coudsdon (The Chase).....	J. H. Lowe Esq.....	5	0 6	400	..	28·61	180	131	
D Coudsdon (Marlipit Lane).....	Charles Knight, Esq.....	5	0 6	350	..	30·50	183	128	
D Banstead Mental Hospital .....	S. J. Wray, Esq.....	5	5 0	410	..	25·62	183	127	
d Purley (Council Offices) .....	The Surveyor.....	5	1 0	225	..	25·88	..	..	
D Purley (Selcroft Road)† .....	E. W. Finch, Esq.....	5	1 0	380	..	27·49	186	124	
D Purley (Pumping Station).....	A. E. Cornwall-Walker, Esq. 5	1 0	214	30·1	28·69	186	126		
D Purley (Green Lane).....	E. E. Bluett, Esq.....	5	1 0	341	..	27·56	169	123	
D Purley (Hillcrest Road).....	W. J. Fisher, Esq.....	8	1 6	340	..	29·37	192	128	
D Croydon Aerodrome.....	(+A) The Meteorological Office... 8	1 0	217	26·7	25·83	168	114		
D South Croydon (Avondale Road).....	G. Macdonald Davies, Esq. 5	1 0	195	29·4	27·35	194	125		
d South Croydon (Harewood Rd.).....	Mrs. Morland.....	6	0 8	300	..	25·65	..	117	
d Carshalton (Sewage Works).....	Surveyor, U.D.C.....	5	1 0	118	25·9	28·19	162	116	
d Carshalton (The Grove).....	H. J. Spicer, Esq.....	5	1 0	129	..	27·54	..	118	
d Wallington (Boys' County School).....	The Headmaster.....	5	1 0	155	..	24·57	..	..	
D Beddington (Sewage Farm).....	Croydon Corporation.....	5	1 0	129	..	23·31	172	115	
D Croydon (Northampton Road).....	Mrs. Higgins.....	5	1 0	210	..	26·65	160	119	
D Wimbledon (Trinity Road).....	P. J. Bevan, Esq., C. E.....	5	1 0	53	..	26·27	139	114	
D Wimbledon (Compton Road).....	G. H. Cheesman, Esq.....	5	1 6	80	..	25·77	164	111	
D Wimbledon (Sewage Pmp. Sta.).....	T. Webster, Esq., C.E.....	5	1 0	55	..	24·59	143	102	
5.—THAMES—Mole & c. 220 sq. mi.									
D Horley (Wrays).....	A. R. Allcroft, Esq. ....	5	1 0	290	..	31·05	154	139	
D Outwood (The Orchards).....	H. Gurney, Esq.....	5	1 0	274	26·0	29·79	175	124	
D Dorking (Bramerton).....	Rev. Jas. F. Twist.....	5	1 0	300	..	32·21	164	122	
D Dorking (Denbies).....	Mr. J. Ansell.....	5	0 6	610	32·2	31·12	147	..	
d Brockham.....	H. R. Kempe, Esq., C.E.....	8	0 9	180	31·2	29·95	..	114	

†Station formerly called Purley (Oakwood Avenue).

## DIVISION II—SOUTH-EASTERN COUNTIES—(con.).

STATIONS.	AUTHORITIES.	Diam.	Rain-gauge				1931.		
			Height of		Average		Rain-fall.	Days with ·01 in. or more.	Days with ·04 in. or more.
			Rim	Ground	above	Rain-fall.			
			above	Sea Level.	above				
			Ground.						
			in.	ft. in.	ft	in.	in.		
SURREY—(con.).									
5.—THAMES—Mole & c.—(con.).									
d Betchworth (Snower Hill).....	T. DuBuisson, Esq.....	8	0 11	250	..	29·93	160	133	
South Nutfield (Hale Edge).....	Mrs. B. Grant .....	5	1 0	250	28·7	(28·53)	..	..	
d Earlswood (Sewage Farm).....	G. G. Sanderson, Esq., C.E..	5	1 6	196	..	28·66	158	120	
d Reigate (Hill-top Road).....	H. E. Irving Taylor, Esq....	5	0 10	375	..	28·55	170	120	
d Redhill (London Road).....	A. E. Cornewall-Walker, Esq.	5	1 6	270	..	29·66	171	124	
d Reigate (Woodcote).....	Herbert Crosfield, Esq., J.P.	5	0 10	310	..	29·44	175	123	
d Reigate (Wray Park Road).....	W. J. MacAndrew, Esq.....	5	1 0	330	28·9	29·83	174	121	
d Reigate (Castle Grounds).....	G. G. Sanderson, Esq., C.E..	5	1 0	350	30·4	29·92	191	126	
d Reigate (Thurso).....	F. S. Smith, Esq.....	8	1 0	270	..	28·24	151	108	
d Nutfield (Elstree) new g.....	D. Morphew, Esq.....	5	1 0	430	..	30·30	182	121	
d Bletchingley (South Park Fm)...	Uvedale H. Lambert, Esq....	5	1 0	340	31·4	28·37	..	109	
d Mersham (Gatton Point).....	C. F. Bull, Esq.....	5	1 0	300	..	29·38	187	122	
Effingham	A. E. Cornewall-Walker, Esq..	5	1 0	363	..	27·76	..	..	
d Gatton (The Cottage).....	J. F. E. Goad, Esq.....	5	0 11	434	..	28·41	204	135	
d Headley Rectory.....	Rev. T. E. R. Phillips.....	5	1 0	570	..	29·61	186	122	
d Headley (The Hurst).....	Mrs. Lyall.....	5	1 3	420	32·2	28·59	159	111	
d Walton-on-the-Hill.....	Mr. J. Millchamp.....	5	1 0	600	31·7	29·50	191	127	
d Fetcham W.W.....	A. E. Cornewall-Walker, Esq.	5	1 0	102	..	27·63	173	121	
d Leatherhead (Dunard Lodge).....	G. R. Crompton, Esq.....	8	1 0	233	..	27·88	178	117	
d Leatherhead (Windfield).....	Mrs. Still.....	5	1 5	250	..	27·82	..	118	
d Tadworth.....	C. H. L. Blaxland, Esq.....	5	1 4	600	..	30·27	211	156	
d Epsom College.....	S. A. Weare, Esq.....	8	1 6	300	..	26·06	..	..	
d Epsom (Sewage Farm).....	E. G. Timbrell, Esq., C.E....	8	1 0	120	25·4	27·72	180	115	
d Whiteley Village (Fox Oak).....	H. E. Cooke, Esq.....	8	3 4	195	..	24·65	169	115	
d Cobham (Uplands).....	R. S. Morrish, Esq.....	5	0 6	180	..	26·97	..	121	
d Cobham (Sandroyd School).....	C. St. John Shortt, Esq....	5	1 6	120	..	23·75	..	..	
Weybridge (St. George's Hill).....	Mrs. Buckley.....	5	0 10	200	..	25·30	..	..	
d Sutton (Camborne Road).....	F. Alan Wright, Esq.....	5	1 0	250	29·3	25·79	175	113	
d Claygate (Hertslets).....	N. C. Armitage, Esq.....	5	1 0	106	..	25·67	193	117	
d Esher (Halidon).....	D. H. Baird, Esq., C.B.E....	5	1 5	114	..	28·32	180	118	
d Sutton (Waterworks).....	W. Vaux Graham, Esq., C.E..	5	1 6	166	26·0	25·79	161	115	
d Sutton (Sewage Works).....	W. H. Grieves, Esq., C.E....	5	2 5	99	28·8	24·70	146	103	
d Worcester Park (Kingsmead Ave.)	Spencer Russell, Esq.....	5	1 0	108	..	27·00	188	112	
d Worcester Park (Sewage Works)...	W. H. Grieves, Esq., C.E....	5	3 0	60	..	26·48	..	106	
d Surbiton (Seething Wells).....	Met. Water Board.....	5	0 10	34	24·9	26·09	155	117	
d Surbiton (Effingham Road).....	K. G. Willis, Esq.....	5	1 1	35	..	25·91	189	116	
d West Molesey (Walton Works)...	Met. Water Board.....	5	0 6	35	23·5	22·57	153	110	
d New Malden (Dunbar Road).....	J. W. Harris, Esq.....	5	1 0	50	..	26·72	161	122	
d New Malden (Sewage Works)....	R. H. Jeffes, Esq., C.E....	5	1 0	48	23·4	24·90	157	119	
d Kingston (County Hall).....	H. Wilson, Esq.....	5	0 9	31	26·0	24·52	..	101	
d Kingston (Grammar School).....	The Headmaster.....	5	1 0	34	..	24·34	149	105	
d Kingston Sewage Works.....	P. G. Lloyd, Esq.....	5	1 0	25	27·9	24·38	158	112	
d Merton Park (Mostyn Rd.).....	A. T. Bench, Esq.....	5	1 0	55	..	28·05	186	113	
d Merton Park (Innes Hort. Inst.)...	Garden Superintendent.....	5	1 0	55	..	25·84	157	108	
d Merton (Joseph Hood Rec. Gd.)...	The Engineer.....	5	1 0	48	..	26·36	156	109	
d Raynes Park (C. School).....	The Headmaster.....	5	1 0	50	..	28·83	164	119	
d Raynes Park (Cottenham Pk P.S.)	T. Webster, Esq., C.E....	5	1 2	50	24·9	26·12	148	107	
d Raynes Park (Richmond Road)...	W. B. de Winton, Esq.....	5	1 0	70	..	28·88	185	131	
d Wimbledon (Worple Road).....	N. Lang Smith, Esq.....	5	1 0	75	..	27·14	176	116	
d Richmond (Terrace Gardens).....	G. Humphreys, Esq.....	5	1 6	25	24·9	23·69	157	109	
d Richmond (Kew Observatory) (+A)	The Meteorological Office...	8	1 0	18	23·8	23·82	156	111	
d Mortlake (Hammersmith Cem.)...	R. J. Brown, Esq.....	5	1 0	23	..	23·55	150	106	
d Kew (Royal Botanic Gardens)....	The Director.....	8	0 9	20	..	23·61	145	106	
d Barnes (Barn Elms).....	Met. Water Board.....	5	1 0	16	..	24·06	152	116	
6.—THAMES—Wey. 236 sq. mi.									
d Haslemere (U.D.C. Depot).....	A. G. Whitcher, Esq.....	5	1 0	475	36·2	34·02	165	126	
d Haslemere (U.D.C. Sewage Works)	A. G. Whitcher, Esq.....	5	1 0	414	..	33·27	176	132	
d Haslemere (Frensham Hall Gdns.)	H. Windibank, Esq.....	5	2 0	750	..	34·41	181	134	
d Haslemere (Frensham Hall Farm)	H. Windibank, Esq.....	5	1 0	600	37·4	32·72	180	126	
d Hindhead (Littledale).....	F. Harrison, Esq.....	5	1 0	770	..	32·32	155	129	
d Oakwood Hill (Honeywood Ho.)...	The Lady Tredegar.....	5	1 0	280	..	29·68	195	130	
d Witley (King Edward's School)...	E. Townsend, Esq.....	5	1 0	300	..	28·03	174	121	
d Witley (King George V. Sanatm.)	Dr. J. Watt.....	5	1 0	305	..	28·53	164	130	

## DIVISION II—SOUTH-EASTERN COUNTIES—(con.).

STATIONS.	AUTHORITIES.	Diam.	Rain-gauge			Average Rain-fall.	1931.					
			Height of Rim above Ground.	Ground above Sea Level.	Rain-fall.		Rain-fall.	Days with .01 in. or more.	Days with .04 in. or more.			
SURREY—(con.).					in.	ft. in.	ft.	in.	in.			
6.—THAMES—Wey—(con.).												
D Churt (Furze Hills).....	Rev. C. G. O. Bond, M.A....	5	1	6	390	..	30.99	183	137			
D Churt (Bron-y-dé).....	Rt. Hon. D. Lloyd George....	8	1	11	350	..	30.26	189	126			
D Hascombe Place.....	C. T. Musgrave, Esq.....	5	1	0	390	33.5	31.14	177	125			
D Cranleigh (Homefield Cottage)....	W. S. Sarel, Esq., C.B.....	5	1	9	180	..	27.32	164	121			
D Cranleigh (Ruffold Lodge).....	R. H. Pearce, Esq.....	5	1	3	..	..	26.16	183	122			
D Godalming (Hascombe).....	Mrs. Francis Howard.....	5	1	0	390	..	29.57	169	129			
D Ewhurst (Coneyhurst).....	Col. R. J. Few, D.S.O.....	8	1	0	607	33.7	29.19	163	128			
D Ewhurst (The Four Winds).....	Miss E. Brooke.....	5	1	0	809	..	30.74	173	129			
D Ewhurst (Woolpits).....	Mr. W. Harrison.....	8	1	6	600	32.8	32.09	..	128			
D Frensham (Spreakley Hollow).....	A. R. Crossley, Esq.....	5	1	0	200	..	28.85	169	121			
D Godalming (Munstead Heath).....	A. M. P. Hodson, Esq.....	5	1	0	450	..	28.27	..	120			
D Godalming (Greylees).....	A. Ewan, Esq.....	5	1	0	150	..	25.39	..	113			
D Godalming (Westbrook).....	T. Turner, Esq.....	5	1	0	280	..	25.46	..	..			
D Godalming (Charterhouse).....	O. H. Latter, Esq.....	5	1	0	130	29.2	25.48	174	116			
D Shackleford (Hall Place).....	Mr. E. Nash.....	8	1	2	200	..	26.93	153	122			
D Peaslake (Dewdney).....	Norman Temple, Esq.....	5	1	0	532	..	28.88	..	..			
D Bramley (Wood View).....	Rev. C. J. Ety.....	5	1	0	135	..	27.29	150	124			
D Abinger Hill School.....	B. R. Delap, Esq.....	5	1	0	670	..	31.36	170	131			
D Shere (Manor House).....	R. A. Bray, Esq.....	5	1	0	330	..	27.92	191	115			
D Shere (The Rectory).....	Rev. Sir P. M. Bowman, Bt. 5	5	1	3	200	..	26.15	..	..			
D Albury (Dalton Hill Gardens).....	Mr. J. Tidy.....	5	1	0	250	..	27.74	..	..			
D Abinger Hall.....	Lord Farrer.....	8	1	0	360	36.5	32.57	215	131			
D Farnham (Crooksbury Ridges).....	F. R. Walters, Esq., M.D....	5	1	4	440	31.0	29.23	215	129			
D Farnham (Short Heath Lodge).....	Col. G. Chrystie.....	5	1	0	365	30.1	29.01	177	130			
D Farnham (Bourne Corner).....	Miss I. M. Deedes.....	5	1	0	365	..	28.01	157	126			
D Guildford (Pilgrim Wood).....	H. A. Powell, Esq., M.D....	5	1	0	320	..	25.19	158	113			
D Guildford (Briarfield).....	Miss L. B. Swaine.....	5	1	0	300	29.7	25.83	157	119			
D Guildford (Pewley Hill).....	Miss H. S. Pitman.....	5	1	0	365	..	27.69	215	125			
D Guildford (West Mount).....	Miss M. E. Powell.....	5	1	0	220	..	26.26	171	111			
D Guildford (Kilvington).....	Miss Meynell.....	5	1	0	300	..	(24.94)	..	..			
D Guildford (Cross Lanes).....	F. F. Smallpiece, Esq.....	5	1	7	200	28.6	25.47	165	119			
D Normandy (The Manor House).....	E. S. Hose, Esq., C.M.G....	5	1	4	149	..	25.91	160	119			
D Merrow (Stoodwell).....	S. Eustace, Esq.....	5	0	10	250	..	25.31	..	..			
D East Clandon (Hatchlands).....	F. A. Akers, Esq.....	5	1	0	340	..	27.33	178	125			
D West Clandon.....	W. Fidkin, Esq., C.E.....	8	1	0	319	..	26.68	165	119			
D Worplesdon (Openwood).....	D. H. Welch, Esq.....	5	0	8	160	..	26.86	147	114			
D Worplesdon (Golf Club).....	R. Goring Thomas, Esq....	5	1	6	168	..	25.46	146	110			
D Send (Woodside).....	G. M. Osborne, Esq.....	8	0	10	146	..	25.28	169	120			
D Sutton Green (Pyle Hill).....	Capt. S. Price-Williams....	5	1	6	140	..	25.55	148	112			
D Ripley (Ripley Court).....	Captain C. M. H. Pearce....	5	1	5	88	..	26.30	173	111			
D Woking (The Grange).....	Miss M. E. Wilson.....	5	1	0	78	26.1	27.21	197	133			
D Woking (Westfield).....	Vernon B. Longhurst, Esq..	5	1	0	100	..	26.38	178	120			
D Woking (Hook Heath).....	W. S. Patterson, Esq.....	5	1	0	160	..	25.95	..	119			
D Ockham School.....	The Head Teacher.....	5	1	0	70	..	(24.41)	..	..			
D Woking (The Green).....	Mrs. G. E. Howlett.....	5	0	9	122	..	25.93	173	114			
D Woking (Goldsworth).....	Mrs. S. Slocock.....	5	1	4	110	..	27.96	..	..			
D Horsell (The Vicarage).....	Rev. Canon Norman Pares..	5	1	1	140	..	23.65	..	..			
D Wisley (R.H.S. Gardens).....	Royal Horticultural Soc....	8	1	0	150	24.1	24.50	180	113			
D Wisley (Outfall Works).....	Capt. H. Beeney.....	5	1	0	55	..	24.88	166	123			
D Byfleet (West Hall Gardens).....	Mr. G. Carpenter.....	5	2	0	63	..	24.06	140	112			
D West Byfleet (Kilmeena).....	F. Littleboy, Esq.....	5	1	0	100	..	25.15	155	109			
D West Byfleet (Starcross).....	Walter W. Way, Esq.....	5	1	0	110	..	25.59	154	111			
D West Byfleet (Scotland Bridge)....	Capt. H. Beeney.....	5	1	0	69	..	23.11	(145)	(104)			
D Weybridge (St. Michael's).....	H. I. Bond, Esq.....	5	1	0	115	..	25.44	180	116			
D Weybridge (Oil Mills).....	A. Whittet, Esq.....	5	1	0	36	24.1	22.12	164	110			

## DIVISION II—SOUTH-EASTERN COUNTIES—(con.).

		Rain-gauge				1931.		
STATIONS.	AUTHORITIES.	Diam.	Height of		Average	Rain-fall.	Days with	Days with
			Rim	Ground	Rain-fall.		·01 in.	·04 in.
			above	above			or	or
			Ground.	Sea Level.			more.	more.
SURREY—(con.).								
		in.	ft.	in.	ft.	in.		
7.—THAMES—Bourne. 55 sq. mi.								
d Bisley School	W. B. Paddock, Esq.	5	1	4	125	..	26·44	161
d Knap Hill (Ulundi)	G. C. H. Simmonds, Esq.	5	1	0	181	..	22·28	153
d Knap Hill Nurseries	Donald Waterer, Esq.	5	1	0	105	..	(25·58)	..
d Chobham (Sandpit Hall)	K. H. Power, Esq.	5	1	0	100	26·7	25·21	166
d Chobham (West End)	F. A. Walter, Esq.	5	1	0	150	..	27·18	190
d Bagshot (Charlton)	W. Perry, Esq.	5	0	10	215	..	26·75	154
d Bagshot	J. Waterer Sons & Crisp, Ltd.	5	1	0	265	..	24·29	..
d Windlesham (Windlesham Ho.)	R. Adml. A. Cochrane, C.M.G.	5	1	0	200	..	27·92	182
d Chertsey (Botleys Park)	Mr. H. Whitmarsh	5	1	5	111	..	24·61	163
d Upper Childown (Long Cross H.)	Miss C.M. Leicester-Penrhyn	5	1	0	200	..	26·15	201
d Sunningdale (Hilltop)	E. F. Cecil, Esq.	5	1	0	280	..	26·72	..
d Chertsey (Abbey Meads)	W. Fiddin, Esq., C.E.	8	1	0	53	..	21·92	160
d Virginia Water (S. Ann's Heath)	H. Y. Summons, Esq.	8	1	1	120	25·4	25·28	..
d Egham (Kingswood Sch.)	Mother H. C. Martindale	5	1	0	250	..	23·91	..
8.—THAMES—Lodden. 17 sq. mi.								
d Frimley Green Waterworks	S. G. Weller, Esq.	5	0	7	220	24·6	24·41	..
d Frimley Green (Ridgemount)	C. C. Haviland, Esq.	5	0	9	350	29·1	28·00	216
d Camberley (Way's End)	E. Ernest Green, Esq.	5	0	11	295	..	26·21	159
d Camberley (Cordwalles)	C. H. Ledward, Esq.	5	1	0	400	..	25·63	164
KENT. (Area, 1,532 sq. mi.)								
1.—ROTHER & C. 217 sq. mi.								
d Dungeness	The Meteorological Office	8	0	11	20	..	22·22	152
d Lydd (The Paddock)	Dr. J. A. Proctor	5	1	0	10	..	24·64	179
d Lydd (Westbroke House)	A. G. Finn, Esq., J.P.	5	1	0	10	..	23·15	..
d Brookland (Thrift Farm)	C. Clark, Esq.	12	3	0	11	..	23·30	..
d Dymchurch (Grove House)	R. S. Jones, Esq.	5	1	0	8	..	22·39	173
d Dymchurch (Hoornes)	Mrs. Paddock	5	1	0	9	..	22·91	..
d Appledore (The Well House)	Dr. F. W. Cock	5	1	0	23	..	23·04	149
d Hawkhurst (Moor House)	F. S. Springett, Esq.	5	1	0	208	..	28·49	..
d Hawkhurst (Hensill)	Mrs. F. Ross Thomson	5	1	0	180	30·5	30·08	178
d Kenardington (The Firs)	Cmdr. F. H. Lyon, D.S.O.	5	1	2	65	..	21·25	151
d Tenterden (Ashenden)	Major Herbert Neve	5	1	0	190	27·5	24·92	146
d Benenden (National Sanat'm)	H. Spurrier, Esq., M.B.	5	1	0	250	..	25·63	154
d Hythe	M. J. Harvey, Esq., C.E.	5	0	9	12	28·0	25·80	165
d Hythe (Douglas Avenue)	W. H. Elder, Esq.	5	1	0	33	..	24·13	160
d Hythe (Sandling Park)	Rt. Hon. L. Hardy	8	1	0	260	30·4	27·93	165
d Sandgate	J. A. Woodgate Esq., C.E.	5	1	0	60	..	25·52	179
d Folkestone (Radnor Park West)	H. D. Seth-Smith, Esq.	5	1	0	200	..	27·11	163
d Folkestone (Borough Sanat'm)	H. O. Jones, Esq., C.E.	5	1	0	101	28·6	26·56	160
d Folkestone (Cherry Gardens)	The Engineer	5	1	6	230	29·1	27·34	178
d Dover (Waterloo Crescent)	W. B. Smith, Esq., C.E.	8	1	0	22	..	26·42	164
d Dover (Waterworks)	W. B. Smith, Esq., C.E.	5	1	6	200	30·0	24·72	156
d Dover (Buckland)	Guy Mannering, Esq.	8	1	6	50	..	29·11	..
d Dover (Barton Road)	(+A) Cyril G. W. Lewis, Esq.	5	1	0	55	..	28·32	180
d Kearsney (Chilton Farm)	W. B. Smith, Esq., C.E.	5	1	6	127	33·5	30·94	173
2.—STOUR & C. 386 sq. mi.								
Lympne Aerodrome	(+A) The Meteorological Office	8	1	0	346	28·5	24·65	..
d Lympne Aerodrome	The Meteorological Office	8	1	0	346	..	24·90	174
d Sellindge (Council School)	S. H. Serpell, Esq.	5	1	0	200	..	25·75	162
d Smeeth School	W. H. Wetherell, Esq.	5	1	0	300	..	24·46	211
d Lyminge (Elham Valley W.W.)	Phillip Harris, Esq.	5	1	6	445	..	30·34	183
d Swingfield (St. John's)	Legh S. Powell, Esq.	5	1	0	500	..	31·41	179
d Ashford	B. H. Headley, Esq.	5	1	0	190	..	26·65	180
d Ashford (Albert Road)	A. E. Brounger, Esq.	5	1	0	185	..	25·24	178
d Elham (Bladbean Farm)	Capt. T. L. Wall	5	0	9	459	..	30·70	..

## DIVISION II—SOUTH-EASTERN COUNTIES—(con.).

STATIONS.	AUTHORITIES.	Diam.	Rain-gauge			Average Rain-fall.	1931.		
			Height of		Rain-fall.		Rain-fall.	Days with .01 in. or more.	Days with .04 in. or more.
			Rim above Ground.	Sea Level.					
KENT—(con.).							in.		
2.—STOUR & C.—(con.).							in.		
Dover (Martin Mill Pump. Stat.)	F. L. Ball, Esq.	5	1	0	287	..	26.69	167	121
Elham (Domel)	J. Hill, Esq.	5	1	6	459	..	31.07	162	135
Wye (Agricultural College)	Capt. A. H. Bird	5	1	0	164	..	25.20	155	119
Waldershare Rectory	Rev. H. Saumarez Smith	5	1	0	275	..	27.99	174	122
Waldershare Park Gardens	J. Haggett, Esq.	8	1	0	250	33.2	28.22	152	127
Shepherdswell (Upton Lodge)	Rutley Mowll, Esq.	5	1	0	300	..	29.08	171	130
Boughton Aluph (Fairlawn)	E. Simmons, Esq.	5	1	3	220	..	24.53	180	116
Charing Pumping Station	F. L. Ball, Esq.	5	1	0	295	..	27.06	159	118
Charing (Pett Place) new g.	Brig.-Gen. T. M. S. Pitt	5	1	0	350	..	27.83	173	121
Deal and Walmer W.W.	A. Mantle, Esq.	5	1	0	110	28.0	25.13	169	122
Barham Pumping Station	F. L. Ball, Esq.	5	..	..	173	..	26.85	170	117
Deal (Wellington Road)	Town Clerk	5	1	0	25	..	22.29	142	111
Worth (Upton House)	Capt. W. Elwin Napier	5	1	0	32	27.7	24.77	149	110
Worth (Felder Lodge)	J. S. Campbell, Esq.	5	0	10	26	..	22.93	169	114
Wingham (Margate W.W.)	Mr. J. H. Parker	5	1	0	138	28.7	24.42	165	116
Chilham (Lower Ensden)	F. Ivo Neame, Esq.	5	3	0	305	..	25.14	..	..
Wingham Boys' School	The Headmaster	5	0	6	50	..	23.56	159	124
Canterbury (Medical Hall)	A. Lander, Esq.	5	1	0	124	..	23.52	154	110
Canterbury (London Road)	Miss B. Spillett	5	1	0	66	28.7	26.44	166	122
Canterbury (Irrigation Works)	C. Terry, Esq., C.E.	5	2	6	15	27.5	27.88	172	123
Canterbury (Rough Common)	A. W. Wood, Esq.	5	1	0	285	..	25.41	..	118
Ramsgate (East Cliff)	Borough Engineer	8	1	0	80	24.0	20.21	170	103
Ramsgate (Archer House)	Miss E. F. Baker	5	1	0	75	..	21.36	168	111
Birchington (Acol Farm)	C. S. Willett, Esq.	5	2	3	30	..	21.22	169	115
Reculver	Allington Collard, Esq.	5	5	2	27	21.8	18.14	..	..
Broadstairs (Domus)	Capt. W. B. Marling	8	1	0	60	..	22.57	..	113
Broadstairs (Collis Court Road)	A. Watkins, Esq.	5	1	0	120	..	22.48	181	117
St. Peter's (Hildersham House)	H. Hurd, Esq., C.E.	5	0	9	140	23.7	25.50	150	123
Birchington (Hollydene)	W. Tomlin, Esq., Junr.	5	6	0	75	..	19.74	..	104
Margate (Cliftonville)	Town Clerk	5	1	0	51	22.8	20.40	145	98
3.—SWALE & C. 167 sq. mi.									
Selling (Grove House)	F. Ivo Neame, Esq.	5	1	5	330	..	25.07	151	110
Selling (Luton)	F. Ivo Neame, Esq.	5	4	9	263	30.4	25.20	154	115
Sittingbourne (Torry Hill)	D. Leigh Pemberton, Esq.	5	1	0	497	..	27.58	176	119
Ospringe (Queen Court)	L. H. Finn, Esq.	8	1	3	50	..	25.94	142	120
Ospringe (Lorenden)	L. H. Finn, Esq.	5	1	6	175	27.2	22.02	161	107
Faversham (Portway)	C. Gordon Neame, Esq.	5	3	6	180	..	23.41	157	121
Faversham (London Road)	C. T. Hooper, Esq.	5	..	..	50	..	23.36	182	107
Teynham (Norton Court)	A. L. Mercer, Esq.	5	1	6	90	..	24.31	145	114
Teynham (New Gardens)	Mrs. Honeyball	5	1	5	30	24.5	21.92	173	110
Graveney Marshes	L. H. Finn, Esq.	8	2	3	6	..	18.27	..	..
Milton Regis (Sewage Works)	Sittingbourne U.D.C.	5	1	1	19	..	22.10	147	114
Herne Bay (Waterworks)	J. Roberts, Esq.	5	1	0	130	22.8	19.19	..	..
Sheppey (Eastchurch Parsonage)	H. C. Warren, Esq.	5	1	0	100	22.9	19.66	..	101
Sheerness	Dr. W. C. D. Hills	5	1	0	9	..	22.76	142	105
4.—MEDWAY. 506 sq. mi.									
Bedgebury Park Gardens	Mr. H. Arnold	5	1	0	280	..	29.72	..	116
Kilndown School	J. A. Ager, Esq.	5	1	3	365	..	26.66	..	115
Scotney Castle	E. W. Hussey, Esq.	5	3	9	203	26.8	25.59	157	110
Cranbrook (Little Glassenbury)	J. I. Stirling, Esq.	5	0	10	360	..	27.60	174	112
High Halden (Middle Quarter)	Mrs. J. E. Budding	5	1	0	114	..	24.04	..	..
Goudhurst (Gore Court)	J. A. Druce, Esq.	5	1	0	197	30.3	25.91	145	118
Tunbridge Wells (Hawkenbury)	D. W. Horner, Esq.	5	1	6	435	..	30.30	174	123
Tunbridge Wells (Rusthall Grange)	A. G. Robins, Esq.	5	1	0	440	..	29.04	175	125
Tunbridge Wells (Langton Green)	Miss E. M. Pott	5	1	0	420	..	28.49	202	128
Tunbridge Wells (Calverley Park)	Dr. F. C. Linton	5	1	0	355	27.0	28.61	178	121
Tunbridge Wells (Calverley Pk.)	Dr. F. C. Linton	5	1	0	354	..	28.52	177	118
new site									
Tun. Wells (The White House)	Miss Monica G. Robins	5	1	6	350	..	30.28	171	135

## DIVISION II—SOUTH-EASTERN COUNTIES—(con.).

STATIONS.	AUTHORITIES.	Diam.	Rain-gauge			Average Rain-fall.	1931.		
			Rim above Ground.	Height of above Sea Level.	Ground.		Rain-fall.	Days with or more.	Days with or more.
KENT—(con.).			in.	ft. in.	ft.	in.	in.		
4.—MEDWAY—(con.).									
Tunbridge Wells (Sherwood Park)	Mr. R. G. Ellis	5	1	0	475	..	27-24	..	..
d Matfield (Kings Mead)	Henry Hills, Esq.	5	1	6	390	..	28-33	..	..
d Brenchley (The Warren)	Dr. Carl Langer	5	0	6	270	..	26-91	164	121
d Speldhurst Rectory	Rev. Canon H. Masters	5	0	10	334	..	27-69	171	124
d Pembury (The Spring)	Miss A. P. Fowler	5	1	0	416	..	31-01	174	141
d Pembury Waterworks	W. H. Maxwell, Esq., C.E.	8	1	8	197	..	26-70	157	114
Southborough (Tentergarth)	Miss E. Powell	5	0	11	421	..	27-99	..	..
d Markbeech (Edells)	Miss M. F. Pearse	5	1	0	320	..	28-30	183	118
d Edenbridge (Falconhurst)	Hon. Mr. Justice Talbot	5	1	6	375	30-7	29-90	174	120
d Edenbridge (Stonewall Park)	E. G. B. Meade-Waldo, Esq.	5	1	1	344	..	27-54	168	120
d Edenbridge (Girledge)	J. Mavrogordato, Esq.	5	1	0	400	..	29-53	170	120
d Edenbridge (Hever Castle)	Mr. A. McCutcheon	5	1	0	200	..	28-40	162	112
d Headcorn (Upalung)	R. S. Hartree, Esq.	5	1	3	100	..	23-32	154	106
d Pluckley (Brick Works)	Guy G. Davies, Esq.	5	1	6	112	..	23-54	188	115
d Penshurst Place	Lord De L'Isle and Dudley	5	1	0	120	..	29-86	190	119
d Penshurst (Parkholt)	J. M. Sturgess, Esq.	5	0	9	265	..	26-25	..	115
d Tonbridge (Mabledon Park)	J. F. W. Deacon, Esq.	5	1	6	190	..	26-72	168	113
d Tonbridge (Ingleside)	A. H. Neve, Esq.	5	1	1	160	..	25-87	177	118
d Hildenborough (Gailes)	E. E. Roper, Esq.	5	1	0	159	..	26-93	161	116
d Hildenborough (Hollanden Ho.)	C. H. Scott, Esq.	8	1	0	99	..	27-42	194	118
d East Peckham (Central Stores)	W. H. Pearson, Esq.	8	1	0	48	..	24-24	..	109
d Langley (Rumwood Court)	Mr. W. J. Gould	5	1	9	354	..	24-59	190	112
d Harrietsham (Dun Akyune)	C. Mackinnon, Esq.	5	1	4	400	..	28-08	..	124
d Lenham	D. F. Tysoe, Esq.	5	1	6	400	..	27-30	162	114
d Nettleshead (Old Quarry)	W. Pye-English, Esq.	5	1	0	286	..	25-82	181	119
d Otham (Synyards)	Ambrose Boyson, Esq.	5	1	0	315	..	26-20	217	121
d Sevenoaks (River Hill) old g.	Lt.-Col. J. M. Rogers, D.S.O.	8	1	6	500	27-1	27-57	..	120
d Sevenoaks (River Hill) new g.	Lt.-Col. J. M. Rogers, D.S.O.	5	1	0	500	30-0	30-80	..	122
d Hollingbourne (Elsfield House)	Col. A. H. W. Grubb, C.M.G., D.S.O.	5	1	4	175	..	25-23	180	127
d Hollingbourne (Penn Court)	S. Lucy, Esq.	5	1	1	261	..	26-89	174	121
d Maidstone W. W. (Barming)	C. H. Harden, Esq., C.E.	5	1	4	245	..	22-81	159	109
d Wrotham Heath (Huntsman's Ldge)	G. B. Kershaw, Esq.	5	1	9	284	..	30-19	153	113
d Maidstone (Mill Street)	T. F. Bunting, Esq.	8	6	0	37	..	24-32	177	113
d Maidstone (Brenchley Gardens)	T. F. Bunting, Esq.	5	0	9	49	..	24-46	159	120
d East Malling (Belvidere)	Oliver I. L. Bird, Esq.	..	..	..	220	..	(23-59)	..	109
d East Malling (Research Station)	Kent County Council	8	1	0	127	..	23-56	150	115
d Maidstone (Allington Lock)	Mr. W. Smith	5	1	0	20	..	23-88	..	108
d Aylesford (Forstal P. Stn.)	C. H. Harden, Esq., C.E.	5	1	0	20	..	23-10	152	115
d Detling (The Croft) new g.	R. Cooke, Esq.	5	1	0	330	27-8	27-87	213	124
d Trosley Pumping Station	F. L. Ball, Esq.	5	1	8	250	..	27-19	166	122
d Chatham (Woolmans Wood)	W. Coles Finch, Esq., C.E.	5	3	0	470	..	24-50	143	113
d Halling Pumping Station	F. L. Ball, Esq.	5	1	0	75	..	24-61	..	113
d Chatham (Luton W.W.)	W. Coles Finch, Esq., C.E.	5	3	0	88	..	23-21	154	106
d Rainham (Motney Hill)	J. B. Harvey, Esq.	5	1	0	28	..	20-81	146	101
d Rochester (Deanery Gate)	Warwick Stunt, Esq.	5	1	6	50	..	21-46	155	99
d Rochester (Knight's Place)	Miss F. H. Pye	5	3	0	320	26-0	(23-39)	..	..
d Strood Waterworks	(+A) W. Law, Esq., C.E.	5	1	0	112	..	22-01	165	100
5.—THAMES—Darent & c. 256 sq. mi.									
d Westerham Town	Met. Water Board	5	1	0	380	..	31-31	191	129
d Westerham Hill Pumping Stat.	Met. Water Board	5	1	0	539	..	31-25	200	135
d Sundridge Rectory	Rev. C. C. Gosselin	5	1	0	280	..	29-41	173	118
d Sundridge Pumping Stn.	Met. Water Board	5	1	0	270	..	28-50	166	114
d Sevenoaks (Tonbridge Rd. Res.)	F. Vallins, Esq.	5	1	6	556	..	31-33	..	..
d Sevenoaks (Speldhurst Close)	H. Willoughby Ellis, Esq.	5	1	0	470	..	28-41	190	129
d Sevenoaks (Knole Park)	E. Stubbs, Esq.	5	1	0	500	..	30-49	175	118
d Tatsfield (Betsoms Hill)	Met. Water Board	5	0	7	820	..	33-98	(214)	(146)
d Seal (Oak Bank Reservoir)	F. Vallins, Esq.	8	1	0	550	..	31-30	..	..



## DIVISION II—SOUTH-EASTERN COUNTIES—(con.).

		Rain-gauge			1931.			
STATIONS.	AUTHORITIES.	Diam.	Height of		Average Rain-fall.	Rain-fall.	Days with -01 in. or more.	Days with -04 in. or more.
			Rim above Ground.	Ground above Sea Level.				
KENT—(con.).		in.	ft.	in.	ft.	in.	in.	
5.—THAMES—Darent & c.—(con.).								
m Seal (St. Lawrence Reservoir).....	F. Vallins, Esq.....	8	1	0	665	..	31-09	..
m Seal (Kemsing Pumping Stat.).....	F. Vallins, Esq.....	5	1	0	292	..	31-05	..
d Sevenoaks (Chevening Gardens).....	Mr. J. C. Sutton.....	5	1	0	360	..	30-79	180 126
d Knockholt (Kent Waterworks).....	Met. Water Board.....	5	1	0	785	29-9	29-19	173 140
d Biggin Hill (Aerodrome).....	The Meteorological Office..	8	1	0	567	..	28-54	183 123
d Fairseat (Fairseat House).....	Col. W. Pitt, C.M.G.....	5	1	0	670	..	34-38	169 139
d Chelsfield (Hewitts).....	W. A. Waring, Esq.....	5	4	0	476	..	26-81	161 110
d Keston (Forest Lodge).....	W. H. Dodgson, Esq.....	5	0	6	450	..	28-25	..
m W. Wickham (Wickham Court).....	Sir Stephen Lennard, Bt....	5	1	0	300	..	25-95	..
d Eynsford Pumping Station.....	Met. Water Board.....	5	1	0	100	..	24-50	.. 99
d Eynsford Hill.....	Arthur Mee, Esq.....	5	1	0	358	..	27-91	190 113
d Orpington (Kent Waterworks).....	Met. Water Board.....	5	1	0	220	..	26-21	166 118
d Crockenhill (Wested Farm).....	A. T. Miller, Esq.....	5	1	6	331	..	25-32	..
d Bickley (Farrants).....	Miss Chalmers.....	5	1	0	250	..	26-18	149 108
d Bromley (Sundridge Avenue).....	Dr. H. Wynne Thomas.....	5	1	0	200	..	25-01	..
d Bromley.....	The Borough Engineer.....	5	1	0	213	..	25-05	166 109
d Bromley (Plaistow Lane).....	Col. E. Satterthwaite, C.B., V.D.	5	0	9	234	25-9	26-04	160 119
d Penge (Recreation Ground).....	H. W. Longdin, Esq., C.E....	5	1	1	122	25-2	27-18	.. 108
d Anerley (Oakfield Road).....	Miss S. Stannard.....	5	1	5	..	..	26-21	..
d Chislehurst (Hawkwood).....	Miss M. C. Edlmann.....	5	1	0	300	..	23-58	180 114
d Chislehurst (Holbrook Lane).....	W. P. Jones, Esq.....	5	1	0	325	..	25-38	..
d Chislehurst (Scadbury Park).....	Mr. B. Orchard.....	5	1	0	250	..	23-83	148 108
d Swanley (Horticultural College)...	The Principal.....	5	1	0	155	..	22-70	156 99
d Southfleet (Kent Waterworks)....	Met. Water Board.....	5	1	0	82	..	22-34	161 99
d Wilmington (Kent Waterworks)...	Met. Water Board.....	5	1	0	25	..	21-53	148 90
d Dartford (West Hill).....	Mr. J. Taylor.....	5	1	3	100	..	22-57	.. 97
d Dartford (Tower Road).....	C. O. Hunt, Esq.....	5	0	6	125	..	21-62	151 101
d Stone (City of Lond. Ment. Hosp.)...	J. Gower, Esq.....	5	1	0	200	..	20-16	152 95
d Dartford (Sewage Works).....	The Resident Engineer.....	5	1	0	14	..	20-15	147 93
d Erith Sanatorium.....	Erith U.D.C.....	5	1	0	182	..	23-54	153 98
d Erith (Sewage Works).....	Erith U.D.C.....	5	1	0	13	..	21-37	142 98
d Erith (St. Joseph's Convent).....	Erith U.D.C.....	5	1	0	213	..	24-55	152 97
d Higham Waterworks.....	C. H. Clark, Esq.....	8	1	0	141	..	23-31	195 97
d Erith (Crossness).....	London County Council....	14	0	6	16	..	19-36	.. 93
SUSSEX. (Area, 1,458 sq. mi.)								
1.—LAVANT & C. 175 sq. mi.								
d Aldwick (Greenways).....	D. S. Hancock, Esq.....	5	1	0	25	..	24-79	166 112
d Bognor Regis (Waterloo Square)...	The Town Clerk.....	8	1	0	20	25-9	24-16	164 123
d Bognor Regis (Albert Road).....	W. L. Guernonprez, Esq....	8	1	0	17	..	24-55	170 124
d North Mundham Vicarage.....	J. Outram, Esq.....	5	0	9	0	..	28-02	175 122
d Merston (Abelands).....	Miss V. Kennard.....	5	0	6	24	..	28-75	152 124
d Bosham (Cobnor).....	Major S. W. P. Beale.....	5	1	6	12	..	26-30	162 112
d Barnham (Downview Road).....	P. A. Bisset, Esq.....	5	1	0	20	..	29-98	169 128
d Chichester (Kingsham Farm) (R)...	W. Lawson, Esq.....	8	0	10	35	..	29-03	194 120
d Chichester (Westgate).....	G. Ashley Tyacke, Esq.....	8	1	0	40	28-7	27-04	160 121
d Chichester (County Hall).....	Stanley Morris, Esq.....	5	1	0	45	..	27-73	164 118
d Chichester (Oakwood House).....	Mrs. Baring Du Pre.....	5	1	0	101	..	28-29	.. 122
d Chichester (West Broyle Gdns.)...	Mrs. Weller-Poley.....	5	1	4	107	..	28-18	148 118
d Funtington House.....	J. A. Greenwood, Esq.....	5	1	0	95	..	30-05	151 126
d Lavant.....	Miss J. F. Paxton.....	5	1	0	100	..	28-81	..
d Chichester (Goodwood Gardens)...	Duke of Richmond & Gordon	5	1	3	133	..	33-28	203 142
d Emsworth (Stansted Park).....	Earl of Bessborough.....	5	2	6	140	..	33-62	225 139
d Emsworth (Watergate House).....	W. M. Christy, Esq.....	5	1	0	222	..	31-00	169 124
d West Dean Park.....	Mr. W. H. Smith.....	5	1	0	190	..	33-97	159 128
d Chilgrove House.....	E. L. Woods, Esq.....	5	1	0	266	..	32-77	147 125
d Compton (Compton House).....	Miss K. B. Langdale.....	5	1	0	263	36-6	32-49	158 131

## DIVISION II—SOUTH-EASTERN COUNTIES—(con.).

		Rain-gauge					1931.		
STATIONS.	AUTHORITIES.	Diam.	Height of		Average	Rain-fall.	Days with ·01 in. or more.	Days with ·04 in. or more.	
			Rim above Ground.	Ground above Sea Level.	Rain-fall.				
SUSSEX—(con.).		in.	ft.	in.	ft.	in.	in.		
2.—ARUN. 285 sq. mi.									
d Littlehampton (Met. Station).....	Thomas Benson, Esq.....	5	1	0	27	..	24·43	146	
d Rustington (Bracondale Nurs.)...	J. Muir, Esq.....	5	0	10	30	..	25·38	142	
d Lyminster Vicarage.....	Rev. Dr. S. P. Duval.....	5	1	0	20	..	24·97	166	
d Arundel (Cross Bush).....	Miss M. Orme.....	5	1	3	125	..	27·81	192	
d Patching Farm.....	Michael Drewitt, Esq.....	5	1	0	180	30·8	28·22	141	
d Harting (Down Place).....	R. G. Blackwell, Esq.....	5	1	2	401	..	34·38	158	
d Storrington (Badgercroft).....	P. Herington, Esq.....	5	6	0	250	..	35·15	168	
d Storrington Rectory.....	Mrs. Faithfull.....	5	1	1	..	..	32·79	163	
d Bignor.....	Major G. B. Hill.....	5	0	10	175	..	35·16	..	
d Pulborough (Parham).....	Hon. Clive Pearson.....	5	..	..	98	..	32·27	151	
d Pulborough (Nutbourne Manor)...	H. M. Baker, Esq.....	5	1	0	100	..	(28·37)	..	
d Pulborough (Codmore Hill).....	Rev. C. Ash.....	5	2	0	165	..	31·30	194	
d Fittleworth Rectory.....	Rev. A. C. Lucey.....	5	1	9	135	..	31·21	168	
d Selham (Selham House).....	C. C. Lacaita, Esq.....	5	1	0	115	..	30·94	148	
d Petworth Park Gardens.....	Lord Leconfield.....	5	1	0	182	..	33·05	176	
d Tillington (Westmoor).....	Mrs. Randall.....	5	1	0	200	..	32·19	181	
d Midhurst (June Lane).....	H. O. Purser, Esq.....	5	1	0	120	..	28·20	..	
d Midhurst (Fairview).....	Gilbert Eames, Esq.....	5	1	0	..	..	30·12	162	
d Billingshurst (The Nook).....	Chas. F. Rilot, Esq.....	5	1	0	120	..	27·93	163	
d Kirdford (Hills Green).....	L. Baker, Esq.....	5	1	0	150	..	28·43	177	
d Liss (Hill Brow).....	F. W. Beckford, Esq.....	5	1	0	488	..	31·54	187	
d Fernhurst (Ashurst).....	C. I. Blackburne, Esq.....	5	1	0	280	..	31·21	..	
d Fernhurst (Hill Farm).....	J. King, Esq.....	5	0	9	426	..	35·56	184	
d Lower Beeding (The Warren).....	Leicester M. Reed, Esq.....	5	0	10	430	..	(31·81)	..	
d Horsham (Christ's Hospital).....	Major Gabriel Green, M.C... 8	8	1	3	160	..	(26·83)	..	
d Horsham (Tower Hill).....	C. Marsh, Esq.....	5	1	0	220	..	27·61	167	
d Horsham (Sewage P.S.).....	C. G. Atkinson, Esq.....	8	1	0	118	..	28·89	174	
d Horsham (Wimblehurst).....	Miss E. M. Allcard.....	5	1	0	195	30·0	29·04	157	
d Horsham (Dunedin).....	A. C. Holland, Esq.....	5	1	0	220	..	29·64	..	
d Rusper (The Nunnery).....	Sir Cecil J. B. Hurst, G.C.M.G. 5	5	1	6	260	..	30·83	172	
3.—ADUR & C. 237 sq. mi.									
d Peacehaven.....	Commander W. S. Davenport 5	5	1	0	119	..	23·73	..	
d Rottingdean School.....	Mr. T. A. Sandalls.....	5	1	0	120	..	26·38	151	
d Rottingdean (Hillside).....	Admiral H. J. L. Clarke, C.B.E. 5	5	1	0	60	..	25·74	151	
d Worthing (Beech House Pk.) (+A)...	Medical Officer of Health .. 8	8	1	0	35	27·5	25·80	147	
d Brighton (Old Steyne).....	The Medical Officer of Health 5	5	1	0	32	28·1	23·88	138	
d Portslade (Midways).....	E. C. Smith, Esq.....	5	1	0	30	..	26·91	156	
d Hove (Park House).....	Guy Michell, Esq.....	5	1	0	120	..	27·52	169	
d Hove (Old Shoreham Rd.)†.....	Chas. Modlen, Esq.....	5	0	11	145	..	26·67	151	
d Brighton (Dyke Road).....	R. A. Penney, Esq.....	5	1	0	240	..	25·82	146	
d Lancing College.....	The Headmaster.....	5	1	0	120	..	26·78	..	
d Brighton W. W. (Goldstone Bot.)...	A. B. Cathcart, Esq., C.E... 8	8	1	0	142	..	24·72	167	
d Brighton W. W. (Lewes Road)...	A. B. Cathcart, Esq., C.E... 8	8	1	0	140	29·9	29·62	159	
d Brighton W. W. (Shoreham).....	A. B. Cathcart, Esq., C.E... 8	8	1	8	12	..	29·16	172	
d Brighton W. W. (Mile Oak).....	A. B. Cathcart, Esq., C.E... 8	8	1	3	166	..	27·93	156	
d Brighton W. W. (Race Hill Res.)...	A. B. Cathcart, Esq., C.E... 8	8	1	3	469	..	29·69	161	
d Falmer (Brighton W. W.).....	A. B. Cathcart, Esq., C.E... 8	8	1	4	202	..	29·46	161	
d Patcham (Brighton W. W.).....	A. B. Cathcart, Esq., C.E... 5	5	1	1	206	..	30·02	158	
d Bramber (Burletts).....	Hatton G. Sugden, Esq.....	5	1	0	75	..	33·84	202	
d Washington Vicarage.....	Rev. A. H. S. Patrick.....	5	1	0	251	..	31·90	165	
d Ditchling (Neston).....	J. Brown, Esq.....	5	1	1	170	..	31·34	158	
d Hassocks (Wilmington Lodge).....	C. T. Agar, Esq.....	5	1	0	200	..	30·66	153	
d Hassocks (The Croft).....	Harold Taylor, Esq.....	5	1	0	200	..	31·72	146	
d Keymer.....	J. Francis Jupp, Esq., C.E.. 5	5	1	0	..	..	31·90	..	
d Burgess Hill (Donisthorpe).....	Mrs. A. Malden.....	5	1	6	190	..	28·53	166	
d West Grinstead (Danefold).....	Miss T. Gaisford.....	5	1	0	130	..	28·09	159	
d Coolham.....	C. E. Cleaves, Esq.....	5	1	0	80	..	(29·17)	..	
d Cuckfield (Henmead Hall).....	Mrs. Maxwell Campbell... 5	5	3	0	365	..	31·42	177	
d Billingshurst (Duncan's Farm)...	Miss Edith Beck.....	5	1	0	130	..	30·19	180	
d Slinfold (Elmhurst Farm).....	Elmhurst Fmg. & Trdg. Co. 5	5	0	10	200	..	29·87	188	

†Station formerly called Park View.

## DIVISION II—SOUTH-EASTERN COUNTIES—(con.).

STATIONS.	AUTHORITIES.	Diam.	Rain-gauge			Average Rain-fall.	1931.			
			Height of		Ground Rain-fall.		Rain-fall.	Days with ·01 in. or more.	Days with ·04 in. or more.	
			Rim above Ground.	ft. above Sea Level.						
SUSSEX—(con.).			in.	ft.	in.	ft.	in.	in.		
4.—OUSE.—224 sq. mi.										
d Seaford (Bowden Ho. School) . . . . .	J. F. Thomas, Esq. . . . .	5	1	0	190	..	26·82	148	108	
d Seaford (Newlands) . . . . .	T. Davys Manning, Esq. . . . .	5	1	0	100	..	26·52	131	104	
d Seaford (Southdown School) . . . . .	C. W. Perfect, Esq. . . . .	5	1	6	120	..	25·77	132	103	
d Newhaven (Poverty Bottom W.W.) . . . . .	F. B. Lumsden, Esq. . . . .	8	1	0	51	..	26·94	152	115	
d Lewes (Littledene) . . . . .	Mr. J. R. Howard . . . . .	8	0	11	58	..	28·86	..	..	
d Lewes W. W. (Kingston) . . . . .	J. T. P. Johnston, Esq. . . . .	8	1	3	13	..	32·34	197	125	
d Ringmer (Ryngmer Park) . . . . .	G. Elliott Sealy, Esq. . . . .	5	1	0	100	..	26·62	..	115	
d East Hoathly (Halland Park) . . . . .	R. Shanks, Esq. . . . .	5	1	6	250	..	27·35	..	..	
Framfield (High Cross) . . . . .	Maj. R. L. Thornton, C.B.E. . . . .	5	1	0	195	..	28·46	..	..	
d Newick (Holly Grove) . . . . .	Mrs. A. K. Slessor . . . . .	5	0	10	150	..	30·18	162	122	
d Haywards H. (Paddockhall Rd.) . . . . .	L. E. Hervey, Esq. . . . .	5	1	0	260	..	29·46	161	123	
Buxted (Strawberry Hall) . . . . .	C. Rintoul, Esq. . . . .	5	1	0	180	..	28·14	160	..	
d Mayfield (Five Ashes) . . . . .	Miss Emily Aston . . . . .	5	1	1	300	..	28·10	180	117	
d Lindfield (The Common) . . . . .	R. H. Robertson, Esq. . . . .	5	1	6	250	..	30·34	154	120	
d Uckfield (Fairwarp) . . . . .	Col. A. E. Barchard . . . . .	5	0	10	475	..	31·18	169	135	
d Oldlands Hall . . . . .	(R) Sir B. Eckstein, Bart. . . . .	8	3	0	400	..	31·41	179	129	
d Horsted Keynes (Holy Well P.S.) . . . . .	F. Martin, Esq., C.E. . . . .	8	1	9	124	..	29·10	154	123	
d Ardingly (Lywood House) . . . . .	G. Forrester Scott, Esq. . . . .	5	0	9	240	..	30·02	186	119	
d Ardingly (Wakehurst Place) . . . . .	G. W. E. Loder, Esq. . . . .	8	1	3	437	..	32·24	184	131	
d Horsted Keynes (Birchgrove) . . . . .	Miss G. C. Price-Davies . . . . .	5	1	0	400	..	28·89	169	113	
d Balcombe (Lullings) . . . . .	Mrs. M. Holland . . . . .	5	1	0	348	..	33·24	184	134	
d Balcombe (The Gables) . . . . .	Mr. G. J. Warren . . . . .	8	1	3	358	..	33·65	179	139	
d Balcombe (Stockcroft) . . . . .	Dr. R. Newton . . . . .	5	1	1	341	..	31·48	171	129	
d Balcombe (Waterworks) . . . . .	F. Martin, Esq., C.E. . . . .	8	1	0	467	..	32·39	..	126	
d Balcombe (Highley Manor) . . . . .	Mr. B. T. Brooks . . . . .	8	1	6	420	..	32·04	175	139	
d West Hoathly (Stonelands) . . . . .	J. Godwin King, Esq. . . . .	5	1	0	450	..	31·74	169	124	
5.—CUCKMERE & C. 189 sq. mi.										
d Beachy Head . . . . .	The Meteorological Office . . . . .	8	1	0	..	..	28·75	159	124	
d Eastbourne (West Lodge) . . . . .	Miss E. K. Beauford . . . . .	5	1	0	120	..	28·19	167	121	
d Eastbourne (Wilmington Sq.) . . . . .	Dr. W. G. Willoughby . . . . .	5	1	0	35	30·7	28·09	163	121	
d Eastbourne (Motcombe Gdns.) (A) . . . . .	Major L. Roseveare, C.E. . . . .	11	1	7	59	..	28·71	165	121	
d Eastbourne (Arundel Road) . . . . .	Miss G. J. Woodd . . . . .	..	1	6	86	..	28·87	167	120	
d Friston . . . . .	A. Wilkins, Esq. . . . .	8	1	0	104	..	28·52	173	125	
d Jevington . . . . .	A. Wilkins, Esq. . . . .	8	1	0	274	..	31·60	143	123	
d Litlington . . . . .	A. Wilkins Esq. . . . .	8	1	0	19	..	26·73	136	117	
d Willington Sewage Farm . . . . .	R. W. Fovargue, Esq. . . . .	5	1	0	24	..	28·58	142	121	
d Pevensey Pumping Station . . . . .	R. W. Fovargue, Esq. . . . .	5	1	0	12	..	25·07	155	121	
d Pevensey Bay Pumping Station . . . . .	R. W. Fovargue, Esq. . . . .	5	1	0	7	..	25·95	154	120	
d Bexhill (Egerton Park) . . . . .	H. J. Sargent, Esq. . . . .	8	1	0	12	..	26·05	146	115	
d St. Leonards (Gensing Gardens) . . . . .	Hastings Corporation . . . . .	8	1	0	178	28·4	27·90	189	125	
d Hailsham (North Street) . . . . .	R. Matthews, Esq. . . . .	5	1	0	105	..	27·33	170	116	
d Hurstmonceaux Place . . . . .	H. A. James Esq. . . . .	5	1	1	83	..	24·87	..	..	
d Hailsham (Magham Down) . . . . .	E. M. Bear, Esq. . . . .	5	1	0	90	..	27·68	157	120	
d Hazards Green (Pumping Station) . . . . .	Bexhill W.W. . . . .	5	1	7	74	..	25·18	..	123	
d Hastings (Newgate) . . . . .	S. Little, Esq., C.E. . . . .	8	1	0	240	..	25·44	160	118	
d Hastings (Clive Vale) . . . . .	A. E. Moon, Esq. . . . .	5	1	0	328	..	26·85	186	125	
d Hastings (Halton Reservoir) . . . . .	S. Little, Esq., C.E. . . . .	5	1	0	179	..	27·13	147	123	
d Hastings (Fairlight Reservoir) . . . . .	S. Little, Esq., C.E. . . . .	5	1	0	500	..	26·06	139	126	
d Battle (Forewood W.W.) . . . . .	S. Little, Esq., C.E. . . . .	5	1	0	30	..	26·90	159	113	
d Cowbeech (Pumping Station) . . . . .	Bexhill W.W. . . . .	5	1	7	100	..	25·27	..	..	
d Hellingly (Burlow) . . . . .	G. Berry Hamlin, Esq. . . . .	5	1	0	209	..	28·83	176	129	
d Horeham Road (Coxlow) . . . . .	Miss P. C. Harrison . . . . .	5	1	0	260	32·2	28·66	175	122	
d Horeham Rd. (Hollycroft Cott.) . . . . .	J. Hamlin, Esq. . . . .	5	1	0	300	35·2	29·79	176	124	
d Horeham Road (Holmwood) . . . . .	Rev. G. T. Maw . . . . .	5	1	0	380	..	28·18	153	126	
d Heathfield (The White Cottage) . . . . .	J. F. Leigh Clare, Esq. . . . .	5	1	0	500	..	28·78	178	125	
6.—ROTHER. 194 sq. mi.										
d Battle (The White Cottage) . . . . .	Rev. E. J. Morgan . . . . .	5	1	0	320	..	30·42	174	130	
d Brede (Pumping Station) . . . . .	S. Little, Esq., C.E. . . . .	8	1	0	32	..	24·79	..	..	
d Battle (Netherfield) . . . . .	Thos. W. C. Terry, Esq. . . . .	5	1	0	420	..	29·33	182	126	
d Udimore (The Wick) . . . . .	Major R. P. Mair . . . . .	8	1	0	92	28·7	26·46	..	112	
d Rye (The Point) . . . . .	W. Gay, Esq. . . . .	5	1	0	120	..	26·58	154	127	

## DIVISION II—SOUTH-EASTERN COUNTIES—(con.).

		Rain-gauge				1931.		
STATIONS.	AUTHORITIES.	Diam.	Height of		Average	Rain-	Days	Days
			Rim	Ground	age	fall.	with	with
			above	above	Rain-		or	or
			Ground.	Sea Level.	fall.		more.	more.
SUSSEX—(con.).		in..	ft. in.	ft	in.	in.		
6.—ROTHER—(con.).								
d Brightling Park.....	T. P. Tew, Esq.....	5	1 0	545	..	32·13	185	121
Robertsbridge (Darvell Hall San.).....	Medical Superintendent.....	5	0 10	100	..	27·80	..	..
d Peasmarsh (Woodside).....	A. W. Rickards, Esq.....	5	0 8	100	..	27·35	160	127
Beckley (Little Harmers).....	B. E. de N. Ramus, Esq.....	5	1 0	160	..	31·43	213	140
d Heathfield (Barklye).....	W. H. Masson, Esq.....	5	1 0	500	32·5	34·61	..	130
d Northiam (Great Dixter).....	N. Lloyd, Esq., O.B.E.....	8	1 0	209	..	26·15	..	113
d Ticehurst (Stonegate).....	W. J. Wheeler, Esq.....	5	1 0	230	..	31·38	211	126
7.—MEDWAY. 117 sq. mi.								
d Rotherfield (Horsegrove Fm.).....	F. W. Shaw, Esq.....	5	1 0	528	..	31·08	168	121
d Crowborough (Tudor Lodge).....	F. Holroyd, Esq.....	5	1 0	620	..	33·13	181	130
d Crowborough (Jarvis Brook).....	Crowborough Water Co.....	5	1 0	325	..	31·73	..	126
d Crowborough (Uckfield Lodge).....	Mrs. Driberg.....	8	1 0	796	36·0	33·87	174	139
d Crowborough (Beacon School).....	R. W. Hunt, Esq.....	5	1 3	750	..	83·88	173	135
d Crowborough (The Manse).....	Miss H. M. Briggs.....	5	1 0	730	..	35·53	195	133
d Wadhurst (Lower Cousley Wd.).....	A. Wilkin, Esq.....	5	1 0	416	..	27·01	159	117
d Forest Row (Wych Cross Place).....	D. W. Freshfield, Esq., D.C.L.....	5	1 0	600	..	31·60	..	116
d Forest Row (Hindleap Lodge).....	Mr. A. Adam.....	5	1 6	620	..	33·92	168	126
Forest Row (Charlwood Farm).....	A. Hoare, Esq.....	5	2 0	350	..	33·85	..	..
E. Grinstead (Brambletye).....	Major G. Larnach-Nevill.....	5	1 0	420	..	31·77	..	..
d Frant (Hazelhurst).....	J. H. A. Love, Esq.....	5	1 0	450	..	29·52	177	122
d Frant (Henley House).....	Rev. E. Malden.....	5	1 6	440	32·3	28·38	175	125
d Frant (Eridge Castle).....	Mr. A. Wilson.....	5	1 0	400	..	29·18	..	139
Frant (Highfield).....	H. S. Eeles, Esq.....	5	1 0	413	..	27·45	..	..
d Groombridge (Crossways).....	Capt. D. P. A. Gray.....	5	1 0	260	..	28·94	163	116
d Hartfield (Bolebrooke).....	Percy Mann, Esq.....	5	1 0	150	..	29·19	..	119
d Crawley Down (The Grange).....	Miss L. T. A. Buckley.....	5	0 9	430	..	30·82	171	120
d E. Grinstead (Brockhurst Obsy).....	W. S. Franks, Esq.....	8	1 0	435	32·9	33·12	216	124
d Wadhurst (Downgate).....	Rev. E. P. Gatty.....	5	1 6	300	..	30·86	146	128
8.—THAMES—Mole. 27 sq. mi.								
d Turners Hill (The Old Manse)†.....	Miss R. M. Ravenshaw.....	8	1 6	500	..	32·70	211	131
d Worth (Worth Lodge).....	C. W. Nix, Esq.....	5	1 0	340	31·9	30·24	196	132
d Crawley (The Beeches).....	N. Longley, Esq.....	8	1 0	220	..	31·89	..	119
9.—THAMES—Wey. 10 sq. mi.								
d Milland House.....	S. Thompson, Esq.....	5	1 0	425	..	30·15	166	120
d Liphook (Ripsley).....	W. D. Bosanquet, Esq.....	5	1 0	400	..	32·03	174	132
HAMPSHIRE. (Area 1,622 sq. mi.)								
1.—ISLE OF WIGHT. 150 sq. mi.								
d St. Catherine's Point.....	The Meteorological Office.....	8	1 8	150	..	28·91	172	131
d Blackgang (H.M. Coastguard).....	Mr. H. W. Hawkes.....	5	1 0	420	..	27·73	..	114
d Ventnor (Royal National Hos.).....	Miss N. G. Abercrombie.....	5	1 0	59	28·9	29·16	181	127
d Ventnor (Fern Bank).....	A. W. Jolliffe, Esq.....	5	1 5	250	..	30·09	182	126
d Godshill (Daffodil Valley Farm).....	S. F. Lunniss, Esq.....	5	1 0	195	..	32·26	174	135
d Shanklin (Pomona Road).....	The Town Surveyor.....	8	1 0	199	..	32·11	177	128
d Brighstone Rectory.....	Rev. E. W. Silver.....	5	1 0	140	..	30·98	..	124
d Brighstone (Pitt Place).....	A. A. H. Wykeham, Esq.....	5	1 7	200	..	27·75	..	126
d Sandown (Sandham Gds.).....	The Surveyor.....	8	1 0	13	..	30·01	194	129
d The Needles (Golf Club).....	Mrs. Newnham.....	5	1 0	300	..	27·15	157	117
d Totland Bay (Aston House).....	J. Dover, Esq.....	8	1 0	140	28·5	27·16	159	117
d Freshwater (Pumping Station).....	J. Dover, Esq.....	8	1 0	10	..	27·42	170	120
d Newport (The Mall).....	J. F. Jackson, Esq.....	5	1 0	48	..	33·31	179	133
d Ryde (Perivale).....	Major E. C. Murray.....	5	1 3	193	..	29·39	169	153
d Ryde (West Street).....	W. H. Salter, Esq.....	5	1 0	170	..	28·39	188	130
d Ryde (Buckland Grange).....	Lt.-Col. Sir Hugh Daly.....	5	1 0	90	..	28·14	217	126
d Ryde (Esplanade Gardens).....	B. F. Holness, Esq., C.E.....	5	1 9	13	..	25·49	168	115
d Wootton (Fernhill).....	Major C. G. Brodie, M.C.....	8	1 0	118	..	30·36	183	123
d Wootton (Oak Lawn).....	R. W. Hutton, Esq.....	5	0 9	80	..	30·45	175	123
d Cowes W.W. (Broadfields).....	J. W. Webster, Esq., C.E.....	5	1 0	161	..	29·89	170	123
d Osborne.....	The House Governor.....	5	1 0	127	..	32·75	184	136
d East Cowes (Spring Hill).....	Sir George Sheddon.....	5	1 0	123	..	28·50	174	123

† Station formerly called Hill House.

## DIVISION II—SOUTH-EASTERN COUNTIES—(con.).

STATIONS.	AUTHORITIES.	Diam.	Rain-gauge				1931.		
			Height of		Average	Rain-fall.	Rain-fall.	Days with or more.	Days with or more.
			Rim above Ground.	Ground above Sea Level.					
		in.	ft.	in.	ft.	in.	in.		
<b>HAMPSHIRE—(con.).</b>									
<b>2.—STOUR. 32 sq. mi.</b>									
d Bournemouth (W. Overcliff Drive) . . . . .	Arthur Scratton, Esq. . . . .	5	2	7	96	..	28.50	163	127
d Bournemouth (East Cliff) . . . . .	Dr. F. G. Penrose . . . . .	8	1	0	120	..	27.30	170	120
d Bournemouth (Rodney House) . . . . .	S. Hyla Greves, Esq. . . . .	5	1	0	145	..	(27.77)	(165)	(119)
d Bournemouth (Vale View) . . . . .	C. Dales, Esq. . . . .	5	1	0	145	31.5	29.76	167	121
d Bournemouth (East Avenue) . . . . .	J. E. Hewitt, Esq. . . . .	5	1	0	142	..	29.57	165	123
d Bournemouth (Talbot Woods) . . . . .	H. Constantine, Esq. . . . .	5	1	0	110	..	29.84	170	124
d Bournemouth (Howard Road) . . . . .	The Late E.D. Shawfield, Esq. . . . .	5	1	0	117	..	32.30?	192	129
d Christchurch (Air Compressing Sta.) . . . . .	Borough Surveyor . . . . .	5	0	10	6	..	26.48	..	..
d Christchurch (Heron Court) . . . . .	The Earl of Malmesbury . . . . .	5	1	0	25	..	30.74	159	135
d Ringwood (Athol Lodge) . . . . .	S. O. Ferry, Esq. . . . .	5	1	0	60	..	28.68?	194	135
<b>3.—EAST AVON &amp; C. 114 sq. mi.</b>									
d Christchurch (Harrow Lodge) . . . . .	R. C. Bacon, Esq. . . . .	8	1	0	135	..	32.24	183	134
d Ringwood (Bisterne) . . . . .	Major J. D. Mills . . . . .	8	1	2	45	..	32.38	186	128
d Ringwood (Ashley) . . . . .	Miss M. E. Williams . . . . .	5	1	0	100	..	34.26	220	143
d Ringwood (Crow Hill) . . . . .	Mrs. H. F. Rawstorne . . . . .	5	1	0	250	..	29.77	184	131
d Ringwood (Grey Friars) . . . . .	R. W. Christy, Esq. . . . .	5	1	0	50	..	29.96	..	120
d Fordingbridge (Cuckoo Hill) . . . . .	Heywood Sumner, Esq. . . . .	5	1	0	150	..	32.56	165	137
d Fordingbridge (Docks) . . . . .	E. W. Poore, Esq. . . . .	8	1	0	140	..	31.53	187	142
d Fordingbridge (Oaklands) . . . . .	S. B. Rake, Esq. . . . .	8	1	0	135	31.7	30.52	200	130
d Breamore House Gardens . . . . .	Mr. J. Cole . . . . .	5	1	0	120	..	32.37	162	127
<b>4.—TEST &amp; SOLENT. 551 sq. mi.</b>									
d Milford-on-Sea (Salt Grass) . . . . .	A. C. G. Heygate, Esq. . . . .	5	1	0	6	..	27.84	154	125
d Milford-on-Sea (Rollrights) . . . . .	Dr. A. Wood . . . . .	5	1	0	50	..	25.19?	149	119
d Lymington (The Salterns) . . . . .	P. A. Ouvry, Esq. . . . .	5	1	0	4	..	27.77	171	128
d Lymington (Woodmancote) . . . . .	Major G. M. Harding . . . . .	5	1	0	70	..	29.75	172	123
d Sway (Gordleton) . . . . .	W. F. Wright, Esq. . . . .	5	1	6	102	..	29.41	171	124
d Boldre (Vicars Hill Lodge) . . . . .	H. H. Wyatt, Esq. . . . .	5	2	0	95	..	31.95	..	..
d Sway (Sway Wood) . . . . .	J. Dixon, Esq. . . . .	5	1	0	140	..	31.89	161	133
d Boldre (Battramsley Close) . . . . .	Dr. H. A. Des Voeux . . . . .	5	1	1	119	..	32.52	182	135
d Exbury . . . . .	Lt. N. de Rothschild, Esq. . . . .	5	1	0	85	..	29.40	..	..
d Brockenhurst (Weirs End) . . . . .	Col. C. Mansel-Jones, V.C. . . . .	5	1	0	45	..	31.06	146	123
d Calshot (Seaplane Station) (+A) . . . . .	The Meteorological Office . . . . .	8	1	0	8	25.5	26.59	169	118
d Beaulieu (Moonhills Gate) . . . . .	Lt.-Comdr. A. Betts-Brown . . . . .	5	1	0	130	..	30.68	194	130
d Burley (Sandys) . . . . .	G. Mason, Esq. . . . .	5	1	0	150	..	31.45	176	129
d Hythe (Buttsash Lane) . . . . .	G. H. Baker, Esq. . . . .	5	1	0	130	..	28.75	..	..
d Fawley (Cadland Park) . . . . .	Mr. T. Lowry . . . . .	8	4	6	52	..	(29.14)	..	..
d Lyndhurst (Deerhurst) . . . . .	Ralph Paget, Esq. . . . .	5	1	6	250	..	29.48	..	116
d Lyndhurst (Allum Green) . . . . .	Miss S. R. Fenwick . . . . .	5	1	0	125	..	33.84	173	135
d Hythe (Dibden House) . . . . .	Lt.-Col. H. W. Kettlewell . . . . .	5	1	0	85	..	29.25	169	129
d Cadnam (Canterton Manor) . . . . .	Miss Jeffreys . . . . .	5	1	0	125	..	31.27	190	129
d Bartley (The Nurseries) . . . . .	G. H. Dalrymple, Esq. . . . .	5	1	2	100	..	31.08	172	128
d Totton (Shorne Hill) . . . . .	Mrs. Rennie . . . . .	5	1	0	130	..	33.03	174	133
d Southampton (East Park) . . . . .	Director Ordnance Survey . . . . .	8	1	0	64	30.9	31.23	183	134
d Southampton (Shirley) . . . . .	S. G. Stanton, Esq., C.E. . . . .	5	1	0	70	..	29.44	169	130
d Southampton Common Res. . . . .	E. C. Rodda, Esq., C.E. . . . .	5	1	0	193	..	29.80	..	..
d Romsey (Embley Gardens) . . . . .	J. J. Crosfield, Esq. . . . .	5	1	0	130	..	29.75	169	126
d Romsey (Harefield) . . . . .	Lt.-Col. W. J. Langford . . . . .	5	1	0	120	..	28.16	162	136
d Melchet Court . . . . .	Mr. W. Petty . . . . .	5	3	0	207	..	29.75	..	..
d Romsey (Timsbury Manor) . . . . .	A. R. Wilson-Wood, Esq. . . . .	5	0	10	75	..	29.18	..	122
d Romsey (Timsbury P.S.) . . . . .	E. C. Rodda, Esq., C.E. . . . .	8	1	8	96	..	28.95	159	125
d Upper Somborne . . . . .	Charles Alleyway, Esq. . . . .	8	1	0	250	..	27.47	..	..
d Stockbridge (Houghton Lodge) . . . . .	Mr. G. Morris . . . . .	5	1	0	112	..	29.49	158	130
d Crawley (Chilbolton Down) . . . . .	R. Hargreaves, Esq. . . . .	8	1	2	350	..	29.44	169	126
d Micheldever (School House) . . . . .	W. Geo. Gould, Esq. . . . .	5	1	0	280	..	26.75	161	119
d Wonston (Upton House) . . . . .	H. J. Gardiner, Esq. . . . .	5	1	0	229	..	27.33	177	121
d Abbots Ann (The Old Manor) . . . . .	Miss E. E. de Paravicini . . . . .	5	0	9	225	..	28.17	..	124
d Andover (Sewage Works) . . . . .	W. C. Jerome, Esq. . . . .	8	1	0	182	..	29.57	161	126
d Andover (Hatherden) . . . . .	E. E. Leader, Esq. . . . .	5	1	0	350	..	27.96	170	126
d Fyfield Rectory . . . . .	Rev. E. K. R. Reynolds . . . . .	5	1	3	255	..	27.38	173	129

## DIVISION II—SOUTH-EASTERN COUNTIES—(con.).

		Rain-gauge					1931.		
STATIONS.	AUTHORITIES.	Diam.	Height of		Average Rain-fall.	Rain-fall.	Days with ·01 in. or more.	Days with ·04 in. or more.	
			Rim above Ground.	Ground above Sea Level.					
		in.	ft.	in.	ft.	in.	in.		
HAMPSHIRE—(con.).									
4.—TEST & SOLENT—(con.).									
d St. Mary Bourne (Bournside).....	Prof. C. V. Boys, F.R.S.....	5	1	0	300	..	27·36	171 123	
d St. Mary Bourne (Spring Hill).....	Mrs. H. A. Boys.....	5	1	4	300	..	26·41	.. 120	
d Worting (Manydown Park)...(R)...	Col. A. S. Bates, D.S.O.....	8	4	0	415	..	31·72	178 126	
Hurstbourne Tarrant (Rookery)....	R. E. C. Burder, Esq.....	5	1	0	331	..	29·13	.. ..	
d Whitchurch (Dunley Manor).....	Sir Alfred Herbert.....	5	1	0	500	..	28·46	157 109	
d Vernham Dean (Rowe House).....	Mrs. E. H. Gamble.....	5	1	0	620	..	29·76	176 139	
d Linkenholt Manor.....	R. Dudley, Esq.....	5	4	0	700	..	28·66	170 131	
5.—ITCHEN & SPITHEAD. 422 sq. mi.									
d Alverstoke (Monckton House).....	Major J. Blake.....	5	1	3	15	..	25·88	179 117	
d Alverstoke (Glencoe).....	J. G. Thomas, Esq.....	5	1	3	20	..	25·17	178 122	
d Gosport.....	Borough Surveyor.....	8	1	0	30	..	27·67	148 120	
d Portsmouth (Victoria Park).....	Dr. A. Mearns Fraser.....	5	1	0	15	27·7	25·35	163 113	
d Hayling Island (Richmond Ho.)....	E. S. McEuen, Esq.....	5	1	2	16	..	22·71	156 113	
d South Hayling (C. of E. School)....	H. J. Earney, Esq.....	5	1	6	10	..	23·75	165 110	
d Lee-on-Solent (Edinburgh Ho. Sch.)	Trevor J. Tatham, Esq....	5	1	0	15	..	25·35	161 120	
d Hook-cum-Warsash.....	E. M. Biggs, Esq.....	5	1	0	50	..	28·31	.. 101	
d Portchester (Noel Cottage).....	Miss R. M. Frost.....	5	1	0	10	..	25·50	158 118	
d Farlington (Pump. Stn.) <i>new g.</i> ....	D. Halton Thomson, Esq., C.E.	5	1	0	78	..	27·21	172 120	
Farlington (Filter Works) <i>new g.</i> ....	D. Halton Thomson, Esq., C.E.	5	1	0	157	..	26·75	173 120	
d Havant (Portsmouth W.W.).....	D. Halton Thomson, Esq., C.E.	5	1	0	25	26·7	27·19	160 123	
d Havant (Warblington).....	F. D. Crossley, Esq.....	8	1	0	22	..	25·92	164 124	
d Havant (Wade Court).....	W. E. Sotheby, Esq. ....	8	1	0	17	..	25·92	.. 108	
d Fareham (Fareham House).....	W. S. Stevenson, Esq., M.D..	5	1	6	30	..	28·16	.. 112	
Fareham (Senior Girls' School)....	Miss F. A. Terrey.....	5	1	0	70	..	29·63	177 128	
d Fareham (Roche Court).....	Admiral Sir W. De Salis....	5	1	0	103	..	29·53	173 122	
d Netley (Lake House).....	Miss Pennington.....	8	1	0	54	..	27·48	167 125	
d Itchen Sewage Works.....	S. G. Stanton, Esq., C.E....	5	1	0	6	..	27·44	157 122	
d Cowplain (Forest View).....	H. C. Pearson, Esq.....	5	5	0	222	..	27·05	186 117	
Idsworth (Water Tower).....	D. Hatton Thomson, Esq., C.E.	5	1	0	202	..	28·77	.. ..	
d Wickham (The Lower House)....	M.-Gn. Sir C. H. Powell, K.C.B.	5	1	4	100	..	30·99	.. ..	
d Wickham (Park Place).....(R)...	Major A. F. Clifford.....	8	1	0	150	..	23·86	159 118	
d Southampton (Portswood).....	S. G. Stanton, Esq., C.E....	5	1	9	10	..	28·92	149 122	
Botley (Brook House).....	Mrs. Beckett Powell.....	5	1	0	45	..	29·36	.. ..	
d Botley (Botley Hill).....	Lady Jenkyns.....	5	1	6	36	..	28·90	167 129	
Botley (Uplands Farm).....	Wilmot H. Yates, Esq. ....	5	1	0	60	..	29·64	179 134	
d Curdridge (Kitnocks House).....	Major C. F. Randolph.....	5	1	0	185	..	30·13	209 132	
d Swanmore (Holywell House).....	Mrs. M. Portal.....	5	3	0	175	..	31·24	179 139	
d Soberton (Mislingford).....	E. T. Hildred, Esq., C.E....	5	1	0	136	..	30·92	164 127	
d West End (Oaklands).....	Capt. P. C. Pearson, R.N....	5	1	0	45	..	30·33	182 132	
d Bishops Waltham (Park Ho.)....	A. F. Hardy, Esq.....	5	1	3	170	..	28·93	186 132	
d Swanmore House.....	W. H. Myers, Esq.....	5	0	10	395	..	33·79	186 137	
d Droxford (Uplands).....	Miss A. M. Bridge.....	5	1	0	279	..	33·67	196 140	
d Droxford (Fairfield House).....	H. Hamilton Bridge, Esq... 5	5	0	9	254	..	32·67	192 134	
d Petersfield (Ditcham Park).....	C. J. P. Cave, Esq., J.P....	8	1	0	555	..	32·10	192 132	
d Otterbourne W.W.....	E. C. Rodda, Esq., C.E....	5	1	0	113	..	31·00	171 127	
d Twyford (Pumping Station).....	E. C. Rodda, Esq., C.E....	8	1	9	139	..	29·80	169 131	
d Twyford (Mallards Close).....	G. R. Marsh, Esq.....	5	1	0	153	..	29·51	159 126	
East Meon (Burnside).....	H. A. Gilmour, Esq.....	5	1	5	..	..	32·39	.. ..	
d Winchester (Shawford).....	J. A. Rooke, Esq.....	5	1	0	250	..	31·21	161 124	
d Hursley (Merton Manor).....	Capt. G. J. R. Cooper.....	5	1	0	360	..	30·23	153 129	
d Hursley Park.....	Sir G. A. Cooper, Bart.....	8	1	0	240	..	30·71	162 135	
d Compton (Kennington).....	J. Durst, Esq.....	5	1	1	250	..	29·93	159 128	
d Compton (Compton Close).....	A. M. Heathcote, Esq.....	5	0	10	250	..	30·38	.. ..	
d West Meon (Westwood).....	Major G. E. Galbraith.....	5	1	5	470	..	36·49	189 129	
Petersfield (Broadhanger).....	Mrs. R. M. Caulfield.....	5	1	0	730	..	37·32	160 129	
d Petersfield (St. Cross).....	G. M. Mathews, Esq.....	5	1	0	135	..	30·22	156 118	
d Winchester (High Street).....	Kenneth E. N. Williams, Esq.	5	1	0	200	..	30·24	186 126	
d Winchester (East Hill).....	Mrs. E. Wilde.....	5	1	0	256	..	25·60	183 116	
d West Tisted Manor.....	Capt. Nelson Zambra, M.C..	5	1	3	650	..	33·20	.. 123	
d East Tisted (Rotherfield Park)....	Capt. J. B. Scott.....	5	1	0	550	..	34·66	174 134	

## DIVISION II—SOUTH-EASTERN COUNTIES—(con.).

STATIONS.	AUTHORITIES.	Diam.	Rain-gauge		Average Rain-fall.	1931.		
			Height of Rim above Ground.	Height of Ground above Sea Level.		Rain-fall.	Days with .01 in. or more.	Days with .04 in. or more.
HAMPSHIRE—(con.).						in.		
5.—ITCHEN & SPITHEAD—(con.).								
d Ovington Rectory.....	Rev. H. L. Atkins.....	5	1 0	221	33.2	32.30	..	125
d Alresford (Perin's Grammar Sch.)..	G. T. McKay, Esq., M.Sc....	5	1 0	264	..	29.63	164	158
d Itchen Abbas (Chilland).....	W. J. Arnold, Esq.....	5	1 3	200	32.7	29.05	186	129
d Old Alresford (The Gables).....	A. E. Broad, Esq.....	5	1 0	300	..	27.74	..	126
d Worthy Down (Aerodrome) (+A)...	Meteorological Office.....	8	1 0	275	..	30.20	172	116
6.—ARUN. 32 sq. mi.								
d Petersfield (Weston).....	Capt. P. W. Seward.....	5	1 0	330	..	35.11	162	138
d Petersfield (Monks Barn).....	F. G. Padwick, Esq.....	5	1 3	300	..	34.10	168	121
d Petersfield (Tilmore).....	L. J. Tatham, Esq.....	5	1 0	250	..	31.69	182	125
d Petersfield (Stoner Hill)....	(+A) C. J. P. Cave, Esq., J.P....	5	1 0	748	..	36.56	187	138
d Liss (Easton).....	Miss E. Barton.....	5	1 0	500	..	30.33	170	128
d Liss (Heathmount).....	R. A. Bosanquet, Esq.....	5	1 3	490	..	30.40	187	120
d Liss (Kippences).....	Rev. W. A. H. Thorold....	5	0 9	250	..	30.57	172	128
d Liss (Hawkey Hurst).....	T. Clive Davies, Esq.....	5	0 11	422	..	35.29	200	147
d Greatham (Manor House).....	Miss I. L. Coryton.....	5	1 0	260	..	29.04	164	122
d Greatham (Le Court).....	Sir Heath Harrison, Bart... 5	0 9	350	..	31.50	176	130	
7.—THAMES—Wey. 92 sq. mi.								
d Newton Valence Vicarage.....	Rev. A. C. MacLachlan.... 5	1 0	586	..	32.48	207	135	
d Newton Valence (Shotters).....	Major W. H. Chawner.... 5	1 2	600	..	32.37	163	129	
d Newton Valence Place.....	(R) Rear-Adm. E. Jervoise, C.B.E. 8	1 5	615	..	34.22	195	135	
d Selborne (The Wakes).....	Mrs. Bibby.....	5	1 0	400	..	34.79	197	136
d Grayshott.....	Mrs. Lyndon.....	5	1 0	661	33.2	33.05	185	129
d Alice Holt Forest.....	Forestry Commission..... 8	1 0	264	..	29.92	179	131	
8.—THAMES—London. 164 sq. mi.								
d Swainshill.....	S. G. Weller, Esq.....	5	3 0	..	..	29.15	..	..
d Long Sutton (Agric. Coll.).....	The Warden.....	5	1 0	479	..	26.80	145	111
d South Warnborough (Vine Cot.)...	Mrs. Gawne.....	5	1 0	416	..	27.74	..	..
d Upton Grey (Hoddington Ho.)....	Lord Basing.....	5	1 0	378	..	26.68	135	111
d Basingstoke (Upton Grey Ho.).....	G. W. Hayes, Esq.....	5	1 0	400	..	26.89	155	115
d Aldershot Waterworks.....	Mid-S. Dist. Utility Co.... 5	1 0	251	..	29.73	163	122	
d Aldershot Reservoirs.....	Mid-S. Dist. Utility Co.... 5	1 0	397	..	29.75	169	125	
d Odiham (Mill House).....	W. M. Dean, Esq.....	5	1 0	241	..	24.85	130	111
d Greywell (Pumping Station).....	S. G. Weller, Esq.....	5	1 0	258	..	23.91	173	117
d Hook (Nately Hatch).....	R. C. Mallock, Esq.....	5	1 0	328	..	25.66	164	113
d Sherborne St. John.....	Rear-Admiral A. S. Lafoné. 5	1 0	260	29.0	25.63	164	109	
d Hartley Wintney (Council Offices)...	Sanitary Inspector, R.D.C.. 5	1 0	202	..	22.44	..	..	
d Hartley Wintney (Warren Heath)...	Sanitary Inspector, R.D.C.. 5	0 9	220	..	24.01	145	103	
d South Farnborough (R.A.E.) (+A)...	The Meteorological Office... 8	1 0	237	26.1	26.15	160	112	
d Winchfield (Elvetham Park).....	Mr. T. J. Brownjohn..... 8	1 0	217	..	26.88	165	110	
d Bramley (Street Farm House).....	F. Walkinshaw, Esq..... 8	1 0	227	28.8	25.55	171	114	
d Stratfield Turgis (Byland's Cottage)...	Miss D. Page-Roberts..... 5	0 8	218	..	25.75	190	114	
d Heckfield (Park Corner).....	Miss V. Martineau..... 5	1 2	257	24.3	25.90	183	110	
9.—THAMES—Kennet. 65 sq. mi.								
d Wolverton (Ewhurst Park).....	Mr. H. J. Beckingham.... 5	1 6	410	..	27.48	180	121	
d Highclere (Castle Gardens).....	Mr. A. W. Blake.....	5	1 6	500	..	29.43	163	130
d Highclere (Black Ford).....	W. A. Turner, Esq.....	5	1 0	439	..	28.53	166	117
d Highclere (Adbury Pk. Gdns.)....	Mr. M. J. Lever.....	5	1 0	350	..	25.95	148	117
BERKSHIRE. (Area, 722 sq. mi.)								
1.—TEST. 2 sq. mi.								
2.—THAMES—Bourne. 15 sq. mi.								
Sunninghill (Frogna).....	Mr. D. Chaplin.....	5	1 0	200	..	28.37	..	..
d Ascot (Heatherwood Hospital)...	The Medical Superintendent 5	1 0	320	..	25.13	172	108	
d Sunninghill (Blacknest P.S.).....	E. J. Toy, Esq.....	8	1 0	130	..	25.26	146	112
d Sunninghill (Little Paddocks).....	Col. J. N. Horlick, M.C.... 5	1 0	200	..	26.30	164	110	

## DIVISION II—SOUTH-EASTERN COUNTIES—(con.).

STATIONS.	AUTHORITIES.	Diam.	Rain-gauge				1931.			
			Height of		Average Rain-fall.	Rain-fall.	Days with .01 in. or more.	Days with .04 in. or more.		
			Rim above Ground.	Ground above Sea Level.						
BERKSHIRE—(con.).			in.	ft.	in.	ft.	in.	in.		
3.—THAMES—Loddon & c. 162 sq. mi.										
Finchampstead (Manor Farm).....	M. B. Powell, Esq.....	5	1	6	238	..	22.72	..	..	
d Finchampstead (Pye Hill).....	Col. M. A. Carlisle Crowe, C.M.G. 5	1	0	320	..	21.29	..	..	..	
d Wellington College.....	A. L. Payne, Esq.....	5	1	0	290	26.4	24.07	158	115	
d Broadmoor Asylum.....	The Medical Superintendent 5	1	0	300	..	27.35	..	..	120	
d Wokingham (Bucks Copse).....	C. W. Marks, Esq.....	5	1	0	174	..	22.34	..	102	
d Wokingham (Appin Lodge).....	Rev. W. N. Blakeney.....	8	0	10	200	..	23.31	..	..	
d Wokingham (Sindlesham Ho.)....	Mr. W. Balcombe.....	5	4	6	200	..	24.48	158	107	
d Winkfield (Ryemead).....	Mrs. Aubrey Elliott.....	5	0	10	220	..	26.37	170	115	
d Winkfield (Maidens Green).....	R. Crosbie-Hill, Esq.....	5	1	0	210	..	25.52	177	112	
d Warfield (Jealott's Hill Farm)....	Imperial Chemical Industries, Ltd. 5	1	0	220	..	25.58	150	115	..	
d Sonning on Thames (The Deanery)....	Capt. N. J. Bengough.....	5	0	9	..	(24.20)	..	..	..	
d Windsor (Royal Gardens).....	Mr. C. H. Cook.....	5	1	0	88	24.9	24.90	179	115	
d Maidenhead (The New Hall).....	Mrs. Torkington.....	5	0	11	..	..	25.64	..	118	
d Pinkney's Green.....	R. P. Lord, Esq.....	5	0	10	240	..	25.87	..	..	
d Remenham Hill (Wedmore).....	Lt.-Col. C. D. Burnell, D.S.O. 5	1	0	300	..	27.73	167	122	..	
d Hambleden Lock.....	Mr. T. E. Wise.....	5	1	6	107	..	27.33	184	121	
d Hurley House.....	Rev. W. Farrer.....	5	1	0	105	..	23.67	..	..	
4.—THAMES—Kennet & c. 224 sq. mi.										
d Inkpen (Manor Farm).....	A. A. Lawrence, Esq.....	5	1	5	450	..	28.57	188	139	
d Inkpen (Willows).....	G. C. Goodhart, Esq.....	5	1	0	475	..	27.15	..	..	
d Hampstead Marshall (Redhill)....	Mrs. Lewis.....	5	1	0	400	..	25.36	..	..	
d Mortimer (Wokefield Park).....	Dr. A. Palmer.....	5	1	0	220	..	25.21	162	118	
d Mortimer (Oakfield).....	Rev. G. G. Skipwith.....	6	1	0	200	..	27.69	206	128	
d Brimpton (Stonehouse).....	F. Hadden, Esq.....	5	0	7	350	..	24.86	154	113	
d Kintbury (Wallingtons).....	A. S. Gladstone, Esq.....	5	1	0	360	..	25.16	..	..	
d Newbury (Greenham Common)....	H. L. Bowman, Esq., D.Sc. 5	1	0	327	29.0	..	25.23	167	119	
d Newbury (Wash Hill).....	C. F. B. Marshall, Esq.....	5	1	0	385	..	25.87	172	123	
d Newbury (Wash Hill Ho.).....	E. P. Plenty, Esq.....	5	1	0	390	..	26.29	153	115	
d Newbury (Tydeham).....	J. H. Spackman, Esq.....	5	1	0	400	..	25.91	169	116	
d Shinfield (University Col. Farm)....	Dr. J. A. Crowther.....	5	1	0	200	..	24.61	155	114	
d Bucklebury Place.....	Mr. J. E. Henshall.....	5	1	0	409	..	24.35	157	119	
d Reading W.W. (Bath Road).....	L. C. Walker, Esq., C.E.....	5	1	0	218	..	23.91	170	114	
d Reading (Tilehurst).....	Miss M. W. Latham.....	5	1	4	200	..	25.08	153	114	
d Reading (Forbury Gardens).....	A. S. Parsons, Esq., C.E.....	5	1	5	143	24.9	23.92	158	106	
d Reading (University College)....	Dr. J. A. Crowther.....	5	1	0	152	..	24.59	170	116	
d Reading (Caversham Lock).....	The Thames Conservancy.....	5	1	6	123	..	21.93	..	..	
d Chieveley (Priors Court).....	G. E. H. Palmer, Esq.....	5	1	0	403	..	24.20	..	119	
5.—THAMES—Ock & c. 319 sq. mi.										
d Bradfield (Cross Springs).....	Mrs. Preston-Tewart.....	5	0	10	325	..	25.98	169	123	
d Reading (Englefield).....	J. H. Benyon, Esq.....	5	1	0	175	27.4	24.68	149	116	
d Hermitage (Oare).....	F. Bateson, Esq.....	5	1	0	450	..	25.05	181	121	
d Bradfield (Buckhold Hill Ho.)....	N. Vaslet, Esq.....	5	1	0	300	..	25.86	152	128	
d Yattendon Court Apiary.....	N. Vaslet, Esq.....	5	1	0	350	..	25.06	163	126	
d Upton (Manor House).....	Miss C. S. Fry.....	5	1	0	240	..	23.24	165	113	
d Wantage (Lockinge Rectory)....	Rev. G. C. Keble.....	5	1	1	360	..	27.56	159	130	
d Kingstone Lisle Gardens.....	Mr. F. Brown.....	5	0	9	700	..	26.50	..	..	
d Uffington (Woolstone Lodge)....	Miss A. E. Butler.....	5	1	0	350	..	25.10	158	118	
d Uffington (Sherborne Cott.).....	T. E. Inwood, Esq.....	5	1	0	287	..	24.52	173	117	
d Steventon (Milton Hill).....	R. H. Betteridge, Esq.....	5	1	6	300	..	26.18	..	..	
d Wallingford (Winterbrook).....	Frank K. Weedon, Esq.....	5	1	0	150	..	25.70	160	118	
d Wallingford (St. Leonard's R.)....	Rev. A. Simmons.....	5	1	4	142	..	26.17	155	119	
d Wallingford (Style Acre).....	A. L. Morphew, Esq.....	5	1	4	220	..	27.67	164	131	
d Didcot (Sewage Works).....	Wallingford R.D.C.....	5	1	1	170	..	25.54	..	..	
d Abbots Wittenham Rectory.....	Rev. W. F. B. Ward.....	5	1	0	190	..	24.25	170	122	
d Long Wittenham (Willington)....	H. J. Hewett, Esq.....	5	1	0	167	..	25.97	162	130	
d Abingdon (Sewage Works).....	W. H. Lewis, Esq., C.E.....	8	1	0	169	..	24.92	181	126	
d Abingdon (The First).....	Miss G. G. Challenor.....	5	1	3	200	..	25.33	177	125	
d Abingdon (Donnington).....	R. W. Langford, Esq.....	5	1	0	199	..	26.59	168	128	
d Abingdon (Northcourt House)....	M. T. Tatham, Esq.....	5	1	0	190	..	24.13	165	121	
d Boars Hill (Sherwood).....	Rev. G. M. Nuttall-Smith, M.A. 5	1	0	444	..	27.55	161	120	..	
d Oxford (Kennington Nursery)....	W. G. Gray, Esq.....	5	0	10	300	..	27.80	..	111	

§ Gauge somewhat over-sheltered.



## DIVISION III—SOUTH MIDLAND COUNTIES.

STATIONS.	AUTHORITIES.	Diam.	Rain-gauge		Average Rain-fall.	1931.			
			Height of Rim above Ground.	Height of Ground above Sea Level.		Rain-fall.	Days with -01 in. or more.	Days with -04 in. or more.	
MIDDLESEX. (Area, 232 sq. mi.)					in.	in.	in.	in.	in.
1.—THAMES—Colne & Brent. 185 sq.mi.									
d Weybridge (Shepperton Lock).....	Thames Conservancy.....	5	1 0	41	..	23-26	146	109	
d Littleton (Queen Mary Res.).....	Met. Water Board.....	5	1 0	44	..	22-61	150	111	
d Hampton Waterworks .....	Met. Water Board.....	5	1 0	27	..	23-30	156	115	
d Hampton (The Manor House).....	J. Hughes, Esq.....	5	2 0	43	..	22-90	..	..	
d Kempton Works.....	Met. Water Board.....	5	1 0	40	..	21-47	138	102	
d Teddington (Holmesdale).....	E. J. Allcard, Esq.....	5	4 2	25	..	25-55	..	..	
d Staines Reservoir (West Side).....	Met. Water Board.....	5	1 6	53	..	23-89	154	116	
d Staines Reservoir (East Side).....	Met. Water Board.....	5	1 6	53	..	23-73	158	116	
d Twickenham (Sewage Works).....	The Borough Surveyor.....	5	1 0	37	..	22-48	153	108	
d Sipson (Hollycroft) .....	Mr. W. J. Mitchell.....	5	1 0	94	..	24-13	156	123	
d Kew Bridge (Waterworks).....	Met. Water Board.....	5	1 0	36	..	23-71	158	115	
d Chiswick (The Mall).....	Miss Laura E. Felkin.....	5	0 10	6	..	25-58	..	111	
d Chiswick (Turnham Green).....	E. Willis, Esq., C.E.....	8	1 0	27	..	24-67	..	..	
d Hanwell .....	Middlesex County Council ..	5	1 9	36	..	27-13	188	133	
d Ealing (St. Paul's Vicarage).....	Rev. A. H. Cooper.....	5	1 6	100	..	27-35	170	113	
d Ealing (Longfield Avenue).....	W. R. Hicks, Esq., C.E.....	5	0 9	114	..	23-81	148	111	
d Ealing (St. Stephen's Road).....	H. W. Peal, Esq.....	5	1 0	156	..	25-20	156	117	
d Hayes Sewage Works.....	Middlesex County Council ..	5	2 3	98	..	23-42	150	112	
d Ealing (Hanger Hill Reservoir).....	Met. Water Board.....	5	1 0	206	..	25-24	161	117	
d Greenford .....	Middlesex County Council ..	5	1 3	61	..	28-02	212	127	
d Perivale (Northern Sewage Farm).....	W. R. Hicks, Esq., C.E.....	8	1 0	58	..	26-20	179	129	
d Alperton (Sewage Works).....	C. R. W. Chapman, Esq., C.E.....	8	1 2	80	..	25-81	180	128	
d Willesden Reservoir.....	Met. Water Board.....	5	1 0	167	..	26-63	150	122	
w Willesden Green (Strode Road).....	Miss Lamport.....	5	1 0	150	..	26-42	..	..	
d Willesden (Stonebridge Fm.) (R).....	F. Wilkinson, Esq., C.E.....	10	5 9	100	..	23-69	148	115	
d Ickenham Sewage Works.....	Middlesex County Council ..	5	1 8	109	..	25-49	152	118	
d Sudbury (Station Approach).....	L. H. Powers, Esq.....	8	1 0	153	..	23-73	163	116	
d Golders Green (Dunstan Road).....	Capt. A. E. Mackenzie.....	5	1 0	240	..	25-40	163	118	
d Highgate (North Hill Depot).....	W. H. Adams, Esq., C.E.....	5	1 0	303	..	25-34	172	122	
d Harrow (Oakhurst).....	Hugh Gardner, Esq.....	5	1 0	295	..	25-22	178	113	
d Harrow (Bessborough Rd. Depot).....	J. P. Bennetts, Esq., C.E.....	5	1 0	215	..	26-18	..	124	
d Hendon (Sewage Works).....	A. O. Knight, Esq., C.E.....	6	1 6	153	..	25-23	155	116	
d Finchley (Church End) .....	Sr. Marie Hilda.....	5	0 8	300	..	(23-99)	..	..	
d Wealdstone (Sewage Works).....	H. Walker, Esq.....	5	1 0	154	..	24-91	152	118	
d Wealdstone (Kodak Works).....	Messrs. Kodak, Ltd.....	5	1 0	193	..	23-74	..	..	
d Harrow (Wealdstone House).....	Miss H. O. E. Cobb.....	5	1 0	236	..	23-60	(168)	(117)	
Northwood (Tandridge).....	Chas. Price, Esq.....	5	1 0	..	..	25-06	150	120	
d Northwood (Haslemere).....	Miss L. McBean.....	5	1 0	240	..	27-85	153	121	
d Pinner (The Four Winds).....	R. H. Daw, Esq.....	5	1 0	185	..	24-83	174	112	
d Edgware M.C.C. Depot.....	Middlesex County Council ..	5	0 9	179	..	26-00	150	118	
d Mill Hill (Ridgeway House).....	Major N. G. Brett-James... 5	1 0	375	..	24-17	161	115		
d Stanmore .....	Middlesex County Council ..	5	0 9	435	..	26-48	156	122	
d Highwood Hill.....	T. B. Norgate, Esq.....	5	0 11	375	..	26-63	180	118	
d Bushey Heath (Highfield).....	W.B. Worthington, Esq., C.E. 5	1 0	503	..	25-75	167	115		
d Potters Bar (Mount Grace).....	Mr. E. W. Halsey.....	5	1 3	375	..	28-09	175	120	
2.—THAMES—Lea. 47 sq. mi.									
d Stroud Green (Mount View Rd.).....	L. R. Bennett, Esq.....	5	1 0	212	..	24-50	170	110	
d Stroud Green (Oakfield Road).....	E. A. Madge, Esq.....	5	1 0	206	..	24-04	150	106	
d Crouch End (Barrington Rd.) (+A).....	W. H. Adams, Esq., C.E.....	8	1 0	118	..	26-52	175	124	
d Tottenham (Drayton Road).....	Medical Officer of Health... 5	1 3	51	23-3	24-05	144	103		
d Hornsey (High Street).....	Met. Water Board.....	5	1 2	107	..	23-88	146	109	
d Muswell Hill (Wightman Rd.).....	W. H. Adams, Esq., C.E.....	8	1 0	113	..	23-05	154	111	
d Muswell Hill (Sewage Farm) (+A).....	W. H. Adams, Esq., C.E.....	8	1 0	209	..	26-88	177	122	
d Wood Green (Maryland Road).....	F. C. Hornsey, Esq.....	6	1 0	110	..	23-93	158	110	
d Finchley (Victoria Park).....	P. T. Harrison, Esq., C.E.....	5	1 0	272	..	24-80	157	115	
d North Finchley.....	A. R. Bill, Esq.....	5	1 0	290	..	23-93	..	..	
d Tottenham (Gas Works) .....	The Chief Chemist .....	5	1 0	30	..	23-26	137	190	
d Bowes Park (Palmerston Road).....	W. H. Heathfield, Esq.....	5	1 0	100	..	23-82	171	108	
d Palmers Gr. (Broomfield Pk.) (+A).....	R. Phillips, Esq., C.E.....	8	1 6	136	..	25-62	150	119	
d Winchmore Hill (Elsiedene Road).....	V. E. Steers, Esq.....	5	1 0	150	..	30-35	172	110	
d Ponders End Pumping Station.....	Met. Water Board.....	5	1 0	45	..	23-00	141	101	
d Enfield (Southbury Road).....	Met. Water Board.....	5	1 0	105	24-7	24-17	166	110	

## DIVISION III—SOUTH MIDLAND COUNTIES—(con.).

		Rain-gauge				1931.		
STATIONS.	AUTHORITIES.	Diam.	Height of		Average	Rain-fall.	Days with ·01 in. or more.	Days ·04 in. or more.
			Rim above Ground.	Ground above Sea Level.	Rain-fall.			
MIDDLESEX—(con.).		in.	ft.	in.	ft.	in.	in.	
2.—THAMES—Lea.—(con.)								
d Enfield (Forty Hill).....	Dr. E. C. Carter.....	5	0	11	125	..	22·69	.. 103
d Enfield (Roselands, Turkey St.)...	E. S. Rashleigh, Esq.....	5	1	0	80	..	23·18	166 107
d Waltham Cross (Sewage Works)...	J. E. Sharpe, Esq.....	5	1	0	61	..	22·28	.. 102
HERTFORDSHIRE. (Area, 635 sq. mi.)								
1.—THAMES—Thame. 10 sq. mi.								
d Tring (Akeman St.).....	T. Grace, Esq.....	8	1	0	450	..	28·10	195 118
d Tring (Pendley Manor).....	Mrs. J. G. Williams.....	5	1	0	420	..	30·04	182 133
d Tring (Brookfield).....	Brig.-Gen. C. J. Steavenson, C.B., C.M.G.	6	1	3	430	..	26·69	170 116
2.—THAMES—Colne and Brent. 199 sq. mi.								
d Northwood (Woodhouse Eaves)....	Miss S. F. Fox, M.D.....	5	1	0	400	..	27·02	189 123
d Bushey Heath (California La.)....	C. C. Cooper, Esq.....	5	1	0	500	..	24·87	.. ..
w Totteridge (West Lodge).....	P. D. Walker, Esq.....	5	1	4	410	..	26·02	.. ..
d Rickmansworth (Croxley Green)...	S. Ingleby Oddie, Esq.....	5	1	0	262	..	27·19	.. ..
d Rickmansworth (Valley Road)....	E. L. Hawke, Esq.....	5	1	0	182	..	29·12	233 134
d Barnet (Bedford Avenue).....	Miss M. Haines.....	5	1	4	350	..	26·97	188 123
d Barnet (Sewage Works).....	E. Scott, Esq., C.E.....	5	1	0	295	..	26·39	194 121
d Elstree (Aldenham House).....	Mr. E. Beckett.....	10	4	9	305	..	23·18	.. 116
d Watford (Oxhey Grange).....	A. P. D. Penrose, Esq.....	5	0	7	295	..	26·03	164 113
d Watford (Colne Valley W.W.)....	C. P. Sinclair, Esq.....	5	3	0	200	..	23·74	167 112
d Watford (Waterworks).....	W. W. Newman, Esq., C.E.....	6	1	9	175	..	24·56	.. 108
d Watford (Cassiobury Pk. Av.)....	E. A. Robins, Esq.....	5	1	0	240	..	24·66	.. ..
d Watford (Park Road).....	Miss L. M. Slinn.....	5	1	6	257	..	(24·37)	.. ..
d Sarratt (Micklefield Green).....	J. O. Hickman, Esq.....	5	1	0	380	..	25·62	141 111
d Shenley Grange.....	J. Charrington, Esq.....	5	0	9	430	..	26·02	161 122
d Shenley (Kitwells).....	T. H. Riches, Esq.....	5	1	0	420	..	27·01	171 129
d Sarratt (Goldingtons).....	P. Clutterbuck, Esq.....	5	1	0	384	..	27·12	150 122
d Chipperfield (Little Callipers)...	Miss M. M. Rivington, .....	5	1	0	407	..	27·73	148 126
d Kings Langley (Fir Tree Cottage)...	Edward Toms, Esq.....	5	1	0	278	..	25·87	189 115
d Kings Langley (Langley Rise)....	F. W. Rowson, Esq.....	5	0	9	300	..	25·95	.. 120
d Park Street (Bricketwood).....	F. J. McLees, Esq.....	5	1	0	300	..	23·85	157 105
d Hemel Hempstead (Apsley Mills)....	Messrs. J. Dickinson & Co.....	24	1	4	268	27·9	28·99	180 122
d Colney Heath (Tyttenhanger P.S.)...	J. F. Haseldine, Esq.....	5	0	9	241	..	24·40	163 109
d Hemel Hempstead (Northridge)....	R. C. Micklem, Esq.....	5	1	0	460	..	30·05	203 131
d St. Albans (Co. Mental Hosp.)....	G. Goodchild, Esq.....	5	1	0	295	..	24·98	149 108
d St. Albans (County Museum).....	Mrs. Bullen.....	5	1	0	389	..	26·36	141 114
d St. Albans (Oaklands).....	J. Hunter Smith, Esq.....	5	1	0	272	..	24·72	148 107
d St. Albans (Gorhambury).....	Mr. O. Twitchett.....	5	1	0	423	..	27·64	160 127
d Hatfield (Hatfield P. Stn.).....	J. F. Haseldine, Esq.....	5	1	0	334	..	24·98	171 115
d Berkhamsted (Rossway).....	The Lady Hadden.....	5	1	1	590	..	33·15	215 144
d Berkhamsted (Anglefield).....	E. T. Browne, Esq.....	5	1	0	450	29·8	30·24	178 127
d Berkhamsted Golf Club.....	The Secretary.....	8	1	6	565	..	30·24	.. ..
d Tring (Cowroast Lock).....old g..	Grand Union Canal Co.....	5	3	6	394	28·4	27·93	150 123
d Tring (Cowroast Lock).....new g..	Grand Union Canal Co.....	5	1	0	390	..	29·31	150 129
d Redbourn (Crecy).....	Roger M. Dixon, Esq.....	5	1	0	350	..	(24·68)	(153) (114)
d Harpenden (Rothamsted) (+A)....	Lawes Agricultural Trust.....	8	0	9	420	26·7	24·08	163 111
d Harpenden (Rothamsted).....	Lawes Agricultural Trust.....	5	1	0	420	..	24·37	150 109
d Harpenden (Rothamsted).....	Lawes Agricultural Trust.....72+87	5	0	9	420	..	25·63	162 113
d Little Gaddesden (Ringshall End)...	H. C. Bradby, Esq.....	5	1	0	700	..	(28·45)	.. ..
3.—THAMES—Lea. 340 sq. mi.								
d Cheshunt (Manor House).....	J. E. Sharpe, Esq.....	5	1	0	83	..	23·57	.. ..
d Northaw School.....	C. Steventon, Esq.....	5	5	0	400	..	23·68	153 103
d Cheshunt Yard.....	Met. Water Board.....	5	1	0	100	..	22·92	155 ..
d Cheshunt (Cheshunt Park).....	J. A. Wanklyn, Esq.....	5	0	9	209	..	26·07	174 111
d Cheshunt (Darnicle Hill P. Stn.)...	Met. Water Board.....	5	1	0	250	..	26·34	158 124
d Hertford (Epping House).....	Lady Brodie Henderson.....	5	0	9	400	..	25·74	174 111
d Essendon Place Gardens.....	J. B. Healing, Esq.....	5	1	0	365	..	27·49	.. 104
d Little Berkhamstead.....	A. Noble, Esq.....	5	1	0	380	..	(25·56)	.. ..
d Hatfield (Co. Surveyor's Office)....	Lt.Col. A. E. Prescott, C.E.....	5	1	0	265	..	24·53	.. ..
d Hoddesdon.....	H. F. Hayllar, Esq.....	5	5	0	120	..	23·91	160 104
d Hoddesdon (Feilde's Weir).....	Met. Water Board.....	8	1	7	95	..	23·97	163 110

## DIVISION III—SOUTH MIDLAND COUNTIES—(con.).

		Rain-gauge				1931.		
STATIONS.	AUTHORITIES.	Diam.	Height of		Average Rain-fall.	Rain-fall.	Days with .01 in. or more.	Days with .04 in. or more.
			Rim above Ground.	Sea Level.				
HERTFORDSHIRE—(con.)								
		in.	ft.	in.	ft.	in.	in.	
3.—THAMES—Lea—(con.)								
d Haileybury College.....	The Headmaster.....	8	1	0	270	..	24.44	169 112
d Hertford (Bayfordbury).....	H. W. Clinton Baker, Esq..	8	1	2	250	..	26.30	174 123
d Stanstead Abbots (Warrax).....	E. H. Barlow, Esq.....	5	1	2	110	..	23.33	150 113
d Gilston Park.....	Mr. J. Dewhurst.....	8	1	0	175	..	26.55	176 126
d Welwyn Garden City (Estate Office)	H. A. Cook, Esq., C.E.....	5	1	0	246	..	24.17	152 111
d Hertford (Sewage Works).....	Met. Water Board.....	5	1	0	123	..	25.91	179 117
d Ware (Red House).....	Met. Water Board.....	5	1	0	105	..	24.50	157 105
d Ware Grammar School.....	The Headmistress.....	5	1	0	118	..	24.87	160 102
d Ware (Chadwell Spring).....	Met. Water Board.....	5	1	0	140	..	24.92	.. 113
d Welwyn Garden City (Valley Rd.)	Comdr. W. George Lingham.	5	1	0	300	..	25.63	191 114
d Welwyn (Harmer Green).....	Mrs. E. Weber.....	5	1	0	403	..	27.01	184 125
d Kimpton (Stoneheaps).....	S. Bendixson, Esq.....	5	1	3	400	..	(24.57)	.. ..
d Welwyn (Codicote Lodge).....	Mr. G. J. Miller.....	5	1	0	340	..	24.87	.. ..
d Much Hadham.....	T. Woodham Mott, Esq....	5	1	0	212	25.1	26.67	153 123
d Much Hadham (Lordship).....	Capt. W. Glynes Bruty....	5	0	10	205	..	(26.61)	(144) (111)
d Bishop Stortford (Twyford H.)	Laurie Frere, Esq.....	5	1	0	181	..	25.76	165 118
d Watton (Frogmore Hall).....	Lt.-Col. J. B. Gilliat, D.S.O.	5	0	9	250	..	24.62	154 117
d Standon.....	F. H. Wace, Esq.....	5	2	0	375	..	23.90	165 108
d Little Hadham (Hadham Hall)...	W. Minet, Esq.....	5	0	10	338	..	26.99	148 132
d Hitchin (King's Walden Bury)...	Major J. F. Harrison.....	8	1	2	400	..	23.84	.. 110
d Hitchin (Preston).....	R. de V. Pryor, Esq.....	8	1	0	484	..	25.87	154 118
d Furneaux Pelham (The Brewery)...	G. Warren Bindloss, Esq....	5	1	0	300	..	28.23	177 127
d Royston (Therfield Rectory).....	Rev. H. R. Humphreys....	5	1	0	512	25.2	27.52	178 132
4.—OUSE. 86 sq. mi.								
d Offley (School House).....	C. W. Mears, Esq.....	5	1	0	526	..	24.38	158 116
d Graveley Rectory.....	Rev. R. E. C. Walker.....	5	0	10	325	..	28.91	170 132
d Hitchin (Newlands).....	F. Ransom, Esq.....	5	1	0	271	..	26.28	179 111
d Hitchin (Chiltern Road).....	A. Latchmore, Esq.....	5	1	0	297	..	24.63	174 111
d Hitchin (High Down).....	Miss E. Pollard.....	5	1	1	421	..	26.47	210 119
d Letchworth (Gernon Road).....	A. W. Brunt, Esq.....	5	1	0	280	..	22.47	161 117
d Letchworth (Sollershott).....	Miss H. Leather.....	5	1	0	300	..	23.99	179 109
d Letchworth (Sollershott West)...	Edward Grubb, Esq.....	8	0	11	310	..	24.72	(184) (125)
d Letchworth (Fire Station).....	The Surveyor, U.D.C.....	5	1	0	290	..	21.32	.. ..
d Barley (Dalnyveed).....	W. F. Sermons, Esq.....	5	1	0	300	..	28.13	163 120
d Royston (Earls Hill House).....	Col. E. C. M. Phillips, D.S.O.	8	1	3	225	..	26.38	186 123
BUCKINGHAMSHIRE. (Area, 743 sq. mi.)								
1.—THAMES—Cherwell. 30 sq. mi.								
2.—THAMES—Thame. 158 sq. mi.								
d Parslow's Hillocks.....	Col. C. S. Prichard.....	5	1	0	770	..	30.60	195 127
d Towersey Vicarage.....	Rev. H. E. Cooper.....	5	1	0	250	..	29.08	173 135
d Ellesborough (The Springs).....	J. K. Bateman, Esq.....	5	1	2	400	..	28.47	.. ..
d Little Kimble.....	Dr. L. T. Burra.....	5	0	10	370	..	26.99	175 119
d Weston Turville.....	G. Eland, Esq.....	5	1	0	320	..	24.82	.. 117
d Tring (Bulbourne).....	Grand Union Canal Co....	5	1	0	401	..	23.91	170 124
d Aylesbury (Sewage Works).....	W. H. Taylor, Esq.....	5	1	0	251	..	24.61	202 118
d Mentmore Gardens.....	Mr. T. Lindores.....	5	1	3	400	..	26.26	.. 126
d Quainton (Quainton Cottage).....	L. H. West, Esq., O.B.E....	5	1	0	350	..	25.64	159 120
3.—THAMES—Wye & c. 129 sq. mi.								
d Eton (Tangier Island).....	F. N. McRae, Esq.....	5	0	8	68	..	25.23	169 114
d Slough (Upton).....	R. Bentley, Esq.....	5	1	0	78	23.9	24.28	166 115
d Taplow Court Gardens.....	G. H. Emmett, Esq.....	8	1	0	217	..	23.42	133 113
d Taplow (Hitcham Grange).....	Hon. C. S. Irby.....	5	1	0	180	..	22.02	134 107
d Henley-on-Thames (Greenlands)...	Lord Hambleton.....	5	1	0	116	..	26.32	132 114
d Bourne End.....	Major Forbes Holland.....	5	2	0	91	..	27.08	156 126
d Bourne End (Hedsor).....	J. Wood, Esq.....	8	1	0	170	..	26.89	134 119
d High Wycombe (Flackwell Hth.)	E. Dickson Park, Esq.....	5	1	10	365	..	26.49	166 128
d High Wycombe (Roy. Gram. Sch.)	The Headmaster.....	9	1	0	545	..	29.60	176 127
d Penn (Woodside).....	Miss E. M. T. Epps.....	5	1	0	500	..	29.15	200 134
d Penn (Rayners).....	Mr. E. Peett.....	5	1	10	547	..	28.91	161 125
d Hampden House.....	Countess of Buckinghamshire	5	1	0	695	..	30.99	178 132

## DIVISION III—SOUTH MIDLAND COUNTIES—(con.).

STATIONS.	AUTHORITIES.	Diam.	Rain-gauge			1931.			
			Height of Rim above Ground.	Ground above Sea Level.	Aver- age Rain- fall.	Rain- fall.	Days with ·01 in. or more.	Days with ·04 in. or more.	
BUCKINGHAMSHIRE—(con.)			in.	ft. in.	ft.	in.	in.		
4.—THAMES—Colne. 133 sq. mi.									
d Wraybury School	R. Watson, Esq.	5	0	8	59	..	23·99	..	..
d Slough (Ditton Park)	G. B. Harrison, Esq.	5	2	0	70	..	24·74	143	116
d Slough (Langley)	R. H. Major, Esq.	8	0	10	85	23·9	24·29	156	115
d Slough (Seed Trial Ground)	Messrs. Sutton & Sons.	5	0	9	100	..	24·86	..	..
d Stoke Poges (Council School)	S. A. Moore, Esq.	5	1	0	210	..	26·39	176	126
d Denham Golf Club	The Secretary	5	0	11	210	..	26·34	148	120
d Gerrards Cross (Bulstrode Gdns.)	Mr. G. Taylor	5	1	6	280	..	28·06	146	127
d Beaconsfield (Hall Barn)	J. Dickson, Esq.	5	0	8	341	..	26·21	..	..
d Chalfont St. Giles (Up Corner Cot.)	Capt. R. E. Field	8	0	8	300	..	27·85	156	127
d Beaconsfield	S. H. Dyer, Esq.	5	0	10	300	..	26·23	156	123
d High Wycombe (Hazlemere Sch.)	A. J. Chapman, Esq.	5	1	0	568	..	(28·45)	..	..
d Chalfont St. Giles (Roughw'd P'k.)	Thurston Agelasto, Esq.	5	1	0	400	..	26·76	174	122
d Amersham Common (Stanmore)	W. Garton, Esq.	5	1	6	517	..	29·41	179	127
d Gt. Missenden (Pumping Sta.)	Rickmansworth Water Co.	5	0	11	377	..	28·45	..	126
d Chesham (Nashleigh Hill)	Mrs. Hayes	5	1	0	530	..	28·01	(184)	(123)
d Mayortorne Manor	Miss N. E. Laycock	5	0	9	500	..	30·48	..	..
5.—OUSE. 293 sq. mi.									
d Oving House	Mrs. H. Yates Thompson	5	1	0	515	28·1	30·04	179	135
d Wing (Burcott)	R. H. Ayres, Esq.	5	1	6	407	..	28·91	170	132
d Swanbourne House School	L. L. C. Evans, Esq.	5	1	0	411	..	28·09	..	134
d Mursley Hall	Lady Beecham	8	1	0	490	..	26·95	173	122
d Buckingham (Market Hill)	A. Pettipher, Esq.	5	1	0	300	..	28·10	194	131
d Wavendon (Endowed School)	T. G. M. Watson, Esq.	5	1	0	300	..	25·79	169	127
d Stony Stratford (Calverton L.)	Lt.-Col. L. C. Hawkins	5	1	0	230	..	26·91	172	117
d Wolverton (St. George's Vic.)	Rev. Canon W. L. Harpett	5	1	0	270	..	25·60	188	118
d Wolverton (Gables Lodge)	J. Forster, Esq.	5	1	0	264	..	25·48	185	113
d Wolverton (Council School)	The Headmaster	5	5	0	263	..	24·96	..	..
d Newport Pagnell (Lathbury)	F. W. Coates, Esq.	8	1	2	228	..	23·92	158	110
d Turvey (Brayfield House)	Major D. Farrer, J.P.	5	4	0	188	..	24·81	..	119
OXFORDSHIRE. (Area, 756 sq. mi.)									
1.—SEVERN—Upper Avon. 10 sq. mi.									
d Sibford Ferris (Woolman Cottage)	Joshua Lamb, Esq.	5	1	0	570	27·6	31·15	183	127
2.—THAMES—Windrush & c. 261 sq. mi.									
d Kelmscott	R. Hobbs, Esq.	6	0	10	150	..	28·61	162	129
d Bampton (C.E. School)	E. W. Fry, Esq.	5	0	10	233	..	28·87	151	127
d Broughton Poggs	Mrs. Hardcastle	5	1	0	275	..	29·66	178	..
d Filkins	Hon. Sir Stafford Cripps, K.C.	5	2	7	279	..	27·85	180	127
d Witney (Cokethorpe)	Major H. G. Feilden	5	3	0	230	..	28·87	..	135
d Leafield (Wireless Station) (+A)	Meteorological Office	8	1	0	612	27·3	26·86	183	119
d Charlbury (Cornbury Park)	The Head Gardener	5	1	0	420	..	(29·41)	..	..
d Wootton Rectory	Rev. F. R. Marriott	5	1	0	375	..	26·46	164	131
d Lyneham	R. de M. Pratt, Esq.	5	1	0	351	..	24·61	181	125
d Bruern Abbey (The Gardens)	F. S. Smith, Esq.	5	1	0	340	..	28·48	173	133
d Chadlington (Langston House)	Lt.-Col. F. W. Schofield, CMG.	5	1	0	430	..	27·95	168	141
d Churchill (The Grange)	J. M. Blair, Esq.	8	1	0	501	..	26·12	177	128
d Chipping Norton (Heythrop Col.)	The Procurator	8	1	0	600	..	29·33	189	134
d Chipping Norton (Bungalow)	T. H. Pettipher, Esq.	6	1	0	750	..	28·73	201	131
d Chipping Norton (Choice Hill)	E. W. Arkell, Esq.	5	1	0	500	..	26·95	169	138
3.—THAMES—Cherwell. 250 sq. mi.									
d Nuneham Park Gardens	Mr. W. E. Hewitt	8	1	0	280	..	28·80	..	124
d Oxford (Hincksey Pumping Sta.)	City Engineer	8	1	0	187	..	27·51	183	122
d Oxford (Osney Lock)	Thames Conservancy	5	1	6	188	..	28·25	187	121
d Oxford (Magdalen College)	F. J. Parker, Esq.	5	1	0	186	23·8	26·85	177	121
d Oxford (Radcliffe Obs.) (+A)	H. Knox Shaw, Esq.	8	1	8	208	24·8	27·23	184	123
d Headington (Warneford Asy.)	Dr. A. W. Neill	5	1	0	300	..	26·44	155	124
d Headington (Forest Lodge)	Major A. V. Spencer, D.S.O.	5	0	11	333	..	27·88	163	134
d Headington Hill (Thornhill)	E. S. Fry, Esq.	5	1	0	..	..	26·29	183	126

## DIVISION III—SOUTH MIDLAND COUNTIES—(con.).

		Rain-gauge				1931.		
STATIONS.	AUTHORITIES.	Diam.	Height of		Average	Rain-fall.	Days with	Days
			Rim	Ground	Rain-fall.		·01 in.	·04 in.
			above	above			or	or
			Ground.	Sea Level.			more.	more.
OXFORDSHIRE—(con.)		in.	ft.	in.	ft.	in.	in.	
3.—THAMES—Cherwell—(con.)								
D Elsfeld (Home Farm).....	Miss M. J. Parsons.....	5	1	0	355	..	24·81	170
D Tackley (Hill Court).....	W. Evetts, Esq., Junr.....	5	1	0	340	27·9	27·01	178
D Middleton Park (new g).....	The Earl of Jersey.....	5	1	6	326	..	27·52	157
D Upper Heyford (+A).....	The Meteorological Office... 8	1	0	408	..	27·26	183	129
D Steeple Aston (The Grange).....	Arthur E. Bradshaw, Esq.. 8	1	0	400	27·2	27·45	181	131
D Deddington (Souldern Court).....	P. Withers, Esq.....	5	1	0	340	..	27·70	171
D West Adderbury (Little Manor)...	Lt.-Col. H. E. du C. Norris... 5	0	10	330	..	27·66	177	124
D West Adderbury (Cross Hill).....	Lt.-Col. H. E. du C. Norris.. 5	1	0	338	..	27·00	184	116
D West Adderbury (St. Amand's)...	Miss M. M. Bradford.....	8	1	2	320	..	27·08	167
D Adderbury (The Rookery).....	C. C. Bradford, Esq.....	8	1	0	323	..	29·80	187
D Banbury (Cotefield).....	Capt. C. N. Keyser.....	5	1	0	300	..	26·82	..
D Broughton Rectory.....	Rev. B. W. Bradford.....	5	1	6	370	..	30·04	184
D North Newington (Grafton Cot.)...	W. Pikesley, Esq.....	5	1	0	425	..	27·82	176
D*Grimsbury (Banbury W.W.).....	Banbury Water Co.....	5	1	3	316	..	24·91	191
D Wroxton.....	Hon. Mrs. Fitz Gerald....12	1	6	500	..	28·74	174	125
4.—THAMES—Thame & c. 210 sq. mi.								
D Caversham (St. Peter's Hill).....	Rev. G. V. Proctor.....	5	1	0	220	..	23·78	150
D Goring Heath.....	Rev. Canon F. T. Wintle ... 5	1	0	400	..	26·86	188	131
D Goring.....	G. C. Turner, Esq.....	5	1	0	159	..	25·74	168
D Harpsden (Cray).....	(+A).....B. E. Dunbar Kilburn, Esq.. 5	1	0	230	..	26·36	150	114
D Henley-on-Thames (Hart St.).....	A. Edward Hobbs, Esq.... 5	1	6	110	..	25·47	144	113
D Henley-on-Thames (Greys Lane)...	G. F. Smith, Esq.....	5	0	9	123	..	27·66	136
D Henley-on-Thames (Greys Gr.)...	Mrs. H. Wolferstan.....	5	1	6	350	..	29·21	191
D Ipsden (Hailey).....	Glynne Williams, Esq.....	5	1	0	350	..	25·76	185
D Nettlebed (Joyce Grove) No. 1....	Mr. F. Morby.....	5	1	0	590	..	31·13	133
D Swyncombe House.....	C. W. Christie-Miller, Esq.. 5	1	0	515	..	31·58	160	137
D Culham.....	F. Mitchell, Esq.....	5	0	10	180	..	23·22	151
D Culham (Zouch Farm).....	P. E. Saunder, Esq.....	5	3	0	186	..	24·07	..
D Culham College.....	E. H. Metcalf, Esq.....	5	1	0	213	..	24·73	169
D Clifton Hampden (Manor House)...	Lord Aldenham.....	5	1	0	190	24·9	27·11	157
D Watlington (Pyrtton Manor).....	Major H. Ducat Hamersley. 5	1	0	325	26·7	26·86	175	136
D Wheatfield.....	A. J. Spencer, Esq.....	5	0	11	275	..	28·04	138
D Toot Baldon (Potland).....	D. Clinkard, Esq.....	5	1	0	288	..	26·70	153
5.—OUSE. 25 sq. mi.								
NORTHAMPTONSHIRE. (Area, 1003 sq. mi.)								
1.—SEVERN—Upper Avon. 60 sq. mi.								
D*Rugby (Kilsby Vicarage).....	Rev. C. Ryder Macnally.... 5	0	10	450	..	28·06	155	106
D Winwick Warren.....	Capt. P. L. Ransom.....	8	1	5	648	..	27·73	215
D Naseby Reservoir.....	Grand Union Canal Co.... 5	1	6	519	..	24·78	205	125
2.—THAMES—Cherwell. 77 sq. mi.								
D Croughton.....	C. A. St. George Moore, Esq. 5	1	0	430	..	26·60	167	127
D*King's Sutton (Manor House).....	G. Morgan, Esq.....	5	1	0	338	..	28·26	128
3.—OUSE. 148 sq. mi.								
D*Brackley (Waterworks).....	W. M. Oldreive, Esq.....	5	1	2	471	..	25·31	160
D Silverstone (Council School).....	J. P. Osborne, Esq.....	5	1	0	400	..	26·48	..
D Wappenham (Lois Weedon Vic.)...	Rev. E. V. Fenn.....	5	1	2	400	..	26·04	182
D Towcester (Bradden House).....	Miss U. Grant-Ives.....	5	0	10	420	..	26·80	180
D Towcester (Easton Neston).....	Sir T. Fermor-Hesketh, Bt.. 8	1	0	325	..	24·42	169	109
D Roade (Council School).....	R. W. Janes, Esq.....	8	1	0	394	..	26·53	..
w Hargrave Hall.....	Sir K. Murchison.....	5	1	0	273	..	24·97	..
4.—NENE. 622 sq. mi.								
D Salcey Forest.....	Forestry Commission.....	8	1	3	370	..	24·46	163
D*Blisworth (Crief House).....	A. Westley, Esq.....	5	1	0	351	25·1	24·97	185
D Blisworth (Grand Junc. Canal)...	Grand Union Canal Co.... 5	1	6	300	..	23·52	178	109
D*Little Houghton House.....	Christopher Smyth, Esq.... 5	1	0	270	..	23·83	161	113

\* Reporting to Northamptonshire Natural History Society (where the return is received from the N.N.H.S. the asterisk is after the observer's name).

## DIVISION III—SOUTH MIDLAND COUNTIES—(con.).

STATIONS.	AUTHORITIES.	Diam.	Rain-gauge			Average Rain-fall.	1931.			
			Height of Rim above Ground.	Ground above Sea Level.	ft.		in.	Rain-fall.	Days with .01 in. or more.	Days with .04 in. or more.
NORTHAMPTONSHIRE—(con.)						in.				
4.—NENE—(con.)										
d Northampton (Upton).....	J. R. Foster, Esq.....	5	1	0	270	..	22.16	..	110	
d*Northampton (General Hosp.)....	H. St. John Wood, Esq....	5	1	1	259	..	21.92	159	101	
d Northampton (Mental Hosp.).....	W. R. Budgen, Esq.*.....	8	1	2	398	..	22.59	..	..	
d*Northampton (Stimpson Av.).....	F. Tomlinson, Esq., C.E.§ ..	8	1	0	329	..	22.72	153	105	
d*Northampton (Mercers Row).....	R. H. Primavesi, Esq.....	5	12	0	240	..	22.68	183	109	
d*Flore .....	Major C. A. Markham.....	5	1	0	344	..	26.10	167	128	
d*Duston (Southfield Road).....	W. P. Walker, Esq.....	5	1	0	342	..	24.76	157	119	
d Wollaston .....	G. Harris, Esq.....	5	2	0	250	..	22.42	163	105	
d Daventry (Tunnel End).....	Grand Union Canal Co.....	5	1	6	394	..	25.54	184	119	
d Althorp Park .....	Mr. G. Low*.....	5	1	3	414	..	27.41	..	..	
d Sywell Hall .....	Brig.-Gen. H. E. Stockdale..	5	1	0	371	..	26.09	188	121	
d*Pitsford (Sedgebrook).....	Major C. A. Markham.....	5	1	0	311	24.5	26.26	141	116	
d*Wellingborough (Swanspool).....	R. S. Henshaw, Esq., C.E... 5	1	0	169	24.3	24.42	181	114		
d Wellingborough (Sewage Works)...	R. S. Henshaw, Esq., C.E... 5	1	0	139	..	22.63	156	114		
d Wellingboro' (Bushfield W.W.)....	R. S. Henshaw, Esq., C.E... 8	0	11	286	..	22.53	174	112		
*Watford Court.....	Lord Henley.....	8	1	0	430	..	29.00	..	..	
d Ravensthorpe.....	F. Tomlinson, Esq.....	5	1	0	370	..	25.65	178	120	
d Raunds (Day School).....	The Headmaster.....	5	1	0	200	23.5	23.61	163	106	
d Lamport Hall Gardens.....	Mr. H. Tyrrell.....	8	1	0	420	..	26.32	151	131	
d Kettering W.W. (Cransley).....	Major J. P. Haugh.....	8	1	0	275	..	23.54	175	117	
d*Kettering (Sewage Works).....	Major J. P. Haugh.....	8	1	0	199	..	25.04	186	127	
d Kettering W.W. (Thorpe Malsor)...	Major J. P. Haugh.....	5	1	0	351	..	24.05	193	126	
d Kettering W.W. (Clover Hill).....	Major J. P. Haugh.....	5	1	0	344	..	25.02	173	126	
d Thrapston (Drayton House).....	Mr. C. V. Craske.....	5	1	6	220	..	26.88	145	129	
Rothwell (Loddington).....	Mr. J. Oliff.....	5	1	0	400	..	24.82	..	125	
Tichmarsh Rectory.....	Rev. Canon A. M. Luckock*..	5	1	0	170	..	24.57	..	..	
d Rothwell (Shotwell Mill W.W.)....	The Surveyor, U.D.C.....	5	1	6	340	..	22.51	151	113	
d Desborough Council School.....	F. W. Grudgings, Esq.....	5	1	0	400	..	25.62	..	..	
d Desborough U.D.C. Waterworks...	A. Harris, Esq., C.E.....	5	0	9	457	..	24.27	..	113	
d Barnwell (Lilford Hall).....	Lord Lilford.....	5	1	0	..	..	20.98	..	..	
d Oundle (Milton Road).....	J. M. Siddons, Esq., C.E... 5	1	6	131	22.3	19.46	..	106		
d*Oundle School.....	The Headmaster.....	8	1	0	147	..	20.38	174	110	
d Peterborough (Westbourne Ho.)...	E. H. Colman, Esq.....	5	1	0	35	..	21.66	165	113	
d*Peterborough (Abbeyfields).....	Major J. Shipley Ellis, J.P.. 5	1	0	49	..	22.34	181	109		
d Peterborough Park.....	W. H. A. Court, Esq.....	5	0	11	45	..	21.11	..	..	
d*Peterborough (Milton Park).....	Mr. E. A. Parker.....	5	2	0	86	..	22.81	176	118	
d Wittering (Whitewater).....	E. Betts, Esq.....	8	1	0	241	..	22.44	..	..	
d Wittering (Bone Mill).....	E. Betts, Esq.....	8	1	0	..	..	22.16	..	..	
d Eye (Northolt).....	S. M. Egar, Esq.....	5	1	0	17	..	22.64	183	110	
d*Eye (Newborough).....	R. Williams, Esq.....	5	1	0	8	..	23.39	161	112	
5.—WELLAND. 96 sq. mi.										
Market Harboro' (Dingley Hall)...	Mr. V. Read*.....	5	1	6	406	..	28.24	..	..	
d Weston-by-Welland.....	Major N. H. Matthews.....	5	1	3	254	..	28.74	176	131	
d*Rockingham Castle Gardens.....	Mr. C. Mears.....	5	1	0	450	..	26.67	..	111	
d Gretton School .....	W. Leeson, Esq.....	5	1	6	365	..	22.64	162	104	
d Easton-on-the-Hill .....	W. H. Tillson, Esq.....	5	0	7	290	23.5	22.86	..	..	
d Market Deeping (Etton).....	W. H. A. Court, Esq., C.E... 8	1	0	25	..	21.74	..	110		
HUNTINGDONSHIRE. (Area, 366 sq. mi.)										
1.—OUSE. 327 sq. mi.										
d St. Neots (The Square).....	Miss L. Sibley.....	5	0	10	50	..	24.22	197	124	
d Hemingford Grey.....	G. F. Wilson, Esq.....	5	1	6	20	21.9	20.78	..	101	

\* Reporting to Northamptonshire Natural History Society (where the return is received from the N.N.H.S. the asterisk is after the observer's name).

§ "Ground" is the roof of a reservoir 18 ft. above the general level.

## DIVISION III—SOUTH MIDLAND COUNTIES—(con.).

STATIONS.	AUTHORITIES.	Diam.	Rain-gauge				1931.		
			Height of		Average		Rain-fall.	Days with .01 in. or more.	Days with .04 in. or more.
			Rim	Ground	Ground	Rain-fall.			
			above	above	above				
			Ground.	Sea Level.					
HUNTINGDONSHIRE—(con.)			in.	ft. in.	ft.	in.	in.		
1.—OUSE—(con.).									
d St. Ives (Slepe House).....	Dr. W. R. Grove.....	5	1	0	25	22·6	22·07	157	104
d Huntingdon (Hinchbrook).....	W. Prowting, Esq. ....	5	2	0	70	22·4	24·94	175	116
d Catworth (School House).....	J. H. Annet, Esq. ....	5	0	9	210	23·7	23·74	171	111
d Wistow Rectory.....	Rev. C. C. Pratt.....	5	2	0	50	..	25·18	137	107
d Whittlesea Mere.....	L. I. Clark, Esq. ....	8	1	6	10	21·4	22·48	163	115
2.—NENE. 39 sq. mi.									
BEDFORDSHIRE. (Area, 467 sq. mi.)									
1.—THAMES—Colne. 20 sq. mi.									
d Whipsnade Park.....	The Zoological Society....	5	1	1	712	..	28·38	..	..
d Luton (Stockwood).....	Capt. H. C. Ross-Skinner... 5	1	0	539	..	26·74	172	115	
2.—THAMES—Lea. 32 sq. mi.									
d Luton (Pumping Station).....	J. W. Tomlinson, Esq., C.E.. 5	1	0	343	25·9	26·78	175	114	
d Dunstable (Cement Works).....	Works Manager.....	8	1	0	430	..	26·08	176	117
d Luton (Wardown Park).....	J. W. Tomlinson, Esq., C.E.. 5	1	0	381	..	25·51	169	115	
d Luton (The Downs).....	G. W. Pryer, Esq. ....	5	1	0	479	..	26·49	152	119
3.—OUSE. 408 sq. mi.									
d Shefford (Stondon Manor).....	R. Long, Esq. ....	5	1	0	241	..	26·05	..	117
d Hockliffe (Lyndhurst)†.....	C. J. Kilby, Esq. ....	5	1	0	350	..	26·25	..	123
d Woburn (Experimental Farm).....	Lawes Agricultural Trust... 8	1	0	291	24·2	26·16	180	118	
d Woburn (Fruit Farm, Ridgmont).....	E. J. Hobbs, Esq. ....	5	1	0	270	..	25·84	..	116
d Letchworth (New Sewage Works).....	The Surveyor, U.D.C.....	5	1	0	195	..	23·97	167	111
d Stotfold (Three Co. Mental Hos.).....	Dr. L. O. Fuller.....	5	1	0	220	23·2	23·00	172	107
d Meppershall.....	W. Ransom & Son, Ltd....	5	0	9	235	..	26·31	..	..
d Shefford (Clifton Bury).....	W. Inskip, Esq. ....	5	1	0	137	..	24·09	176	115
d Shefford Council School.....	The late G. F. Alldritt, Esq.. 5	1	0	126	..	28·90	188	127	
d Shefford (Stanford).....	H. Inskip, Esq. ....	5	2	0	90	..	23·09	..	..
d Southill School.....	B. Perkins, Esq. ....	5	0	9	145	..	25·22	196	122
d Biggleswade (New Spring P.S.).....	T. A. Staniforth, Esq.....	5	1	6	180	..	23·66	164	106
d Cardington (+A).....	The Meteorological Office... 8	0	10	100	..	20·89	168	107	
d Sandy (The Lodge).....	Mr. R. Pettifer.....	5	1	0	200	..	24·70	159	120
d Sandy (Mogerhanger Park).....	Dr. C. G. Welch.....	5	1	0	..	..	23·49	149	121
d Sandy (Sewage Works).....	Sandy U.D.C.....	5	0	8	75	..	23·37	..	..
d Bedford (Castle Road).....	Miss M. E. Newbery.....	5	7	0	108	..	22·69	167	113
d Bedford (Bedford Park).....	The Borough Engineer.....	8	1	3	117	..	20·44	158	107
d Great Barford House.....	J. Arnold Whitchurch, Esq.. 5	1	0	120	..	21·52	159	104	
d Sharnbrook (Castle Close).....	L. Stileman-Gibbard, Esq.. 5	1	0	210	..	24·67	204	126	
4.—NENE. 7 sq. mi.									
CAMBRIDGESHIRE. (Area, 859 sq. mi.)									
1.—STOUR. 17 sq. mi.									
2.—OUSE. 741 sq. mi.									
d Ashwell (Odsey).....	W. Herbert Fordham, Esq.. 5	2	0	256	23·0	25·25	180	118	
d Litlington Vicarage.....	Rev. M. de Courcy-Ireland.. 8	1	0	80	..	25·46	152	109	
d Bartlow (Castle Camps Sch.).....	The Headmaster.....	5	1	0	400	..	(24·40)	..	..
d Guilden Morden Vicarage.....	Rev. L. G. S. Price.....	5	1	0	140	21·9	22·20	176	116
d Abington Pigotts Hall†.....	Rev. M. de Courcy-Ireland.. 5	1	0	78	21·8	23·25	151	..	..
d Melbourn (Melbourn Bury).....	A. R. Fordham, Esq. ....	5	1	0	90	..	24·43	191	126
d Meldreth (Chiswick Farm).....	A. A. Howard, Esq. ....	5	1	1	70	22·4	24·01	193	123
d Whittleford (Scotts).....	Robert Maynard, Esq.....	5	0	6	68	22·3	26·54	..	..
d Wimpole Hall.....	W. J. Snell, Esq. ....	5	1	0	141	23·0	23·89	134	106

† Previously at Hockliffe (Wistaria).

† Previously at Rectory.

## DIVISION III—SOUTH MIDLAND COUNTIES—(con.).

STATIONS.	AUTHORITIES.	Diam.	Rain-gauge				1931.			
			Height of Rim above Ground.	Ground above Sea Level.	Average Rain-fall.	Rain-fall.	Days with ·01 in. or more.	Days with ·04 in. or more.		
CAMBRIDGESHIRE—(con.)			in.	ft.	in.	ft.	in.	in.		
2.—OUSE—(con.)										
d Shelford (Stapleford House).....	J. H. H. Linton, Esq.....	5	2	3	64	22·3	25·11	..	124	
d Balsham Rectory .....	Rev. H. J. E. Burrell.....	5	2	6	399	23·0	25·05	143	114	
Long Stow .....	S. Welsford Pain, Esq.....	5	1	0	240	..	24·31	..	..	
d Grantchester (Lyndewode) .....	J. Nutter, Esq.....	5	1	0	31	22·6	25·17	148	123	
d Fulbourn (Fleam Dyke).....	Cambridge W.W. Co.....	5	1	0	99	21·0	23·10	169	119	
d Fulbourn Pumping Station.....	Cambridge W.W. Co.....	5	1	0	37	22·9	22·31	163	113	
d Fulbourn (Cambridge Mental Hos.)..	The Farm Bailiff.....	5	1	6	72	..	25·18	157	121	
d Cambridge W.W. (Cherryhinton)...	Cambridge W.W. Co.....	5	1	0	35	21·6	22·37	..	103	
Cambridge (Hills Road).....	Smith Nutter, Esq.....	8	0	10	45	23·8	26·37	..	..	
d Cambridge (Corporation Store Yd.)..	G. W. Teasdale, Esq., C.E... 5	1	8	52	21·2	22·62	151	107		
d Cambridge (Botanic Gardens).....	The Curator.....	5	1	1	41	21·8	23·22	142	111	
d Cambridge (Corporation Ppg. St.)..	G. W. Teasdale, Esq., C.E... 5	1	7	28	22·1	22·86	153	109		
d Cambridge (University Farm).....	The Director.....	5	1	0	81	..	24·69	153	117	
d Caxton .....	Dr. E. P. H. Dudley.....	5	1	0	170	23·3	21·61	142	115	
d Quy Hall.....	Miss M. S. Francis.....	5	0	9	23	22·6	24·55	157	125	
d Boxworth (Manor House).....	E. H. Thornhill, Esq.....	5	1	0	76	23·4	23·78	183	113	
d Swaffham Prior Vicarage.....	Rev. L. Fisher.....	5	1	0	44	21·3	24·17	164	121	
d Oakington .....	A. H. V. Bloom, Esq.....	5	1	9	27	..	24·04	..	100	
d Burwell (Manor House).....	J. G. Faircliffe, Esq.....	5	1	0	50	23·0	22·01	..	109	
d Cottenham (Bernard House).....	Miss K. Bull.....	5	1	6	30	22·1	24·86	183	116	
d Conington (Conington Hall) .....	P. T. Gardner, Esq.....	5	1	0	50	24·7	21·93	..	111	
d Fordham (London House).....	W. V. Bloom, Esq.....	5	1	0	30	21·4	20·69	141	114	
d Stretham Engine .....	E. Stevens, Esq.....	5	4	9	13	21·2	22·81	133	108	
Stretham (Orchard House).....	Miss Wright.....	8	4	6	42	22·0	(24·17)	..	..	
d Prickwillow Vicarage.....	Rev. W. Francis Hicks.....	5	1	6	5	..	24·45	164	116	
d Littleport (Highfield House).....	H. G. Martin, Esq.....	8	4	0	67	21·3	24·38	150	119	
d Chatteris (Aylesby House).....	P. A. S. Ruston, Esq.....	5	1	6	31	22·5	23·39	..	110	
d March.....	L. I. Clark, Esq.....	9	2	0	10	22·8	22·53	..	112	
d Upwell (Marmont Priory Lock)....	L. I. Clark, Esq.....	8	1	1	..	20·6	26·55	160	109	
3.—NENE. 101 sq. mi.										
d Stanground Sluice.....	L. I. Clark, Esq.....	8	1	6	15	20·3	22·37	163	113	
d Parson Drove (Clows Cross).....	W. Kingston, Esq.....	8	1	0	6	22·1	24·49	168	123	
d Wisbech (Horticultural Station)...	W. G. Kent, Esq.....	5	1	0	10	..	25·27	165	117	
d Wisbech (Queen's Road).....	C. Dann, Esq.....	5	1	6	10	26·3	25·88	164	120	
d Wisbech (Tydd Manor).....	A. H. Carter, Esq.....	5	6	6	..	..	24·58	..	115	

## DIVISION IV—EASTERN COUNTIES.

ESSEX. (Area, 1,532 sq. mi.)

## 1.—THAMES.—Lea. 132 sq. mi.

d West Ham (Abbey Mills).....	London County Council....	8	0	10	15	..	22·07	137	106
d Leyton (Sewage Works) (+A)....	A. P. Howell, Esq., C.E....	5	0	9	22	..	22·67	150	106
d Leytonstone (High Road).....	Miss G. Lister.....	5	1	3	100	..	25·16	191	113
d Lea Bridge (Waterworks).....	Met. Water Board.....	5	0	6	23	..	20·98	..	110
d Walthamstow (Ferry Lane).....	Met. Water Board.....	5	0	6	40	23·9	22·63	142	102
d Woodford (Haggar Lane).....	Met. Water Board.....	8	0	8	176	..	23·94	142	103
d Buckhurst Hill Reservoir.....	Met. Water Board.....	8	1	6	275	..	24·95	150	112
d Buckhurst Hill (Ardmore).....	Miss E. F. Howard.....	8	0	6	270	..	26·11	150	121
d Chingford (Crescent Road).....	Miss M. L. Mathieson.....	5	0	10	200	..	24·48	156	101
d Chingford Mill.....	Met. Water Board.....	8	0	6	40	..	25·42	..	97
d Loughton (High Beech Res.)....	Met. Water Board.....	5	0	8	376	..	26·15	153	118
d Waltham Abbey (Rammey Marsh)...	Met. Water Board.....	8	1	0	60	..	22·79	160	101
d Waltham Abbey (Pumping Sta.)...	Met. Water Board.....	5	2	0	66	..	22·89	161	97
d Waltham Abbey (Gunpr. Fact.)...	The Superintendent .....	5	1	0	64	..	22·96	..	..
d Hatfield Broad Oak (Barrington)...	A. H. Gosling, Esq.....	5	0	10	300	..	27·03	178	109
Bishop Stortford (Hassobury)....	Major W. S. Gosling.....	5	0	10	290	..	27·71	171	..
d Stansted (Birchalls).....	Mr. W. White.....	5	1	0	290	..	30·33	..	..



## DIVISION IV—EASTERN COUNTIES—(con.).

STATIONS.	AUTHORITIES.	Diam.	Rain-gauge			Average Rain-fall.	1931.					
			Height of Rim above Ground.	Ground above Sea Level.	ft.		in.	Rain-fall.	Days with or more.	Days with or more.		
ESSEX—(con.)										in.		
1.—THAMES—Lea—(con.)												
d Elsenham (Gaunts End).....	H. Cotterell, Esq.....	5	1	0	363	24.6	26.99	170	111			
d Stansted (Hargrave Park).....	A. H. Abraham, Esq.....	5	1	3	300	..	29.22	159	116			
d Stansted (Bentfield Place).....	U. D. Gosling, Esq.....	5	0	9	300	..	28.22	178	120			
2.—THAMES—Roding, etc. 316 sq. mi.												
d Grays (Sewage Works).....	The Manager.....	8	1	0	7	..	19.20	140	89			
d Tilbury (Park View Observatory) ..	S. A. Hill-Willis, Esq., C.E..	5	1	0	6	..	18.59	..	..			
d Grays (Stanley Road).....	Grays U.D.C.....	5	3	3	21	..	20.67	..	93			
d Rainham (Riverside Sew. Works) ..	Dagenham U.D.C.....	8	1	3	5	..	19.65	143	92			
d East Ham (Central Park).....	Public Health Dept.....	12	1	0	15	..	21.60	154	104			
d East Ham Well.....	Met. Water Board.....	5	1	0	17	..	21.48	138	101			
d Dagenham Sanatorium.....	The Medical Superintendent	5	1	0	18	..	18.80	140	97			
d Forest Gate (Monega Road).....	C. E. Golding, Esq.....	5	0	11	20	..	21.53	160	102			
d Ilford Sewage Works.....	The Borough Engineer.....	5	1	0	31	..	20.66	151	95			
d Leigh (Brick House).....	Miss I. Bentall.....	5	0	10	136	..	20.35	..	105			
d South Benfleet (Hillside Road) ..	H. A. Marshall, Esq.....	5	1	0	55	..	20.43	136	95			
d Vange Pumping Station.....	Southend Water Works Co..	5	1	0	43	..	19.29	..	..			
d Manor Park (City of L'dn. Cem.) ..	The Superintendent.....	5	0	6	50	..	23.01	..	..			
d Pitsea Pumping Station.....	Southend Water Works Co..	5	1	0	28	..	20.43	..	..			
d Hornodon (Eastern Sew. Works) ..	W. J. Grant, Esq.....	8	1	6	23	..	19.95	153	96			
d Hornchurch.....	Hornchurch U.D.C.....	8	1	6	44	..	21.04	151	87			
d Wanstead (Red Bridge).....	Met. Water Board.....	5	0	6	45	..	23.38	142	97			
d Romford (London Rd. School).....	The Headmaster.....	5	1	6	20	..	(20.62)	..	..			
d Havering-atte-Bower (Fernside) ..	Benjamin Smith, Esq.....	5	1	0	340	..	26.43	184	123			
d Theydon Bois (Birch Hall).....	Mrs. Gerald Buxton.....	5	1	0	300	..	21.00?	..	..			
d Theydon Bois (The Vicarage).....	Mrs. M. C. Ames.....	5	0	10	240	..	24.42	..	111			
d Theydon Bois (Fernside).....	C. W. Browne, Esq.....	5	0	11	300	..	23.01	..	107			
d North Weald (Canes).....	H. W. Hart, Esq.....	5	1	0	250	..	25.01	160	119			
3.—CROUCH. 186 sq. mi.												
d Shoeburyness (New Ranges).....	The Meteorological Office... 8	1	0	11	18.9	18.90	153	93				
d Southend (The Cliffs).....	The Pier Master.....	8	1	0	90	19.7	19.28	170	96			
d Southend (Kilworth Avenue).....	H. J. G. Ralph, Esq.....	8	1	0	78	..	20.30	160	104			
d Southend (Waterworks).....	Southend Water Works Co..	8	1	0	112	21.1	20.19	171	103			
d Westcliff-on-Sea.....	Messrs. Boatman, F.S.M.C..	5	1	0	100	..	19.78	162	97			
d Leigh Reservoirs.....	Southend Water Works Co..	5	1	0	177	..	21.32	..	..			
d Great Wakering.....	The Meteorological Office... 5	1	0	11	18.4	19.26	147	103				
d Little Wakering Vicarage.....	Rev. B. S. Mercer.....	5	1	0	15	..	21.35	180	113			
d Eastwood Pumping Station.....	Southend Water Works Co..	8	1	0	50	..	21.12	171	105			
d Thundersley Reservoir.....	Southend Water Works Co..	5	1	0	277	..	21.63	153	97			
w Nevendon Pumping Station.....	Southend Water Works Co..	5	1	0	43	..	19.29	..	..			
d Foulness (Court End).....	Terence More, Esq.....	5	1	0	10	..	20.35	142	98			
d Billericay (Service Tank).....	Southend Water Works Co..	5	1	0	310	..	18.83	149	100			
d Billericay (Ramsden Hall).....	T. W. Bacon, Esq.....	5	0	9	260	..	22.51	162	110			
d Wickford (Runwell Hall).....	Miss A. Kemble.....	5	0	7	75	24.2	21.96	..	..			
d Southminster (Dudswell).....	Mrs. H. G. Owen.....	5	0	5	60	..	21.36	140	97			
d Southminster (The New Moor)....	E. J. Attenborough, Esq....	5	1	6	72	..	19.61	..	92			
d Bradwell-on-Sea (Bradwell H.)....	H. D. Chillingworth, Esq... 5	4	0	27	20.7	21.58	..	105				
4.—BLACKWATER. 425 sq. mi.												
d Shenfield (The Lodge).....	Harcourt P. Landon, Esq.. 5	1	0	305	..	24.15	148	108				
d South Hanningfield (Bearmains) ..	C. W. Gardner, Esq.....	8	1	10	220	..	21.93	..	108			
d Ingatestone (Trueloves).....	W. Ransom, Esq.....	5	1	0	249	..	23.05	175	111			
d Ingatestone (Fryerning).....	A. E. Christy, Esq.....	5	1	0	290	..	24.26	218	112			
d Maldon.....	Town Clerk.....	5	1	0	14	..	18.69	150	96			
d Writtle (Melbourne).....	J. A. Rosling, Esq.....	5	0	9	140	..	24.46	178	108			
d Chelmsford (County Laboratory) ..	East Anglian Inst. Agric... 5	1	0	134	22.3	22.68	166	106				
d Chelmsford (High Street).....	Miss F. J. Chancellor.....	8	1	6	98	22.5	26.24	170	107			
d Langford (Treatment Plant).....	Southend Water Wks. Co.. 8	1	5	40	..	21.62	166	105				
d Witham (Wickham Hall).....	D. B. Smith, Esq.....	5	0	10	60	..	18.95	..	98			
d Good Easter.....	East Anglian Inst. Agric... 5	1	0	185	..	20.30	168	99				
d Wickham Bishops.....	Mrs. Fowler.....	5	1	4	250	..	21.06	149	104			

## DIVISION IV—EASTERN COUNTIES—(con.).

STATIONS.	AUTHORITIES.	Diam.	Rain-gauge			1931.			
			Height of		Average Rain-fall.	Rain-fall.	Days with ·01 in. or more.	Days with ·04 in. or more.	
			Rim above Ground.	Sea Level.					
ESSEX—(con.)									
4.—BLACKWATER—(con.)		in.	ft.	in.	ft.	in.	in.		
d Tolleshunt D'arcy (Oxley Hill)†	H. Campkin, Esq.	5	0	9	100	..	20·45	178	107
d Pleshey Vicarage	Rev. C. H. B. Woodd, M.A.	8	1	3	200	..	22·33	182	108
Witham (Faulkbourne Hall)	Miss C. L. Parker	5	0	8	100	..	22·63	153	102
d Little Leighs (Lavender Leez)	W. C. Neild, Esq.	5	1	2	192	..	21·67	..	95
d Messing Vicarage	Rev. W. G. Whittam	5	2	1	120	..	21·56	150	108
d Kelvedon (Lawn House)	F. Randolph-Symmons, Esq.	5	1	0	96	..	21·95	150	102
d Kelvedon (White Barn)	Messrs. W. & H. J. Sheldrake	5	1	5	135	..	23·15	145	111
d Blacknotley (Lynderswood Ct.)	Sir J. G. Broodbank	5	1	0	245	..	23·28	141	107
d Felsted School	E. H. Lockwood, Esq.	5	0	10	248	22·9	23·32	136	108
d Great Dunmow	Messrs. Hasler & Co., Ltd.	5	1	0	200	..	26·44	150	110
d Rayne (Staneway)	Mrs. Burt	5	1	1	247	..	21·82	142	101
d Braintree (Bocking Hall)	Terence More, Esq.	5	1	1	147	..	22·75	..	..
d Great Saling (Woolpits)	Mrs. Joseph Smith	5	0	9	284	..	21·02	188	122
d Great Bardfield (South Lodge)	A. W. Brunwin, Esq.	5	1	0	250	..	23·28	173	110
5.—COLNE & C. 283 sq. mi.									
d St. Osyth (Wigborough Wick)	P. B. Smith, Esq.	5	2	0	10	..	18·11	..	..
d Clacton-on-Sea	The Town Clerk	8	1	0	55	20·5	18·66	147	105
d Great Clacton (Clay Hall)	Miss E. A. Smith	5	1	0	45	..	21·11	144	112
d Tiptree (Brook House)	A. Hitchcock, Esq.	5	0	11	120	..	(22·71)	..	..
d Layer Breton (The White House)	E. H. Barritt, Esq., J.P.	5	1	0	89	..	20·96	175	105
d Walton-on-the-Naze	The Town Clerk	5	1	0	66	..	19·24	141	105
d Colchester (King's Ford) <i>Old g.</i>	Cmdr. E. A. Digby, R.N., K.C.	5	1	4	103	..	21·66	..	..
d Colchester (King's Ford) <i>new g.</i>	Cmdr. E. A. Digby, R.N., K.C.	5	1	0	103	..	22·12	..	..
d Colchester (Hythe Gas Works)	Colchester Gas Co.	8	0	10	12	..	22·10	(181)	(99)
d Colchester (Boro' Surveyor's Off.)	H. Collins, Esq., C.E.	8	1	2	87	..	23·33	167	109
d Colchester (Waterworks)	A. Hammond, Esq.	5	1	5	37	..	20·66	159	110
d Lexden (Hill House, S. No. 2)	S. F. Hurnard, Esq.	5	1	0	90	..	21·23	157	105
d Great Bromley (Broughton)	W. A. Roberts, Esq.	5	1	0	115	..	21·34	..	107
d Earls Colne (Grammar School)	The Headmaster	5	1	0	168	..	20·88	158	107
d Halstead (Attwoods)	R. E. Vaizey, Esq.	5	1	6	200	..	22·77	167	107
d Halstead (The Brewery)	F. N. Adams, Esq.	5	1	0	139	..	22·04	153	101
Gt. Maplestead (Monk's Hall)	Miss J. Miller	5	0	9	260	..	20·80	..	..
d Great Yeldham Hall	G. A. Goodchild, Esq.	5	2	0	200	..	23·07	168	108
6.—STOUR. 110 sq. mi.									
d Dovercourt	Harwich Corporation	5	1	0	47	..	17·27	135	94
d Mistley (The Maltings)	Messrs. Brooks (Mistley) Ltd.	..	..	..	..	..	22·98	156	107
d Sudbury (Bulmer Lodge)	R. St. G. Burke, Esq.	5	1	3	202	25·6	24·11	159	114
7.—OUSE. 80 sq. mi.									
d Widdington Rectory	Rev. Jas. W. Court	5	1	6	340	..	25·01	..	111
d Great Chesterford Mills	E. H. King, Esq.	5	1	0	130	..	26·19	169	122
SUFFOLK. (Area, 1,489 sq. mi.)									
1.—STOUR. 271 sq. mi.									
d East Bergholt (Ackworth Ho.)	A. Harwood, Esq.	8	1	6	145	..	18·74	172	102
d Capel St. Mary School	Bernard B. Taylor, Esq.	5	1	6	156	..	22·52	176	110
d Assington Hall	Mr. E. J. Ottaway	5	1	0	200	..	21·64	170	111
d Great Cornard (The Limes)	E. Oliver, Esq.	5	0	9	85	..	22·28	156	117
d Sudbury (Friars St.)	E. Ransom, Esq.	5	1	6	93	23·5	23·84	201	115
d Hadleigh (Penlands)	E. A. Lee, Esq.	5	1	0	185	..	23·47	180	120
d Clare (Nethergate House)	Lt.-Col. R. C. Bond, D.S.O.	5	1	8	130	..	23·66	165	108
d Hawkedon Rectory	Rev. B. P. Oakes	5	2	5	303	25·0	28·40	202	129
d Hartest (Chadacre Institute)	The Principal	5	1	0	250	..	23·41	161	116
2.—ORWELL. 166 sq. mi.									
d Ipswich (Rookwd., Copdock) (+A)	F. L. Bland, Esq.	8	1	0	164	24·5	22·77	165	106
d Ipswich (Roundwood)	Alfred G. Glenn, Esq.	5	1	0	145	..	22·77	177	109

† Previously called Tiptree, Oxley Hill.

## DIVISION IV—EASTERN COUNTIES—(con.).

STATIONS.	AUTHORITIES.	Diam.	Rain-gauge			Average Rain-fall.	1931.		
			Height of Rim above Ground.	Height of Ground above Sea Level.			Rain-fall.	Days with or more.	Days with or more.
SUFFOLK—(con.)							in.		
2.—ORWELL—(con.)									
d Ipswich (Museum).....	F. M. Cullum, Esq.....	8	1 0	72	..	22-04	(172)	(109)	
d Ipswich (All Saints' Vic.).....	Rev. S. C. Calver.....	5	1 5	..	..	22-65	180	107	
d Ipswich (Dale Hall).....	Percy Turner, Esq.....	8	1 0	135	..	23-36	174	111	
Elmsett (Laurel Cottage).....	A. E. Ladbroke, Esq.....	5	2 0	210	..	22-92	145	117	
d Nettlestead (High Hall).....	A. S. P. White Cooper, Esq..	5	1 6	236	..	22-11	144	105	
d Coddensham (Shrubland Park).....	Mr. A. C. Horton.....	5	1 6	162	..	25-09	143	115	
d Haughley (Haughley House).....	Mrs. S. H. Creagh.....	5	0 9	180	..	20-56	151	109	
3.—DEREN & C. 466 sq. mi.									
d Felixstowe Aerodrome.. (+A).....	The Meteorological Office...	8	1 0	15	..	17-42	146	99	
d Waldringfield .....	Major B. R. M. Glossop...	8	1 0	70	..	21-47	152	110	
d Woodbridge Abbey.....	Col. R. J. Carthew.....	8	1 2	46	..	23-59	204	118	
d Orford (The Gables).....	Miss E. A. Rope.....	5	1 1	30	..	23-61	180	123	
Melton (Greylands).....	Miss Jervis-White-Jervis...	5	2 0	50	..	25-15	166	129	
d Melton (St. Audrey's Hospital)....	The Clerk and Steward.....	8	1 2	74	..	24-82	155	111	
d Melton (Bromeswell Rectory).....	Rev. F. Shadwell.....	5	1 5	35	..	23-61	175	116	
d Henley Hall.....	Mrs. Gascoigne.....	5	2 0	150	..	25-37	185	127	
d Rendlesham Hall.....	Mr. H. Long.....	5	1 6	88	23-1	24-57	150	113	
d Campsea Ashe (High House).....	Viscount Ullswater, G.C.B..	8	1 0	60	23-0	25-76	165	126	
Aldeburgh (Sanditon).....	Miss L. Austen-Leigh.....	..	..	..	..	18-95	..	..	
Charsfield (Red House).....	Hugh P. Youngman, Esq... 5	1 9	150	..	23-80	..	..	..	
d Blaxhall.....	R. H. Sherwood, Esq.....	8	1 0	..	..	23-71	184	120	
d Pettaugh (Laffitte Hall).....	W. B. Damant, Esq.....	5	1 6	190	..	26-27	176	135	
d Snape (Green Heys).....	Mrs. G. H. Garrett.....	5	1 1	100	..	25-19	166	128	
d Snape (Wadd House).....	Capt. E. H. Buxton.....	5	1 0	25	..	24-01	175	131	
d Leiston (Lower Abbey).....	Miss M. K. Rope.....	5	1 0	30	..	24-64	180	128	
d Southwold (Quay House).....	Miss P. Corns.....	5	1 1	30	..	24-89	162	132	
d Halesworth Rectory.....	Rev. H. C. Newbery.....	5	1 0	50	..	27-91	180	132	
d Halesworth (Estate Office).....	G. W. Stanford, Esq.....	5	1 5	120	..	26-76	172	135	
d Wangford (Ford House).....	Hon. Agnes Eden.....	5	0 10	25	..	28-52	..	128	
d Wrentham (Sotterley Hall) .....	M. E. St. J. Barne, Esq.... 5	0 10	70	..	28-63	172	131		
4.—YARE & C. 208 sq. mi.									
d Horham Rectory.....	Rev. J. E. Soden.....	5	1 3	175	..	28-96	185	162	
d Yaxley.....	R. L. T. Clarkson, Esq.....	5	1 0	162	..	27-79	208	126	
d Rumburgh Vicarage.....	Rev. W. Linton Wilson.....	5	1 0	187	..	24-62	195	124	
d Bungay (Flixton Hall).....	Sir Shafto Adair, Bart.....	5	1 0	79	..	23-88	145	110	
d Lowestoft (Secondary School).....	Lowestoft Corporation.....	5	1 0	82	23-5	26-36	173	131	
d Lowestoft (Briar Clyffe).....	H. Hollingsworth, Esq.... 5	0 7	..	..	26-37	162	127		
Blundeston House.....	L. J. Peto, Esq.....	8	1 1	30	..	28-33	..	..	
d Herringfleet House.....	G. H. Wyllys, Esq.....	5	1 0	55	..	27-31	195	134	
d Lound Pumping Station.....	Lowestoft Water & Gas Co.. 8	1 0	34	..	27-03	168	121		
d Fritton Warren.....	Maj.-Gen. R. Upcher, D.S.O. 5	1 0	42	..	28-94	185	135		
d Fritton Hall.....	Major A. R. Buxton.....	8	0 11	30	..	29-07	210	137	
d Yarmouth (Burgh Hall).....	H. P. Frederick, Esq.....	5	1 0	40	24-4	28-96	190	129	
5.—OUSE. 378 sq. mi.									
d Newmarket (Sewage Outfall).....	W. H. Eley, Esq., C.E.....	5	1 0	81	..	25-76	..	122	
d Bury St. Edmunds (Northgate St.)..	Rev. J. S. Pratt.....	5	1 0	100	..	24-54	176	118	
d Bury St. Edmunds (Whiting St.)..	Rev. H. I. Kilner.....	8	0 10	..	..	26-51	179	118	
d Bury St. Edmunds (Westley H.)...	Mrs. Burrell.....	5	1 0	226	25-1	28-28	158	129	
d Bury St. Edmunds (Beet Sugar Factory).....	United Sugar Co., Ltd.... 5	0 6	159	..	22-41?	..	..		
d Fornham St. Martin.....	Mr. H. Parker.....	5	1 0	125	..	22-57	..	109	
d Hengrave Hall.....	Sir John Wood, Bart.....	5	1 5	85	23-1	24-93	..	..	
d Bury St. Edmunds (Troston Hall)...	F. S. Beauford, Esq.....	5	1 0	130	..	24-61	172	117	
d Mildenhall .....	H. R. W. Forster, Esq.... 5	1 3	50	..	23-88	150	110		
Barningham (The Beeches).....	Miss A. K. Lingwood.....	5	0 9	136	..	26-41	..	..	
d Elveden Hall.....	The Earl of Iveagh, C.B.... 5	1 0	130	..	25-58	205	128		

## DIVISION IV—EASTERN COUNTIES—(con.).

STATIONS.	AUTHORITIES.	Diam.	Rain-gauge			Average Rain-fall.	1931.			
			Height of Rim above Ground.	Height of Ground above Sea Level.	Rain-fall.		Rain-fall.	Days with .01 in. or more.	Days with .04 in. or more.	
NORFOLK. (Area, 2,044 sq. mi.)			in.	ft. in.	ft.	in.	in.			
1.—YARE. 658 sq. mi.										
D Diss (The Cedars).....	Dr. H. M. Spiers.....	5	0	8	108	..	24.95	163	115	
D Pulham St. Mary (Brook House)...	E. Beevor, Esq.....	5	1	1	120	..	26.68	181	119	
D Pulham St. Mary (Hill House).....	W. G. Rutter, Esq.....	5	1	0	120	24.7	28.57	214	133	
D Ditchingham.....	W. G. Rutter, Esq.....	5	1	0	25	23.9	27.30	218	121	
D Hapton Parsonage.....	Lt.-Col. H. C. Copeman.....	5	1	0	100	..	26.82	168	125	
D Spooner Row (Wattlefield Hall)...	E. F. Routh Clarke, Esq.....	5	1	0	161	..	26.66	185	129	
D Lodden (Chedgrave Manor).....	C. E. Dupuis, Esq.....	5	1	6	17	24.2	27.19	180	121	
D Wymondham (Morley School).....	T. E. Ormond, Esq.....	5	1	0	157	25.3	26.00	229	131	
D Wymondham.....	J. B. Pomeroy, Esq.....	5	1	3	118	..	25.22	174	130	
D Hingham.....	F. B. Law, Esq.....	5	1	0	193	25.1	27.26	184	126	
D Ketteringham.....	Lt.-Col. R. F. Boileau.....	5	1	0	135	..	27.71	196	130	
D Keswick Old Hall.....	E. Knight, Esq.....	5	1	0	90	26.4	29.71	195	128	
D Gorleston Coastguard Station.....	The Meteorological Office.....	8	1	0	14	24.5	26.55	174	122	
D Norwich (Claremont Road).....	W. S. Tillett, Esq.....	8	1	0	100	..	27.59	206	132	
D Norwich (Eaton).....	R. J. Preston, Esq.....	5	1	0	98	26.5	28.16	191	129	
D Norwich (Carrow Abbey Gar.).....	The Misses Colman.....	5	1	0	40	25.2	26.99	169	125	
D Norwich (Ipswich Road).....	J. H. Willis, Esq.....	5	1	0	110	..	26.90	191	129	
D Norwich (Heigham Cemetery).....	L. Alan Jewell, Esq.....	5	1	2	37	25.5	27.70	180	129	
D Thorpe St. Andrew (Pine Banks).....	H. J. Jarrold, Esq.....	5	1	7	140	..	26.56	189	127	
D Norwich (Marlingford Hall).....	Major E. H. Evans-Lombe.....	5	1	0	50	26.9	30.31	165	..	
D Norwich (Catton Hall).....	D. G. Buxton, Esq.....	..	1	0	100	..	25.16	179	125	
D Sprowston (Oak Lodge).....	A. Cozens Hardy, Esq.*.....	5	1	0	100	25.2	26.92	206	141	
D Drayton Hall.....	C. H. Walter, Esq.....	5	1	0	..	26.0	28.84	..	125	
D Swanton Morley Rectory.....	Rev. R. N. Usher.....	5	1	0	105	24.3	27.73	169	134	
D Bylaugh Park.....	Mrs. Rice.....	5	1	0	..	24.8	28.76	175	137	
D Swanington (Heath House).....	P. Norgate, Esq.....	5	1	3	101	25.6	27.77	204	139	
D East Bilney Hall.....	K. W. Hervey, Esq.*.....	5	1	0	140	26.6	30.94	176	132	
D Cawston Rectory.....	Rev. T. H. Marsh.....	5	1	0	120	26.6	30.19	205	140	
D Fakenham.....	T. P. Godfrey, Esq.....	5	1	0	150	..	29.39	..	..	
2.—YARE—Bure & c. 366 sq. mi.										
D Acle.....	Miss Davie*.....	5	0	6	51	25.1	29.74	192	131	
D Sprowston (The Church Farm).....	The Director.....	5	1	0	93	..	28.35	169	131	
D Yarmouth (Ormesby St. Michael)...	Gt. Yarmouth W.W. Co.....	8	1	0	22	26.2	28.22	178	135	
D Coltishall Hall,†.....	Rev. H. Rogers*.....	5	1	6	25	25.5	28.48	..	..	
D Wroxham (Hoveton Hall).....	G. F. Buxton, Esq., C.B.*.....	5	1	0	25	26.5	30.80	194	142	
D Aylsham (Rippon Hall).....	Major H. S. Marsham.....	5	0	7	90	26.4	(30.78)	(151)	(131)	
D Worstead (Lyngate Cottage) (+A)...	Miss F. E. Hooper.....	8	1	3	50	26.5	25.907	182	128	
D Hindolveston (School House).....	Owen Potter, Esq.....	5	1	0	300	..	31.47	201	135	
D Colby School.....	John Blott, Esq.....	5	1	0	50	..	28.72	185	138	
D North Walsham (The Paston Sc.)...	Major P. Pickford.....	5	1	0	100	..	24.08	170	123	
D Walcott-on-Sea.....	Lt.-Col. R. S. Hunt, D.S.O.....	5	1	0	20	..	23.25	158	126	
D Swafeld Rectory.....	Rev. H. Muir.....	5	0	10	100	25.5	26.30	174	132	
D North Walsham (Guntton Park).....	Lord Suffield.....	8	1	3	105	25.9	27.62	..	..	
D Cromer (Northrepps Hall).....	Lt.-Col. C. R. Gurney.....	5	1	2	225	26.7	27.99	183	146	
D Hanworth Rectory.....	Rev. Wilson W. White.....	5	0	10	95	..	29.66	188	135	
3.—STIFFKEYS & C. 290 sq. mi.										
D Sandringham House Gardens.....	Mr. T. H. Cook.....	5	0	9	121	27.0	29.31	206	141	
D Syderstone (The Rectory).....	Rev. B. D. Reed.....	5	1	0	210	..	29.45	182	134	
D Melton Constable Park.....	W. F. Baker, Esq.....	8	0	11	287	..	33.81	182	143	
D Cromer (The Warren).....	F. H. Barclay, Esq.....	5	1	0	101	24.1	27.77	171	124	
D Cromer (Gas Works).....	Cromer U.D.C.....	5	1	0	178	23.8	28.15	181	126	
D Holkham (Longlands).....	Earl of Leicester, G.C.V.O.....	5	0	10	200	..	31.30	226	151	
D Langham Episcopi Vicarage.....	Rev. John H. Toy*.....	5	0	6	139	23.2	28.72	199	132	
D Sheringham Hall.....	Miss E. Upcher.....	5	0	9	130	23.6	25.77	179	111	
D Sheringham (Old Coastguard Ho.)...	Rev. E. C. S. Upcher.....	5	2	0	20	..	26.53	..	..	
D Wells (Holkham Hall).....	Earl of Leicester, G.C.V.O.....	5	0	3	43	23.1	27.44	(155)	(120)	
D Hunstanton.....	The Advancement Assn.....	5	1	1	105	..	22.14	165	110	

\* Per Norfolk Rainfall Organisation.

† Previously at Coltishall Manor.

§ Turf Wall set up November, 1931.

## DIVISION IV—EASTERN COUNTIES—(con.).

STATIONS.	AUTHORITIES.	Diam.	Rain-gauge				1931.		
			Height of		Average Rain-fall.	Rain-fall.	Days with ·01 in. or more.	Days with ·04 in. or more.	
			Rim above Ground.	Ground above Sea Level.					
NORFOLK—(con.)			in.	ft. in.	ft.	in.	in.		
4.—OUSE & C. 709 sq. mi.									
d Garboldisham Manor.....	Major E. W. Denny, D.S.O..	8	1	0	70	23·2	25·94	196	124
d Thetford (Ford Street Gdns.).....	Mr. A. Pipe.....	5	1	0	44	23·4	27·00	..	..
d Thetford (Kilverstone Hall).....	Baron Fisher of Kilverstone	8	1	0	70	21·7	27·57	179	131
d Thetford (Waterworks).....	C. W. Holmes, Esq.....	8	1	0	165	23·8	26·89	185	133
d Attleborough (Quidenham Hall)...	Earl of Albemarle.....	5	1	0	100	24·1	26·40	..	118
d Hargham Hall.....	Sir H. R. Beevor, Bart. M.D.	5	0	6	100	24·9	25·50	189	133
d Caston (Flaxmoor).....	Lt.-Col. T. S. N. Hardinge..	5	1	1	150	..	27·05	203	131
d Watton .....	A. A. Gompertz, Esq.....	5	1	0	166	25·7	27·78	186	122
d Great Cressingham.....	J. W. Montgomery, Esq.....	5	1	0	90	..	30·28	228	140
d Downham (Dial House).....	Messrs. T. H. Wenn & Co... 5	1	6	..	..	23·41	..	..	..
d Downham (High Street).....	J. M. Jackson, Esq.....	5	1	3	16	..	24·41	159	120
d Outwell (Well Creek Sluice).....	L. I. Clark, Esq.....	8	2	6	16	22·0	25·64	..	118
d Wimbotsham School.....	The Headmaster.....	5	1	0	43	..	24·51	162	111
d Wallington Hall.....	J. L. Luddington, Esq.....	5	1	0	58	23·7	25·74	151	121
d Swaffham (The Villa).....	Mr. J. H. Mack.....	5	0	9	246	26·3	31·38	152	140
d Swaffham .....	Messrs. Vynne & Everett, Ltd.	5	2	7	210	..	28·27?	..	..
d Sporle .....	T. S. Matthews, Esq.....	5	4	0	230	..	28·83	221	137
d Little Dunham (Dunham Cott.)...	The late A. G. Copeman, Esq.	5	0	11	265	27·2	30·79	218	143
d Wiggenshall (St. Germans Sluice)...	L. I. Clark, Esq.....	8	1	6	..	23·1	29·34	182	140
d East Winch (Holland House).....	J. C. Cottam, Esq.....	5	1	6	55	23·3	27·92	190	127
d Gayton Waterworks.....	J. C. Matthew, Esq., C.E....	5	1	0	131	..	27·34	184	131
d King's Lynn (Manure Works)...	J. Brown, Esq.....	5	1	2	10	..	25·80	..	..
d Tittleshall.....	Capt. H. G. Buxton.....	5	1	6	285	26·8	28·78	172	141
d Grimston (School House).....	J. R. Steward, Esq.....	5	1	2	62	..	26·88	218	141

**5.—NENE. 19 sq. mi.**

d Emneth (Inglethorpe Manor).....	F. M. Bland, Esq.....	5	1	0	6	22·4	26·37	165	122
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## DIVISION V—SOUTH-WESTERN COUNTIES.

WILTSHIRE. (Area, 1,375 sq. mi.)

**1.—LOWER AVON. 386 sq. mi.**

d Westbury (Cambridge House).....	Dr. W. K. A. Richards.....	5	1	0	190	..	30·09	174	124
d Westbury (The Vicarage).....	K. E. Alexander, Esq.....	5	1	0	181	..	29·64	181	130
d Market Lavington (Old House).....	Miss A. Pleydell Bouverie..	5	0	9	290	29·0	27·28	171	133
d Gt. Cheverell (Timoleague).....	Rev. H. S. Travers.....	5	0	6	360	..	30·52	..	..
d Easterton (Kestrels).....	R. Lake, Esq.....	5	1	0	370	..	27·32	172	120
d Trowbridge (Town Hall).....	The Engineer.....	8	1	2	131	..	26·15	168	118
d Bradford (Winsley Manor).....	E. W. Knatchbull, Esq.....	5	0	8	400	29·9	31·34	191	135
d Bradford (Manvers House).....	Dr. C. E. S. Flemming.....	5	1	3	130	29·9	30·37	171	132
d Seend (Cleeve House) (R).....	Lt.-Col. W. C. Heward Bell.	8	1	0	160	27·5	26·77	194	125
d Holt (The Retreat).....	A. V. H. Beaven, Esq.....	5	1	0	145	30·3	29·52	163	128
d Devizes (Broadleas).....	W. H. L. Ewart, Esq.....	5	1	0	400	..	29·77	224	136
d Devizes (Highclere).....	H. W. Green, Esq.....	5	1	6	450	28·3	30·30	190	134
d Rowdifiord Gardens (R).....	Mrs. R. E. S. Thomas.....	8	2	0	..	..	31·36	165	127
d Great Chalfield.....	Major R. F. Fuller.....	5	1	2	165	28·6	28·68	163	128
d Little Chalfield.....	Miss C. E. Baker.....	5	1	0	180	..	30·09	213	139
d Bowood House.....	The Marquess of Lansdowne, K.G., P.C.....	5	0	4	306	..	(30·10)	172	131
d Calne (Castleway).....	E. W. Brown, Esq.....	5	1	0	250	28·9	30·42	..	120
d Calne (Compton Bassett Gdns.).....	Mr. H. Welch.....	5	0	10	384	30·7	32·49	162	135
d Chippenham (Kington Langley).....	Mrs. Charles Garnett.....	8	1	0	172	30·3	33·17	..	..
d Grittleton .....	Lt.-Col. Sir A. D. Neeld, Bt., D.L., C.B.	..	..	..	..	..	33·14	181	137
d Wroughton (Basset Down Ho.) ..	Mrs. Arnold Forster.....	5	1	0	500	29·8	30·84	169	132
d Tockenham Manor (R).....	Major G. J. Buxton.....	8	2	6	400	..	26·34	189	123

## DIVISION V—SOUTH-WESTERN COUNTIES—(con.).

STATIONS.	AUTHORITIES.	Diam.	Rain-gauge				1931.		
			Height of		Average		Rain-fall.	Days with ·01 in. or more.	Days with ·04 in. or more.
			Rim	Ground	above	Rain-fall.			
			above	above	above	above			
			Ground.	Sea Level.	Sea Level.	Sea Level.			
			in.	ft.	in.	ft.	in.		
WILTSHIRE—(con.)									
1.—LOWER AVON—(con.)									
w Luckington Court.....	Col. Sir E. Johnson-Ferguson, Bt.	5	0	8	400	30·2	31·46	..	..
d Malmesbury (Burton Hill Ho.) (R) ..	H. L. Storey, Esq.	8	4	0	240	..	29·46	198	129
d Malmesbury (Lea House).....	Rev. H. Milnes-Walker	5	1	6	260	..	31·39	..	123
d Malmesbury (Easton Grey).....	Mr. P. A. Day	5	1	0	355	31·6	33·32	163	133
2.—STOUR. 33 sq. mi.									
d Mere (Charnage).....	A. R. White, Esq.	5	1	0	426	33·8	32·88	201	143
d Stourhead.....	Sir H. H. A. Hoare, Bart.	5	1	0	583	38·1	39·28	177	141
Kilminster Rectory.....	Rev. H. G. Fox Strangways	5	1	6	710	39·8	41·51	233	151
3.—EAST AVON. 554 sq. mi.									
d Longford Castle Gardens.....	The Earl of Radnor	5	1	0	139	31·4	31·62	177	128
d Salisbury (Harnham).....	E. F. Taunton, Esq., Junr.	5	1	0	200	..	30·58	218	128
d Fonthill House Gardens.....	Hugh Morrison, Esq.	5	1	0	400	37·8	37·77	195	142
d Salisbury (Sewage Works) (+A) ..	H. V. Overfield, Esq., C.E.	5	1	0	146	29·7	27·59	182	127
d Salisbury (Manor Road).....	Miss L. C. D. Awdry	5	1	0	250	29·2	29·23	201	132
d Salisbury (Atherton House).....	Wilfrid Fletcher, Esq.	5	1	0	250	30·4	27·14	190	124
d Salisbury (Newlands).....	Dr. T. W. Newton Dunn	5	1	0	175	..	28·23	163	128
d Stratford-sub-Castle (Manor Ho.) ..	Miss F. Carpenter	5	0	9	168	28·3	27·00	179	124
d Woodford Vicarage.....	Rev. M. I. Holme	5	0	10	200	..	30·79	211	128
d Porton (W.D. Exp'l. Stn.) (+A) ..	Meteorological Office	5	1	0	363	27·8	25·09	160	129
d Steeple Langford (Woodstock) ..	Miss A. J. Powell	5	1	0	257	..	35·17	180	126
d Maiden Bradley House.....	The Duke of Somerset	5	1	0	620	38·4	39·19	155	138
d Maiden Bradley.....	R. Luff, Esq.*	4	3	0	600	..	36·30	170	144
d Amesbury (Boscombe Down).....	Meteorological Office	8	1	0	417	..	27·15	180	121
d Heytesbury.....	Dr. Hammond T. Hinton	5	1	0	300	31·7	31·30	177	138
d Warminster (Henford).....	Mrs. Robinson	5	1	8	400	..	35·12	158	140
d Larkhill (School of Artillery) (+A) ..	The Meteorological Office	5	1	0	440	26·5	25·37	177	124
d Warminster (Smallbrook Ho.) ..	G. E. Vicary, Esq.	5	0	8	420	..	31·55	179	126
d Orcheston St. Mary.....	Mrs. Smith	5	0	9	285	..	30·12	184	125
d Marlborough (Wilcot Manor).....	Lady Ernest St. Maur	5	1	0	400	..	29·41	..	..
d Bishops Cannings.....	A. J. Combes, Esq.	5	1	0	446	30·3	30·77	221	151
4.—TEST. 77 sq. mi.									
d Landford (Northlands).....	Cedric R. Boulton, Esq.	5	1	0	180	30·7	30·64	175	134
d Redlynch Grange.....	Maj. E. Fitz-Herbert Wright	5	1	0	300	..	32·49	190	129
d West Grimstead.....	W. W. Wadsworth, Esq.	5	1	0	250	..	29·31	172	126
d Ludgershall (Conholt Park) (R) ..	E. A. Wigan, Esq.	8	1	0	800	33·9	29·00	..	120
5.—THAMES—Kennet. 169 sq. mi.									
d Bishops Cannings (Shepherds Shore) ..	C. G. Barrett, Esq.	8	2	1	564	..	29·42	179	122
d Marlborough College.....	W. F. Harling, Esq.	5	1	0	424	31·1	32·84	202	141
d Marlborough (Salisbury Road) ..	E. Kinder, Esq.	5	1	11	450	..	33·40	..	..
d Aldbourne (Manor House).....	W. Brown, Esq.	5	1	1	435	..	31·95	196	138
d Aldbourne (Upham House).....	Lady Currie	5	1	2	580	30·3	35·80	169	136
6.—THAMES—Cole & c. 156 sq. mi.									
d Chiseldon Vicarage.....	Mrs. W. L. Waugh	5	1	2	550	..	31·34	..	..
d Wroughton (Swindon W.W.) ..	J. B. L. Thompson, Esq., C.E.	5	1	2	448	..	28·99	175	130
d Chiseldon (Hodson House).....	A. Ashford, Esq.	5	0	9	560	29·0	29·65	173	125
d Swindon (Commonweal Sec. Sch.) ..	The Headmaster	5	1	0	469	..	30·14	195	129
d Swindon (Town Gardens).....	J. B. L. Thompson, Esq., C.E.	5	1	4	471	27·5	29·02	166	128
d Purton (Restrop House).....	Col. A. Canning	5	1	3	444	27·7	28·96	171	134
d Fairford (Marston Hill).....	Maj. R. Hamilton Stubber	5	0	10	350	..	29·01	..	..

\* Per Mid-Wessex Rainfall Association.

## DIVISION V—SOUTH-WESTERN COUNTIES—(con.).

STATIONS.	AUTHORITIES.	Diam.	Rain-gauge			1931.		
			Height of Rim above Ground.	Ground above Sea Level.	Average Rain- fall.	Rain- fall.	Days with ·01 in. or more.	Days with ·04 in. or more.
DORSETSHIRE. (Area, 988 sq. mi.)								
1.—PARRETT. 61 sq. mi.								
d Evershott (Melbury House).....	Mr. W. G. Lee.....	5	2 0	460	38.7	38.68	172	133
d Chedington Court .....	Sir Henry Peto, Bart.....	8	1 0	605	38.5	35.62	179	136
d Leigh Vicarage.....	Rev. T. L. Jenkins.....	5	0 6	300	36.9	34.64	..	..
d Sherborne Castle.....	Mr. Edwin Hill.....	5	1 0	195	32.5	30.90	176	138
d Sherborne (Crendle Court).....	A. Tyrwhitt Drake, Esq....	5	0 9	380	..	33.06	..	..
d Sherborne (Barton Gardens).....	C. E. Bean, Esq., C.E.....	8	1 0	285	..	29.96	181	135
d Sherborne (Castleton).....	Reading T. Grantham, Esq..	5	1 0	220	31.8	33.24	..	..
2.—AXE. 25 sq. mi.								
d Broadwindsor (Blackdown).....	J. Sutton, Esq.....	5	0 8	530	..	(38.29)	..	..
d Forde Abbey.....	G. D. Roper, Esq.....	5	0 10	200	37.7	34.46	..	123
3.—FROME & C. 502 sq. mi.								
d Portland Bill (Lighthouse) <i>new g.</i> .....	The Meteorological Office... 8	1 0	32	..	23.90	148	115	
d Portland (H.M. Naval Depot).....	The Works Officer.....	8	1 0	25	..	29.90	..	..
d Weymouth (Lansdowne Villa).....	Paym.-Capt. T. Seaman, R.N. 5	7 0	100	..	27.83	167	118	
d Weymouth (Westham).....	G. Nicolson, Esq.....	5	1 0	20	28.0	27.13	157	115
d Weymouth (Springfield).....	Major J. H. C. Devenish... 5	1 3	96	27.9	27.85	173	122	
d Radipole (Abbots Court).....	C. E. M. Pinney, Esq.....	5	0 9	58	..	30.97	173	127
d Swanage.....	W. Wright, Esq.....	5	1 0	35	..	27.00	156	120
d Chickerell (Montevideo).....	Mrs. N.M. Richardson, O.B.E. 5	1 0	100	23.9	30.39	235	122	
d Tyneham House .....	Mrs. W. H. Bond.....	8	1 0	255	32.8	32.73	167	130
d Steeple (Manor House).....	Major F. H. Swann.....	5	1 0	231	34.8	34.69	177	144
d Creech Grange.....	J. W. G. Bond, Esq., C.B.. 5	1 0	241	37.1	32.12	153	121	
d Langton Herring (The Manor).....	E. A. Sparks, Esq.....	5	1 0	160	..	30.07	193	132
d Winfrith Rectory.....	Rev. C. S. Pugh.....	5	3 0	200	..	34.92	184	129
d Abbotsbury (West Street).....	J. C. P. White, Esq.....	5	1 6	147	29.2	32.68	162	130
d Upwey (Friar Waddon).....	R. Davison, Esq.....	5	1 0	215	..	34.82	175	133
d Upwey (Higher Well).....	R. Davison, Esq.....	8	1 0	289	..	33.80	176	127
d Wareham (East Holme).....	Miss L. S. Bond.....	5	1 0	23	33.9	29.87	161	128
d Wareham (The King's Barrow).....	Major R. Fielden.....	5	1 4	15	31.8	32.52	182	137
d Wareham (Binnegar Hall).....	Mr. J. W. Hayward.....	5	1 0	65	33.8	30.04	176	124
d Wareham (Stockford).....	W. Bond, Esq.....	8	0 11	65	33.4	32.21	186	127
d Wareham (Trigon).....	Mrs. L. Sturdy.....	8	1 4	60	32.1	29.85	187	121
d Dorchester (Littlemayne) †.....	E. R. Sykes, Esq.....	5	1 0	200	..	32.65	160	115
d Dorchester (Kingscote).....	E. A. Ffooks, Esq.....	5	1 0	226	38.3	35.11	176	135
d Dorchester Waterworks.....	H. D. Strange, Esq.....	8	1 0	314	36.6	35.37	180	129
d Dorchester (Stinsford).....	J. Wyndham Hull, Esq....	5	0 10	207	37.4	35.32	167	121
d Dorchester (Birkin House).....	Col. W. H. F. Weber, C.M.G., D.S.O. 5	1 0	230	37.4	36.32	180	150	
d Puddletown (Clyffe Ho.) (A).....	Maj. W. Van de Weyer... 8	4 0	200	..	36.21	184	134	
d Poole (A).....	E. J. Goodacre, Esq., C.E.. 6	1 6	8	..	28.27	168	116	
d Holton Heath (R.N. Cordite Fac.).....	The Superintendent.....	8	1 0	64	29.9	30.83	167	118
d Parkstone (Firgrove).....	F. R. Wadman, Esq.....	5	1 0	175	28.6	25.42	179	125
d Parkstone (Parkside Road).....	H. Blanchard, Esq.....	8	1 2	150	..	28.38	169	127
d Parkstone (St. Osmund's Road).....	A. D. Stables, Esq.....	5	1 3	60	32.2	30.55	..	131
d Parkstone (The Laurels).....	J. N. Blanchard, Esq.....	5	1 2	115	..	26.59	168	125
d Branksome (Leicester Road).....	H. Fayle, Esq.....	5	1 0	130	..	29.27	162	120
d Branksome (Bourne Valley).....	P. G. G. Moon, Esq.....	8	1 3	84	30.0	26.93	..	115
d Branksome (Alderney Res.).....	P. G. G. Moon, Esq.....	8	1 3	213	..	30.89	191	135
d Broadstone (Sewage Works).....	T. Wicks, Esq.....	5	1 0	26	29.2	28.27	171	122
d Lyme Regis (Horn Bridge).....	E. T. Stoward, Esq.....	5	1 0	83	33.2	35.12	178	131
d Lyme Regis (Rotherfield).....	Rev. E. J. Synge.....	5	1 0	145	34.3	34.84	201	135
d Lyme Regis (Overton).....	C. Wanklyn, Esq.....	5	0 10	400	30.9	34.30	242	127
d Bridport (Coneygar).....	Bridport Waterworks Co.. 5	1 0	110	32.9	31.65	183	126	
d Bridport (Symondsburys).....	P. G. Fry, Esq.....	5	1 0	83	..	32.46	173	127
d Bridport (Symondsburys, West Rd.).....	Capt. M. G. Sumner.....	5	1 0	184	..	31.92	153	110
d Tolpuddle Parsonage.....	Rev. Harold R. Long.....	5	1 2	100	32.9	34.64	186	133
d Puddletown Vicarage.....	Rev. Canon A. L. Helps... 5	4 6	200	35.8	40.60?	160	139	
d Bere Regis (Barrow Hill).....	A. E. Lucas, Esq.....	5	1 0	120	32.9	32.60	166	123
d Bere Regis (Bloxworth House).....	F. G. A. Lane, Esq.....	5	1 6	118	33.7	32.12	169	133
d Broadstone (Grange Road).....	E. Nimmo, Esq.....	5	1 0	160	..	28.89	171	124

† Formerly called Lewell Lodge.

## DIVISION V—SOUTH-WESTERN COUNTIES—(con.).

STATIONS.	AUTHORITIES.	Diam.	Rain-gauge			1931.						
			Height of		Average	Rain-fall.	Days with ·01 in. or more.	Days with ·04 in. or more.				
			Rim above Ground.	Ground above Sea Level.								
						in.	ft. in.	ft.	in.	in.		
DORSETSHIRE—(con.)						in.	ft. in.	ft.	in.	in.		
3.—FROME & C.—(con.)												
d Wynford House	Lt.-Col. Lord Wynford, D.S.O.	5	1	0	410	43·5	44·18	220	149			
d Netherbury (The Chantry)	Lt.-Col. H. L. Kitson	5	1	0	150	35·2	36·95	195	137			
d Beaminster (Farrs) ‡	Fiennes Trotman, Esq.	5	1	0	183	37·6	38·92	209	138			
4.—STOUR. 388 sq. mi.												
Kinson (Eglington)	W. C. Keevil, Esq.	5	1	6	45	33·2	31·38	178	139			
d Wimborne (Corfe Mullen W.W.)	G. V. Sparrow, Esq., C.E.	5	1	0	81	32·9	31·09	160	130			
d Wimborne (Corfe Mullen, For. Hill)	E. Philip Belben, Esq.	8	1	0	300	32·5	33·93	..	136			
d Winterbourne Whitchurch Vic.	Rev. H. H. Tilney Bassett	8	1	0	240	35·8	36·50	160	139			
d Sturminster Marshall †	F. Hewitt, Esq.	8	1	0	85	32·6	31·64	170	130			
d Wimborne (Stapehill)	W. J. Marchant, Esq.	5	1	0	95	..	31·03	178	134			
d Wimborne (Walsford Bridge P.S.)	P. G. G. Moon, Esq.	8	1	3	70	..	31·30	161	130			
d Wimborne (Melbury Lodge)	Rev. W. S. Clarke	5	1	6	150	..	31·79	161	132			
d Wimborne (Codford House)	G. H. Batterbury, Esq., M.D.	5	0	11	69	34·5	29·72	200	126			
d Wimborne (Glen Ashton)	H. H. Haines, Esq.	5	1	0	150	..	31·06	174	129			
d Wimborne (Uplands)	E. Percy Sugden, Esq.	5	0	10	..	..	30·92	173	129			
d Blandford (Field's Oak)	Major H. S. Woodhouse	5	1	0	..	34·4	35·66	171	129			
d Blandford (White Cliff St.)	E. Westcott, Esq.	5	1	0	70	..	35·23	171	130			
d Blandford (King's Road)	D. Blanchard, Esq.	5	1	0	195	..	34·22	182	133			
d Glanville's Wootton (Manor Ho.)	H. B. Debenham, Esq.	5	0	9	350	35·2	34·98	190	144			
d Holwell (Westrow House)	Miss H. B. Warry	5	1	0	252	34·4	33·89	168	135			
d Wimborne St. Giles (St. Giles Ho.)	The Earl of Shaftesbury, K.P.	5	1	0	165	33·4	33·90	..	136			
d Gussage St. Michael Manor	Mrs. Good	5	1	4	200	33·3	33·16	194	142			
d Childe Okeford Manor	J. H. L. Glasbrook, Esq.	5	1	0	250	..	35·62	169	136			
d Iwerne Minster (Preston House)	Major H. W. Aston	5	1	0	220	33·2	34·93	166	140			
d Iwerne Minster Vicarage	Rev. R. A. Bond	5	1	3	234	..	33·68	186	138			
d Sturminster Newton	Louis Dawes, Esq.	5	1	0	225	..	32·24	173	132			
d Fontmell Magna (Glebe Cottage)	Dr. J. Appleyard	5	1	0	300	..	31·19	..	121			
d Stalbridge School	W. Lovell, Esq.	5	0	8	268	..	31·09	174	135			
d Pentridge (Cobley)	F. B. Eastwood, Esq.	5	1	0	500	..	32·54	..	..			
d Cann	Miss G. A. Macdonell	5	1	0	600	..	31·55	184	133			
d Shaftesbury	G. P. Barter, Esq.	5	1	0	722	32·5	29·16	177	135			
d Bourton	H. H. Genge-Andrews, Esq.*	..	..	..	..	..	(31·06)	..	(136)			
5.—EAST AVON. 12 sq. mi.												
SOUTH DEVONSHIRE. (Area, 1,707 sq. mi.)												
1.—PARRETT. 7 sq. mi.												
2.—TAMAR & C. 395 sq. mi.												
d Plymouth (Boveysand Lodge)	Rev. J. F. Case	5	1	6	75	34·1	38·97	..	144			
d Plymouth (Mt. Batten) (+A)	The Meteorological Office	8	1	0	82	..	34·63	197	138			
d Plymouth (The Hoe) (+A)	H. Victor Prigg, Esq., C.E.	8	1	0	117	36·7	38·69	193	146			
d Plymouth (Drake's Reservoir)	F. Howarth, Esq., C.E.	5	1	0	149	37·5	41·09	189	148			
d Plymouth (Freedom Park) (+A)	H. Victor Prigg, Esq., C.E.	8	1	0	208	39·4	42·58	202	153			
d Devonport (Admiralty House)	Adml. Hon. Sir H. Brand, K.C.B.	..	1	0	76	..	39·89	192	146			
d Devonport (Rowdens Res.)	F. Howarth, Esq., C.E.	5	1	0	201	35·1	37·70	189	142			
d Plymouth (Hartley Reservoir)	F. Howarth, Esq., C.E.	5	1	0	321	39·9	45·33	203	157			
d Bickley (Roborough Reservoir)	F. Howarth, Esq., C.E.	5	1	0	548	46·2	52·13	236	176			
d Lee Moor House	R. Martin, Esq.	8	1	0	900	62·4	75·49	241	209			
d Yelveston (Oakfield)	H. Edgcumbe, Esq.	5	1	0	535	51·8	57·72	240	182			
d Sheepstor (Redstone)	F. Howarth, Esq., C.E.	5	1	0	760	59·0	60·16	227	184			
d Sheepstor (Burrator)	F. Howarth, Esq., C.E.	5	1	0	755	59·1	56·93	227	184			
d Sheepstor (Head Weir)	F. Howarth, Esq., C.E.	5	1	0	720	57·0	59·59	227	185			
d Dousland Reservoir	F. Howarth, Esq., C.E.	5	1	0	721	51·8	56·60	243	177			
d Dartmoor (Deancombe Farm)	F. Howarth, Esq., C.E.	5	1	0	807	..	61·14	..	..			
d Dartmoor (Lowery)	F. Howarth, Esq., C.E.	5	1	0	899	..	51·67	228	181			
d Dartmoor (Leather Tor Farm)	F. Howarth, Esq., C.E.	5	1	0	910	59·0	57·30	..	..			
d Dartmoor (Siward's Cross)	F. Howarth, Esq., C.E.	5	1	0	1074	..	62·50	..	..			
d Whitchurch (Grenofen)	H. Chichester, Esq.	5	1	2	325	46·1	53·65	235	185			

\* Per Mid-Wessex Rainfall Association.

† Previously kept at Bailie House.

§ Exposure not orthodox.

‡ Formerly known as Beaminster (Hamilton Lodge).



## DIVISION V—SOUTH-WESTERN COUNTIES—(con.).

STATIONS.	AUTHORITIES.	Diam.	Rain-gauge			1931.		
			Height of Rim above Ground.	Ground above Sea Level.	Average Rain- fall.	Rain- fall.	Days with ·01 in. or more.	Days with ·04 in. or more.
SOUTH DEVONSHIRE—(con.)						in.		
2.—TAMAR & C.—(con.)						in.		
D Whitchurch (Langstone).....	F. J. R. Coleridge, Esq.....	5	1 0	700	51·4	60·57	222	182
D Whitchurch (Holwell).....	F. C. Radcliffe, Esq.....	5	1 2	500	..	56·80	229	184
D Tavistock .....	W. J. Monk, Esq.....	5	1 0	458	47·6	55·74	228	176
D Horrabridge (Furztor).....	Col. M. C. Collier.....	8	0 11	550	..	56·80	232	184
D Tavistock (The Library).....	The Librarian .....	8	1 8	282	44·8	49·70	200	119
M Dartmoor (Double Waters).....	F. Howarth, Esq., C.E.....	5	1 0	1165	64·2	70·15	..	..
M Dartmoor (N. Hessary Tor).....	F. Howarth, Esq., C.E.....	5	1 0	1398	..	63·70	..	..
D Mary-Tavy (Blackdown).....	H. K. G. Rogers, Esq.....	5	1 0	846	53·8	63·33	239	202
D Lifton (Kelly House).....	Rev. Maitland Kelly.....	8	2 6	450	43·8	52·84	201	184
N. Brentor (Langstone).....	H. Curtis Gallop, Esq.....	5	..	700	..	54·31	..	..
D Coryton Manor .....	R. L. Newman, Esq.....	5	1 2	450	43·5	48·65	210	169
D Lew Down (Coombe Trenchard).....	H. M. Sperling, Esq.....	5	1 0	450	..	50·30	220	171
D Lydford (Naseby).....	Col. H. E. Molesworth, C.M.G., D.S.O.	5	1 0	950	..	58·36	223	184
D Werrington Park.....	Mr. R. M. Gregory.....	5	4 8	600	..	51·80	186	174
D Ashwater Rectory.....	Rev. G. D. Melhuish.....	5	1 0	500	43·0	48·43	202	171
D Holsworthy (Bodmeryic).....	W. J. Rogers, Esq.....	5	0 11	450	..	52·20	217	192
3.—ERM & C. 217 sq. mi.								
D Salcombe (Blackstone Lodge).....	W. J. Shaw, Esq.....	5	1 6	280	34·8	40·36	194	151
D Salcombe .....	The Borough Surveyor.....	5	1 0	39	..	(36·11)	(155)	(138)
D Salcombe (Fairhaven).....	C. Shillito, Esq.....	5	1 0	150	..	38·56	195	143
D Charleton School.....	The Headmistress.....	5	1 0	50	..	38·20	..	(145)
D West Alvington.....	Rev. H. C. B. Lethbridge.....	5	1 0	180	..	41·45	189	146
D Kingsbridge Reservoir.....	The Surveyor.....	8	1 10	100	..	43·78	..	..
D Kingsbridge .....	W. N. Patey, Esq.....	5	1 6	150	..	(42·97)	..	..
D Stoke Fleming (Windward)† .....	Miss E. L. Garrett.....	5	1 0	300	..	41·39	181	145
D Yealmlton (Torr).....	Miss M. Wimbush.....	5	0 11	100	35·5	42·07	221	151
D Ermington (Strode).....	Capt. H. Gore Hawker.....	5	1 0	75	41·4	47·10	224	157
D Ivybridge (Fulham House).....	H. Alger, Esq.....	5	1 0	160	46·0	50·03	201	168
D Wrangaton (Plymouth M. Hos.).....	H. Victor Prigg, Esq., C.E.....	5	1 0	607	..	51·49	195	167
D South Brent (Beechfield).....	Miss Kingwell .....	5	1 0	500	61·0	64·55	217	171
D South Brent (Badworthy).....	Miss D. B. Latham.....	5	1 2	550	64·4	78·17†	206	180
Cornwood (Yealm Head No. 5).....	W. H. Thompson, Esq., C.E.....	5	1 0	540	..	67·13	206	185
Cornwood (Yealm Head No. 1).....	W. H. Thompson, Esq., C.E.....	5	1 0	943	..	77·15	..	..
§Cornwood (Yealm Head No. 2).....	W. H. Thompson, Esq., C.E.....	5	1 0	1305	..	73·73	..	..
Cornwood (Yealm Head No. 4).....	W. H. Thompson, Esq., C.E.....	5	1 0	1415	..	77·22	..	..
§Cornwood (Yealm Head No. 3).....	W. H. Thompson, Esq., C.E.....	5	1 0	1416	..	73·94	..	..
4.—DART. 197 sq. mi.								
D Dartmouth (Ridge Hill).....	Dr. H. J. Campbell.....	5	1 0	120	40·3	45·00	203	153
D Dartmouth (Naval College).....	The Curator, Science Lab.....	8	1 0	220	..	45·04	..	..
D Churston Ferrers (Greenway).....	Mrs. C. Williams.....	5	0 9	..	40·8	46·49	..	147
D Brixham (Combe Bank).....	H. Clayton, Esq.....	5	6 6	115	36·7	37·97	200	143
D Waddeton Court.....	Sir A. L. Goodson, Bart.....	5	1 0	175	40·5	41·91	..	144
D Stoke Gabriel (Maisonnette).....	Edward Stobart, Esq.....	5	1 0	100	42·8	51·54	202	165
D Totnes (Dundridge Gardens).....	Mr. C. K. Pugsley.....	5	1 0	250	48·3	51·34	..	..
D Paignton Vicarage.....	Rev. Preb. H. M. Drake.....	5	1 0	42	35·4	37·92	179	144
D Paignton (Victoria Park).....	The Town Clerk.....	8	1 1	12	..	36·86	177	141
D Paignton (Claylands).....	G. M. Rosling, Esq.....	8	1 2	150	35·7	38·81	192	142
D Totnes (Walrond House).....	H. Hurman, Esq.....	5	1 2	40	41·8	47·28	177	147
D Totnes (Dartington Hall).....	J. B. E. Patterson, Esq.....	5	1 0	175	..	44·85	185	152
D Totnes (Staverton).....	J. A. Devenish, Esq.....	5	0 11	50	..	45·02	173	149
D Ipplepen Vicarage.....	Rev. R. D. Cooke.....	5	1 0	266	36·8	41·98	169	148
D Holne (Church Park Cottage).....	L. W. Frost, Esq.....	5	1 6	620	59·8	67·53	222	162
D Ashburton (Hele House).....	E. M. Dowson, Esq.....	5	1 0	350	49·6	53·81	209	173
D Dartmoor (Fox Tor).....	E. Rowlands, Esq., C.E.....	8	0 7	1160	..	67·00	217	194
D Dartmoor (Swincombe).....	E. Rowlands, Esq., C.E.....	8	0 7	1120	..	71·62	217	197
D Princetown (Huccaby House).....	Lt.-Col. H. H. Joll, D.S.O.....	5	1 0	900	54·6	57·60	222	176
D Princetown (Wydemeet).....	Colin M. E. May, Esq.....	5	1 0	900	58·2	66·27	226	199
D Princetown (H.M. Prison) (+A).....	The Governor.....	5	1 0	1359	81·9	87·53	252	215
w Dartmoor (Cowsic Valley).....	F. Howarth, Esq., C.E.....	8	1 6	1352	..	75·20	..	..
w Dartmoor (Cowsic Valley) new g.....	F. Howarth, Esq., C.E.....	5	1 0	1323	..	80·50	..	..

† Formerly called Stoke Fleming (The Glen).

§ Gauge over-exposed on moor.

## DIVISION V—SOUTH-WESTERN COUNTIES—(con.).

STATIONS.	AUTHORITIES.	Diam.	Rain-gauge				1931.		
			Height of		Average		Rain-fall.	Days with .01 in. or more.	Days with .04 in. or more.
			Rim above Ground.	Ground above Sea Level.		Rain-fall.			
			in.	ft. in.	ft.	in.	in.		
SOUTH DEVONSHIRE—(con.)									
4.—DART—(con.)									
m§Dartmoor (Black Dunghill) No. 5.	F. Howarth, Esq., C.E.	8	1	0	1590	..	52.87	..	..
m§Dartmoor (Beardown Tor) No. 3.	F. Howarth, Esq., C.E.	8	1	0	1550	..	56.30	..	..
m§Dartmoor (White Tor) No. 1.	F. Howarth, Esq., C.E.	8	1	0	1640	..	52.15	..	..
m Dartmoor (White Tor) <i>new g.</i>	F. Howarth, Esq., C.E.	5	1	0	1439	..	81.80	..	..
d Postbridge (Archerton)	Miss E. M. Bennett	5	1	0	1320	..	80.82	..	..
m§Dartmoor (Devil's Tor) No. 2.	F. Howarth, Esq., C.E.	8	1	0	1785	..	51.60	..	..
m Dartmoor (Devil's Tor) <i>new g.</i>	F. Howarth, Esq., C.E.	5	1	0	1570	..	77.55	..	..
m§Dartmoor (Cowsic Head) No. 4.	F. Howarth, Esq., C.E.	8	1	0	1580	..	68.05	..	..
m Dartmoor (Cowsic Head) <i>new g.</i>	F. Howarth, Esq., C.E.	5	1	0	1465	..	85.30	..	..
d Postbridge (Warren House Inn)	S. C. Chapman, Esq., C.E.	5	1	0	1400	..	72.66	236	199
5.—TEIGN. 209 sq. mi.									
d Torquay (Middle Lincombe Rd.)	Miss L. M. Brown	5	1	0	250	30.9	32.17	185	142
d Torquay (Abbey Park)	The Town Clerk	5	1	0	27	33.0	34.24	178	136
d Torquay (Abbey Road)	Henry Brown, Esq.	5	1	0	125	34.3	36.92	180	149
d Bickington (Higher Goodstone)	Lt.-Com. W. A. A. Bolitho, R.N.	5	1	0	400	..	47.32	207	152
d Highweek	H. B. Mapleton, Esq., M.D.	5	1	0	200	..	39.59	197	149
d Newton Abbot (Seale Hayne Coll.)	The Principal	5	1	0	375	34.7	41.31	198	143
d Teignmouth (Woodlands)	S. B. Harris, Esq.	8	1	2	98	31.5	32.67	182	138
d Teignmouth (Fontigary)	John F. Caley, Esq.	5	1	0	260	30.1	33.92	..	..
d Teignmouth (Landscore Road)	Dr. E. E. Moore	5	1	0	143	31.8	33.23	184	143
d Teignmouth (Den Gardens)	G. F. Rossiter, Esq.	8	1	0	20	31.8	33.11	175	136
d Teignmouth (Hazledown Res.)	G. F. Rossiter, Esq.	8	1	0	425	32.4	38.68	183	153
d Teignmouth (Shaldon Res.)	G. F. Rossiter, Esq.	5	1	0	213	34.9	37.32	174	145
d Teignmouth (Landscore Res.)	G. F. Rossiter, Esq.	8	1	0	133	33.2	35.48	179	145
d Ilminster	Miss E. Willcocks	5	1	0	650	47.8	53.50	207	159
d Bovey Tracey (Whiddon)	G. F. Wright, Esq.	5	1	2	150	..	45.02	184	150
d Dawlish (The Lawn)	S. F. C. Churchward, Esq.	5	1	0	18	32.3	33.57	162	136
d Dawlish (Luscombe Castle)	Peter Hoare, Esq.	8	1	2	175	35.9	43.09	229	152
d Bovey Tracey (Hedgebarton)	S. C. Chapman, Esq., C.E.	5	1	6	1137	59.2	61.47	210	173
d Bovey Tracey (Edymead)	Rev. W. V. Vickers	5	1	9	200	..	43.21	178	148
w Ashcombe (Thorns Reservoir)	S. F. C. Churchward, Esq.	5	1	0	550	36.4	41.32	..	..
d Hennock (Hazlewood)	R. P. Kitson, Esq.	5	1	0	650	..	41.58	..	156
d Moretonhampstead (Bullaton)	S. C. Chapman, Esq., C.E.	8	1	0	928	42.2	45.85	235	166
d Moretonhampstead (Mardon)	S. C. Chapman, Esq., C.E.	8	1	0	837	40.6	43.02	236	163
d North Bovey (Manor House)	Mr. J. T. Laurence	5	1	0	700	49.0	52.73	236	179
m Chagford (Toms Hill)	S. C. Chapman, Esq., C.E.	5	1	6	1500	..	76.80	..	..
m Chagford (Whiteridge)	S. C. Chapman, Esq., C.E.	5	1	6	1650	..	80.17	..	..
m Chagford (Hempson)	S. C. Chapman, Esq., C.E.	5	1	6	1350	..	75.04	..	..
d Christow (Kennick) No. 1.	S. C. Chapman, Esq., C.E.	8	1	0	836	41.6	48.11	225	167
d Christow (Kennick) No. 2.	S. C. Chapman, Esq., C.E.	8	1	0	860	..	46.05	225	163
d Chagford (Fernworthy)	S. C. Chapman, Esq., C.E.	5	1	0	1150	..	68.76	247	183
d Chagford (Metherall)	S. C. Chapman, Esq., C.E.	8	1	0	1150	..	65.96	247	180
m Chagford (Thornworthy Down)	S. C. Chapman, Esq., C.E.	5	1	6	1250	..	67.03	..	..
d Moretonhampstead (Stinshall)	S. C. Chapman, Esq., C.E.	5	1	6	844	48.9	54.00	191	168
m Moretonhampstead (Blickngstne)	S. C. Chapman, Esq., C.E.	5	1	0	1158	42.5	44.52	..	..
d Christow (Laployd)	S. C. Chapman, Esq., C.E.	5	1	0	1041	41.6	49.45	226	163
d Chagford (Thornworthy)	Miss W. H. Varwell	5	0	6	1175	59.6	68.45	238	192
d Chagford (Dartmoor Sanatorium)	The Secretary	5	1	6	750	50.3	(54.89)	..	..
d Chagford (Huish)	Col. P. Hart Dyke, D.S.O.	5	1	0	595	..	51.60	226	169
6.—EXE. 445 sq. mi.									
d Exmouth (Douglas Avenue)	Mrs. S. G. Gillum	5	0	10	80	28.7	30.94	177	133
d Exmouth (Waterworks Road)	S. Hutton, Esq., C.E.	5	1	0	195	28.6	30.59	168	132
d Exmouth (Filters, Salterton Rd.)	S. Hutton, Esq., C.E.	8	1	0	195	31.5	33.57	191	141
d Exmouth (Filters, Capel Lane)	S. Hutton, Esq., C.E.	5	1	0	240	30.3	32.59	183	137
d Starcross	H. Falkner, Esq.	5	1	0	20	32.1	35.77	185	142
d Lympstone (Manor House)	Miss L. Shelden	5	0	11	54	30.8	32.90	(181)	(132)
d Lympstone (Mussel Purifn. Stn.)	The Director	8	1	5	4	29.6	29.47?	..	..

§ Gauge over-exposed on moor.

## DIVISION V—SOUTH-WESTERN COUNTIES—(con.).

		Rain-gauge					1931.		
STATIONS.	AUTHORITIES.	Diam.	Height of		Average Rain-fall.	Rain-fall.	Days with .01 in. or more.	Days with .04 in. or more.	
			Rim above Ground.	Ground above Sea Level.					
SOUTH DEVONSHIRE—(con.)			in.	ft. in.	ft.	in.	in.		
6.—EXE—(con.)									
d Woodbury (Oakhayes).....	E. S. Chattock, Esq.....	5	1	0	200	..	34.24	181 145	
d Woodbury (Little Orchard).....	Miss J. Waters.....	5	1	0	200	..	34.39	.. ..	
d Topsham (Altamira).....	Mrs. Wimbush.....	5	0	9	120	29.3	28.72	.. ..	
d Exminster (Trood House).....	Lt.-Col. T. L. Ormiston....	5	1	0	75	..	35.64	193 144	
d Exeter (Hatfield, Longdown).....	C. Holman, Esq.....	5	0	10	450	33.8	37.66	178 140	
d Aylesbeare (Rosamondford).....	A. T. Loram, Esq.....	5	0	9	220	31.4	32.48	.. 135	
d Exeter (Devon and Exeter Inst.)...	J. E. Coombes, Esq.....	5	13	7	155	30.5	34.19	185 148	
d Exeter (The Close).....	The Ven. Arch. T. N. Leeke..	5	1	2	150	..	35.70	195 144	
d Exeter (The Close).....	Rev. Canon D. McLaren....	5	0	9	100	..	35.54	182 146	
d Tedburn St. Mary Rectory.....	Rev. H. Rusbridger .....	5	0	10	400	32.7	37.15	224 158	
d Spreyton (Fuide Manor).....	Mrs. Elliott.....	5	1	6	710	35.7	37.61	.. 137	
d Rockbeare Manor .....	Lt.-Col. H. Spencer Follett..	5	0	10	180	30.9	32.25	172 140	
d Poltimore Rectory.....	Rev. Dr. Hopkinson.....	5	1	0	80	..	34.62	200 149	
d Brampford Speke.....	E. E. Stevens, Esq.....	5	1	0	170	..	30.99	.. 143	
d Crediton (Ship Hotel).....	R. Stanley Clarke, Esq.....	8	1	2	200	33.1	38.72	208 152	
d Crediton (U.D.C.).....	The Surveyor.....	5	1	3	198	..	36.87	(176) (155)	
d Crediton (Haywards School).....	The Headmaster.....	5	1	0	186	..	37.28	.. ..	
d Silverton (Killerton).....	Rt. Hon. Sir F. Dyke Acland, Bt....	5	1	0	159	30.6	33.61	186 147	
d Silverton.....	G. B. Savery, Esq.....	5	1	0	260	..	35.97	213 148	
d Crediton (Okefield).....	Seymour F. Pope, Esq.....	5	1	0	325	32.2	36.41	216 154	
d Copplestone (Copplestone House)...	Miss M. Pope.....	5	0	11	315	34.1	40.54	213 163	
d Bradninch (Dunmore House).....	Miss H. R. Hepburn.....	5	1	0	300	33.8	34.37	203 148	
d Cullompton.....	Murray T. Foster, Esq.....	5	1	0	202	35.3	35.78	213 157	
d Cullompton Court.....	Dr. E. S. Cardell.....	5	1	0	200	..	34.35	211 155	
d Kentisbeare.....	A. E. Painter, Esq.....	5	1	0	304	..	33.36	190 148	
d Tiverton (St. Aubyn's Park).....	F. C. Fox Strangways, Esq..	5	1	0	394	39.4	33.98	210 154	
d Tiverton (Halberton).....	Miss I. G. Izat.....	5	0	9	240	40.1	49.69	252 163	
d Tiverton (Blundell's School).....	E. G. Peirce, Esq.....	5	1	6	270	..	37.83	194 150	
d Tiverton (Lythecourt).....	Late A. L. Sadler, Esq.....	5	1	2	220	40.2	40.36	182 154	
d Hemyock Place.....	N. J. Hitchings, Esq.....	6	3	0	850	..	34.25	.. 151	
d Bampton (Stuckeridge).....	Brig.-Gen. J. C. Livingstone- Learmonth, C.M.G.	5	1	3	750	..	42.48	209 160	
d Bampton (Castle Grove).....	Major B. M. Read.....	5	1	4	272	..	44.78	.. ..	
d Morebath Manor .....	C. H. W. Malet, Esq.....	5	1	0	600	..	48.22	220 181	
7.—AXE & C. 237 sq. mi.									
d Budleigh Salterton (West Ways)...	J. Hartree, Esq.....	5	1	0	140	..	31.13	.. 134	
d Budleigh Salterton (Braywick).....	E. Fisher, Esq.....	5	1	0	110	..	31.36	173 140	
d Budleigh Salterton (Tidwell Ho.)...	Mrs. J. H. Foster.....	5	1	0	100	..	32.47	176 143	
d Budleigh Salterton (Knowle Ho.)...	Mrs. Pepys.....	5	1	4	230	..	34.46	.. 144	
d Budleigh Salterton (Squabmoor)...	S. Hutton, Esq., C.E.....	5	1	0	267	31.9	35.60	.. ..	
d East Budleigh (Bicton Common)...	S. Hutton, Esq., C.E.....	5	1	0	300	32.2	35.61	.. ..	
d East Budleigh (Bicton Gardens).....	Mr. E. H. High.....	5	1	0	90	31.4	30.53	183 138	
d Salcombe Regis (Steeplehill).....	Burleigh D. Kilburn, Esq....	5	1	0	150	..	32.23	188 128	
d Sidmouth (U.D.C.).....	The Borough Surveyor.....	5	1	0	25	..	29.70	175 125	
d Sidmouth (Home Orchard).....	S. Horsley, Esq., .....	5	1	0	100	..	32.82	174 129	
d Sidmouth (Winslade Cottage).....	Miss G. Collins, M.B.E....	5	1	0	145	..	34.62	(173) (133)	
d Sidmouth (Sidmount) .....	Miss C. M. Radford.....	5	1	0	149	32.4	32.78	178 155	
d Sidmouth (Sidmount) .....	Miss C. M. Radford.....	5	1	0	186	32.5	32.60	178 145	
d Seaton (Withylake).....	T. F. Tracy, Esq.....	5	1	0	200	..	35.09	175 134	
d Harford.....	Mr. C. Coutts.....	9	1	0	260	..	33.48	182 139	
d Lyme Regis (Pinhay).....	Mr. W. F. Shillabeer.....	5	1	11	465	34.9	34.56	186 129	
d Ottery St. Mary (Broad Oak).....	Miss Tallant.....	5	1	2	350	..	37.14	196 154	
d Ottery St. Mary (Little Close).....	P. M. Miller, Esq.....	5	0	9	250	..	34.19	179 140	
d Ottery St. Mary (Easthayes) .....	T. A. B. Pares, Esq.....	8	1	0	550	..	36.05	.. ..	
d Ottery St. Mary (West Hill).....	B. Stansbury, Esq.....	5	1	6	340	34.2	38.60	216 154	
d Ottery St. Mary (Broad Street).....	H. D. Badcock, Esq.....	5	1	6	170	36.3	36.84	200 156	
d Axminster (Lea Combe House) .....	Major A. C. F. Luttrell....	5	1	6	170	38.4	36.95	170 134	
d Honiton (Feniton Court).....	Col. A. D. Acland, C.B.E....	8	1	0	235	..	35.94	207 160	
d Honiton (Beech Grove).....	Major A. T. Baker.....	5	0	10	340	33.5	37.59	203 155	

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			Height of		Average Rain-fall.	Rain-fall.	Days with ·01 in. or more.	Days with ·04 in. or more.	
			Rim above Ground.	Ground above Sea Level.					
SOUTH DEVONSHIRE—(con.)			in.	ft. in.	ft.	in.	in.		
7.—AXE—(con.)									
d Axminster (Coaxdon Hall).....	Dr. Cecil Woodhouse .....	5	1 0	165	37·5	33·30	173	136	
d Membury (Yarty House).....	Major W. H. Wilkin.....	5	1 0	245	..	34·07	187	134	
d Membury (Green Down).....	James Lee, Esq.....	5	1 0	500	38·4	38·16	182	141	
d Stockland (Post Office).....	James Clarke, Esq. ....	5	1 6	350	40·5	39·71	166	145	
NORTH DEVONSHIRE. (Area, 898 sq. mi.)									
1.—NORTH COAST STREAMS. 77 sq. mi.									
d Croyde (Baggy Point).....	Miss C. M. Hyde.....	5	1 0	35	..	32·46	184	143	
d Woolacombe (Hotel Grounds)....	Miss Chichester.....	5	1 0	59	..	33·93	180	138	
d Ilfracombe (Reservoir).....	F. B. Goodman, Esq., C.E....	5	1 0	395	46·2	52·92	241	180	
d Ilfracombe (Langleigh).....	H. B. Holland, Esq.....	5	1 0	127	41·8	46·35	205	168	
d Ilfracombe (Bowling Green).....	F. B. Goodman, Esq., C.E....	5	1 0	74	..	41·72	198	157	
2.—TAW. 442 sq. mi.									
d Okehampton (South Zeal).....	Capt. S. T. Dean-Pitt.....	5	1 0	750	45·5	48·91	211	182	
d Witheridge .....	Rev. J. A. S. Castlehow....	5	1 0	600	39·5	43·90	204	168	
d Chittlehamholt.....	Rev. H. Carter.....	5	1 0	430	..	41·07	197	..	
d East Anstey Rectory.....	Rev. J. S. Payne.....	5	0 9	750	..	50·48	..	..	
d East Anstey (Rhyll Manor).....	Mrs. E. L. Hancock.....	5	1 0	850	..	52·76	215	183	
d Filleigh (Castle Hill Gardens)....	The Countess Fortescue....	5	1 0	317	43·1	46·27	209	176	
d Tawstock Court .....	Sir Basil Peto, Bart.....	8	1 0	150	39·7	(42·17)	..	..	
d Molland (Green Cot).....	S. J. Case, Esq.....	5	1 0	674	50·5	51·77	233	185	
d Barnstaple (N. Dev. Athenæum)...	The Librarian.....	8	1 0	25	36·6	39·74	252	171	
d Barnstaple (Hele Manor Park)....	M. B. B. Heath, Esq.....	6	1 0	130	35·1	41·85	216	153	
d Barnstaple (Fort Hill).....	Miss E. F. Sterry.....	5	1 0	197	38·3	43·19	237	182	
d High Bray Rectory.....	Rev. C. F. Ford.....	5	1 1	700	..	56·81	227	193	
d Barnstaple (Westaway).....	Major O. L. Trechmann....	5	1 0	140	39·1	42·76	218	167	
d Goodleigh (Willesleigh House)....	Lt.-Col. Montague H. Hall..	5	1 0	375	40·0	41·87	209	172	
d Goodleigh (Gunn Cottage).....	Major H. Sandford Claye... 5	1 0	720	43·4	46·89	232	188		
d Branton .....	A. J. Besley, Esq.....	5	1 0	145	33·5	38·88	197	154	
d Arlington Court.....	Miss Chichester .....	5	1 0	613	53·8	53·81	210	195	
d Challacombe.....	F. B. Goodman, Esq., C.E....	5	1 0	815	62·2	67·21	233	200	
d Georgeham (Spreacombe Manor)...	A. Leigh Barker, Esq.....	5	0 9	340	38·1	44·36	221	164	
d Kentisbury.....	Noel Irwin, Esq. †.....	5	1 0	557	..	54·90	234	191	
3.—TORRIDGE. 342 sq. mi.									
d Dartmoor (Cranmere Pool).....	S. R. Harry, Esq., for M.O..	5	1 0	1845	..	(81·05)	..	..	
d Dartmoor (Newbridge).....	E. P. Burd, Esq., for M.O..	5	1 0	1500	..	68·50	..	..	
d Okehampton (Uplands).....	E. P. Burd, Esq.....	5	1 0	700	51·4	54·21	219	178	
d Okehampton Grammar School....	W. Hunter Esq.....	5	1 0	500	47·3	49·89	175	159	
d Monkokehampton .....	Rev. R. Y. Holmes.....	5	0 6	245	..	37·35	..	..	
d Dolton (Hilliers).....	A. Smythies, Esq.....	5	1 3	380	37·9	39·95	218	161	
d Torrington (Enfield).....	G. M. Doe, Esq.....	5	1 0	337	39·3	39·91	215	170	
d Parkham (Melbury Moor).....	F. Harding, Esq.....	5	1 0	630	50·2	53·47	221	189	
d Parkham (Melbury Reservoir)....	F. Harding, Esq.....	5	1 0	517	52·8	59·49	221	199	
d Buckland Brewer (The Cottage)...	Miss B. G. Rogers.....	5	0 11	469	45·0	45·78	231	176	
d Littleham (Orleigh Court).....	W. H. Rogers, Esq.....	5	1 0	260	48·0	45·40	219	186	
d Landcross (South Close).....	C. R. C. Hibbert, Esq.....	5	1 0	100	35·6	41·89	213	166	
d Bideford (Jennett's Res.).....	Borough Surveyor.....	5	1 0	62	..	39·95	200	162	
d Bideford (Gammaton Res.).....	Borough Surveyor.....	5	1 0	350	..	38·84	189	163	
d Bideford (Webbery).....	Mrs. C. E. Boyd.....	5	1 0	355	37·7	42·63	207	169	
d Bideford (Edgehill College).....	The Headmistress.....	5	1 0	100	..	(38·59)	193	..	
d Westleigh House .....	Rev. H. G. de C. Stevens Guille	5	1 0	187	35·6	37·63	221	158	
d Northam (Cluden).....	P. Varwell, Esq.....	5	0 11	215	35·9	38·04	233	173	
d Westward Ho ! (Royal Golf Club) ..	Major A. Newton-King .....	5	1 6	10	32·3	36·11	190	163	
4.—WEST COAST STREAMS. 32 sq. mi.									
d Hartland (Fosfelle).....	R. P. Chope, Esq., B.A., J.P.	5	1 0	480	..	49·37	233	179	
d Clovelly Court.....	Mr. S. M. Wilson.....	5	0 11	360	51·2	46·96	192	165	
5.—EXE. 5 sq. mi.									

† For Royal Meteorological Society.

## DIVISION V—SOUTH-WESTERN COUNTIES—(con.).

STATIONS.	AUTHORITIES.	Diam.	Rain-gauge				1931.		
			Height of		Aver- age Rain- fall.	in.	Rain- fall.	Days with ·01 in. or more.	Days with ·04 in. or more.
			Rim above Ground.	Ground above Sea Level.					
CORNWALL. (Area, 1,363 sq. mi.)			in.	ft. in.	ft.	in.	in.		
<b>1.—CAMEL &amp; N.W. COAST STREAMS. 458 sq. mi.</b>									
Crowan (Boswyn Res.).....	Camborne Water Co.*.....	5	..	511	43·1	52·70	209	171	
d Lelant .....	Mrs. Tyringham.....	5	1 3	50	42·0	45·70	201	157	
d Hayle (Gwythian Road).....	Caldwell Harpur, Esq.....	5	0 10	98	39·2	42·39	222	163	
d St. Ives (Halsetown Vicarage).....	Rev. T. C. F. Barlett.....	5	1 0	328	..	44·45	230	148	
d St. Ives (Bussow Moor).....	The Borough Surveyor.....	5	1 1	397	..	43·35	208	154	
d St. Ives (Cemetery).....	The Borough Surveyor.....	5	1 1	141	..	42·95	196	145	
d Camborne .....	Miss I. Osborne.....	5	1 2	402	43·4	49·00	186	151	
d Camborne (Uplands).....	H. G. Rix, Esq.....	5	1 0	210	..	42·63	216	166	
d St. Ives (Liscoruah).....	Col. J. M. Findlay, D.S.O... 5	0 9	300	..	43·08	202	161		
d Redruth (Trewirgie).....	A. P. Jenkin, Esq.....	5	1 0	397	45·3	51·75	227	174	
m Redruth (Green Lane Nurseries).....	F. Sanders, Esq.....	5	1 0	270	41·2	50·44	..	..	
d St. Agnes (Church Town) <i>new g.</i> .....	Dr. W. C. Whitworth.....	5	1 0	318	36·5	43·07	209	168	
d Newquay (Reservoir).....	Dr. C. C. Vigurs.....	5	1 0	210	33·1	38·75	..	..	
d Newquay (Mount Wise) No. 1.....	Dr. C. C. Vigurs.....	5	1 0	190	33·2	37·15	205	151	
d Bodmin (Polgwin).....	H. D. Foster, Esq.....	5	1 0	400	48·8	54·19	224	192	
d Bodmin (Castle Hill House).....	Mrs. Leslie.....	5	1 0	484	49·7	55·28	261	202	
d Helland (Tredethy).....	Capt. G. Wilson, R.N.....	5	0 10	300	..	50·46	221	182	
d Little Petherick (St. Petroc Minor).....	Miss A. T. Skilbeck.....	5	1 2	150	..	39·10	255	175	
d Wadebridge (Bryn).....	Mrs. K. D. Beare.....	5	1 6	50	39·7	42·43	..	..	
d Wadebridge (Trewornan).....	Brig.-Gen. L. J. Hext, C.M.G. 5	1 0	30	37·8	43·74	236	176		
d St. Kew (Skisdon).....	Mrs. Braddon.....	5	1 0	100	42·1	49·12	242	184	
d St. Minver (Trebetherick).....	A. T. Roseveare, Esq.....	8	1 0	70	33·8	37·77	199	166	
d St. Minver (Lundy Bay).....	W. Poynter Adams, Esq.....	5	1 0	240	..	43·79?	..	..	
d Camelford (Roughton).....	A. W. Patten, Esq.*.....	8	..	940	..	71·69	236	192	
d Camelford (Stannon Clay Wks.).....	English China Clays, Ltd... 8	2 0	800	57·2	66·12	231	193		
d Bude (School House).....	Karl Durston, Esq.....	5	1 0	50	33·4	36·59	211	155	
d Bude (Irelana).....	G. A. C. Thynne, Esq.....	5	2 0	200	..	40·64	..	..	
<b>2.—FOWEY &amp; S.E. COAST STREAMS. 620 sq. mi.</b>									
m Lizard (Tregullas House).....	A. P. Jenkin, Esq.....	5	1 0	244	..	(38·27)	..	..	
d Ruan Minor.....	Miss H. F. Shepherd.....	5	1 0	210	35·9	38·30	206	152	
d Mullion (Council School).....	E. J. Perry, Esq.....	5	1 1	208	..	43·14	218	164	
d Mullion .....	H. H. Penrose, Esq.....	5	0 10	178	35·2	39·31	198	150	
d Porthcurno .....	Eastern Telegraph Co.....	5	1 0	150	36·8	41·00	221	151	
d St. Keverne (Lanarth).....	P. D. Williams, Esq.....	5	1 3	310	43·8	48·46	224	173	
d Bosahan (St. Martin-in-Meneage).....	Hon. Mrs. Colborne Vivian.. 5	1 3	180	..	46·11	177	152		
d Sithney (Council School).....	R. Trend, Esq.....	5	0 10	296	..	51·55	..	..	
d Constantine (Pons-a-Verran).....	A. Mayne, Esq.....	8	1 0	60	39·5	45·67	226	161	
d Penzance (Trewidden).....	Mrs. C. Williams.....	5	1 0	275	42·9	46·44	197	167	
d St. Michael's Mount.....	Lord St. Levan.....	..	..	50	..	41·86	..	..	
d Penzance (Morrab Gardens).....	C. H. Benn, Esq.....	5	1 0	55	40·9	45·97	222	167	
d Penzance (Tregwainton House).....	Lt.-Col. E. H. W. Bolitho.. 8	1 2	400	46·2	48·82	210	166		
d Gulval (Co. Council Plot).....	Cornwall County Council... 5	1 0	20	41·5	45·69	201	166		
d Wendron (Ninemaidens).....	W. E. Benney, Esq.*.....	..	..	700	..	56·52	203	178	
d Falmouth (Pendennis Castle).....	Meteorological Office.....	8	0 9	200	..	40·07	200	145	
d Falmouth Observatory (+A).....	Roy. Cornwall Poly. Soc... 5	1 0	167	43·6	45·73	201	156		
d Falmouth (Trefusis).....	Lt.-Col. The Hon. H. W. F. Trefusis. 5	1 3	200	40·5	39·94	203	150		
d Penryn (Ashfield).....	J. G. Stephens, Esq.....	5	1 0	95	41·6	46·34	225	157	
d Penryn (Roskrow).....	Mrs. E. Stephen*.....	..	..	550	..	55·35	..	..	
m Devoran .....	Lord Clifden*.....	5	1 0	120	41·0	44·60	..	..	
d Gwennap (Trevince).....	C. H. Beauchamp, Esq.....	12	1 0	240	44·4	53·61	215	176	
d St. Day (Council School).....	R. R. Blewett, Esq.....	5	0 9	390	49·1	48·23	223	157	
d Truro (Killiow).....	Miss E. F. A. Daubuz.....	5	1 0	250	42·0	42·63	206	171	
d Tregoney (Trewarthenick).....	P. A. Welman, Esq.....	6	0 10	200	..	45·39	..	..	
d Truro (Tregolls).....	Miss C. L. Rashleigh.....	5	1 0	65	41·8	45·78	223	165	
d Truro W.W. (Lower Tregurrow).....	W. J. Lean, Esq.....	5	1 0	71	43·2	47·00	191	171	
d Mevagissey .....	C. Metcalfe, Esq.....	5	1 0	100	42·5	47·73	213	169	
d Polperro.....	Mrs. F. H. Perrycoste.....	5	1 0	100	39·2	40·71	261	151	
d Fowey .....	Town Clerk.....	5	1 0	51	34·7	36·90	187	159	
d St. Austell (Charlestown Old Vic.).....	C. A. Battiscombe, Esq.....	5	4 6	204	42·7	48·57	208	164	

\* Per Cornwall Rainfall Association.

|| Exposure not orthodox.

## DIVISION V—SOUTH-WESTERN COUNTIES—(con.).

STATIONS.	AUTHORITIES.	Diam.	Rain-gauge			Average Rain-fall.	1931.		
			Height of Rim above Ground.	Height of Ground above Sea Level.			Rain-fall.	Days with ·01 in. or more.	Days with ·04 in. or more.
CORNWALL—(con.)			in.	ft.	in.	ft.	in.		
2.—FOWEY & S.E.—(con.)									
d St. Austell (Trevarna).....	W. M. Coode, Esq.....	5	1	0	300	45·8	52·10	228	176
d East Looe.....	W. D. Clague, Esq.....	5	1	0	50	..	42·03	192	150
d Downderry (The Watch House)...	Mrs. Sneyd.....	5	1	0	100	37·0	38·27	215	169
d Looe (Morval).....	Capt. A. H. Tremayne, R.N. 5	1	0	150	46·9	48·01	197	155	
d Lostwithiel (The Terrace).....	R. Pease, Esq.....	5	1	0	110	50·0	53·29	231	166
d St. Keyne (Locrenton).....	Rear-Adml. R. Wykes-Sneyd 5	0	10	250	..	53·12	235	167	
d Menheniot (Coldrenick).....	Rev. F. E. Trelawny.....	5	1	0	301	48·4	50·76	178	157
d Liskeard (Penmilder).....	Miss D. P. Foster.....	6	1	0	301	42·6	48·92	207	159
d Liskeard (Lewarne).....	W. R. Rendall, Esq. ....	8	0	10	420	..	63·77	238	184
d St. Cleer (Tregarric).....	Col. J. D. A. Roberts.....	5	1	6	800	52·1	56·36	..	..
d Bolventor Vicarage.....	Rev. A. S. Rashleigh.....	5	1	0	845	71·1	76·33	249	206
3.—TAMAR & C. 279 sq. mi.									
d Devonport (Empacombe).....	Miss M. C. Algate.....	5	2	6	20	36·8	42·79	207	150
d Devonport (Cremyll).....	S. B. Wilcox, Esq.....	5	1	4	25	36·9	35·21?	218	157
d Torpoint (Trethill House).....	Col. J. D. A. Roberts.....	5	1	6	200	34·3	38·50	201	143
d Torpoint (Wilcove).....	G. P. Jenkin, Esq.*.....	..	..	..	40	..	42·67	..	..
d St. Mellion (Pentillie Castle).....	W. T. Johnson, Esq.....	5	1	0	150	50·7	49·21	206	152
d Stoke Climsland School.....	T. Oates, Esq.....	5	5	0	458	..	50·88	..	..
d Launceston (North Hill).....	Miss M. E. Hale.....	8	1	0	475	..	62·17	238	175
d Launceston (Landue).....	Miss S. E. Tregoning.....	5	0	11	225	44·2	51·46	233	177
d Launceston (Hexworthy).....	R. B. Rogers, Esq.....	5	1	0	270	43·8	49·76	231	167
d Launceston (Pendruccombe).....	Miss L. C. Seccombe.....	5	1	0	469	42·2	53·18	221	165
d Egloskerry (Tregear).....	E. G. B. Lethbridge, Esq. 5	1	6	575	47·3	50·94	..	..	..
d North Tamerton (Davies).....	W. S. Bray, Esq.....	5	1	0	390	36·8	47·08	209	175
4.—INSULAR.—Isles of Scilly. 6 sq. mi.									
d St. Mary's.....	The Meteorological Office... 8	1	0	163	31·9	33·97	206	142	
d Tresco Abbey.....	Maj. A. A. Dorrien Smith, D.S.O. 5	1	0	40	33·4	35·85	205	148	
SOMERSETSHIRE. (Area, 1630 sq. mi.)									
1.—LOWER AVON. 300 sq. mi.									
d Wanstraw (The Manor Cottage)...	P. E. B. Warburton, Esq... 5	1	0	465	37·7	35·78	173	130	
d Shepton Mallet (Pondsmead).....	R. A. Hobhouse, Esq.....	8	1	0	710	44·9	41·52	206	163
d Frome W. W. (Egford).....	L. Slaughter, Esq.....	8	2	0	270	35·8	33·34	189	122
d Frome (Selwood School).....	Miss A. K. Coombs.....	5	1	7	320	33·9	30·01	180	123
d Mells (Selwood).....	Miss E. G. Horner.....	5	1	0	344	37·2	33·61	195	123
d Binegar (Gurneyslade).....	Rev. G. B. Hicks.....	5	1	0	588	43·3	40·39	179	146
d Stratton-on-Fosse (Downside Ab.)	Rev. G. B. Hicks.....	8	1	0	600	41·5	39·29	202	142
d Orchardleigh Park.....	Major A. C. Duckworth... 8	1	0	320	32·8	31·65	180	120	
d Chilcompton (The Woodlands)...	C. H. M. Thring, Esq.....	5	0	10	450	..	37·39	211	150
d Chewton Mendip (The Priory)....	The Earl Waldegrave.....	5	1	0	550	..	37·94	196	146
d Midsomer Norton (Dymboro')....	Dr. A. Bulleid.....	5	1	0	350	35·8	31·83	174	129
d Midsomer Norton (C.E. School)...	J. Poyner, Esq.....	5	0	8	310	..	35·23	171	138
d Radstock (Frome Hill).....	C. H. Perry, Esq.....	8	2	6	330	34·7	33·33	169	126
d Litton (Sherborne Res.).....	J. A. McPherson, Esq., C.E. 5	1	0	340	40·0	37·10	171	140	
w Harptree Hill.....	J. A. McPherson, Esq., C.E. 5	1	0	784	..	39·99	..	..	..
d Tellisford (Crabb Hall).....	Dr. W. C. Everley Taylor... 5	0	9	182	..	26·79	..	..	125
d Hinton Blewitt Manor.....	Maurice Church, Esq.....	5	1	3	500	39·6	37·01	237	135
d High Littleton Vicarage.....	Rev. T. H. Fitzpatrick.... 5	0	11	446	34·7	31·90	167	128	
d Clutton (Council School).....	I. C. Hoyal, Esq.....	5	1	0	427	35·5	32·74	219	115
d Pensford (Sutton Court).....	Lord Strachie.....	8	1	0	280	37·7	35·21	210	135
d Midford (Pumping Station).....	Combe Down W.W. Co., Ltd. 5	1	0	135	..	31·18	179	135	
d Monkton Combe (Crossways).....	M. J. Lipscomb, Esq.....	5	1	0	210	33·2	33·18	..	126
d Pensford (Hunstrete House).....	H. Leyborne Popham, Esq.. 5	0	9	400	33·7	32·76	189	136	
d Chew Magna.....	J. A. McPherson, Esq., C.E. 5	1	0	180	36·3	35·46	181	138	
d Pensford (Publow School Ho.)....	A. Hayes, Esq.....	5	1	0	230	33·2	35·37	181	150

\* Per Cornwall Rainfall Association.

## DIVISION V—SOUTH-WESTERN COUNTIES—(con.).

STATIONS.	AUTHORITIES.	Diam.	Rain-gauge				1931.		
			Height of		Aver- age Rain- fall.		Rain- fall.	Days with ·01 in. or more.	Days with ·04 in. or more.
			Rim above Ground.	Ground above Sea Level.					
			in.	ft. in.	ft.	in.	in.		
SOMERSETSHIRE—(con.)									
1.—LOWER AVON—(con.)									
d Bath (Henrietta Park).....	Bath Corporation .....	5	1	0	67	30·3	29·08	188	129
d Bath (Monkton Combe).....	W. G. Lock, Esq. ....	5	1	0	450	30·3	33·15	229	151
d Bath (Combe Lodge).....	Major T. H. Clark.....	5	1	0	520	31·4	30·71	169	126
d Bath (Statutory Hospital).....	Bath Corporation .....	5	1	0	520	32·8	31·42	154	138
d Bath (Claverton Lodge).....	G. Lipscomb, Esq. ....	5	1	3	375	29·1	29·08	169	129
d Bath (Lansdown Place).....	Lady Stothert.....	5	1	2	450	31·5	29·87	199	137
d Bath (Charlcombe).....	Bath Corporation W.W. ....	5	1	6	325	31·4	28·97	165	120
d Whitchurch (The Mead).....	N. L. Butt, Esq. ....	5	0	6	300	..	33·05	197	124
d Batheaston Reservoir.....	Bath Corporation W.W. ....	5	1	0	248	31·1	32·63	191	141
d Batheaston (Sandybank Inn).....	F. Lee, Esq. ....	5	1	0	150	..	34·80	184	144
d Keynsham (Chewton Road).....	A. E. Stephens, Esq. ....	8	1	0	133	29·6	29·07	..	127
d Bath (Brockham End).....	Mr. H. A. Holland.....	5	2	0	730	29·9	31·08	196	137
d Barrow Gurney Reservoir.....	J. A. McPherson, Esq., C.E. ....	5	1	0	300	36·2	33·54	180	128
d Lansdown.....	Bath Corporation W.W. ....	5	1	0	380	..	32·89	(181)	(133)
d Long Ashton (Research Station).....	W. H. Neild, Esq. ....	8	0	8	162	34·1	34·47	208	132
d Walton (Canok Lodge).....	The Late Major F. J. Winter ..	5	1	0	152	32·2	32·68	177	135
d Failand House.....	University of Bristol.....	5	1	0	390	34·6	34·96	203	143
d Portishead (Bristol Rd.).....	Portishead Dist. Water Co. ....	5	1	6	24	34·9	33·23	191	142
d Portishead (St. Mary's Road).....	Paul Sinnock, Esq. ....	5	1	0	67	33·0	32·22	185	133
2.—YEO, AXE & BRUE. 405 sq. mi.									
d Alford Rectory.....	Rev. A. B. Burney*.....	5	..	..	100	30·8	31·35	166	136
d Somerton (Butleigh Court).....	R. Neville Grenville, Esq. ....	8	1	2	95	30·5	28·96	171	136
d Bruton (Great Down Cottage).....	F. K. Makins, Esq. ....	5	1	0	280	..	33·25	210	143
d Ditchat Rectory.....	Rev. H. H. Tripp, M.A. ....	5	1	0	230	31·5	32·25	181	139
d Street (Overleigh House).....	J. B. Clark, Esq. ....	5	0	10	100	28·5	27·22	173	133
d Street (Hindhayes).....	Mrs. Bancroft Clark.....	5	1	6	78	28·8	(27·21)	..	..
d Street (Portway).....	J. E. Clark, Esq. ....	5	1	0	80	..	29·02	192	140
d Street (Wraxhill Corner).....	A. H. Clothier, Esq. ....	5	1	10	70	..	30·05	..	..
d Street (Millfield) <i>old g.</i> .....	Miss Alice Clark.....	8	0	6	100	29·5	29·03	162	130
d Street (Millfield) <i>new g.</i> .....	Miss Alice Clark.....	5	1	1	100	..	27·40	162	124
d Glastonbury (St. Michael's).....	Ven. Archdeacon W. Farrer. ....	5	1	0	220	28·8	30·65	197	147
d Edington.....	Major A. C. F. Luttrell.....	5	2	0	90	31·2	34·55	189	167
d Chilton Polden (West House).....	Mr. E. Chick.....	5	1	0	100	28·5	30·38	197	144
d Cossington Manor.....	J. C. Macro Wilson, Esq. ....	5	1	0	110	..	29·52	174	139
d Meare.....	E. J. H. Stott, Esq. ....	5	1	0	35	..	29·42	184	136
d Shepton Mallet (Pilton).....	Miss E. M. Allen.....	5	1	3	354	34·6	31·89	193	139
d Shepton Mallet (Charlton).....	C. E. Burnell, Esq., J.P. ....	5	1	0	481	38·8	38·28	195	153
d Shepton Mallet (Field House).....	Sir F. H. Berryman.....	5	1	0	500	38·6	37·57	191	150
d Shepton Mallet (Sewage Farm).....	The Surveyor, U.D.C. ....	5	1	0	310	38·7	35·42	195	149
d Douling Vicarage.....	Rev. H. S. Darbyshire.....	5	1	0	693	39·8	37·62	205	158
d Wells (The Palace).....	Mrs. Wynne Willson.....	..	..	..	..	..	33·16	..	..
d Wells (St. Cuthbert's Lo.).....	Rev. H. W. Laidlay.....	5	1	0	135	..	32·54	188	142
d Wookey Vicarage.....	Rev. F. P. Synge.....	5	2	0	50	33·5	34·37	195	148
d Blackford (Council School).....	E. H. Phillips, Esq. ....	5	1	0	50	..	32·36	183	141
d Wells (Wookey Hole Paper Mills).....	W. S. Hodgkinson & Co., Ltd. ....	5	1	0	200	35·1	35·08	..	..
d Wookey Hole (Wookey Ho.).....	E. T. Wilson, Esq. ....	5	1	0	200	..	34·67	193	154
d Burnham (Chalbury).....	H. A. Smith Spark, Esq. ....	5	1	0	20	29·1	31·35	192	152
d Burnham.....	W. H. Chowins, Esq., C.E. ....	8	0	8	24	28·5	31·27	189	154
d Burnham (Berrow Road).....	Rev. C. E. B. Fripp.....	5	1	0	10	29·3	31·15	198	151
d Burnham (Brent Knoll).....	J. Griffith, Esq. ....	5	1	9	25	30·3	30·05	213	146
d Cheddar (Pumping Station).....	J. A. McPherson, Esq., C.E. ....	5	1	0	50	33·6	32·66	178	129
w Charterhouse.....	J. A. McPherson, Esq., C.E. ....	5	1	0	619	43·2	43·49	..	..
w Compton Martin.....	J. A. McPherson, Esq., C.E. ....	5	1	0	276	42·4	37·71	..	..
d Shipham (Studleigh End).....	Miss E. M. Garaway.....	5	1	0	540	..	37·15	199	150
w Ubley (Rookery Farm).....	J. A. McPherson, Esq., C.E. ....	5	1	0	525	44·9	41·11	..	..
d Winscombe (The Down).....	J. Grubb, Esq. ....	5	1	0	295	35·8	33·63	192	144
d Banwell (Eversleigh).....	Dr. Kenneth Anderson.....	5	1	6	50	33·9	33·07	209	143

\* Per Mid-Wessex Rainfall Association.

## DIVISION V—SOUTH-WESTERN COUNTIES—(con.).

STATIONS.	AUTHORITIES.	Diam.	Rain-gauge		Average Rain-fall.	1931.		
			Height of Rim above Ground.	Height of Ground above Sea Level.		Rain-fall.	Days with .01 in. or more.	Days with .04 in. or more.
			in.	ft. in.	t.	in.		
SOMERSETSHIRE—(con.)								
2.—YEO, AXE and BRUE—(con.)								
w Blagdon Hill	J. A. McPherson, Esq., C.E.	5	1	0	550	40.6	40.01	..
d Blagdon (Pumping Station)	J. A. McPherson, Esq., C.E.	5	1	0	112	37.0	34.41	170
w Blagdon (Coombe Lodge)	J. A. McPherson, Esq., C.E.	5	1	0	388	39.6	36.48	..
w Nempnett (West Town)	J. A. McPherson, Esq., C.E.	5	1	0	263	36.3	32.91	..
d Burrington (Burrington Links)	J. A. McPherson, Esq., C.E.	5	1	0	335	38.1	34.63	..
d Weston-super-Mare (Clarence Pk.)	W. H. Allen, Esq.	5	1	0	29	29.9	30.98	165
d Churchill (Langford House)	Sidney Hill, Esq., J.P.	8	0	10	90	..	39.29	204
w Butcombe (Cholwell)	J. A. McPherson, Esq., C.E.	5	1	0	370	38.9	33.52	..
d West Town (Downside)	Major E. J. Dunscombe	8	1	4	650	..	36.19	220
d Yatton (Chelvey)	J. A. McPherson, Esq., C.E.	5	1	0	60	32.5	33.43	190
d Backwell Hill	W. Garnett, Esq.	5	1	0	490	33.2	33.38	166
d West Town	Theodore Robinson, Esq.	5	1	0	80	34.6	33.07	189
d Clevedon W.W. (Tickenham Rd.)	J. Harger Pye, Esq.	5	1	6	70	31.2	31.89	171
d Clevedon (Bowling Green)	Mr. H. H. Brook	5	0	11	126	33.8	31.81	..
d Clevedon (Mt. Heber Cottage)	G. M. S. Farmer, Esq.	5	1	0	144	34.3	30.76	184
d Wraxall Court	Mr. G. Hyde	5	0	10	200	..	34.16	200
3.—PARRETT. 568 sq. mi.								
d Chard (High Street Council Sch.)	F. Barnard, Esq.	5	1	2	425	39.1	41.14	193
d Crewkerne (The Reservoir)	E. H. Munford, Esq.	8	1	0	426	33.7	31.63	178
d Crewkerne (Bincombe House)	Mrs. R. H. Symons	5	1	3	293	34.7	32.70	172
d Chaffcombe House	Col. L. H. Noblett	5	0	10	400	33.1	35.44	211
d Combe St. Nicholas	Rev. G. de Y. Aldridge	5	1	0	580	38.4	39.08	209
Coker Court Gardens	Mr. T. H. Gilham	5	1	6	255	33.7	33.05	173
d Ilminster (Whitelackington Ho.)	S. Creed, Esq.	5	3	0	200	33.0	34.96	174
d Ilminster (Dillington Park) (R)	Mr. W. Goldthorpe	8	3	0	161	..	32.39	158
d Yeovil (Reckleford School)	The Headmaster	5	2	0	150	..	29.87	151
d Yeovil (Pen Mill Sewage Works)	Dr. C. W. Gee	5	1	0	102	30.6	30.19	229
d Pitminster (Blagdon Hill)	G. L. Sidey, Esq.	5	0	10	750	..	39.30	210
d Stoke-under-Ham	Miss M. H. Gillett	9	1	0	80	31.2	30.52	172
d Angersleigh (Leigh Court)	A. Eastwood, Esq.	8	1	0	360	35.0	33.21	192
d Ashbrittle (Kyrle)	Major J. H. Mathias	5	0	9	525	..	41.29	205
d Bradford (Stoford Manor)	W. Simms, Esq.	5	0	8	110	..	30.81	..
d Martock Vicarage	Rev. G. W. Saunders	5	0	9	61	29.6	26.68	178
d Ash (The Grange)	L. C. R. Thring, Esq.	5	1	3	150	..	30.60	179
d Rimpton	P. B. Cardwell, Esq.	5	1	0	147	..	27.84	208
d Taunton (The Park)	Dr. John Allen	5	1	0	71	29.5	27.39	185
d Taunton (Holy Trinity School)	A. P. Guest, Esq., M.B.E.	5	1	0	65	29.1	27.37	207
d Milverton (Old Halls)	Mrs. Bere	5	1	0	250	..	33.75	183
d Milverton (Spring Grove)	Major R. C. Coldwell	5	1	0	449	36.7	37.40	194
d Wiveliscombe (Culverhead)	Lt.-Col. H. Jefferys Taylor, D.S.O.	5	0	10	430	39.6	37.34	187
d Langport (The Grange)	Miss V. M. Page	5	1	0	50	27.9	29.04	213
d Langport (Council School)	H. G. Jefferies, Esq.	5	1	0	52	28.1	29.91	161
d N. Cheriton (Maperton House)	Mr. P. S. Curd *	5	1	3	390	35.3	35.77	208
d Somerton (The Grange)	R. W. Pretor-Pinney, Esq.	5	1	0	106	27.8	27.58	178
d Wiveliscombe (Council School)	The Headmaster	5	1	1	410	..	38.36	182
d Bishop's Lydeard (Watts Ho.)	Sir Dennis Boles, Bart.	5	1	2	320	..	28.55	186
d North Newton	The Headmistress	5	0	9	50	..	29.54	167
d Aisholt (Timbercombe)	Mrs. White	5	1	2	700	33.2	37.26	205
d Bagborough Rectory	C. Hubert Lance, Esq.	9	1	0	470	34.1	34.61	209
d Bridgwater (Blake Gardens)	The Borough Engineer	5	3	1	27	28.5	32.03	171
d Bridgwater (Wembdon Road)	H. Corder, Esq.	5	1	0	30	29.9	31.05	179
d Over Stowey (Quantock San.)	Medical Superintendent	5	1	0	500	..	34.04	..
d Cannington (Ashford)	Bridgwater Borough Engineer	5	1	1	102	31.4	28.17	186
d Fiddington (Keenthorpe Ho.)	Capt. A. M. Stancomb, R.N.	5	1	0	250	..	29.57	176
d Cannington (Farm Inst.)	The Principal	5	1	0	95	..	28.08	198

\* Per Mid-Wessex Rainfall Association.



## DIVISION V—SOUTH-WESTERN COUNTIES—(con.).

STATIONS.	AUTHORITIES.	Diam.	Rain-gauge			1931.				
			Height of Rim above Ground.	Ground above Sea Level.	Average Rain- fall.	Rain- fall.	Days with ·01 in. or more.	Days ·04 in. or more.		
SOMERSETSHIRE—(con.)			in.	ft.	in.	ft.	in.	in.		
4.—NORTH COAST STREAMS. 158 sq. mi.										
d Elworthy (Willett).....	H. C. Venning, Esq.....	5	1	0	450	35·1	37·09	169	148	
Quantock Hills (B).....	Lord St. Audries.....	5	1	0	1020	..	42·48	..	..	
Croydon Hall.....	Capt. J. W. Bridges.....	5	3	0	500	41·6	39·93	..	..	
Bicknoller (Ford).....	John Tracey, Esq.....	5	1	2	150	33·0	34·58	211	158	
d Dodington.....	Miss W. J. Malet.....	5	1	0	450	..	37·66	195	147	
d Bicknoller (Weacombe Ho.).....	O. T. Sadler, Esq.....	5	1	0	320	..	32·19	161	143	
d Williton (Aller Farm).....	R. G. Hosegood, Esq.....	5	3	0	175	32·4	34·27	175	145	
d Williton (The White House).....	S. L. Rogers, Esq., J.P.....	5	1	0	97	30·6	33·26	180	142	
d Kilve Court.....	Miss A. Fry.....	5	1	0	150	30·0	34·00	168	151	
d Stogursey.....	Dr. P. Hallam.....	5	0	8	145	..	30·60	165	136	
d Stogursey (Fairfield House).....	Lord St. Audries.....	5	1	0	150	31·1	32·91	184	141	
d Dunster.....	P. R. Day, Esq.....	5	1	0	160	33·0	36·49	178	130	
d Stolford (Whitewick Farm).....	C. Mackenzie, Esq.....	5	1	0	10	..	27·07	169	137	
d Minehead (Blenheim Gardens).....	A. Douglas Barron, Esq.....	5	1	0	37	..	34·21	178	139	
d Porlock (Lynch Mead Allerford).....	J. Dyke Acland, Esq.....	5	1	3	113	34·6	34·02	248	139	
d Porlock (Bush Steep).....	Mrs. W. P. Holmes.....	5	0	9	130	43·2	37·55	202	141	
d West Porlock (Underway).....	N. G. Hadden, Esq.....	5	1	0	80	44·2	42·11	..	144	
d Culbone (Lillycombe).....	E. T. MacDermot, Esq.....	5	1	0	1210	50·5	47·77	228	179	
5.—EXE. 122 sq. mi.										
d Churchstanton (Widcombe).....	G. Clinton Baker, Esq.....	8	0	11	850	..	38·94	204	153	
d Exbridge.....	Exe Valley Fishery Co.....	5	3	0	410	44·1	44·84	196	164	
d Brushford Rectory.....	Rev. B. J. du Boe.....	5	1	0	450	44·3	46·96	202	178	
d Brushwood Nurseries.....	Mr. G. Ruff.....	5	1	2	430	44·1	44·95	216	163	
d Dulverton C.E. School.....	C. J. R. Weaver, Esq.....	5	0	9	550	..	50·10	200	167	
d Hawkrigde (Liscombe).....	Mr. E. W. Darby.....	5	1	0	980	57·8	49·59	244	176	
d Winsford.....	Capt. R. S. Le Bas.....	6	1	0	620	..	54·44	228	175	
d Exton (Stone Lo.).....	R. H. Arundell, Esq.....	5	1	0	1100	..	46·84	187	155	
d Cutcombe (Wheddon Cross).....	W. J. Tovey, Esq.....	5	1	6	945	49·5	49·42	211	168	
Exford (North Ley).....	F. G. Heal, Esq.....	5	1	6	1000	54·8	55·24	..	..	
6.—AXE. 42 sq. mi.										
d Wayford Manor.....	H. L. P. Baker, Esq.....	5	0	10	400	..	35·61	187	152	
d Cricket St. Thomas.....	Mr. C. G. Rose.....	5	1	0	444	39·3	37·60	..	144	
7.—STOUR. 35 sq. mi.										
d Temple Combe Rectory.....	Rev. Preb. R. W. Windsor..	5	1	0	250	34·9	33·08	190	140	
d Temple Combe (Cheriton Ho.).....	W. Wise, Esq.*.....	..	..	..	..	31·1	31·97	176	146	
d Wincanton (Roundhill Grange).....	Maj.-Gen. C. H. P. Ducat..	5	1	11	375	32·7	34·31	169	142	

## DIVISION VI—WEST MIDLAND COUNTIES.

GLOUCESTERSHIRE. (Area, 1,243 sq. mi.)

1.—WYE. 50 sq. mi.								
d Chepstow (Castleford).....	Mrs. W. R. Lysaght.....	5	0 11	146	..	40·16	190	148
d St. Briavels (St. Briavels House).....	Surg.-Cpt. O. W. Andrews, R.N.	5	1 0	750	..	49·28	192	136
d Forest of Dean (Mailcot Lodge).....	Forestry Commission.....	8	1 4	630	..	43·47	231	150
d English Bicknor (Bicknor House).....	T. F. Harvey, Esq.....	5	1 0	490	..	34·95	183	135
d Lydbrook (Viaduct House).....	G. S. Damsell, Esq.....	5	1 0	95	..	32·08	214	132
2.—SEVERN—Right Bank Tributaries. 176 sq. mi.								
d Lydney (Clanna Cottage).....	Brig.-Gen. A. M. Tyler, C.M.G.	8	0 10	359	..	42·43	181	135
d Forest of Dean (Whitemead Pk.).....	Forestry Commission.....	8	1 0	200	..	39·56	..	..
d Forest of Dean (Blakeney Hill Lo.).....	Forestry Commission.....	8	1 0	500	..	33·41	168	128
d Forest of Dean (Worcester Lo.).....	Forestry Commission.....	8	0 11	712	..	41·29	183	137
d Coleford (Cannop Colliery).....	J. J. Joyes, Esq.....	5	10 0	300	..	37·98	193	138
d Westbury-on-Severn (Ninnage L.).....	Miss N. E. Grant.....	5	1 0	120	..	32·21	175	131
d Forest of Dean (Edgehills Lodge).....	Forestry Commission.....	8	1 0	915	..	41·34	193	140
d Newent (Taynton).....	M. Phillips Price, Esq.....	5	1 0	50	..	31·88	162	131
d Oxenhall (Dymock Woods).....	Forestry Commission.....	8	1 0	232	..	31·89	146	116
d Bromsberrow Heath Pump. Stat.....	W. Osborne Thorp, Esq., C.E.	5	1 0	181	..	32·65	153	120
d Tewkesbury (Forthampton Ct.).....	Mr. B. Webster.....	5	1 0	48	..	31·14	204	131
d Tewkesbury (Upper Lode).....	J. E. Bradley, Esq.....	5	1 0	41	25·2	28·08	175	120

\* Per Mid-Wessex Rainfall Association.

## DIVISION VI—WEST MIDLAND COUNTIES—(con.).

STATIONS.	AUTHORITIES.	Diam.	Rain-gauge			Average Rain-fall.	1931.		
			Height of Rim above Ground.	Height of Ground above Sea Level.	Rain-fall.		Rain-fall.	Days with .01 in. or more.	Days with .04 in. or more.
GLOUCESTERSHIRE—(con.).			in.	ft. in.	ft.	in.	in.		
3.—SEVERN—Left Bank Tributaries. 372 sq. mi.									
d Chipping Sodbury (Horton Hall) ..	Colonel P. Burges.....	5	1 0	380	31.5	33.09	173	144	
d Thornbury (Thornbury House) ..	H. V. Gillett, Esq.....	5	1 0	110	..	33.14	173	128	
d Thornbury (Thornbury Park) ..	Capt. R. A. Bennett .....	5	1 3	70	..	32.80	182	132	
d Tortworth Court .....	Mr. J. Banting .....	8	1 0	264	..	31.95	179	125	
d Tortworth School .....	E. A. Smith, Esq. ....	5	1 6	264	..	32.08	170	128	
d Wooton-under-Edge (Ellerncroft) ..	E. R. Tuck, Esq.....	5	1 0	398	..	32.48	166	126	
d Dursley (The Manor) .....	Miss H. M. Hutton .....	5	1 0	274	31.8	37.23	176	135	
d Avening House .....	Lady Eleanor Byng .....	8	1 3	350	31.6	36.76	..	..	
d Avening (Gatcombe) .....	Colonel H. G. Ricardo .....	6	1 0	550	..	39.25	180	146	
d Berkeley Castle Gardens .....	Mr. T. B. Ashbee .....	5	1 6	60	..	33.22	150	116	
d Nailsworth (Three Corners) ..	F. R. Rushton, Esq. ....	5	0 9	325	33.4	39.42	203	140	
d Berkeley (Sharpness Docks) ..	A. J. Cullis, Esq., C.E. ....	5	1 3	50	..	37.61	148	113	
d Minchinhampton (The Shard) ..	E. H. Denne, Esq.....	5	0 8	500	31.4	38.04	191	139	
d Minchinhampton (Rectory Cott.) ..	G. W. Fisher, Esq.....	5	1 0	610	..	40.02	191	142	
d Minchinhampton (Camp Field) ..	Miss B. M. Legh .....	5	1 6	640	32.9	43.01	216	145	
d Chalford W.W. ....	Stroud Water Co. ....	5	1 6	241	..	38.55	..	..	
d Frocester Manor .....	Capt. J. E. H. Graham-Clarke.	5	1 3	80	25.8	32.27	160	120	
d Stroud (Thrupp) .....	George G. Loane, Esq.....	5	1 0	300	..	36.34	189	137	
d Stroud (Stanley Park Gdns.) ..	Sir P. S. Marling, Bt., V.C., C.B.	8	1 0	365	..	36.39	165	147	
d Stonehouse (Wycliffe College) ..	W. A. Sibly, Esq.....	5	1 0	120	28.5	30.71	162	118	
d Stroud (Berrimans) .....	E. Armitage, Esq.....	5	1 0	750	33.2	38.31	..	..	
d Stonehouse (Parklands) .....	W. Grey Robinson, Esq., J.P.	5	2 6	103	26.9	31.12	189	126	
d Stroud (Lypiatt Park) .....	Mr. A. J. Buck .....	5	1 3	820	..	36.55	..	..	
d Miserden Park .....	G. E. Arthurs, Esq.....	5	1 2	750	..	40.32	185	145	
d Witminster (The Junction) ..	A. J. Cullis, Esq., C.E. ....	5	1 0	32	..	32.47	189	127	
d Haresfield Court .....	Miss Tidswell .....	5	0 10	100	..	34.58	174	136	
d Harescombe Grange .....	Stamford Hutton, Esq.....	5	1 0	557	28.7	32.47	184	134	
d Quedgeley House .....	Miss M. F. Curtis-Hayward ..	5	1 3	65	27.9	31.07	180	134	
d Witcombe Reservoir .....	C. J. Scudamore, Esq., C.E..	8	1 0	297	29.2	31.37	175	132	
d Brockworth (The Kia) .....	Mrs. Grace Buckle .....	5	1 4	220	..	29.41	..	..	
d Gloucester (The Park) .....	R. H. Ellis, Esq.....	5	1 3	56	..	27.84	163	122	
d Gloucester (Llanthony Lock) ..	J. E. Bradley, Esq.....	5	1 2	39	..	27.99	159	127	
d Gloucester (Maisemore Lock) ..	J. E. Bradley, Esq.....	5	1 1	39	..	25.47	182	116	
d Churchdown (Barrow Hill) ..	Mrs. J. H. Jones .....	5	1 0	225	..	30.53	191	129	
d Dowdeswell Reservoir .....	J. S. Pickering, Esq., C.E..	5	1 3	357	..	31.83	183	134	
d Charlton Kings (The Grange) ..	Miss E. M. Heberden .....	5	0 9	300	..	32.91	200	141	
d Cheltenham (Hewletts Res.) ..	J. S. Pickering, Esq., C.E..	8	1 6	419	..	31.91	193	134	
d Cheltenham (Sandford Mead) ..	J. S. Pickering, Esq., C.E..	5	2 6	210	..	30.16	175	129	
d Cheltenham (Montpellier Gds.) ..	Town Clerk .....	5	1 0	214	26.5	31.03	188	141	
d Cheltenham (Suffolk Square) ..	Rev. Preb. H. T. Williamson..	5	1 0	227	..	(26.96)	(182)	(128)	
d Cheltenham (Swindon) .....	J. C. M. Stanton, Esq.....	8	1 2	136	..	29.14	194	129	
d Tewkesbury Pumping Station ..	J. S. Pickering, Esq., C.E..	5	1 0	47	..	29.37	175	122	
4.—SEVERN—Upper Avon. 99 sq. mi.									
d Blockley .....	Miss E. M. Richardson.....	5	1 0	..	..	36.10	186	144	
d Winchcombe (Sudeley Castle) ..	Major J. H. D. Brocklehurst	5	1 0	357	..	32.39	170	137	
d Broadway (Buckland Manor) ..	Mr. J. Whiteley .....	5	1 0	300	..	29.82	171	132	
5.—LOWER AVON & C. 198 sq. mi.									
d Bath (Monkswood Reservoir) ..	Bath Corporation W.W.....	6	1 6	365	..	34.15	211	141	
d Bristol (Tyndalls Pk. Rd.) ..	(+A) O. W. Dunscombe, Esq. ...	5	1 4	150	..	33.11	223	128	
d Bristol (Kingswood) .....	H. Pratten, Esq.....	5	1 0	260	..	30.09	..	..	
d Bristol (Sneyd Park) .....	Mrs. A. M. Tanner .....	5	1 8	300	..	34.10	173	132	
d Clifton (Oakfield Road) .....	J. A. McPherson, Esq., C.E. ...	5	1 0	200	..	31.50	183	130	
d Clifton (All Saints Rd.) .....	H. T. Coles, Esq.....	5	0 11	200	..	34.69	229	146	
d Bristol (St. Andrew's Park) ..	H. Vicars Webb, Esq.....	5	1 6	200	..	30.75	207	134	
d Horfield .....	G. H. Brown, Esq.....	5	1 0	206	..	33.04	209	138	
d Shirehampton (Kings Weston) ..	P. Napier Miles, Esq.....	8	1 0	220	..	33.21	175	129	
d Filton .....	F. W. Gayner, Esq.....	5	1 0	200	..	30.43	180	130	
d Winterbourne (Kendleshire) ..	J. Marsh, Esq.....	5	1 0	170	..	29.18	..	..	
d Frampton Cotterell (Park Ho.) ..	H. H. Harding, Esq.....	5	1 0	158	..	30.11	197	131	
d Badminton Gardens .....	The Head Gardener .....	5	1 0	407	..	37.35	184	146	
d Almondsbury (Ridgewood) ..	R. E. Potter, Esq.....	5	0 10	200	..	30.13	183	116	

## DIVISION VI—WEST MIDLAND COUNTIES—(con.).

STATIONS.	AUTHORITIES.	Diam.	Rain-gauge			1931.			
			Height of Rim above Ground.	Height of Ground above Sea Level.	Average Rain-fall.	Rain-fall.	Days with ·01 in. or more.	Days with ·04 in. or more.	
GLOUCESTERSHIRE—(con.).			in.	ft. in.	ft.	in.	in.		
6.—THAMES—Right Bank Tributaries. 15 sq. mi.									
7.—THAMES—Windrush & c. 333 sq. mi.									
D Somerford Keynes (Manor Ho.)	F. Fawcett, Esq.	5	0	9	450	..	32·18	171	131
D Fairford (Dunfield, Kempsford)	A. T. Iles, Esq.	5	1	0	260	25·6	30·59	183	126
D Fairford Vicarage	Rev. Canon R. C. S. Jones	5	1	0	280	..	29·33	181	135
D Lechlade (St. John's Lock)	Thames Conservancy	5	1	7	237	..	26·64	170	125
D Lechlade (Claydon House)	T. T. S. Metcalfe, Esq.	5	1	0	250	..	27·83	173	128
D Cirencester (R. Agric. Coll.)	The Principal	5	1	0	443	..	35·17	188	138
D Cirencester (Gwynfa)	Nigel Woods, Esq.	5	1	0	354	30·8	33·28	191	137
D Daglingworth Manor	J. Herbert Scrutton, Esq.	8	0	10	450	31·1	35·60	182	140
D Cirencester (Barnsley Pk.)	W. H. Wykeham-Musgrave, Esq.	5	0	9	495	..	35·52	193	142
D Great Barrington	H. J. Barrett, Esq.	5	1	6	417	..	29·89	178	134
D Northleach (Sherborne House)	Mr. A. Mitchell	5	1	0	420	30·7	31·95	..	134
D Northleach (Leygore Manor)	Arthur E. Moss, Esq.	5	1	0	650	..	31·70	204	141
D Bourton-on-Water (Eastfield)	E. W. Kendall, Esq.	5	1	6	434	..	32·12	171	134
D Bourton-on-Water (Chardwar)	Miss A. B. Moore	5	1	0	430	..	32·23	..	133
D Bourton-on-Water (Rectory)	Canon W. E. White	5	0	10	433	..	30·42	..	127
D Stow-on-the-Wold (Icomb Place)	Capt. G. H. Simpson Hayward	8	1	3	500	..	32·32	184	146
D Winchcombe (Temple Guiting Ho.)	Major C. Stacey	5	1	3	700	..	36·37	188	149
HEREFORDSHIRE. (Area, 840 sq. mi.).									
1.—WYE. 685 sq. mi.									
D Goodrich Court Gardens	Mrs. G. R. Trafford	5	1	8	200	29·7	35·01	173	143
D Walford (Hill Court Gardens)	Mr. D. Hawker	5	1	1	161	28·4	31·70	188	123
D Ross (County Observatory). (+A)	F. J. Parsons, Esq.	5	1	0	223	27·4	30·64	176	114
D Ross (Birchlea)	Miss M. L. Southall	5	1	0	210	28·2	32·23	188	123
D Bridstow (Ashe Leigh)	Major W. Stanley R. Cox	5	1	0	230	27·4	33·38	179	129
D Kentchurch Rectory	Rev. R. P. Dansey	5	1	0	220	34·6	37·26	181	131
D Ross (The Chantry)	M. F. Maclean, Esq.	5	0	10	475	..	32·68	187	134
D Perrystone Court	Major-Gen. G. S. Clive, D.S.O.	5	1	3	450	25·5	28·25	..	107
D Brockhampton Court	Mrs. A. W. Foster	8	1	0	500	27·7	31·84	..	..
D Vowchurch (Ladywell House)	A. S. Wood, Esq.	5	1	0	400	34·9	39·18	204	135
D Hereford (Belmont Abbey)	The Abbot	8	1	0	292	27·6	33·35	176	130
D Hereford (Barton House)	Rev. A. G. Jones	8	1	0	179	26·3	31·61	197	134
D Hereford (Breinton Court)	Mrs. R. E. H. Baily	5	1	0	238	25·9	31·85	188	125
D Tarrington (Alder's End)	J. H. Whiting, Esq.	5	1	2	360	..	35·97	177	135
D Dorstone (Oaklands)	Robert Gray, Esq.	5	1	0	486	..	39·09	207	142
D Hereford (Holmer Hall)	Miss M. S. Hopton	8	1	3	244	25·1	29·81	175	131
D Tyberton Court	Major C. B. L. Warner	5	0	10	276	..	33·15	169	139
D Credenhill (Stretton Sugwas)	Capt. S. H. Armitage	5	1	0	226	25·8	33·49	200	152
D Credenhill	F. E. Whiting, Esq.	5	1	5	275	27·5	32·13	..	136
D Clifford School	The Headmaster	5	1	7	490	..	36·78	..	..
D Burghill	F. Boddington, Esq.	5	1	0	310	..	29·07	176	135
D Ocle Pychard (Ocle Court)	G. Cresswell, Esq.	8	1	0	298	27·8	34·67	198	143
D Sarnesfield Court	Rev. W. Marshall	5	1	0	378	..	31·61	167	131
D Weobley School	A. J. Dean, Esq.	5	1	0	320	29·5	32·50	225	146
D Pembridge (Moor Court)	C. A. Benn, Esq.	5	1	6	400	..	32·27	..	..
D Pembridge (Burton Court)	Mrs. P. Clowes	5	1	6	400	28·4	37·11	214	155
D Bromyard (Birchyfields)	J. E. Knott, Esq., D.S.O.	5	1	3	545	..	29·72	..	129
D Bromyard (Dumbleton Cot.)	The late T. V. Philpott, Esq., M.A.	5	1	0	393	29·0	31·64	185	135
D Kington (Lynhales)	Mrs. R. F. Hibbert	5	1	0	620	..	35·10	200	144
D Kington (The Ovals)	S. Robinson, Esq.	5	0	8	700	..	36·71	..	..
D Kington (Hill Court)	J. E. Barendt, Esq.	5	0	8	595	..	39·49	209	154
D Kington (Sunset)	H. Langston, Esq.	5	1	6	495	32·0	37·17	..	..
D Kington (Golf Club)	C. A. Benn, Esq.	5	1	0	1284	..	41·06	..	140
D Humber Rectory	Rev. B. G. Way	5	1	6	450	30·9	31·06	185	141
D Leominster (Hennor)	Capt. L. R. Hibbert	5	1	1	440	..	30·79	206	140
D Leominster (Fairholme)	E. B. Reynolds, Esq.	5	0	9	285	28·5	30·94	186	132
D Kimbolton (Grantsfield)	J. M. Hutchinson, Esq.	5	1	0	424	28·4	31·91	200	142
D Eytton (Old Hall)	R. H. Evans, Esq.	5	0	9	310	27·9	(36·61)	(211)	(143)

## DIVISION VI—WEST MIDLAND COUNTIES—(con.).

STATIONS.	AUTHORITIES.	Diam.	Rain-gauge			1931.			
			Height of		Average Rain-fall.	Rain-fall.	Days with .01 in. or more.	Days with .04 in. or more.	
			Rim above Ground.	Ground above Sea Level.					
HEREFORDSHIRE—(con.).			in.	ft.	in.	ft.	in.	in.	
2.—SEVERN.—Right Bank Tributaries. 155 sq. mi.									
d Ledbury (Donnington Hall).....	Col. C. Spence-Colby, C.M.G.	5	1	0	..	..	29.79	..	..
d Much Marcle (The Mount).....	Miss A. M. Charles.....	5	1	0	240	25.8	30.02	180	132
d Much Marcle (Hall Court).....	Mrs. J. J. S. Powell.....	5	1	0	200	..	30.22	163	125
d Little Marcle Rectory.....	Rev. A. F. Ealand.....	5	1	3	166	..	30.51	186	128
d Ledbury (Underdown).....	S. H. Bickham, Esq.....	5	1	0	307	27.1	30.15	168	123
d Ledbury (The Twerne).....	L. J. C. Riley, Esq.....	5	1	0	400	..	34.73	209	135
d Colwall (The Downs).....	F. M. Day, Esq.....	5	1	0	500	..	30.48	..	..
d Colwall (Upper Wyche).....	Miss M. E. Coulson.....	5	0	9	1000	..	35.08	233	143
d Cradley (Mill Bank).....	Lt.-Col. E. H. Thurlow.....	5	1	0	320	28.4	27.92	..	120
d Whitbourne School.....	Miss M. Hall.....	5	1	0	200	..	27.52	186	141
d Brampton Bryan.....	A. Wilkinson, Esq.....	8	1	3	437	..	38.88	..	..
d Leintwardine.....	E Charnock, Esq.....	5	1	6	450	31.9	37.59	219	156
SHROPSHIRE. (Area, 1343 sq. mi.).									
1.—MERSEY.—Weaver. 27 sq. mi.									
2.—DEE. 30 sq. mi.									
d Ellesmere (Seven Sisters).....	C. Adam, Esq.....	5	1	0	300	..	33.66	182	135
d Whitchurch (Fenns Bank).....	M. W. Sowden, Esq., C.E....	8	1	0	271	27.1	36.83	186	143
d Overton (Sodylt Hall).....	W. H. Horsfall, Esq.....	5	1	0	266	29.7	38.30	..	143
3.—SEVERN.—Right Bank Tributaries. 722 sq. mi.									
Knighton (Lurkenhope Cottage)....	Miss M. A. Davies, for M.O..	5	1	0	650	..	(37.15)	..	..
d Ludlow (Hill Crest).....	C. B. Marston, Esq.....	5	1	3	350	..	39.26	..	..
d Bromfield (Oakly Park).....	Mr. J. R. Francis.....	5	1	0	300	29.7	37.38	179	131
d Bromfield (Warwick House).....	F. Brayshaw, Esq.....	5	1	0	320	30.3	38.55	216	138
d Stanton Lacy Vicarage.....	Miss I. Armitage.....	5	1	0	304	28.1	37.30	194	136
d Culmington Manor.....	T. W. Shaw, Esq.....	5	1	4	575	29.6	35.58	174	138
d Wistanstow.....	J. W. Clarke, Esq.....	8	1	0	480	..	35.81	204	147
d Burwarton Hall.....	Rt. Hon. Viscount Boyne...	5	0	9	894	33.6	47.85	217	172
d Lydbury North.....	Erskine Edmonds, Esq.....	5	1	0	500	..	36.57	216	154
d Lydbury North (Totterton).....	Major W. H. B. Whitaker..	5	1	3	700	..	34.69	204	153
d Bishops Castle (The Vicarage)....	Rev. Canon H. J. Smith...	5	1	4	596	..	33.75	202	152
d Bishops Castle (Castle Street)....	E. Griffiths, Esq.....	5	1	0	720	31.0	38.41	199	154
d Church Stretton (Sewage Works)....	E. J. Marsh, Esq.....	5	1	0	582	33.7	42.41	217	167
d Bishops Castle (More Rec.).....	T. More, Esq.....	5	1	0	605	..	33.83	191	142
d Bishops Castle (Linley Villa).....	T. More, Esq.....	5	1	0	700	..	35.43	191	147
d Bishops Castle (Linley Rock).....	T. More, Esq.....	5	1	0	1200	..	38.01	..	..
d Church Stretton (St. Margaret's)...	Rev. J. H. Kidson.....	5	0	11	672	..	42.97	210	165
d Bishops Castle (Linley Drive).....	T. More, Esq.....	5	1	0	1025	..	37.55	..	..
d Bridgnorth (Cantreyn).....	W. Bayliss, Esq.....	5	1	0	290	26.7	34.40	174	133
d Chirbury (Marrington Hall).....	Lt.-Col. S. D. Price-Davies..	5	1	0	490	29.5	30.94	186	140
d Shelve Pool.....	T. More, Esq.....	5	1	0	1000	..	39.07	..	..
d Church Preen (Preen Cottage)....	Miss Edith Hopkins.....	5	1	0	760	29.1	34.81	188	146
d Church Stretton (Woolstaston)....	Mrs. Mathews.....	5	1	3	745	31.9	40.92	205	149
d Much Wenlock (Willey Park).....	Col. Lord Forester.....	5	3	0	492	28.2	34.65	187	148
d Dorrington School.....	J. A. Narraway, Esq.....	5	1	2	250	..	32.83	223	154
d Shrewsbury (Beckbury House).....	G. H. Horsfall, Esq.....	5	0	9	220	22.1	32.23	191	145
d Shrewsbury (Radbrook Hall).....	Maj. D. D. Macpherson, J.P.	5	0	8	235	24.3	32.80	205	150
d Shrewsbury (Longden Road).....	W. Deedes, Esq.....	5	1	6	250	..	30.99	..	129
d Shrewsbury (Monkmoor).....	The Medical Officer.....	8	1	0	184	..	32.52	200	146
4.—SEVERN.—Left Bank Tributaries. 564 sq. mi.									
Bridgnorth (Coton Hall).....	Capt. W. Colville.....	5	1	6	460	27.8	35.31	185	138
d Bridgnorth (Quatt).....	G.C. Wolryche-Whitmore, Esq.	5	1	6	250	..	34.46	176	139
d Ackleton (The Folley).....	H. J. Bath, Esq.....	5	1	0	230	..	35.35	199	136
d Ackleton House.....	F. J. Neale, Esq.....	8	1	3	270	..	35.01	181	..
d Shifnal (Hatton Grange).....	Mr. G. Risebrow.....	5	1	6	262	26.1	33.98	206	144
d Shifnal (Cosford W. W.).....	B. L. McMillan, Esq., C.E....	5	0	11	222	..	32.19	193	133
d Shifnal (National Schools).....	The Headmaster.....	5	1	5	283	28.2	36.10	176	138
d Wellington W. W. (Wrekin Res.)...	W. Walker, Esq.....	8	2	6	478	25.7	37.87	..	..
d Shrewsbury (Coptorne).....	W. H. Purslow, Esq.....	8	1	0	252	..	31.98	188	134
d Shrewsbury (Coton Hill).....	Dr. M. Gepp.....	5	1	1	190	22.1	30.54	190	136
d Shrewsbury (Roden).....	J. W. Nowell, Esq.....	8	1	2	209	25.2	32.74	198	143
d Shrewsbury (Fitz Rectory).....	Rev. W. Brewster.....	5	1	2	238	26.2	33.69	172	..

## DIVISION VI—WEST MIDLAND COUNTIES—(con.).

		Rain-gauge		Average Rain- fall.	1931.				
STATIONS.	AUTHORITIES.	Diam.	Height of Rim above Ground.		Ground above Sea Level.	Rain- fall.	Days with ·01 in. or more.	Days with ·04 in. or more.	
SHROPSHIRE—(con.).					in.	ft.	in.	ft.	in.
4.—SEVERN—Left Bank Tributaries—(con.).									
d Newport (Aston Hall).....	Col. R. Leeke.....	5	0 11	280	27·7	33·86	186	144	
d Newport (Agricultural College).....	The Principal.....	5	1 0	211	24·8	32·74	202	144	
d Newport (Chetwynd Park).....	Mrs. Burton Borough.....	5	1 0	240	28·3	36·17	212	188	
d Grinshill (Sansaw Hall Gardens).....	Mrs. Brian Bibby.....	5	0 10	300	25·7	38·05	215	171	
d Myddle (Marton Hall).....	Major R. W. Doyne.....	5	0 9	280	27·4	36·26	177	159	
d Cheswardine (Knighton Res.).....	Canal Engineer, L.M.& S.R. 8	5	1 0	351	30·0	40·00	203	165	
d Cheswardine Hall.....	Col. R.C. Donaldson-Hudson..	5	1 6	530	28·6	39·21	200	158	
d Oswestry (Mount Res.).....	G. W. Lacey, Esq., C.E.....	5	1 0	698	34·5	42·82	204	163	
d Oswestry (Council School).....	E. Compton, Esq.....	5	1 0	450	32·4	39·92	175	149	
d Norton-in-Hales School.....	Chas. Chadwick, Esq.....	5	1 3	350	30·5	39·91	241	176	
STAFFORDSHIRE. (Area, 1,171 sq. mi.)									
1.—MERSEY—Weaver. 50 sq. mi.									
d Biddulph Grange.....	The Secretary.....	5	1 4	570	36·0	43·60	217	170	
2.—SEVERN—Left Bank Tributaries. 160 sq. mi.									
d Kinver (Prestwood).....	F. J. Dixon, Esq., C.E.....	5	1 0	179	..	33·16	176	132	
d Kingswinford (Ashwood P.S.).....	F. J. Dixon, Esq., C.E.....	5	1 0	207	24·9	33·57	189	130	
d Dudley (Shavers End).....	F. J. Dixon, Esq., C.E.....	5	1 0	745	..	33·91	185	140	
d Penn (St. Deichul) †.....	H. L. Mallandaine, Esq.....	5	1 1	500	..	32·41	205	133	
d Wolverhampton (West Park).....	Dr. R. H. H. Jolly.....	5	1 0	430	27·1	32·67	185	135	
d Tettenhall (The Hollies).....	R. C. Sikes, Esq., C.E.....	5	1 0	355	26·7	33·53	200	134	
d Tettenhall Waterworks.....	B. L. McMillan, Esq.....	5	0 10	468	..	32·88	176	132	
d Patshull Park.....	Earl of Dartmouth, K.C.B.. 8	5	1 4	279	26·8	36·07	193	144	
d Shifnal (Weston Park).....	Earl of Bradford.....	5	1 6	400	27·3	35·24	203	144	
d Norbury Junction.....	Canal Engineer, L.M. & S.R. 5	5	1 0	332	28·0	35·92	200	142	
d Market Drayton (Old Springs) old g.	F. E. Harding, Esq.....	5	1 4	422	28·9	36·21	206	148	
d Maer Hall Gardens.....	Miss Harrison, M.B.E.....	8	1 3	390	32·5	43·41	207	182	
3.—TRENT—Right Bank Tributaries. 513 sq. mi.									
d West Bromwich..... (+A)...	A. D. Greatorex, Esq., C.E.. 8	5	1 7	543	26·1	33·14	173	133	
d Wednesbury (Ocker Hill).....	Birmingham Canal Navig'n. 5	5	1 0	476	24·8	33·00	182	138	
d Walsall (Bescot Sewage Farm)....	J. Taylor, Esq., C.E.....	5	0 11	376	26·9	32·39	198	137	
d Walsall (Wednesbury Sew. Wks.)...	G. Wicks, Esq.....	5	1 0	378	27·9	32·75	183	135	
d Walsall (Gorway).....	J. Cleland, Esq.....	5	1 0	440	..	31·53	156	123	
d Darlaston (Sewage Works).....	S. E. Hammonds, Esq.....	8	1 6	393	..	30·55	171	127	
d Bilston (The Lunt Outfall).....	A. F. B. Sidwick, Esq., C.E.. 8	5	1 0	419	27·3	32·35	193	138	
d Aldridge (Bourne Vale).....	F. J. Dixon, Esq., C.E.....	5	1 0	419	25·1	28·95	161	124	
d Shenstone (Little Hay).....	F. J. Dixon, Esq., C.E.....	5	1 0	298	..	29·70	169	124	
d Bloxwich (Sneyd Reservoir).....	Birmingham Canal Navig'n. 5	5	1 0	507	25·5	33·34	186	140	
d Brownhills.....	S. Harrison, Esq., C.E.....	8	1 0	492	26·8	36·18	181	135	
d Brewood (Slade Heath P.S.).....	F. J. Dixon, Esq., C.E.....	5	1 0	340	24·9	33·24	173	137	
d Hammerwich (Cannock Ch. Res.)...	Birmingham Canal Navig'n. 5	5	1 0	475	25·3	31·86	188	133	
d Brewood (Belvide Reservoir)....	Canal Engineer, L.M.&S.R. 5	5	1 0	367	..	34·69	205	139	
d Bishopswood.....	Rev. A. E. Brown.....	5	1 2	420	..	31·80	190	128	
d Lichfield (St. John Street).....	Dr. F. M. Rowland, C.B.E.. 5	5	1 0	269	27·5	29·40	194	125	
d Hednesford (Scout House) new g.	F. J. Dixon, Esq., C.E.....	5	1 0	702	..	34·73	185	136	
d Rugeley (Longdon Lodge).....	F. J. Dixon, Esq., C.E.....	5	1 0	413	26·1	30·85	177	133	
d Lichfield (Hanch Reservoir).....	F. J. Dixon, Esq., C.E.....	5	1 0	259	..	29·90	178	128	
d Brereton.....	J. H. Lowery, Esq.....	5	1 3	300	..	33·61	173	134	
d Rugeley (Slitting Mill).....	F. J. Dixon, Esq., C.E.....	5	1 0	299	..	(34·87)	..	..	
d Rugeley (Brindley Bank).....	F. J. Dixon, Esq., C.E.....	5	1 0	254	26·3	30·93	174	138	
d Rugeley (Nethermoor).....	G. H. Grummitt, Esq.....	5	1 0	300	29·2	34·76	186	145	
d Milford Waterworks.....	W. Plant, Esq., C.E.....	5	1 0	246	27·5	35·11	187	137	
d Shugborough.....	The Earl of Lichfield.....	5	1 0	260	30·1	37·71	155	136	
d Stafford (Corporation Depot)....	W. Plant, Esq., C.E.....	5	1 6	249	27·2	36·17	179	146	
d Stafford (Stone Road).....	L. Wilson, Esq.....	5	0 8	265	..	(34·90)	..	..	
d Eccleshall (Johnson Hall).....	Major W. Moat.....	5	1 2	400	27·5	35·99	192	150	
d Stone (Meece House).....	Head Gardener.....	5	1 2	750	28·3	34·13	..	..	
d Stone (Meaford Hall).....	Lt.-Col. W. S. W. Parker Jervis, D.S.O. 5	5	0 10	325	29·9	40·02	212	172	
d Standon (Hatton W.W.).....	R. C. Frain, Esq., C.E.....	5	1 0	355	29·0	38·73	213	174	
d Whitmore, Pumping Station.....	L. M. & S. Rly.....	5	1 0	385	..	39·48	196	158	

† Moved from Penn (Church Hill) September 17th, 1931.

## DIVISION VI—WEST MIDLAND COUNTIES—(con.).

STATIONS.	AUTHORITIES.	Diam.	Rain-gauge				1931.		
			Height of		Aver- age Rain- fall.		Rain- fall.	Days with ·01 in. or more.	Days with ·04 in. or more.
			Rim above Ground.	Ground above Sea Level.					
STAFFORDSHIRE—(con.).									
		<i>in.</i>	<i>ft. in.</i>	<i>ft.</i>	<i>in.</i>		<i>in.</i>		
<b>3.—TRENT—Right Bank Tributaries—(cont.).</b>									
d Newcastle-under-Lyme.....	W. R. Arundel, Esq.....	5	0 11	400	..	39·82	188	157	
d Basford (Sewage Works).....	Thomas Dunn, Esq.....	5	1 0	385	..	40·78	198	155	
<b>4.—TRENT—Left Bank Tributaries. 193 sq. mi.</b>									
d Burton Reservoir.....	F. J. Dixon, Esq., C.E.....	5	1 0	309	25·1	28·28	175	128	
d Burton (Shobnall).....	Messrs. Bass & Co., Ltd.....	5	1 0	157	24·6	29·66	183	130	
d Burton (Borough Hospital).....	Dr. J. M. Cowie.....	5	1 0	220	..	32·35	188	139	
d Stone (Alleyne's Grammar Sch.).....	H. Malcolm Fraser, Esq.....	5	1 0	415	29·4	37·49	208	146	
d Stone (Idlerocks).....	Mrs. Wedgwood.....	5	1 0	740	32·7	43·14	184	160	
d Longton (The Meir).....	R. C. Frain, Esq., C.E.....	5	1 0	617	30·2	40·90	205	160	
d Hanley Sewage Works.....	W. H. Makepeace, Esq., ...	5	1 0	386	..	38·99	206	157	
<b>5.—TRENT—Dove. 250 sq. mi.</b>									
d Rocester (Dove Leys).....	Sir Percival Heywood, Bt... 5	1 6	350	33·5	40·57	201	156		
d Oakamoor (Lightoaks).....	M. A. Bolton, Esq.....	5	1 6	650	..	42·01	209	160	
d Ashbourne (Mayfield House.) (+A)Graham C. Lawson, Esq.....	8	1 0	374	32·7	40·16	194	151		
d Ilam School.....	J. R. McKnight, Esq.....	5	0 8	450	..	50·31	210	163	
d Cheddleton (County Mental Hosp.).....	Mrs. Menzies.....	5	1 0	550	..	45·45	199	169	
d Alstonfield (The Manor).....	B. R. S. Pemberton, Esq.....	5	1 0	920	39·1	48·82	220	176	
d Leek (Wall Grange P. Stn.).....	R. C. Frain, Esq., C.E.....	5	1 0	457	34·7	43·00	206	161	
d Leek (Hillesdon).....	A. V. Worthington, Esq.....	5	1 0	750	37·2	44·34	224	177	
d Leek (Haregate Hall).....	Mr. R. Sutton.....	5	0 9	680	36·9	46·51	230	176	
m Leek (Swains Moor).....	W. E. Beacham, Esq., C.E.. 5	1 1	993	..	55·45	..	..		
m Leek (Withens, Upper Hulme)....	W. E. Beacham, Esq., C.E.. 5	1 1	1084	..	52·15	..	..		
WORCESTERSHIRE. (Area, 751 sq. mi.)									
<b>1.—SEVERN—Right Bank Tributaries. 231 sq. mi.</b>									
d Redmarley (Haselden).....	Miss F. L. Newbury.....	5	0 5	280	25·3	30·13	172	135	
d Upton-on-Severn (The Eades).....	Roger D. Tennant, Esq.....	5	0 9	100	26·9	29·83	227	133	
d Malvern (British Camp Res.).....	W. Osborne Thorp, Esq., C.E. 5	1 0	667	28·5	31·32	160	112		
d Malvern (Barnard's Green).....	W. Osborne Thorp, Esq., C.E. 5	1 0	130	..	29·91	157	117		
d Malvern (Belle Vue House).....	A. Mander, Esq.....	5	4 0	520	29·4	34·67	182	135	
d Malvern (Free Library).....	W. Osborne Thorp, Esq., C.E. 5	1 0	377	27·6	32·92	172	127		
d Malvern (St. James' Road).....	Rev. F. H. Fowler.....	5	1 3	300	..	32·58	173	135	
d Malvern (Hornvold Road).....	Rev. T. Wolseley Lewis.... 5	1 0	492	28·3	30·55	167	123		
d West Malvern.....	W. Osborne Thorp, Esq., C.E. 5	1 0	832	28·9	33·31	169	131		
d Knightwick Sanatorium.....	Dr. H. Gordon-Smith.....	5	1 0	300	25·9	28·57	176	137	
d Worcester (Diglis Lock).....	J. E. Bradley, Esq.....	5	1 0	49	24·7	28·05	183	128	
d Martley Rectory.....	Rev. J. F. Hastings.....	5	1 0	220	26·7	28·05	181	139	
d Ombersley (Holt Lock).....	J. E. Bradley, Esq.....	5	1 1	55	25·3	28·32	162	134	
d Stanford Rectory.....	Rev. J. B. Hewitt.....	5	1 1	360	28·4	29·34	163	127	
d Stourport (Astley Town).....	J. Armytage Batley, Esq... 5	0 11	175	25·5	28·78	175	122		
d Tenbury (Belle Vue).....	The Late F. Lowe, Esq.....	5	1 0	313	26·3	(29·76)	..	..	
d Stourport (Dunley Hall).....	Sir Sidney Lea, Bt.....	5	1 0	240	..	29·37	167	127	
d Bewdley (Winterdyne).....	Miss K. M. Sturt.....	5	1 0	175	25·9	32·53	216	133	
<b>2.—SEVERN—Left Bank Tributaries. 194 sq. mi.</b>									
d Earl's Croome (Levant Lodge)....	F. W. Burnett, Esq.....	5	2 0	110	26·3	28·46	174	133	
d Kempsey (Napleton Ho.).....	Major H. Berkeley Hill.... 5	1 3	100	26·9	26·11	..	110		
d Kempsey Vicarage.....	Rev. E. B. R. de Jersey.... 5	0 9	50	..	28·68	171	124		
d Worcester (Waterworks).....	W. Ransom, Esq., C.E.....	5	1 0	52	23·2	27·08	178	127	
d Worcester (Little Perdiswell).....	Miss M. S. Hewitt.....	5	1 0	100	..	27·51	..	121	
d Worcester (Perdiswell).....	The Agricultural Organiser. 5	1 0	95	..	27·14	165	123		
d Worcester (Bevere Lock).....	J. E. Bradley, Esq.....	5	1 1	52	24·5	26·85	..	119	
d Droitwich (Friar Street Depot)....	Borough Surveyor.....	12	4 0	98	25·4	31·47	189	139	
d Bromsgrove (Tardebigge Res.) <sup>new</sup> gA. J. Cullis, Esq., C.E.....	5	1 0	455	27·5	34·02	198	133		
d Bromsgrove (Burcot P. S.).....	R. S. Broadley, Esq.....	5	1 0	432	..	33·49	172	130	
d Barnt Green (Upwood).....	Miss M. Gibbins.....	5	1 0	650	..	35·63	205	143	
d Stourport (Lincombe Lock).....	J. E. Bradley, Esq.....	5	1 0	62	25·6	31·06	167	127	
d Bromsgrove (Washing Stocks P. S.)..	R. S. Broadley, Esq.....	5	1 0	366	..	32·95	171	133	
d Bewdley (C. E. School).....	J. Bates, Esq.....	8	1 0	70	26·4	31·23	191	136	

|| Exposure not orthodox.

## DIVISION VI—WEST MIDLAND COUNTIES—(con.).

STATIONS.	AUTHORITIES.	Diam.	Rain-gauge			1931.			
			Height of		Average Rain-fall.	Rain-fall.	Days with .01 in. or more.	Days with .04 in. or more.	
			Rim above Ground.	Ground above Sea Level.					
WORCESTERSHIRE—(con.).			in.	ft. in.	ft.	in.	in.		
2.—SEVERN—Left Bank Tributaries—(con.).									
d Kidderminster (Pumping Stn.)	J. T. Cowderoy, Esq.	5	1	0	103	..	30.43	190	131
d Kidderminster (Park Hall)	K. H. Wilson, Esq.	5	1	0	200	25.7	32.14	189	138
d Bewdley (Elan Aqueduct)	J. W. Wilkinson, Esq., C.E.	5	1	0	91	26.7	34.44	194	140
d Clent Hall	Miss H. M. Wilson	5	1	0	580	..	35.99	191	131
d Wolverley (Hill Ho.)	J. C. Wilson, Esq.	5	0	9	250	..	29.98	..	..
d Halesowen (Romsley)	F. J. Dixon, Esq., C.E.	5	1	0	614	30.6	36.97	174	144
d West Hagley (Glenthorpe)	W. Nock, Esq.	5	1	0	400	28.1	34.45	193	140
d Pedmore (The Dene)	T. Grazebrook, Esq.	5	0	9	340	26.5	32.81	177	139
d Stourbridge (Pumping Station)	G. P. Deeley, Esq.	8	1	0	212	27.1	37.46	170	136
d Netherton (Lodge Farm Res.)	Birmingham Canal Navig'n.	5	1	0	445	..	32.26	192	131
d Dudley (Priory Hall)	F. H. Gibbons, Esq., C.E.	8	1	0	584	..	30.97	186	133
Dudley (Trindle House) <i>new g.</i>	S. Staffs. Mines Drain. Comrs.	5	1	0	575	..	35.13	..	..
3.—SEVERN—Upper Avon. 260 sq. mi.									
d Bredon (The Croft)	Jasper Lambert, Esq.	5	1	1	120	24.5	30.80	190	127
d Birlingham Rectory	Rev. C. Price	5	1	0	70	..	27.16	178	118
d Defford (Upper St.)	A. W. Butler, Esq.	5	2	6	107	24.0	26.74	178	120
d Evesham (Bengeworth)	Messrs. Ross Bros., Ltd.	5	1	0	128	22.9	28.59	176	130
d Evesham (Sewage Works)	J. Abbott, Esq., C.E.	5	1	9	85	22.6	27.61	166	122
d Evesham (Port St.)	Messrs. Craven & Co.	5	1	0	100	..	29.52	172	126
d Pershore (Southern House)	Miss G. E. Lawson	5	2	3	70	22.2	29.94	174	124
d Pinvin	J. T. Coates, Esq.	5	1	1	114	..	29.74	..	..
d Evesham (Sheriff's Lench)	Dr. G. E. Harthan	5	1	0	350	..	27.84	..	..
d Alcester (Cookhill Co. School)	T. Barber, Esq.	5	1	0	400	24.5	30.31	176	..
d Redditch (Hewell Gardens)	Mr. F. Molyneux	5	1	0	469	27.7	34.18	176	137
d Alvechurch (Bordesley Hall)	A. H. Wiggin, Esq.	12	4	0	490	28.5	34.39	162	134
d Alvechurch (Fairfield)	D. McMichael, Esq., J.P.	5	1	0	400	29.4	35.36	164	136
d Bromsgrove (Lr. Bittall Res.) <i>new g.</i>	A. J. Cullis, Esq., C.E.	5	1	0	457	..	35.48	199	144
4.—THAMES—Windrush & c. 10 sq. mi.									
5.—TRENT—Right Bank Tributaries. 56 sq. mi.									
d Halesowen (Frankley)	J. W. Wilkinson, Esq., C.E.	5	0	10	571	30.7	39.43	221	142
d Northfield (Frankley Lodge Rd.)	A. A. Barnes, Esq., C.E.	5	1	0	548	..	39.35	201	140
d Oldbury (Barnford Hill Pk.)	W. Greenwood, Esq., C.E.	5	0	9	607	..	37.33	189	150
WARWICKSHIRE. (Area, 902 sq. mi.)									
1.—SEVERN—Upper Avon. 603 sq. mi.									
d Long Compton (Weston Park)	Mrs. H. A. Warriner	8	1	0	510	26.5	28.14	154	133
d Tredington	N. H. Walton, Esq.	5	1	0	200	..	26.23	175	122
d Kineton (Kineton House)	J. Fielden, Esq., J.P.	5	1	6	280	..	26.32	150	133
d Stratford-on-Avon (Milecote)	F. W. Jones, Esq., C.E.	5	1	6	122	23.6	27.68	158	123
d Stratford-on-Avon (Avonfield)	Miss M. A. Everard	5	0	11	134	24.2	28.27	183	129
d Stratford-on-Avon (Shottery Hall)	R. C. Carter, Esq.	8	1	0	140	23.9	23.20	187	126
d Bidford (Moor Hall)	(+A) E. H. Cubberley, Esq.	5	1	0	125	24.0	28.98	176	128
d Temple Grafton Court	The late T. Lonsdale, Esq.	8	1	3	270	24.8	27.92	..	131
d Alcester (Ragley Hall)	Mr. C. Harding	5	1	0	270	25.8	31.79	..	131
Ashorne (Victoria Cottage)	G. T. Osborn, Esq.	5	1	0	160	24.7	25.60	..	..
d Stratford-on-Avon (Snitterfield)	F. W. Jones, Esq.	5	1	6	274	25.2	27.08	161	118
d Southam (Stockton House)	G. B. Blyth, Esq.	6	1	4	394	23.1	23.46	174	113
d Studley College	The Head Mistress	5	0	9	235	27.0	29.63	177	116
d Warwick Castle Gardens	Mr. H. F. Smale	5	1	0	197	25.3	26.51	174	113
d Leamington (Radford House)	C. E. G. Hatherell, Esq.	5	1	2	240	24.9	25.47	154	118
d Leamington (Pump Room Gdns.)	Medical Officer of Health	8	1	0	165	24.0	25.71	163	111
Warwick (Great Pinley)	W. Nixon, Esq.	5	1	0	400	..	27.18	..	..
d Leek Woodton (The Lodge)	W. F. Mitchell, Esq.	5	1	0	249	..	29.01	188	123
d Dunchurch Lodge Gardens	Major H. S. Cayzer	5	1	0	380	24.4	28.56	171	129
d Stretton-on-Dunsmore (Manor Ho.)	Mrs. Lister-Kaye	5	1	0	280	..	29.21	..	122

## DIVISION VI—WEST MIDLAND COUNTIES—(con.).

STATIONS.	AUTHORITIES.	Diam.	Rain-gauge			1931.			
			Height of		Average Rain-fall.	Rain-fall.	Days with .01 in. or more.	Days with .04 in. or more.	
			Rim above Ground.	Ground above Sea Level.					
WARWICKSHIRE—(con.).			<i>in.</i>	<i>ft. in.</i>	<i>ft.</i>	<i>in.</i>	<i>in.</i>		
1.—SEVERN—Upper Avon—(con.).									
D Rugby (Bilton Grange) <i>new g.</i> .....	Mr. J. S. Buckby.....	5	1 0	400	..	27.40	164	121	
D Rugby (Caldecott).....	Headmaster, Rugby School.	5	1 0	383	25.6	26.20	159	119	
D Rugby (Avon W.W.) †.....	W. H. Spicer, Esq., C.E.....	5	1 0	282	..	25.83	164	119	
D Ryton-on-Dunsmore (Ryton Ho.)..	Charles Browett, Esq.....	5	1 2	260	26.0	28.98	..	115	
D Coventry (Whitley P. S.).....	City Engineer, Coventry....	8	1 0	238	..	26.25	167	120	
D Coventry (Stoke).....(+A)	W. R. Griffiths, Esq.....	5	1 0	267	..	27.78	164	122	
D Coventry (City Hospital).....	E. H. Snell, Esq., M.D.....	8	1 0	270	26.0	27.07	171	127	
D Coventry (Keresley Grange).....	Miss H. Rotherham.....	5	0 10	413	27.0	31.20	222	148	
D Astley Vicarage.....	Rev. I. F. H. Carr-Gregg... 5	1 0	440	..	30.71	155	120		
2.—THAMES—Windrush & c., 2 sq. mi.									
D Little Compton Manor.....	Mrs. Leverton Harris.....	5	1 0	450	..	28.31	163	121	
3.—THAMES—Cherwell. 15 sq. mi.									
4.—TRENT—Right Bank Tributaries. 282 sq. mi.									
D Northfield (Wych Elm) †.....	J. B. Shewell, Esq.....	5	1 4	540	29.3	35.19	187	136	
D Solihull (Marsh Cottage).....	Ivo L. Currall, Esq.....	5	1 0	420	25.8	31.95	173	151	
D Northfield (Bartley Res. No. 1)...	A. A. Barnes, Esq., C.E.....	5	1 0	600	..	38.05	189	139	
D Selly Oak (Bournville).....	Messrs. Cadbury Bros., Ltd..	8	1 0	469	29.1	33.96	194	139	
D Selly Oak (Witherford Way).....	Mrs. Neave.....	8	1 6	530	..	(36.26)	..	..	
D Selly Oak (Frederick Rd.).....	W. Garden, Esq.....	5	1 2	540	29.2	34.73	185	148	
D Birmingham (Sparkhill).....	D. H. Owen, Esq.....	5	1 0	425	29.1	31.01	176	127	
D Birmingham (Edgbaston).....	A. J. Kelley, Esq.....	8	1 6	535	26.5	32.01	181	133	
D Birmingham (Carpenter Road)....	L. Ashby Bolton, Esq.....	5	1 1	480	28.1	32.99	198	140	
D Birmingham (Icknield Port).....	Birmingham Canal Navig'n.	5	1 0	490	..	31.33	184	131	
D Nuneaton (The Quarry).....	Miss K. E. Smith.....	5	1 0	321	..	29.72	189	130	
D Ullesthorpe (High Cross).....	J. Parker Toone, Esq.....	5	1 0	..	..	28.23	187	131	
D Whitacre (Birmingham W.W.)....	J. W. Wilkinson, Esq., C.E..	5	1 0	269	26.0	27.11	167	116	
D Birmingham (Erdington) <i>old g.</i> ...	J. W. Wilkinson, Esq., C.E..	5	1 2	472	..	28.56	181	131	
D Birmingham (Erdington) <i>new g.</i> ...	J. W. Wilkinson, Esq., C.E..	5	1 0	442	..	31.44	181	135	
D Minworth Greaves.....	Birmingham Drainage Bd....	8	1 0	259	24.3	28.45	175	126	
D Nuneaton (Hartshill Sewage Wks.)	R. C. Moon, Esq., C.E.....	5	1 2	288	..	28.77	169	123	
D Sutton Coldfield (The Park).....	Borough Surveyor.....	5	1 0	370	26.4	32.31	175	131	

## DIVISION VII—NORTH MIDLAND COUNTIES.

LEICESTERSHIRE. (Area, 824 sq. mi.)

<b>1.—SEVERN—Upper Avon. 41 sq. mi.</b>								
D Welford (The Reservoir).....	Grand Union Canal Co.....	5	1 6	430	25.1	26.65	195	125
D Lutterworth (Leicester Rd.).....	M. W. Binns, Esq.....	5	1 0	430	..	28.17	..	..
<b>2.—WELLAND. 96 sq. mi.</b>								
D Market Harborough (Gardiner St.)...	G. C. Wooldridge, Esq.....	5	1 0	280	..	23.48	188	118
D Market Harborough (Rose Hill)...	G. O. Nicholson, Esq.....	5	1 0	350	24.7	23.87	147	116
D Kibworth Beauchamp.....	Dr. E. V. Phillips.....	5	1 0	390	25.7	24.90	154	123
D Knossington Rectory.....	Rev. G. G. Wilkinson.....	5	1 0	580	26.2	28.84	165	128
<b>3.—WITHAM. 7 sq. mi.</b>								
<b>4.—TRENT—Right Bank Tributaries. 680 sq. mi.</b>								
D Frolesworth.....	W. P. Widdowson, Esq.....	5	1 0	370	..	25.64	153	119
D Peatling Magna (Peatling Ho.).....	Dr. C. Royds Jones.....	5	1 1	354	..	24.15	167	119
D Hinckley (Edward Street).....	E. H. Salter, Esq.....	5	1 0	425	..	30.42	206	133
D Wistow Hall Gardens.....	The Lord Cottesloe, C.B....	5	1 0	309	23.6	27.28	162	129
D Countesthorpe (Wigston Sew. Fm.)...	The Surveyor.....	8	0 9	257	22.8	25.02	187	115
D Leicester (Stoughton Drive).....	Theodore B. Ellis, Esq.....	5	1 0	315	..	26.69	179	125
D Leicester (Town Hall Square)(+A)	A. T. Gooseman, Esq., C.E..	5	1 0	212	..	23.09	161	107
D Leicester City Mental Hosp.....	The Steward.....	8	1 0	266	24.2	26.76	177	124
D Leicester (Gillroes Cemetery).....	A. T. Gooseman, Esq., C.E..	5	1 0	285	..	27.99	163	120

|| Record too low, gauge over-sheltered. § Gauge over-exposed.

† Station formerly called Rugby (Benn Buildings).

† Station formerly called Northfield (West Heath Ho.).



## DIVISION VII—NORTH MIDLAND COUNTIES—(con.).

STATIONS.	AUTHORITIES.	Diam.	Rain-gauge			1931.			
			Height of Rim above Ground.	Ground above Sea Level.	Aver- age Rain- fall.	Rain- fall.	Days with ·01 in. or more.	Days with ·04 in. or more.	
LEICESTERSHIRE—(con.).			in.	ft. in.	ft.	in.	in.		
4.—TRENT—Right Bank Tributaries—(con.).									
d Leicester (Grobby Road).....	Miss V. D. Ellis.....	5	1 0	244	25·0	31·45	196	121	
d Osbaston Hall.....	Sir Thomas Cope, Bart. ....	8	1 0	393	..	28·28	179	132	
d Lowesby Hall Gdns.....	Mr. Neil McMullan.....	5	1 0	380	..	26·60	191	134	
d Thornton Reservoir.....	G. T. Edwards, Esq., C.E....	8	1 2	370	26·2	30·04	160	140	
d Cropstone (Bradgate Res.).....	G. T. Edwards, Esq., C.E....	8	1 0	245	27·2	31·97	173	138	
d Barkby Hall.....	Victor R. Pochin, Esq.....	5	1 0	227	24·5	25·80	167	123	
d Swithland (The Brand).....	G. T. Edwards, Esq., C.E....	8	1 0	171	26·0	30·18	173	125	
d Ashby-de-la-Zouche.....	Miss A. I. Bayford.....	5	0 10	450	..	30·28	178	129	
d Barrow-upon-Soar (The Mount)...	Mrs. C. Stewart Thomson..	5	1 6	..	23·6	27·49	155	120	
d Charnwood Forest (Charley Hall)..	Mrs. J. B. Martin.....	5	0 9	450	..	30·05	..	127	
d Hoby (The Grange).....	A. A. Ironside, Esq.....	5	1 0	235	..	26·37	173	118	
d Asfordby Rectory.....	Rev. W. R. Finch.....	5	0 10	212	..	25·21	166	117	
d Asfordby Hill (Ironworks).....	Stanton Ironworks Co., Ltd..	5	1 1	324	..	25·92	170	117	
d Melton Mowbray (White Lodge)...	H. K. Barker, Esq.....	8	1 6	237	22·9	25·79	200	114	
d Charnwood For. (Blackbrook R.)..	W. Granger, Esq., C.E....	5	1 0	379	26·4	28·30	151	121	
d Loughborough (Park Road).....	W. Llewellyn Mold, Esq....	5	1 0	190	23·7	27·94	184	113	
d Loughborough (Nanpantan Res.)..	W. Granger, Esq., C.E....	5	1 0	269	26·1	29·30	180	123	
d Loughborough (The Widenings)...	Adrian Young, Esq.....	5	1 0	197	24·5	28·96	204	134	
d Loughborough (Sewage Farm).....	W. Granger, Esq., C.E....	8	1 0	135	23·1	29·23	163	122	
d Burton-on-the-Wolds (Burton Hall)..	Earl of Huntingdon.....	5	1 0	270	24·2	27·55	158	138	
d Prestwold Gardens.....	Mr. W. Coe.....	8	1 0	209	..	28·48	165	128	
d Belvoir Castle Gardens.....	The Duke of Rutland, K.G..	8	1 0	259	25·1	26·80	163	117	
RUTLAND. (Area, 152 sq. mi.)									
1.—WELLAND. 125 sq. mi.									
d Uppingham (Ridlington).....	C. Wortley, Esq.....	5	1 0	527	25·3	26·97	169	117	
d Hambleton Manor.....	Major J. Orr-Ewing, M.C....	5	1 0	400	..	26·63	..	..	
2.—WITHAM. 5 sq. mi.									
3.—TRENT—Right Bank Tributaries. 22 sq. mi.									
LINCOLNSHIRE. (Area, 2,646 sq. mi.)									
1.—NENE. 100 sq. mi.									
d Tydd (North Level Sluice).....	Mr. S. Fovargue.....	5	1 0	10	..	27·23	146	109	
2.—WELLAND. 341 sq. mi.									
d Crowland.....	F. Husband-Clutton, Esq, M.R.C.S.	5	1 0	10	..	23·59	..	..	
d Market Deeping (Wilsthorpe).....	W. H. A. Court, Esq., C.E....	8	1 0	51	..	22·92	171	116	
d Deeping St. Nicholas.....	T. A. Pick, Esq.....	5	0 11	11	..	21·04	191	105	
d Spalding (Pode Hole).....	H. Bain, Esq.....	8	1 3	12	23·5	25·77	206	114	
d Spalding (Spalding Marsh).....	Messrs. Seymour Cobley, Ltd.	5	0 8	0	..	25·41	..	102	
3.—WITHAM & C. 1085 sq. mi.									
d Stainby Rectory.....	Rev. W. L. de B. Thorold..	4	0 9	496	25·5	27·13	..	111	
d Denton Manor.....	Sir C. G. E. Welby, Bt., C.B.	5	1 0	310	24·9	27·66	187	124	
d Grantham (Saltersford).....	H. Preston, Esq.....	5	0 6	188	..	27·27	185	123	
d Heydour Vicarage.....	Rev. S. S. Herington.....	5	0 11	263	..	33·33	204	139	
d Culverthorpe.....	E. H. Davies, Esq.....	5	1 2	200	..	30·15	..	..	
d Fishtoft School.....	W. Rimington, Esq.....	5	1 0	0	..	28·00	..	..	
d Boston (Black Sluice, Skirbeck)...	F. S. Robins, Esq., C.E....	8	1 3	11	22·8	32·25	185	120	
d Boston (Grand Sluice).....	F. H. Tomes, Esq., C.E....	8	1 0	10	23·2	31·39	180	124	
d Boston (Bargate End).....	A. O. Scrivener, Esq.....	8	1 4	9	..	29·99	191	120	
d Sleaford (Kesteven Mental Hos.)..	Dr. J. R. Macphail.....	5	1 0	100	..	31·92	180	130	
d Cranwell Aerodrome.....(+A)	The Meteorological Office..	8	1 0	240	23·2	27·18	181	120	
d Anwick Vicarage.....	Rev. W. Lee.....	5	1 0	37	..	28·00	178	119	
d New Leake (Lade Bank Engine)...	V. A. C. Durand, Esq.....	5	1 0	10	23·2	24·73	..	118	
d Carrington Grange.....	T. J. Ward, Esq.....	5	6 0	15	..	29·30	155	127	
d Wellingore.....	Rev. Canon H. Powell Smith	5	1 0	246	..	29·88	222	126	
d Navenby Rectory.....	J. Thompson, Esq.....	5	1 0	218	24·9	30·38	190	136	
d Carlton-le-Moorland.....	J. Brocklebank, Esq.....	5	1 2	50	..	31·18	172	120	
d Blankney Hall Gardens.....	Mr. N. G. Cleaver.....	5	0 9	57	..	30·62	183	128	
d East Kirkby (E. Kirkby Manor)...	Capt. R. S. Fieldsend.....	5	1 0	35	..	30·79	182	132	

## DIVISION VII—NORTH MIDLAND COUNTIES—(con.).

STATIONS.	AUTHORITIES.	Diam.	Rain-gauge			1931.				
			Height of		Average Rain-fall.	Rain-fall.	Days with ·01 in. or more.	Days with ·04 in. or more.		
			Rim above Ground.	Ground above Sea Level.						
LINCOLNSHIRE—(con.).			in.	ft.	in.	ft.	in.	in.		
3.—WITHAM & C.—(con.).										
d Revesby Reservoir.....	T. H. Tyson, Esq.....	5	2	0	124	24·5	30·93	..	124	
w Kirkby-on-Bain.....	Lt.-Col. J. D. Gibbes.....	5	1	0	50	..	26·69	..	111	
d Woodhall Spa (Galen House).....	J. Collins, Esq.....	5	1	6	38	..	27·92	198	128	
d Woodhall Spa.....	J. Collins, Esq.....	5	1	0	40	..	27·56	..	131	
d Horncastle.....	F. J. Harvey, Esq.....	5	1	0	120	..	30·88	179	132	
d Lincoln (Swallowbeck).....	W. R. Pennell, Esq.....	8	1	0	34	..	28·68	189	127	
d Lincoln (Skellingthorpe Hall).....	A. H. Bergne-Coupland, Esq.....	5	1	0	40	23·1	29·20	..	..	
d Hackthorn Hall.....	E. W. Cracroft, Esq.....	5	4	8	102	..	30·41	198	132	
d Springthorpe Rectory.....	Rev. B. Davies.....	5	1	0	73	..	33·39	179	128	
4.—GREAT EAU & C. 443 sq. mi.										
d Skegness (Marine Gardens).....	F. A. Jenkins, Esq.....	8	1	0	15	23·3	24·66	148	111	
d East Keal Rectory new g.....	Rev. R. H. Simpson.....	5	0	6	180	..	27·80	186	124	
d Spilsby.....	J. E. Bolt, Esq.....	5	1	4	124	..	28·79	159	131	
d Hagworthingham (Glebe House).....	Mr. R. Wright.....	5	1	0	240	..	32·41	166	133	
d Mablethorpe (Trusthorpe Hall).....	I. N. Woodiwiss, Esq.....	8	1	3	10	..	27·59	203	132	
d Mablethorpe.....	The Surveyor.....	5	1	0	7	..	27·82	173	125	
d Louth (Westgate).....	Rev. W. E. Yates.....	5	0	9	120	28·0	27·33	188	124	
d Binbrook (West House).....	Mrs. C. Fieldsend.....	5	1	2	309	..	35·86	181	142	
d Wold Newton Manor.....	W. Maurice Wright, Esq.....	5	1	6	230	..	30·81	215	139	
d Grainsby Hall.....	Mr. J. Butters.....	5	1	0	75	..	31·67	221	146	
5.—HUMBER—Right Bank Tributaries. 428 sq. mi.										
d North Willingham House.....	Mrs. Charles Wright.....	5	3	0	125	..	34·56	222	151	
d Brigg (Thornholme).....	E. I. Brown, Esq.....	5	1	5	22	..	30·39	185	129	
d Brigg (Wrawby Road).....	A. R. Haynes, Esq.....	5	1	1	22	..	30·81	182	130	
d Cleethorpes (Kings Parade).....	Urban District Council.....	5	1	0	23	..	31·44	180	125	
d Grimsby (Abbey Road).....	W. J. Wood, Esq., C.E.....	5	2	6	25	..	33·09	181	130	
d Grimsby (Westlands).....	Major G. L. Bennett.....	5	1	0	23	..	30·46	173	134	
d Brocklesby Park.....	Mr. J. Chisholm.....	5	1	0	90	..	33·34	183	133	
d Ulceby (Wootton Lodge).....	Mr. F. W. Prentice.....	5	1	5	100	..	32·59	169	131	
d Horkstow.....	E. J. Turton, Esq.....	5	1	0	75	..	31·80	164	134	
d Ferriby Sluice.....	F. Straw, Esq.....	5	1	0	18	..	28·80	187	128	
6.—TRENT—Right Bank Tributaries. 172 sq. mi.										
d Swinderby (Ling Moor).....	C. H. Wray, Esq.....	5	1	0	50	..	36·107	165	152	
d Woolsthorpe.....	L. and N.E. Rly.....	5	1	3	182	..	25·85	..	107	
d Torksey.....	Miss M. Burt.....	5	3	0	18	..	29·14	..	..	
d Gate Burton Hall.....	The Hon. Mrs. Sandars.....	5	1	0	97	..	30·97	..	115	
d Messingham School.....	W. E. Ramsden, Esq.....	5	6	0	115	..	27·52	182	108	
7.—TRENT—Left Bank Tributaries. 77 sq. mi.										
d Wroot (S. Level Pump Station).....	Mr. A. J. Trafford.....	10	1	6	8	..	27·58	180	119	
d Crowle (N. Level Pump Station).....	Mr. H. G. Trafford.....	5	2	0	10	22·6	28·81	..	121	
d Crowle (Snowdrop Villa).....	Crowle Drainage Commission.....	5	1	0	15	..	27·29	188	127	
NOTTINGHAMSHIRE. (Area, 843 sq. mi.)										
1.—WITHAM. 10 sq. mi.										
2.—TRENT—Right Bank Tributaries. 218 sq. mi.										
d Sutton Bonnington Agric. Coll. (+A) The Principal.....	.....	5	1	0	158	21·7	25·72	154	115	
d Plumtree (Normanton-on-Wolds).....	Mrs. N. M. Hill.....	8	2	0	170	24·0	25·88	196	125	
d Ruddington (Westlands).....	J. D. Walker, Esq.....	5	1	0	100	24·3	26·79	180	122	
d Nottingham (Wilford Hill Res.).....	F. W. Davies, Esq., C.E.....	8	1	0	295	23·1	27·89	187	125	
d East Bridgford.....	G. W. Beaumont, Esq.....	5	1	0	150	..	26·24	168	122	
d Newark.....	J. H. Clarke, Esq., C.E.....	5	0	9	43	23·4	30·07	203	134	
d North Collingham.....	Miss M. Bergne-Coupland.....	5	1	6	40	..	29·22	..	..	
3.—TRENT—Derwent. 2 sq. mi.										
4.—TRENT—Erewash. 42 sq. mi.										
d Nottingham (Strelley).....	late Major T. L. K. Edge.....	8	1	0	386	26·2	33·03	203	136	
d Nottingham (Strelley Hall).....	late Major T. L. K. Edge.....	5	1	0	376	..	33·04	197	138	
d Bulwell (Watnall Reservoir).....	F. W. Davies, Esq., C.E.....	8	1	0	468	29·0	34·23	190	141	
d Eastwood Waterworks.....	F. W. Davies, Esq., C.E.....	8	1	3	243	25·9	33·11	194	133	

## DIVISION VII—NORTH MIDLAND COUNTIES—(con.).

STATIONS.	AUTHORITIES.	Diam.	Rain-gauge			1931.			
			Height of Rim above Ground.	Ground above Sea Level.	Aver- age Rain- fall.	Rain- fall.	Days with ·01 in. or more.	Days with ·04 in. or more.	
NOTTINGHAMSHIRE—(con.).			in.	ft. in.	ft.	in.	in.		
4.—TRENT—Erewash.—(con.).									
d Eastwood Hall.....	Messrs. Barber, Walker & Co., Ltd.	5	1	0	218	..	33·46	170	138
d Eastwood (Moorgreen Res.).....	L. and N. E. Rly. Co.....	5	2	0	301	27·4	33·93	203	133
d Annesley (Selston W.W.).....	S. Maylan, Esq.....	5	1	0	475	26·2	33·37	174	122
5.—TRENT—Left Bank Tributaries. 569 sq. mi.									
d Attenborough.....	R. F. T. Granger, Esq.....	8	1	0	885	..	30·23	201	122
d Beeston (Council Depot).....	E. A. Bush, Esq.....	5	1	0	121	24·5	31·22	168	130
d Nottingham (Trent Lane).....(+A.)	T. Wallis Gordon, Esq., C.E.	8	1	0	83	22·5	26·53	176	121
d Nottingham (The Castle).....	T. Wallis Gordon, Esq., C.F.	8	1	0	192	23·6	27·97	181	124
d Nottingham (Colwick Hill Res.).....	F. W. Davies, Esq., C.E.	8	1	0	314	..	26·50	184	122
d Nottingham (Burford Road).....	A. B. Tinn, Esq.....	5	1	0	170	25·3	31·61	197	125
d Nottingham (Stoke Bardolph).....	T. Wallis Gordon, Esq., C.E.	8	1	0	66	22·6	25·92	185	118
d Nottingham (Mapperley Hill).....	Dr. G. L. Brunton.....	8	1	0	400	24·9	29·68	185	117
d Bagthorpe (Isolation Hospital).....	Dr. Cyril Banks.....	8	2	0	190	25·3	28·91	205	122
d Nottingham (Basford W.W.).....	F. W. Davies, Esq., C.E.	8	1	0	168	24·3	29·32	171	118
d Burton Joyce Waterworks.....	F. W. Davies, Esq., C.E.	8	1	0	65	25·2	25·66	..	123
d Bulcote (Corporation Farm).....	T. Wallis Gordon, Esq., C.E.	10	1	3	65	23·6	27·37	198	121
d Lowdham (Chilwell Nurseries).....	J. D. Pearson, Esq.....	5	1	5	90	21·4	25·05	..	..
d Bulwell (Bestwood W.W.).....	F. W. Davies, Esq., C.E.	8	1	0	312	25·7	28·32	180	120
d Daybrook (Red Hill Reservoir).....	F. W. Davies, Esq., C.E.	8	1	0	404	26·8	28·87	211	122
d Daybrook (Ramsdale Hill Res.).....	F. W. Davies, Esq., C.E.	8	1	0	504	28·1	32·67	221	134
d Bulwell Hall Park.....	T. Wallis Gordon, Esq., C.E.	8	1	0	252	27·3	32·39	188	134
d Papplewick (Waterworks).....	F. W. Davies, Esq., C.E.	8	1	0	317	27·0	30·89	166	127
d Southwell (The Residence).....	Vn. Acnd. W. J. Conybeare.	5	1	0	100	24·7	28·57	169	126
d Southwell (Elmfield).....	Miss S. Gale.....	5	1	0	137	24·9	26·09	174	120
d Sutton-in-Ashfield (Rushley P.S.).....	Messrs. G. & F. W. Hodson.	5	1	0	462	27·1	36·48	..	131
d Sutton-in-Ashfield (Sew. Woks.).....	F. J. Grierson, Esq.....	5	1	0	453	28·9	35·41	184	140
d Mansfield (Rainworth W.W.).....	J. Gibson, Esq., C.E.	5	1	0	360	27·5	32·19	..	121
d Mansfield (Carr Bank).....	Borough Surveyor.....	8	0	10	357	..	34·43	165	125
d Mansfield (West Bank).....	W. Pickard, Esq.....	8	1	0	405	27·6	36·97	208	136
d Mansfield (Debdale Hall).....	Francis N. Ellis, Esq.....	5	1	6	400	28·1	35·16	..	132
d Clipstone Waterworks.....	J. Gibson, Esq., C.E.	5	1	0	225	25·9	31·75	175	127
d Ollerton (Boughton W.W.).....	F. W. Davies, Esq., C.E.	8	1	0	141	24·6	31·26	192	126
d Ollerton (Thoresby Gardens).....	Mr. A. J. Simmons.....	5	1	0	125	26·6	33·54	163	131
d Welbeck Abbey.....	Mr. Chas. Harris.....	8	0	10	196	..	33·84	206	136
d Clumber Gardens.....	The Agent.....	5	1	0	164	..	33·84	186	133
d Elkesley Pumping Station.....	Lincoln, W.W.	5	1	0	120	24·0	29·77	163	125
d Worksop (Osberton Gardens).....	Mr. A. Nicholson.....	5	3	0	70	23·8	28·14	185	131
d Retford (Morton Hall).....	W. H. Mason, Esq.....	9	1	0	140	23·7	30·09	157	127
d Retford (Sewage Disposal Wks.).....	R. E. Wilson, Esq.....	5	1	0	74	..	30·06	197	132
d Retford (Babworth Hall).....	Major J. A. C. Whitaker.....	5	1	0	98	22·9	27·27	169	123
d Worksop (Wigthorpe Hill).....	R. C. P. Ramsden, Esq.....	5	1	0	100	23·7	30·82	169	124
d Worksop (Hodsock Priory) (+A).....	Miss E. Mellish.....	8	1	0	56	23·6	30·10	196	131
d Langold Council Sch.....	The Headmaster.....	5	1	0	150	..	(30·78)	..	..
d Harworth Colliery.....	Messrs. Barber, Walker & Co.	5	1	0	120	..	32·17	183	132
d Scrooby.....	Mr. J. Mallender.....	5	1	0	40	23·1	29·81	187	128
d Bawtry Hall (The Gardens).....	Mr. F. E. Hogbin.....	5	1	0	31	23·1	31·41	175	134
d Bawtry Council Sch.....	J. Rushworth, Esq.....	5	1	0	37	..	29·69	(173)	(132)
6.—OUSE—Don. 2 sq. mi.									
DERBYSHIRE. (Area, 1,029 sq. mi.).									
1.—MERSEY, UPPER. 93 sq. mi.									
d Fernilee (Upr. Hall Farm) 2.....	Stockport W.W.....	5	1	0	1100	..	53·43	..	..
d Fernilee (Upr. Hall Farm) 1.....	Stockport W.W.....	5	1	0	960	..	54·43	..	..
d Glossop W.W. (Swineshaw).....	Geo. Faulds, Esq., C.E.....	12	1	0	733	..	54·35	225	176
d Bleaklow Hill (Dowstone Rocks).....	Manchester Corpn. W.W.....	5	1	0	1718	..	71·11	..	..
d Bleaklow Hill (Far Black Clough).....	Manchester Corpn. W.W.....	5	1	0	1683	..	73·24	..	..
2.—MERSEY—Weaver. 2 sq. mi.									
3.—TRENT—Right Bank Tributaries. 68 sq. mi.									
d Melbourne Vicarage.....	Rev. E. T. Harcombe.....	10	1	0	180	..	30·53	181	132
d Repton (The Croft).....	H. C. Hayward, Esq.....	5	1	2	170	..	30·13	191	135
d Stanton-by-Bridge W.W.....	H. Raven, Esq., C.E.....	8	1	2	144	..	30·35	189	138

## DIVISION VII—NORTH MIDLAND COUNTIES—(con.).

		Rain-gauge		Average Rain-fall.	1931.			
STATIONS.	AUTHORITIES.	Diam. in.	Height of Rim above Ground. ft. in.		ft.	Rain-fall. in.	Days with -01 in. or more.	Days with -04 in. or more.
DERBYSHIRE—(con.).								
4.—TRENT—Dove. 156 sq. mi.								
d Rodsley Pumping Station.....	Edwin Wright, Esq.....	5	1 0	405	..	35-68	178	135
d Ashbourne Vicarage.....	Rev. Canon F. L. Shaw.....	5	1 6	500	..	42-08	209	159
5.—TRENT—Left Bank Tributaries. 84 sq. mi.								
d Etwall (Blakeley Lodge).....	G. Edge Laban, Esq.....	5	1 0	190	..	30-69	167	144
d Etwall (Sewage Farm).....	Mr. B. Hydes.....	5	1 8	201	..	32-38	170	153
d Etwall Hall.....	Col. M. Dawson.....	5	1 3	235	..	33-49	176	138
d Mickleover (C. Mental Hospital)...	Medical Superintendent....	5	1 0	300	..	(32-19)	(168)	(134)
d Littleover (The Knoll).....	W. Blews Robotham, Esq....	5	1 0	300	..	30-99	193	143
d Littleover (Hilltop).....	E. McInnes, Esq.....	5	1 0	346	..	32-64	201	141
6.—TRENT—Derwent. 428 sq. mi.								
d Spondon (Derby Sewage Wks.)....	E. H. Bennett, Esq., C.E....	5	1 3	135	..	30-11	192	136
d Spondon Hall.....	Sir H. Fowler, K.B.E., LL.D.	5	1 0	230	..	30-81	202	153
d Derby (Wild Street).....	Messrs. J. Davis & Son, Ltd.	5	1 0	174	..	36-48	194	145
d Derby (L. M. & S. Railway).....	A. F. Bound, Esq.....	5	1 0	156	25-1	30-04	171	134
d Derby (Royal Infirmary).....	W. Banks, Esq.....	5	1 0	190	..	34-72	179	157
d Derby (The Arboretum).....	E. H. Bennett, Esq., C.E....	8	1 0	196	..	32-58	180	139
d Mackworth Vicarage.....	Rev. W. G. Clark-Maxwell..	5	1 0	280	..	35-83	170	132
d Kirk Langley (Langley Hall).....	G. W. Peach, Esq.....	5	1 5	396	28-9	36-54	197	147
d Duffield (The Kirkstyles).....	Messrs. J. Davis & Son, Ltd.	5	2 0	235	27-5	36-32	209	144
d Belper (Herbert Strutt School)...	The Principal.....	5	0 8	222	30-0	(36-27)	(191)	(137)
d Belper (Quarry Bank).....	J. Hunter, Esq., C.E.....	5	0 10	280	29-7	34-58	188	137
d Ambergate Reservoir.....	No. 61. S. B. Winser, Esq., C.E.	5	1 0	700	..	33-87	..	..
d Wirksworth.....	The Surveyor, U.D.C.....	5	1 1	690	..	41-50	..	130
d Whatstandwell (Meerbrk. Sough)...	Messrs. G. & F. W. Hodson.	5	1 0	246	..	37-79	200	144
d Brackenfield (Lindway Res.).....	R. F. Ward, Esq., C.E.....	5	1 0	595	..	38-78	189	133
d Matlock Bath (Lower Tower)....	Miss E. Chadwick.....	5	1 1	500	35-9	40-85	182	139
d Matlock (Rockside Hydro).....	J. H. Goodwin, Esq.....	5	1 0	637	..	40-01	198	142
d Darley Dale (Whitworth Inst.)...	E. Evans, Esq.....	5	1 0	361	..	38-57	182	136
d Clay Cross (Press Reservoirs)....	Gilbert Frith, Esq., C.E....	8	1 0	810	..	42-66	188	152
w Buxton (Hurdlow Top).....	L. M. & S. Rly.....	8	1 10	1267	..	55-73	..	..
d Chatsworth Gardens.....	Mr. J. G. Weston.....	5	1 0	436	34-7	38-18	203	145
d Baslow (Over End).....	A. E. Payne, Esq.....	5	1 0	500	..	39-78	193	149
d Buxton (Portobello Bar).....	F. Langley, Esq., C.E.....	8	1 0	1600	59-7	68-84	241	196
d Buxton (Stanley Moor).....	F. Langley, Esq., C.E.....	8	1 0	1340	56-1	69-32	243	198
d Buxton (Burbage Edge).....	F. Langley, Esq., C.E.....	8	1 0	1400	56-8	64-57	242	194
d Buxton (Devonshire Hospital) ...	Town Clerk.....	8	1 0	1007	48-4	52-79	220	179
d Buxton (Lightwood).....	F. Langley, Esq., C.E.....	8	0 11	1191	..	54-51	209	192
d Bamford (Engineer's Office) No. 60.	S. B. Winser, Esq., C.E.....	8	2 1	510	38-6	47-18	239	172
d Bamford Filters.....	No. 70A. S. B. Winser, Esq.; C.E.	8	1 0	656	38-5	48-34	238	173
w Froggatt Edge (Stoke Flat).....	J. G. Bown, Esq.....	5	1 0	960	..	47-15	..	..
d Eyam Rectory.....	Rev. C. L. O'Ferrall.....	5	1 0	820	..	43-60	201	161
d Holmesfield (Barbrook Res.).....	Gilbert Frith, Esq., C.E....	8	1 0	1080	..	45-06	..	147
d Holmesfield (White Edge).....	Sheffield Corporation W.W..	5	1 0	1209	34-5	45-51	..	..
d Burbage (Lower Burbage).....	(+A). Sheffield Corporation W.W.	8	1 0	924	36-2	48-76	227	170
d Burbage (Parsons House).....	Sheffield Corporation W.W..	8	1 0	1309	33-9	48-19	..	..
d Burbage (Higger Lodge).....	Sheffield Corporation W.W..	5	1 0	1225	36-8	46-86	..	..
d Burbage (Upper Burbage).....	Sheffield Corporation W.W..	5	1 0	1364	36-1	51-35	..	..
d Hope (Cement Works).....	Messrs. S. & T. Earle, Ltd....	5	1 2	580	..	50-13	190	154
d Hope (Killhill Bridge).....	No. 56. D. W. Chadwick, Esq....	5	1 0	500	..	49-47	204	166
d Bamford (Yorkshire Br. Weir) 59A.	S. B. Winser, Esq., C.E.....	5	1 0	540	..	48-88	..	..
d Derwent Vicarage.....	No. 67. S. B. Winser, Esq., C.E.	8	1 0	675	44-6	52-92	217	182
m Derwent (Lockerbrook Plant.) 68.	S. B. Winser, Esq., C.E.....	5	1 0	782	48-5	56-40	..	..
d Derwent Dam.....	No. 26. S. B. Winser, Esq., C.E.	8	1 0	790	42-4	53-81	235	183
m Hayfield (Ashop Head).....	No. 43. S. B. Winser, Esq., C.E.	5	1 0	1650	46-2	60-90	..	..
m Derwent Dale (Shire Owlers) No. 69A.	S. B. Winser, Esq., C.E.....	5	1 0	825	..	55-41	..	..
d Derwent Dale (Birchinlee) No. 23.	S. B. Winser, Esq., C.E.....	8	1 0	870	49-9	65-66	257	190
m Westend Bridge.....	No. 66. S. B. Winser, Esq., C.E.	5	1 0	878	50-0	66-19	..	..
m Lady Clough Moor.....	No. 41A. S. B. Winser, Esq., C.E.	5	1 0	1720	..	59-20	..	..
m Coldharbour Moor (Summit).....	39. S. B. Winser, Esq., C.E.....	5	1 0	1670	47-5	58-90	..	..
d Derwent Dale (Howden Dam).....	17. S. B. Winser, Esq., C.E.....	8	1 0	829	47-9	60-94	256	189
m Derwent Dale (Ridge Farm).....	13A. S. B. Winser, Esq., C.E....	8	1 0	875	..	62-05	..	..
m Alport Moor (Glethering Cl.).....	40. S. B. Winser, Esq., C.E.....	5	1 0	1640	46-7	64-34	..	..
m Alport Moor (Glethering Cl.).....	40A. S. B. Winser, Esq., C.E....	5	1 0	1640	..	67-64	..	..
m Westend Moor (Blacklow Cote) 15.	S. B. Winser, Esq., C.E.....	5	1 0	970	51-5	65-65	..	..

## DIVISION VII—NORTH MIDLAND COUNTIES—(con.).

STATIONS.	AUTHORITIES.	Diam.	Rain-gauge			Average Rain-fall.	1931.		
			Height of		Rain-fall.		Rain-fall.	Days with ·01 in. or more.	Days with ·04 in. or more.
			Rim above Ground.	Ground above Sea Level.					
DERBYSHIRE—(con.).							in.		
6.—TRENT—(con.).									
M Westend Moor.....	No. 10. S. B. Winsor, Esq., C.E.....	5	1	0	1560	47.1	66.12	..	..
M Alport Moor.....	No. 38A. S. B. Winsor, Esq., C.E.....	5	1	0	1790	..	66.10	..	..
M Derwent Dale (Slippery Stones) 62.	S. B. Winsor, Esq., C.E.....	5	1	0	908	49.3	64.79	..	..
M Ridgeway Moor.....	No. 9. S. B. Winsor, Esq., C.E.....	5	1	0	1650	47.5	66.74	..	..
M Broadhead Clough.....	No. 63. S. B. Winsor, Esq., C.E.....	5	1	0	1005	53.3	63.43	..	..
7.—TRENT—Erewash. 50 sq. mi.									
D Long Eaton (The Hall).....	H. Raven, Esq., C.E.....	8	0	10	105	..	28.90	179	138
d Ilkeston (New Stanton).....	Stanton Ironworks Co., Ltd..	5	1	6	150	..	34.16	..	..
D Heanor (Sharplo).....	J. R. Groom, Esq.....	5	1	0	240	..	34.19	189	139
D Codnor (Cross Hill).....	A. F. Pine, Esq.....	5	1	0	394	27.5	37.61	191	141
D Codnor Park.....	L. M. & S. Rly. Co.....	5	1	0	243	29.3	35.43	227	136
8.—OUSE—Don. 148 sq. mi.									
D Chesterfield (Walton San.).....	Dr. A. Niven Robertson....	5	1	0	450	..	34.86	179	128
D Chesterfield (Linacre Res.).....	Chesterfield Water Board...	8	1	0	490	33.4	40.18	207	160
D Chesterfield (Linacre Res.).....	Chesterfield Water Board...	5	1	0	475	31.6	38.87	207	159
D Chesterfield (Sewage Works).....	S. Thornhill, Esq.....	5	1	0	223	..	29.89	181	126
D Horsley Gate.....	Miss E. Wilson.....	5	1	0	650	..	43.72	203	135
D Totley Hall.....	W. A. Milner, Esq.....	5	1	0	700	37.3	44.17	213	165
Burbage (Badger Ho.).....	Sheffield Corporation W.W..	5	1	0	1138	40.5	49.86	..	..

## DIVISION VIII—NORTH-WESTERN COUNTIES.

## CHESHIRE. (Area, 1,027 sq. mi.).

<b>1.—MERSEY, UPPER. 200 sq. mi.</b>									
D Langley (Twelve Ashes).....	E. Hamson, Esq., C.E.....	6	0	9	903	..	50.84	222	188
D Langley (Trentabank Res.).....	E. Hamson, Esq., C.E.....	6	0	9	854	..	50.78	222	189
D Langley (Bottoms Res.).....	E. Hamson, Esq., C.E.....	5	1	3	664	38.5	49.72	220	163
D Macclesfield (Leadbeaters Res.)....	E. Hamson, Esq., C.E.....	5	1	0	608	33.1	42.02	231	183
D Macclesfield (West Park).....	E. Hamson, Esq., C.E.....	5	1	0	500	34.1	44.32	216	179
D Rainow (The Clough).....	Miss Anna Neave.....	5	1	3	815	34.4	46.72	238	184
D Knutsford (Hazelfield).....	H. P. Ashworth, Esq.....	5	1	0	213	30.3	39.73	207	158
D Kettleshulme (Glebe House).....	A. Y. Barker, Esq.....	5	1	6	850	39.6	47.60	223	183
d Whaley Bridge (Taxal Lo.).....	Mrs. Ramsden-Jodrell.....	5	1	0	700	..	48.85	211	179
D Whaley Bridge (Todds Brook).....	Mr. F. Bowden.....	5	1	0	602	41.5	51.42	261	193
D Disley (Lyme Park).....	Stockport W.W.....	5	1	0	674	..	43.43	202	167
D Disley (Lyme Park).....	Stockport W.W.....	5	1	0	720	..	41.20	202	167
D Runcorn (Weston Point).....	Weaver Navigatn. Trustees. 8	1	4	17	31.3	36.43	209	167	..
D Moore (Uplands).....	Lt.-Comm. G. K. Rylands, R.N.. 5	1	0	120	..	34.78	203	148	..
D High Lane (Lyme View).....	S. Arrowsmith, Esq.....	5	1	0	602	..	44.07	234	174
D Thelwall (The Clough).....	E. W. Reynolds, Esq.....	5	1	0	95	31.4	38.21	189	156
Altrincham (Norman's Pl.)... new g.	Miss G. A. Griffiths.....	5	1	0	150	33.6	41.55	200	159
Altrincham (Burlington Cott.)....	Miss Laura Newton.....	8	2	6	103	31.4	43.37	..	..
Cheadle (Adswood).....	R. W. Wright, Esq.....	5	1	0	186	..	38.77	..	..
D Stockport (Isolation Hospital)....	Medical Officer of Health... 5	1	2	285	..	40.58	194	153	..
Godley Reservoir, old g.....	Manchester Corpn. W.W.... 5	2	0	500	31.8	44.94	..	..	..
Godley Reservoir, new g.....	Manchester Corpn. W.W.... 5	1	0	488	..	47.77	..	..	..
D Broadbottom (Harewood Lodge)....	Col. W. Sidebottom.....	5	1	0	440	34.6	49.23	182	168
D Dukinfield (Higher Reservoir)....	M. T. B. Whitson, Esq., C.E. 8	1	6	495	..	41.33	224	162	..
D Dukinfield (Lower Reservoir)....	M. T. B. Whitson, Esq., C.E. 5	1	0	435	33.0	44.40	224	163	..
Arnfield Reservoir, new g. old site..	Manchester Corpn. W.W.... 5	2	0	512	39.1	51.30	..	..	..
Arnfield Reservoir, new g.....	Manchester Corpn. W.W.... 5	1	0	512	..	52.01	..	..	..
Rhodes Wood Res., new g. old site..	Manchester Corpn. W.W.... 5	1	6	545	42.9	58.78	..	..	..
M Rhodes Wood Reservoir, new g....	Manchester Corpn. W.W.... 5	1	0	545	..	57.95	..	..	..
Torside Reservoir, new g. old site..	Manchester Corpn. W.W.... 5	2	0	669	44.0	60.32	..	..	..
Torside Reservoir, new g.....	Manchester Corpn. W.W.... 5	1	0	669	..	60.74	..	..	..
D Stalybridge (Market Ground Yd.)..	M. T. B. Whitson, Esq., C.E. 5	1	0	373	..	48.17	204	169	..
D Stalybridge (Brushes Filter Ho.)..	M. T. B. Whitson, Esq., C.E. 5	1	6	616	39.2	50.83	211	178	..
Swineshaw Moor (Lees Hill).....	M. T. B. Whitson, Esq., C.E. 5	1	0	1168	38.6	48.00	..	..	..
M Woodhead Reservoir, new g. old site..	Manchester Corpn. W.W.... 5	1	0	665	..	60.55	..	..	..
Woodhead Reservoir, new g.....	Manchester Corpn. W.W.... 5	1	0	665	47.7	60.59	..	..	..

## DIVISION VIII—NORTH-WESTERN COUNTIES—(con.).

STATIONS.	AUTHORITIES.	Diam.	Rain-gauge			1931.		
			Height of Rim above Ground.	Ground above Sea Level.	Average Rain- fall.	Rain- fall.	Days with ·01 in. or more.	Days with ·04 in. or more.
CHESHIRE—(con.).								
1.—MERSEY, UPPER—(con.).								
§Crowden (Span Gutter).....	Manchester Corpn. W.W....	5	1 0	1530	45·0	73·47	..	..
§Woodhead (Pikenaze).....	Manchester Corpn. W.W....	5	1 0	907	..	60·33	..	..
§Ormes Moor.....	Manchester Corpn. W.W....	5	1 0	1356	41·4	64·95	..	..
§Swineshaw Moor (Boar Flat).....	Manchester Corpn. W.W....	5	1 0	1190	..	66·19	..	..
§Pikenaze Moor (Round Hill).....	Manchester Corpn. W.W....	5	1 0	1514	..	67·21	..	..
Withens Moor (West Withens).....	Manchester Corpn. W.W....	5	1 0	1382	..	76·32	..	..
Long Ridge Moss (Near Broadslate).....	Manchester Corpn. W.W....	5	1 0	1663	..	79·06	..	..
§Heyden Moor (Britland Edge).....	Manchester Corpn. W.W....	5	1 0	1540	..	74·09	..	..
Upper Heyden, <i>new g.</i> .....	Manchester Corpn. W.W....	5	1 0	1708	..	76·54	..	..
§Grains Moss.....	Manchester Corpn. W.W....	5	1 0	1570	..	75·93	..	..
2.—MERSEY—Weaver. 489 sq. mi.								
d Wirswall Hall.....	F. H. Illingworth, Esq.....	5	1 0	500	..	35·59	..	154
d Nantwich (Dorfold Hall).....	Weaver Navigatn. Trustees	8	1 0	190	28·8	41·81	224	165
d Nantwich (Reaseheath Hall).....	Weaver Navigatn. Trustees	8	1 0	130	29·1	37·98	217	161
d Crewe (Weston Lane).....	L. M. & S. Rly.....	12	4 0	186	28·2	35·51	..	..
d Crewe (Isolation Hospital).....	Leonard Reeves, Esq., C.E..	5	1 0	172	27·6	34·78	197	154
d Sandbach (Malkin's Bank).....	I.C.I. (Alkali) Ltd.....	5	1 0	230	..	34·91	195	158
d Congleton (Sewage Works).....	Borough Surveyor.....	5	1 0	248	30·1	41·09	218	177
d Congleton (Buglawton Sch.) <i>new g.</i>	Weaver Navigation Trustees	8	1 0	347	..	37·47	210	166
d Congleton (Buglawton Vic.) <i>new g.</i>	Weaver Navigation Trustees	8	1 0	347	30·5	37·41	225	163
d Tarporley (Tirley Garth Gdns.).....	Mr. J. B. Allan.....	5	3 6	450	30·0	40·24	219	168
d Middlewich.....	I.C.I. (Alkali) Ltd.....	5	1 0	138	..	35·60	..	158
d Middlewich (Bostock H.) <i>old g.</i> .....	Capt. W. H. France-Hayhurst	5	2 6	157	29·3	36·53	..	..
d Middlewich (Bostock Hall), <i>new g.</i>	Cpt. W. H. France-Hayhurst	5	1 0	157	..	37·87	..	..
d Delamere (Linnmere).....	Forestry Commission.....	8	0 9	250	29·5	39·58	248	168
d Northwich (Sandiway, W.W.).....	J. Birtwistle, Esq.....	8	1 0	163	..	41·90	214	166
d Northwich (Hunts Lock).....	Weaver Navigation Trustees	8	1 0	47	30·0	37·20	223	160
d Northwich (Winnington).....	I.C.I. (Alkali) Ltd.....	5	1 0	64	29·2	37·71	222	154
d Northwich (Barnton).....	Giles Owen, Esq.....	5	1 0	175	30·3	36·07	218	159
d Northwich (Lostock Gralam).....	I.C.I. (Alkali) Ltd.....	5	1 0	75	..	38·42	241	159
3.—MERSEY LOWER & C. 142 sq. mi.								
Tarporley (Willington Hall).....	Major C. W. Tomkinson....	5	1 0	220	..	39·28	203	163
d Mouldsworth.....	A. J. Robinson, Esq.....	5	1 0	145	..	36·32	200	155
d Ince Hall.....	Mrs. Park-Yates.....	5	1 0	95	..	37·81	219	174
d Hooton Waterworks.....	A. J. Robinson, Esq.....	5	1 6	97	30·3	39·43	206	164
d Eastham.....	H. B. Vernon, Esq.....	5	1 0	100	31·9	36·78	196	159
d Crosshill Reservoir, <i>old g.</i> .....	R. F. Baker, Esq.....	5	1 0	237	..	35·46	211	146
d Crosshill Reservoir, <i>new g.</i> .....	R. F. Baker, Esq.....	5	1 0	212	..	35·59	211	147
d Prenton Waterworks.....	A. J. Robinson, Esq.....	5	1 6	91	28·1	38·67	186	146
d Rock Ferry (High School).....	L. Davies-Shiel, Esq.....	5	1 0	100	..	36·45	204	162
d Birkenhead (Oxton).....	J. H. Howell, Esq.....	5	1 1	163	..	36·48	195	158
d Birkenhead (Bidston Obs'y.) (+A)	The Director.....	8	1 0	198	27·9	32·33	191	140
d Hoylake (Recreation Gd.).....	W. H. Maitland, Esq.....	5	1 0	29	28·1	33·84	202	146
d Wallasey (Harrison Park).....	Dr. T. W. N. Barlow.....	5	1 0	66	29·7	34·00	203	150
4.—DEE. 127 sq. mi.								
d Eaton Hall Gardens.....	Mr. N. F. Barnes.....	5	1 0	72	26·9	36·83	204	167
d Eccleston.....	E. Wells, Esq.....	5	1 1	94	26·8	34·16	215	151
d Rowton (Holly Bank).....	J. H. Salmon, Esq.....	5	1 5	123	29·4	34·77	..	144
d Chester (Sewage Disposal Wks.).....	C. Greenwood, Esq., C.E....	5	1 0	33	26·1	36·89	..	143
d Chester (Waterworks).....	C. Wilfrid Bennett, Esq....	5	0 10	85	26·4	34·19	189	148
d Burton.....	R. A. L. Billson, Esq.....	5	1 0	210	..	28·79	..	..
d Neston (Vine House).....	H. F. Russell, Esq.....	5	1 0	111	27·4	31·81	195	149
d Heswall (St. Fillan's).....	Capt. J. Deedes.....	5	1 0	40	..	32·14	198	136
d Heswall (Greta).....	Dr. T. Guthrie.....	5	1 0	230	..	35·13	206	152
d West Kirby (Caldy Manor).....	Mr. E. L. Barker.....	5	6 0	131	27·9	29·30	..	..
d West Kirby (Hilbre House).....	Egerton Macdona, Esq.....	5	0 9	25	27·8	32·91	..	..
d West Kirby (Monk's Way).....	Miss G. S. Kirkby.....	5	1 0	113	28·9	30·91	200	133
d West Kirby (St. Andrew's Vic.).....	Rev. E. F. Robson.....	5	1 0	25	27·9	31·79	199	140
d West Kirby (Deeside Nursery).....	H. Ward, Esq.....	5	1 6	45	..	32·85	202	146
SOUTH LANCASHIRE. (Area, 687 sq. mi.).								
1.—ALT & C. 103 sq. mi.								
d Litherland (Hatton Hill Pk.).....	G. W. Ponsford, Esq., C.E....	5	1 0	59	..	32·72	..	..

§ Gauge over-exposed on Moor.

## DIVISION VIII—NORTH-WESTERN COUNTIES—(con.).

STATIONS.	AUTHORITIES.	Diam.	Rain-gauge			Average Rain-fall.	1931.		
			Height of Rim above Ground.	Height of Ground above Sea Level.			Rain-fall.	Days with .01 in. or more.	Days with .04 in. or more.
SOUTH LANCASHIRE—(con.).			in.	ft. in.	ft.	in.	in.		
1.—ALT & C.—(con).									
d Ormskirk (Bickerstaffe P. Stn.)....	C. Burton Ede, Esq., C.E....	5	1	2	128	31.4	42.30	..	..
d Ormskirk (Springfield P. Stn.)....	C. Burton Ede, Esq., C.E....	5	0	11	70	..	40.10	..	..
d Formby (The Dunes).....	J. Harold Coney Esq.....	5	0	9	30	..	37.74	211	173
2—MERSEY, LOWER. 240 sq. mi.									
d Garston, <i>new g.</i> .....	Liverpool Corporation.....	5	1	0	81	..	36.63	210	167
d Garston (Grassendale Park).....	Miss E. C. Abraham.....	5	1	0	30	30.1	35.94	211	159
d Aigburth (Beech Lawn).....	T. H. Edwards, Esq.....	8	1	0	120	31.7	35.95	206	147
d Liverpool (Lark Lane).....	Liverpool Corporation.....	5	10	8	90	..	35.64	204	148
d Liverpool (Smithdown Road).....	Liverpool Corporation.....	5	1	0	135	32.8	38.59	214	158
d Liverpool (Monument Pl.)..(+A)	Liverpool Corporation.....	5	1	3	124	..	36.14	204	145
d Liverpool (Rathbone Road).....	Liverpool Corporation.....	5	1	0	198	35.0	40.74	204	168
d Liverpool (Breckside Park).....	Liverpool Corporation.....	5	1	0	132	..	36.67	201	163
d Liverpool (Queens Drive).....	Liverpool Corporation.....	5	1	0	119	34.9	38.51	228	164
d Warrington (Howley Yard).....	A. M. Ker, Esq.....	10	5	1	26	..	36.29	182	142
d Irlam (Sewage Works).....	The Engineer.....	5	1	1	40	..	37.39	167	147
d St. Helen's (Eccleston Hill).....	A. P. Statham, Esq., C.E....	12	1	0	265	33.8	39.82	224	158
d St. Helen's (Victoria Park).....	Dr. F. Hauxwell.....	8	1	5	160	..	39.79	233	166
d Earlestown (Newton Cemetery)...	T. E. Clough, Esq.....	5	1	0	75	32.5	38.28	..	..
d Leigh (Sewage Works).....(+A)	D. Ledson, Esq.....	5	1	0	67	..	40.43	212	161
3.—MERSEY,—Irwell. 299 sq. mi.									
d Stretford (Sewage Farm).....	Stretford U.D.C.....	5	1	1	65	..	40.18	197	162
d Stretford (Longford Yard).....	Stretford U.D.C.....	8	1	1	87	..	(40.62)?	196	157
d Manchester (Hullard Park).....	Stretford U.D.C.....	8	1	1	100	..	44.67	196	175
d Manchester (Old Trafford).....	Stretford U.D.C.....	8	1	1	107	..	43.56	224	172
d Urmston (Sew. Wks., Davyhulme)...	Manchester Cor., Rivers Dpt. 8	1	0	72	31.4	..	42.30	190	165
d Patricroft (Eccles Sewage Wks.)...	C. J. Girling, Esq.....	5	1	0	72	..	41.34	202	160
d Manchester (Godlee Observ'y.)...	The Curator.....	8	1	6	140	33.0	43.31	199	158
d Manchester (Oldham Road).....	Dr. R. Veitch Clark.....	5	1	0	191	34.3	47.10	214	166
d Manchester (Whitworth Park).....	Manchester University.....	8	1	5	125	31.7	43.08	202	165
d Ashton-und.-Lyne (Knott H. Res.)...	M. T. B. Whitson, Esq., C.E. 6	1	0	605	37.1	..	50.51	233	182
d Swinton (Victoria Park).....	The Medical Officer of Health 6	1	0	253	..	..	43.45	192	164
d Clifton Power Station.....	L. M. & S. Rly.....	5	1	6	124	..	47.21	206	172
d Prestwich Sewage Works.....	H. T. Ainsworth, Esq., C.E.. 8	0	10	150	..	..	46.43	210	173
Prestwich Reservoir, <i>new g., old site</i> ...	Manchester Corpn. W.W....	5	2	0	357	34.9	46.43	..	..
Prestwich Res., <i>new g., new site</i> ...	Manchester Corpn. W.W....	5	1	0	357	..	49.75	..	..
d Prestwich (Heaton Park).....	Manchester Corporation.....	8	1	0	312	..	48.48	213	176
Prestwich (Heaton Park Res.)...	Manchester Corpn. W.W....	5	1	0	355	..	48.20	..	..
d Oldham Gas Works.....	Ernest Parry, Esq., C.E....	5	5	0	602	37.9	53.87	220	185
d Oldham (Brushes Clough) No. 3....	C. J. Batley, Esq., C.E....	5	1	0	921	..	60.64	223	186
d Royton (Public Park).....	The Engineer and Surveyor. 5	1	0	502	..	..	49.92	222	186
d Bolton (Queen's Park).....(+A)	T. Midgley, Esq.....	5	1	0	342	43.7	54.37	219	176
d Bolton (L.M.S.R.).....No. 1....	L. M. & S. Rly.....	5	1	0	299	..	55.01	..	..
d Bolton (Heaton Reservoir).....	Bolton Corporation W.W....	5	1	0	500	43.4	54.45	230	186
Bolton W.W. (Harpers Farm)....	Bolton Corporation W.W....	5	1	0	872	..	56.80	..	..
d Bolton (Bloomfield, Heaton).....	Mrs. F. Taylor, J.P.....	5	1	0	530	..	54.12	217	184
d Bolton (Smithills Hall).....	Nigel V. Ainsworth, Esq....	8	1	2	510	46.1	61.38	225	190
d Horwich (Loco. Works).....	L. M. & S. Rly.....	5	1	0	400	..	54.37	262	187
d Bury (L.M.S.R.).....No. 5....	L. M. & S. Rly.....	5	1	0	294	..	51.18	233	177
d Bury (Parsons Lane).....	Bury Water Board.....	8	9	8	316	..	54.42	214	176
d Bury (Bridge Hall).....	Miss C. Wrigley.....	8	1	6	..	..	52.70	213	180
d Bradshaw (Sewage Works).....	Turton U.D.C.....	5	1	0	329	..	59.84	220	192
d New Hey (Sewage Works).....	Mr. J. B. Ogden.....	5	1	0	514	41.4	51.38	..	173
d Milnrow (Butterworth Hall).....	C. J. Batley, Esq., C.E....	5	1	0	512	43.6	55.16	229	184
d Milnrow (Piethorne, Kitcliffe)....	C. J. Batley, Esq., C.E....	5	1	0	766	..	57.75	227	186
d Milnrow (Piethorne, Coldgreave)...	C. J. Batley, Esq., C.E....	5	1	0	832	40.9	58.29	228	186
d Rochdale (Roch Mills Sew. Wks.)...	S. H. Morgan, Esq., C.E....	8	1	1	363	..	53.79	220	173
d Rochdale (Broadfield Pk. Obsy.)...	Medical Officer of Health... 8	1	0	472	43.9	..	49.11	215	172
d Rochdale (Fieldhead Yard).....	S. H. Morgan, Esq., C.E....	8	1	0	473	..	47.52	204	167
d Rochdale (Ashworth Moor Res.)...	Heywood Water Board.....	5	1	2	956	..	54.83	223	184
Bolton (Egerton House) <i>old g.</i> .....	E. H. Ashworth, Esq.....	5	1	0	633	49.0	59.86	..	..
Bolton (Egerton House) <i>new g.</i> .....	E. H. Ashworth, Esq.....	5	1	0	633	48.6	61.84	..	..
d Bury (Gin Hall).....No. 1....	Bury Water Board.....	8	1	0	475	43.7	54.63	214	176
d Bury (Gin Hall).....No. 2....	Bury Water Board.....	8	1	0	475	44.0	56.15	214	176
d Bolton W.W. (Springs).....No. 2.	Bolton Corporation W.W....	5	1	0	810	..	69.51	235	197

## DIVISION VIII—NORTH-WESTERN COUNTIES—(con.).

STATIONS.	AUTHORITIES.	Diam.	Rain-gauge				1931.		
			Height of		Aver- age Rain- fall.		Rain- fall.	Days with ·01 in. or more.	Days with ·04 in. or more.
			Rim above Ground.	Ground above Sea Level.					
SOUTH LANCASHIRE—(con.).									
3.—MERSEY—Irwell.—(con.).									
Bolton W.W. (Eagley).....No. 4.	Bolton Corporation W.W.	5	1	0	546	..	66.53	..	..
M Bolton W.W. (Hordern).....	Bolton Corporation W.W.	5	1	0	1160	52.5	64.13	..	..
§ Bolton W.W. (Delph).....	Bolton Corporation W.W.	5	1	0	710	..	66.19	..	..
M Bolton W.W. (Longworth).....	Bolton Corporation W.W.	5	1	0	770	51.8	65.88	..	..
Bolton W.W. (Wayoh).....No. 3.	Bolton Corporation W.W.	5	1	0	608	..	64.10	..	..
§ Bolton W.W. (Holden's Farm).....	Bolton Corporation W.W.	5	1	0	955	..	64.93	..	..
Bolton W.W. (Top-o'-th'-Brow).....	Bolton Corporation W.W.	5	1	0	935	..	67.53	..	..
D Bolton W.W. (Entwistle).....No. 2.	Bolton Corporation W.W.	5	1	0	692	..	65.29	248	192
Bolton W.W. (Bromiley Heys).....	Bolton Corporation W.W.	5	1	0	925	..	67.32	..	..
§ Bolton W.W. (Hulton Pasture).....	Bolton Corporation W.W.	5	1	0	1130	..	58.92	..	..
§ Bolton W.W. (Moorside).....	Bolton Corporation W.W.	5	1	0	850	..	63.10	..	..
Bolton W.W. (Clough).....No. 2.	Bolton Corporation W.W.	5	1	0	1025	..	66.88	..	..
Bolton W.W. (Cranberry Moss).....	Bolton Corporation W.W.	5	1	0	982	..	63.86	..	..
M Bolton W.W. (Slater Lane).....	Bolton Corporation W.W.	5	1	0	985	51.3	62.66	..	..
Bolton W.W. (Brown Lowe).....	Bolton Corporation W.W.	5	1	0	1200	..	66.27	..	..
Bolton W.W. (Longshoot).....	Bolton Corporation W.W.	5	1	0	930	..	66.34	..	..
Bolton W.W. (Ugnow).....No. 2.	Bolton Corporation W.W.	5	1	0	1090	..	64.56	..	..
D Rochdale (Hamer Pasture Res.).....	Rochdale Corporation W.W.	5	1	0	760	..	57.69	223	177
D Rochdale (Naden Filters).....	Heywood Water Board.	5	1	0	761	..	59.35	209	185
M Norden (Higher Red Lumb).....	Heywood Water Board.	5	1	3	1125	43.0	55.67	..	..
W Norden (Far Knowl Farm).....	Heywood Water Board.	5	0	10	..	45.7	58.08	..	..
W Rochdale (Naden Dean) <i>old g.</i> .....	Heywood Water Board.	5	1	4	948	..	49.71	..	..
W Rochdale (Naden Dean) <i>new g.</i> .....	Heywood Water Board.	5	1	4	948	..	53.70	..	..
D Littleborough (Longden End).....	C. J. Batley, Esq., C.E.	5	1	0	751	..	59.28	227	190
D Littleborough (Hollingwrth Lke).....	C. J. Batley, Esq., C.E.	8	1	0	610	..	49.40	215	171
D Littleborough (Broadhead).....	C. J. Batley, Esq., C.E.	8	1	0	1337	..	50.48	228	186
D Littleborough (Bickstne. Edge).....	C. J. Batley, Esq., C.E.	8	1	0	1268	..	54.79	229	185
D Littleborough (Uppr. Chlburn).....	C. J. Batley, Esq., C.E.	8	1	0	725	..	57.46	232	189
D Littleborough (Chelburn).....	C. J. Batley, Esq., C.E.	8	1	0	700	40.0	48.80	232	185
M Ramsbottom (Killgate Brook).....	Heywood Water Board.	5	1	0	978	45.6	60.68	..	..
D Ramsbottom (L.M.S.R.).....No. 3.	L. M. & S. Rly.	5	0	11	418	..	59.39	..	..
M Ramsbottom (Cheesden Barn).....	Heywood Water Board.	5	1	0	997	43.8	58.37	..	..
D Edenfield (Scout Moor Res.) No. 1.	Bury Water Board.	8	1	0	1275	37.4	63.44	235	194
D Edenfield (Scout Moor Res.) No. 2.	Bury Water Board.	8	1	0	1275	42.0	64.87	235	193
D Waterfoot (Cragg Reservoir).....	F. W. Mozley, Esq., C.E.	5	1	0	1325	47.2	60.61	248	188
D Waterfoot (Cowpe Reservoir).....	F. W. Mozley, Esq., C.E.	5	1	0	1013	47.1	59.26	248	188
D Rochdale (Spring Mill Whitworth).....	Rochdale Corporation W.W.	5	1	0	720	51.4	61.71	206	189
D Wardle (Watergrove Mill).....	Rochdale Corporation W.W.	5	1	0	775	..	60.77	215	188
D Rochdale (Cowm, Whitworth).....	Rochdale Corporation W.W.	5	1	0	762	51.1	68.02	211	198
D Helmshore (Clough House).....	A. C. Cullen, Esq.	5	1	0	650	48.1	65.01	217	188
D Haslingden (Holden Wood) No. 1.	Bury Water Board.	8	1	0	670	54.6	64.77	220	191
D Haslingden (Holden Wood) No. 2.	Bury Water Board.	8	1	0	670	46.1	60.58	220	183
D Haslingden (Calf Hey).....No. 1.	Bury Water Board.	8	1	0	800	51.9	63.41	220	195
D Haslingden (Calf Hey).....No. 2.	Bury Water Board.	8	1	0	800	50.5	59.18	220	187
D Bacup (Sheephouse Reservoir).....	F. W. Mozley, Esq., C.E.	5	1	0	1008	34.0	53.82	241	172
D Bacup (L.M.S.R.).....No. 4.	L. M. & S. Rly.	5	1	0	875	..	60.79	240	179
D Rawtenstall Cemetery.....	J. Johnson, Esq.	8	1	1	572	49.8	58.73	..	..
D Haslingden (L.M.S.R.).....No. 2.	L. M. & S. Rly.	5	1	0	715	..	61.14	211	175
D Rawtenstall (Cloughbottom) No. 1.	Bury Water Board.	8	1	0	1025	46.3	61.10	218	192
D Rawtenstall (Cloughbottom) No. 2.	Bury Water Board.	8	1	0	1025	42.9	58.97	218	187
D Rawtenstall (Hapton Res.).....No. 1.	Bury Water Board.	8	1	0	930	46.9	61.54	220	202
D Rawtenstall (Hapton Res.).....No. 2.	Bury Water Board.	8	1	0	930	49.6	65.83	220	202
4.—MERSEY, UPPER. 45 sq. mi.									
D Didsbury (Linden Road).....	L. G. King, Esq.	8	1	6	110	32.0	42.36	211	163
D West Didsbury (Town Hall).....(R) ..	Manchester Corporation.	8	7	6	121	..	38.93	192	141
D Chorlton-cum-Hardy Sew. Works.....	Manchester Cor., Rivers Dpt.	8	4	6	95	31.0	40.69	205	155
D Fallowfield (Platt Field Park).....	Manchester Corporation.	8	1	0	124	..	41.88	201	161
D Denton Reservoir, <i>old g.</i> .....	Manchester Corpn. W.W.	5	2	0	306	30.5	41.23	..	..
D Denton Reservoir, <i>new g.</i> .....	Manchester Corpn. W.W.	5	1	0	306	..	45.27	..	..
D Gorton Reservoir, <i>old g.</i> .....	Manchester Corpn. W.W.	5	2	0	263	32.0	42.27	..	..
D Gorton Reservoir, <i>new g.</i> .....	Manchester Corpn. W.W.	5	1	0	263	..	45.23	..	..
D Ashton-u-Lyne (Henrietta St. Yd.).....	M. T. B. Whitson, Esq., C.E.	7	1	0	394	..	49.61	224	183
D Lower Swineshaw Reservoir.....	M. T. B. Whitson, Esq., C.E.	8	1	6	886	44.7	54.62	218	190
D Swineshaw Moor.....	M. T. B. Whitson, Esq., C.E.	5	1	0	1340	..	60.33	..	..
D Mossley (Manor House Yard).....	M. T. B. Whitson, Esq., C.E.	5	1	0	636	..	52.89	215	178

§ Turf wall round gauge.



## DIVISION VIII—NORTH-WESTERN COUNTIES—(con.).

STATIONS.	AUTHORITIES.	Diam.	Rain-gauge				1931.		
			Height of		Average		Rain-fall.	Days with ·01 in. or more.	Days with ·04 in. or more.
			Rim above Ground.	Ground above Sea Level.	Rain-fall.				
CENTRAL LANCASHIRE. (Area, 536 sq. mi.)			in.	ft. in.	ft.	in.	in.		
<b>1.—RIBBLE &amp; C. 328 sq. mi.</b>									
Darwen (Spring Bank).....	T. Anderton, Esq.....	5	1	0	710	..	59·91	..	..
d Darwen (Ashleigh Street).....	A. Barker, Esq.....	5	..	..	690	..	68·77	..	169
D Darwen (Sunnyhurst Hey Res.)...E. Marsden, Esq., C.E.....	8	1	0	915	43·5	54·79	234	184	
D Darwen (Earnsdale Reservoir)....E. Marsden, Esq., C.E.....	8	1	0	705	47·0	58·98	235	189	
D Darwen (Bold Venture Park).....	Medical Officer of Health...	8	1	1	724	50·4	61·26	231	188
D Darwen (Hoddlesden).....No. 1..H. M. Webb, Esq., C.E.....	8	1	6	680	48·6	59·41	223	190	
D Darwen (Daisy Green).....No. 1..H. M. Webb, Esq., C.E.....	8	1	6	969	46·4	56·04	225	191	
D Darwen (Pickup Bank).....No. 1..H. M. Webb, Esq., C.E.....	8	1	6	720	46·8	51·48	225	182	
D Brindle (Whiteholme).....	Mrs. Victor H. Gatty.....	5	1	8	315	34·4	46·93	196	172
D Blackburn (Guide Reservoir)....H. M. Webb, Esq., C.E.....	8	1	6	610	39·6	49·77	221	176	
D Blackburn (Witton).....	H. M. Webb, Esq., C.E.....	8	1	6	315	..	47·51	208	160
D Blackburn Fever Hospital.....	H. M. Webb, Esq., C.E.....	6	1	6	570	..	44·26	229	172
D Hutton (Lancs. C.C. Hortic. Stat.)..The Director of Education...	5	1	0	82	35·4	42·39	207	158	
D St. Anne's-on-Sea (South Side)....Dr. J. P. Litt.....	5	1	0	25	32·8	37·31	195	147	
D St. Anne's-on-Sea (Lawrence Ho.)..C. G. D. Hoare, Esq.....	5	1	6	25	..	40·37	191	152	
D Accrington (Milnshaw Park).....	Mr. J. W. Terry.....	5	1	6	464	39·4	48·52	202	167
D Preston (Moor Park).....(+A)..Preston Corporation.....	8	1	0	110	35·3	45·44	230	162	
D Samlesbury Sewage Works.....	H. M. Webb, Esq., C.E.....	8	1	6	240	40·4	44·20	210	160
w Causeway Side (Burnley W.W.)....S. Rawlinson, Esq., C.E.....	8	1	0	1116	..	49·81	..	..	
w Sheddin (Burnley W.W.).....	S. Rawlinson, Esq., C.E.....	8	1	0	960	43·3	50·33	..	..
D Cant Clough S. Side (Burnley W.W.)S. Rawlinson, Esq., C.E.....	8	1	0	900	43·8	49·60	227	173	
D Cant Clough N. Side (Burnley W.W.)S. Rawlinson, Esq., C.E.....	8	1	0	900	41·6	48·49	227	173	
w Rams Clough Head (Burnley W.W.)S. Rawlinson, Esq., C.E.....	8	1	0	1260	42·3	47·63	..	..	
D Huncoat (Burnley Road Res.)....A. J. Harrison, Esq.....	9	1	6	620	43·0	53·92	212	161	
D Wilpshire (Brooklyn Road).....	H. W. Apperley, Esq.....	5	1	0	408	..	48·76	221	175
D Great Harwood (Parsonage Res.)..H. M. Webb, Esq., C.E.....	8	1	0	631	..	53·21	227	181	
D Great Harwood (Dean Clough)....A. J. Harrison, Esq.....	12	1	6	540	..	52·79	217	180	
D Burnley (Queen's Park).....	Medical Officer of Health...	8	1	0	458	..	47·48	217	165
D Burnley (Swinden)....Upper g...S. Rawlinson, Esq., C.E.....	8	12	0	820	..	52·29	244	180	
D Burnley (Swinden)....Lower g...S. Rawlinson, Esq., C.E.....	8	1	0	745	44·3	54·08	244	182	
D Padiham (Altham Sew. Works)(+A)H. Russell, Esq., C.E.....	5	1	0	225	..	47·12	206	169	
D Padiham (Huntroyde).....	E. G. Howsin, Esq.....	5	1	0	423	..	51·65	215	172
D Alston Reservoir.....	E. C. Oakes, Esq., C.E.....	8	1	2	320	41·0	47·59	227	176
Nelson (Red Spa Moor).....	Nelson Corporation W.W....	5	1	0	1285	..	43·92?	..	..
D Nelson (Coldwell Res.) S...No. 2..Nelson Corporation W.W....	5	1	0	960	..	61·91	256	193	
D Nelson (Victoria Park).....	Nelson Corporation W.W....	5	1	0	375	..	46·48	203	176
D Nelson (Walton Lane)....(+A)..J. W. Ingham, Esq.....	5	1	0	540	..	49·44	214	167	
D Stonyhurst College.....(+A)..The Director.....	8	1	10	377	46·5	51·15	206	181	
M Knowle Green (Preston W. W.)...E. C. Oakes, Esq., C.E.....	8	1	2	360	40·9	50·22	..	..	
D Cowley Brook (Preston W.W.)....E. C. Oakes, Esq., C.E.....	8	1	2	616	..	55·29	238	193	
D Spade Mill (Preston W.W.).....E. C. Oakes, Esq., C.E.....	8	1	2	400	41·6	47·64	229	176	
M Jeffery Hill (Preston W. W.)....E. C. Oakes, Esq., C.E.....	8	1	2	900	47·2	62·91	..	..	
D Sabden (Whins House).....	Miss Foster.....	5	1	0	500	..	48·87	211	173
D Sabden (Churn Clough Res.)....H. Russell, Esq., C.E.....	5	1	0	790	..	52·78	249	182	
w Sabden (Craggs Dole).....	H. Russell, Esq., C.E.....	8	1	0	1050	..	49·72	..	..
w Newchurch (Cock Dole).....	H. Russell, Esq., C.E.....	5	1	0	1090	..	55·65	..	..
D Barley (Ogden Reservoir).....	Nelson Corporation W.W....	5	1	6	950	..	56·17	212	181
D Pendle Hill (Buttock).....	Nelson Corporation W.W....	5	1	0	1175	..	65·74	212	196
D Colne (Swinden Sew. Works)....T. H. Hartley, Esq.....	5	1	0	423	..	48·59	226	176	
Foulridge (Upper Reservoir)....Leeds & Liverpool Canal Co..	8	1	0	582	..	43·62	..	..	
Foulridge (Reedy Moor).....	Leeds & Liverpool Canal Co..	5	1	0	553	..	43·12	..	..
Clitheroe (Moorland Crescent)....C. W. Wheeler, Esq.....	5	1	0	280	..	46·75	..	..	
D Chatburn School.....	E. P. Aldersley, Esq.....	5	0	11	322	..	49·25	225	183
Clitheroe (Downham Hall).....	R. C. Assheton, Esq.....	10	1	6	464	41·5	44·47	..	..
<b>2.—RIBBLE—Douglas. 156 sq. mi.</b>									
D Wigan W.W. (Billinge Higher End)..The Borough Engineer.....	5	1	0	374	33·9	42·52	206	170	
D Orrell (Upholland Gram. Sch.)....The Headmaster.....	5	1	0	320	35·5	40·44	228	170	

## DIVISION VIII—NORTH-WESTERN COUNTIES—(con.).

STATIONS.	AUTHORITIES.	Diam.	Rain-gauge				1931.		
			Height of		Average		Rain-fall.	Days with .01 in. or more.	Days with .04 in. or more.
			Rim	Ground	above	Rain-fall.			
			above	Sea Level.	above				
			Ground.						
			in.	ft. in.	ft.	in.	in.		
CENTRAL LANCASHIRE—(con.).									
2.—RIBBLE—Douglas—(con.).									
d Wigan W.W. (Worthington).....	The Borough Engineer.....	5	1	0	225	35.4	43.97	211	169
d Horwich (Lower Rivington).....	Col. J. R. Davidson, C.E.....	5	1	0	440	38.7	43.42	237	176
w Horwich (Lower Knoll).....	Col. J. R. Davidson, C.E.....	8	1	4	742	41.2	45.94	..	..
w Rivington (Brown Hill).....	Col. J. R. Davidson, C.E.....	8	1	4	843	40.1	50.45	..	..
w Rivington (Brown Hill) <i>new g.</i> .....	Col. J. R. Davidson, C.E.....	5	1	0	742	..	52.42	..	..
d Rivington (Stoneshouse) No. 1.....	Col. J. R. Davidson, C.E.....	8	1	4	629	41.5	48.14	222	176
d Rivington (Stoneshouse) No. 2, <i>new g.</i> .....	Col. J. R. Davidson, C.E.....	5	1	0	607	..	48.48	230	184
w Rivington (Stoneshouse) No. 3†.....	Col. J. R. Davidson, C.E.....	8	1	4	629	41.1	49.93	..	..
d Chorley (Oakdene).....	Dr. H. E. Middlebrooke.....	5	1	0	283	..	43.02	221	173
w Rivington (Hurst Hill).....	Col. J. R. Davidson, C.E.....	8	1	10	1029	42.2	55.61	..	..
w Rivington (Great Hill).....	Col. J. R. Davidson, C.E.....	8	1	8	1240	47.6	58.31	..	..
w Rivington (Coppice Stile).....	Col. J. R. Davidson, C.E.....	8	1	8	879	40.1	49.56	..	..
w Rivington (Gamekeeper's).....	Col. J. R. Davidson, C.E.....	8	0	8	850	45.4	54.36	..	..
w Roddlesworth.....	Col. J. R. Davidson, C.E.....	5	1	0	725	..	54.66	..	..
d Chorley (Com. Bk. Sew. Wks.).....	J. Slater, Esq.....	5	1	0	179	..	39.92	210	156
d Leyland (Worden Hall).....	(+A) H. Nowell Farrington, Esq.....	5	1	0	125	34.9	43.35	210	163
w Darwen (Higher Hill).....	Col. J. R. Davidson, C.E.....	8	1	4	733	36.8	46.55	..	..
d Bamber Bridge (Cuerden Hall).....	J. Alleyne Robinson, Esq.....	5	1	0	230	35.7	42.50	220	162
3.—COAST STREAMS. 52 sq. mi.									
d Birkdale (Bedford Rd. Park).....	J. Baxendell, Esq.....	5	1	0	35	..	39.05	204	159
d Southport (Hesketh Park) (+A).....	J. Baxendell, Esq.....	8	1	0	37	32.0	38.56	208	158
4.—OUSE—Aire. 2 sq. mi.									
d Watersheddes Reservoir.....	A. Atkinson, Esq., C.E.....	5	1	0	1115	..	57.38	(222)	(183)
Foulridge (Canal Office).....	Leeds & Liverpool Canal Co. 8	1	0	497	..	44.77	..	..	..
NORTH LANCASHIRE. (Area, 609 sq. mi.)									
1.—DUDDON & C. 77 sq. mi.									
d Barrow-in-Furness (Gas Works).....	Claude Diamond, Esq.....	11	3	0	17	37.6	51.47	210	168
d Barrow-in-Furness (Sewage Wks.).....	W. C. Persey, Esq., C.E.....	5	1	0	20	..	45.39	211	157
d Little Urswick (North View).....	J. Dobson, Esq.....	5	1	6	130	45.4	55.04	218	177
d Askam (Senr. Council School).....	The Headmaster.....	5	1	0	37	..	45.00	199	171
d Ulverston (Poaka Beck).....	Claude Diamond, Esq.....	11	1	6	512	52.1	62.41	227	190
d Ulpha.....	Claude Diamond, Esq.....	11	1	6	251	..	70.89	246	184
d Duddon Valley (Seathwaite Sch.).....	The Headmistress.....	5	1	0	348	..	96.48	..	..
w Duddon Val. (Seathwaite Tarn).....	Claude Diamond, Esq.....	11	1	6	1221	..	119.31	..	..
2.—LEVEN & C. 135 sq. mi.									
d Cartmel (Holker Hall).....	Lord Richard Cavendish... 5	0	9	85	44.5	54.08	214	174	
d Ulverston (Pengwerne).....	C. J. Chapman, Esq..... 5	1	4	138	..	55.69	209	169	
Rusland Hall.....	C. F. Archibald, Esq..... 5	1	0	25	44.7	64.48	240	188	
Cartmell Fell (Ghyll Head Res.).....	J. Lupton, Esq..... 8	1	0	425	..	70.49	..	..	
d Coniston (School Garden).....	The Headmaster..... 5	1	0	180	..	72.21	209	188	
d Hawkshead (Tower Bank Sawrey).....	Miss Alcock-Beck..... 5	1	0	342	65.1	72.51	235	188	
Hawkshead (Foundation Sch.).....	J. Lowe Handley, Esq..... 5	1	0	214	..	72.57	..	..	
d Hawkshead (Bettyfold).....	H. T. Gnosspelius, Esq..... 5	1	0	500	..	79.50	..	..	
m Hawkshead (Black Fell).....	Miss C. Marshall..... 5	1	6	1055	..	(80.78)	..	..	
d Ambleside (Skelwith Fold).....	Miss C. Marshall..... 5	1	0	333	..	86.70	..	184	
3.—KENT & C. 45 sq. mi.									
d Heysham Harbour.....	L. M. & S. Rly Co..... 5	1	6	25	..	40.24	..	..	
d Morecambe.....	H. Morgans, Esq..... 8	1	0	25	..	45.42	202	157	
d Hest Bank (Greendale).....	W. Watson, Esq..... 5	1	6	97	..	43.17	..	..	
d Yealand Conyers (Beechfield).....	Miss E. Roper..... 5	1	0	250	..	45.71	..	..	
d Yealand Conyers (Morecambe Lo.).....	J. Rawlinson Ford, Esq..... 5	1	0	278	..	53.69	224	181	
Grange-over-Sands (Nutwood).....	J. Steen, Esq..... 5	1	0	140	..	53.12	..	..	
d Grange-over-Sands (Holmcroft).....	R. Rhodes, Esq..... 5	1	3	45	..	57.25	227	173	
d Lindale (Ellerhow).....	Lady Tomlinson..... 5	1	5	300	..	59.42	212	179	

† Gauge formerly called No. 2.

§ Gauge over-exposed on Moor.

## DIVISION VIII—NORTH-WESTERN COUNTIES—(con.).

		Rain-gauge				1931.		
STATIONS.	AUTHORITIES.	Diam.	Height of		Average Rain-fall.	Rain-fall.	Days with .01 in. or more.	Days with .04 in. or more.
			Rim above Ground.	Sea Level.				
NORTH LANCASHIRE—(con.).		in.	ft.	in.	ft.	in.	in.	
4.—LUNE. 135 sq. mi.								
D Hampson-in-Ellel.....	John Welch, Esq.....	5	1	0	145	..	44.76	205 160
D Quernmore (Brow Top).....	F. Hill, Esq., C.E.....	8	1	0	552	..	51.30	205 171
Bowland Forest (Whitray).....	J. T. Sanderson, Esq.....	5	1	0	1139	..	67.59	.. ..
Bowland Forest (Lower Salter).....	J. T. Sanderson, Esq.....	5	1	0	572	..	56.21	.. ..
D Lancaster (Strathspey).....	A. B. S. Welch, Esq.....	5	1	0	87	..	46.24	236 162
D Lancaster (The Friends School)...	G. A. Watson, Esq.....	5	1	0	55	..	42.99	.. 155
D Lancaster (Blea Tarn Res.).....	F. Hill, Esq., C.E.....	8	1	0	410	..	46.76	228 168
D Lancaster (Greg Obsy.)... (+A)...	Neville Holden, Esq.....	8	1	0	312	41.0	47.97	210 167
D Lancaster (Lune Aqueduct).....	L. M. & S. Railway Co.....	8	3	7	74	..	45.29	.. 169
D Wray (Wray House).....	Baldwin Bent, Esq., C.E....	5	1	6	170	..	41.88	208 158
D Wennington (Tatham Rectory)...	Rev. A. S. Roberts.....	5	1	3	150	..	44.22	209 173
5.—WYRE & C. 213 sq. mi.								
D Weeton Reservoir (No. 1).....	Fylde Water Board.....	5	1	0	133	..	45.17	214 174
D Blackpool (Met. Observatory) ...	E. W. Rees Jones, Esq., M.D. 5	1	0	67	33.4	..	39.17	208 154
D Barton (Newsham House).....	W. B. S. Smith, Esq.....	5	1	0	104	..	44.18	224 168
D Kirkham (Elswick Lodge).....	L. G. King, Esq.....	5	1	4	52	37.9	42.18	217 150
D St. Michael's-on-Wyre.....	Ven. Archdeacon Hornby... 5	1	0	26	36.6	..	45.14	212 163
D Fleetwood.....	Engineer and Surveyor... 8	2	6	27	..	..	39.81	210 148
D Garstang (Barnacre Reservoir)...	Fylde Water Board.....	5	1	0	616	46.4	54.88	228 180
D Garstang (Grizedale Reservoir)...	Fylde Water Board.....	5	1	0	517	43.6	51.34	223 180
D Garstang (Calder Intake).....	Fylde Water Board.....	5	1	0	632	..	56.51	.. ..
D Garstang (Grizedale Intake).....	Fylde Water Board.....	5	1	0	644	..	54.54	.. ..
D Wyresdale (Abbeystead Res.).....	F. Hill, Esq., C.E.....	8	1	0	366	..	58.40	231 191
D Abbeystead Gardens.....	Mr. Geo. Penk.....	5	1	0	420	..	61.21	239 190
D Quernmore (Old Gauge Basin)...	F. Hill, Esq., C.E.....	8	1	0	963	..	55.58	.. ..
M Wyresdale (Wardstone).....	F. Hill, Esq., C.E.....	8	1	0	1440	..	66.60	.. ..
6.—INSULAR. 4 sq. mi.								
DIVISION IX—YORKSHIRE.								
WEST RIDING. (Area, 2,791 sq. mi.)								
1.—LUNE. 178 sq. mi.								
D Austwick (Beck House).....	Rev. J. Turner.....	5	1	1	475	..	45.31	233 173
D High Bentham (Inglefield).....	Geoffrey Holmes, Esq.....	5	1	0	412	..	39.05	219 167
D Sedbergh (Brigflatts).....	The Misses Wilson.....	5	1	0	305	..	60.03	205 176
D Sedbergh (The Leyes).....	Rev. A. J. K. Martyn.....	5	0	9	400	..	56.20	216 179
D Sedbergh (Havera Bank).....	A. Mountain, Esq.....	5	1	0	450	..	62.02	207 178
2.—RIBBLE. 225 sq. mi.								
D Colne (Laneshaw Reservoir).....	J. F. Bedford, Esq., C.E.... 5	1	0	842	..	..	43.20	224 168
D Barnoldswick (Rainhall Road)...	Asa Burniston, Esq.....	5	1	2	549	..	43.53	211 165
Barnoldswick (Greenberfield L.)...	Leeds & L'pool Canal Co.... 8	1	0	488	..	..	47.04	.. ..
D Slaidburn (Thorneyholme).....	Mr. G. Marr.....	5	1	6	380	58.1	59.58	215 198
D Slaidburn (Hareden Valley).....	E. C. Oakes, Esq., C.E.....	8	1	2	556	67.7	78.31	245 203
D Slaidburn (Langden Brook).....	E. C. Oakes, Esq., C.E.....	8	1	2	556	68.5	82.26	250 203
D Slaidburn (Dunsop Houses).....	H. M. Webb, Esq., C.E.....	8	1	6	450	62.9	70.63	215 197
D Slaidburn (Footholme).....	H. M. Webb, Esq., C.E.....	8	1	6	565	62.1	73.18	208 192
M Slaidburn (Middle Knoll).....	H. M. Webb, Esq., C.E.....	5	1	0	1288	57.1	80.39	.. ..
D Slaidburn (Brennand).....	H. M. Webb, Esq., C.E.....	8	1	6	820	66.3	81.24	207 197
D Slaidburn (Croasdale House).....	H. M. Webb, Esq., C.E.....	8	1	6	600	50.5	53.09	200 173
D Slaidburn (Croasdale Valley).....	H. M. Webb, Esq., C.E.....	8	1	6	720	..	63.35	200 184
D Slaidburn (Whitendale).....	H. M. Webb, Esq., C.E.....	8	1	6	830	69.0	81.35	209 197
M Slaidburn (Cabin Hill).....	H. M. Webb, Esq., C.E.....	5	1	0	1559	63.6	83.00	.. ..
M Slaidburn (Baxton Fell).....	H. M. Webb, Esq., C.E.....	5	1	0	1525	..	89.30	.. ..
M Slaidburn (Saddle Hill).....	H. M. Webb, Esq., C.E.....	5	2	6	1475	51.9	64.45	.. ..
D Settle (Cappleside).....	Mrs. Geldard.....	5	0	10	500	..	52.45	227 174
D Settle (Gas Works).....	J. W. Shepherd, Esq.....	8	1	0	450	..	46.34	211 172
D Settle (Giggleswick School).....	The Headmaster.....	8	1	0	575	..	41.56	199 163
Horton-in-Ribblesdale.....	Nathaniel Hunt, Esq.....	5	1	0	800	..	58.26	.. ..
3.—MERSEY—Irwell. 2 sq. mi.								

§ Gauge over-exposed.

## DIVISION IX—YORKSHIRE—(con.).

		Rain-gauge				1931.		
STATIONS.	AUTHORITIES.	Diam.	Height of		Average Rain-fall.	Rain-fall.	Days with .01 in. or more.	Days with .04 in. or more.
			Rim above Ground.	Ground above Sea Level.				
WEST RIDING—(con.).								
4.—MERSEY, UPPER. 35 sq. mi.								
Greenfield (Upperwood Moor).....	M. T. B. Whitson, Esq., C.E.	5	1	0	1518	46.5	61.33	..
D Greenfield (Chew Mount).....	M. T. B. Whitson, Esq., C.E.	5	1	0	1578	52.2	66.45	238
Greenfield (Chew Reservoir).....	M. T. B. Whitson, Esq., C.E.	5	1	0	1648	..	71.64	..
D Greenfield (Yeoman Hey).....	M. T. B. Whitson, Esq., C.E.	5	1	0	759	50.4	63.69	222
Greenfield (Ashway Moss).....	M. T. B. Whitson, Esq., C.E.	5	1	0	1581	37.1	58.69	..
Greenfield (Birchen Clough).....	M. T. B. Whitson, Esq., C.E.	5	1	0	1018	53.2	65.16	..
Saddleworth Station.....	L. M. & S. Rly.....	5	4	10	630	..	50.77?	..
D Oldham (Strinesdale) <i>new</i> .....	C. J. Batley, Esq., C.E.....	5	1	0	791	35.9	57.37	221
D Standedge (Cas Shaw Broadh'd) <i>new</i>	C. J. Batley, Esq., C.E.....	8	1	0	957	41.8	67.05	239
D Standedge (Redbrook Res.).....	L. M. & S. Rly.....	8	2	0	1150	45.7	63.45	..
D Denshaw C.E. School.....	The Head Teacher.....	8	1	1	870	..	61.80	231
D Denshaw (Ox Hey) <i>new</i> .....	C. J. Batley, Esq., C.E.....	8	1	0	1031	42.7	61.86	238
D Denshaw (Crawshaw Hey).....	C. J. Batley, Esq., C.E.....	8	1	0	956	..	62.66	238
D Denshaw (New Year's Br.) <i>new</i> ....	C. J. Batley, Esq., C.E.....	8	1	0	986	..	59.50	238
5.—TRENT—Derwent. 7 sq. mi.								
M Derwent Dale (Abbey Brook) 65..	S. B. Winser, Esq., C.E.....	5	1	0	825	44.9	58.34	..
M Derwent Dale (Howden Cl'gh) 64..	S. B. Winser, Esq., C.E.....	5	1	0	1030	43.0	59.42	..
Derwent Dale (Howden Ho.) 19..	S. B. Winser, Esq., C.E.....	8	1	0	890	42.9	60.12	..
M Derwent Dale (Sandy Lee) No. 7..	S. B. Winser, Esq., C.E.....	5	1	0	1340	..	59.17	..
6.—TRENT—Left Bank Tributaries. 143 sq. mi.								
D Lindrick Common (Woodside).....	Mrs. M. E. Eardley.....	5	1	0	250	..	33.08	160
7.—OUSE—Don. 564 sq. mi.								
D Sheffield W.W. (Redmires R.) (R) ..	Sheffield Corporation W.W..	10	5	0	1110	40.3	50.10	214
Sheffield W.W. (Redmires Res.) ..	Sheffield Corporation W.W..	8	4	0	1110	39.9	49.57	..
Sheffield W.W. (Redmires R.) <i>new</i> g. ..	Sheffield Corporation W.W..	5	1	0	1110	..	52.14	..
§ Rivelin (Oaking Clough).....	Sheffield Corporation W.W..	8	1	0	1160	39.5	50.30	..
Rivelin (Middle Moss).....	Sheffield Corporation W.W..	5	1	0	1168	40.5	54.34	..
D Sheffield W.W. (Rivelin).....	Sheffield Corporation W.W..	8	1	6	564	35.2	45.05	200
Sheffield W.W. (Black Clough)....	Sheffield Corporation W.W..	5	1	0	1175	..	54.79	..
D Sheffield W.W. (Crookes).....(R) ..	Sheffield Corporation W.W..	10	2	0	629	29.2	36.05	186
Sheffield W.W. (Crookes).....	Sheffield Corporation W.W..	8	2	0	629	29.3	36.25	..
D Sheffield (Weston Park).....	Town Clerk.....	8	1	0	428	30.4	36.13	196
Loxley Valley (Crawshaw Wood) ..	Sheffield Corporation W.W..	5	1	0	1175	..	50.37	..
Loxley Valley (Broadcar).....	Sheffield Corporation W.W..	5	1	0	1004	44.4	56.50	..
Loxley V. (Oaks Fm. Damflask) ..	Sheffield Corporation W.W..	5	1	0	650	36.1	47.84	..
Loxley V. (Loftshaw, Strines) ..	Sheffield Corporation W.W..	5	1	0	1011	43.2	52.71	..
Loxley Valley (Bradfield Filters) ..	Sheffield Corporation W.W..	8	1	0	551	..	49.57	..
Loxley V. (Dale Dike Res.).....	Sheffield Corporation W.W..	8	1	0	715	39.5	52.43	..
Loxley Valley (Bragging Moss)....	Sheffield Corporation W.W..	5	1	0	1360	..	62.61	..
Loxley V. (Thornseat).....	Sheffield Corporation W.W..	5	1	0	1326	42.6	54.80	..
Loxley V. (Rocher Flat).....	Sheffield Corporation W.W..	5	1	0	1106	37.1	47.47	..
Loxley V. (Emlin Moor).....	Sheffield Corporation W.W..	5	1	0	998	..	55.77	..
Loxley Valley (White Lee Moor) ..	Sheffield Corporation W.W..	5	1	0	1170	..	53.27	..
Loxley Valley (Hobson Moss).....	Sheffield Corporation W.W..	5	1	0	1530	..	61.88	..
D Rotherham (Ulley Res.).....(2) ..	Vincent Turner, Esq., C.E....	5	1	0	184	..	28.77	155
D Rotherham (Ulley Res.).....(1) ..	Vincent Turner, Esq., C.E....	5	1	0	184	21.6	27.16	154
D Rotherham (Ulley Res.).....(3) ..	Vincent Turner, Esq., C.E....	5	1	0	132	..	29.31	155
D Wincobank (Sewage Works) (+A) ..	J. Haworth, Esq.....	5	2	0	90	..	30.37	172
D Rotherham (Sitwell Vale).....	G. Howard, Esq.....	5	1	0	300	27.0	33.01	190
D Rotherham (Kimberw'rt Sch.) ..	Vincent Turner, Esq., C.E....	5	1	0	258	..	31.50	180
D Rotherham (Aldwarke Sew. Wks.) ..	James H. Kershaw, Esq....	5	1	4	71	..	29.06	183
D Rotherham (Thrybergh).....	F. O. Kirby, Esq., C.E.....	8	1	0	184	23.8	30.17	198
D Rawmarsh.....	L. Atkinson, Esq.....	5	1	0	230	..	29.47	196
D Ecclesfield (Sewage Works).....	F. Thurlby, Esq., M.C., C.E.	8	1	0	172	25.6	35.92	188
D Conisborough (Firsby Res.).....	F. O. Kirby, Esq., C.E.....	8	1	4	189	26.1	31.71	204
Ewden (Middle Moss).....	Sheffield Corporation W.W..	5	1	0	1600	51.0	60.74	..
Ewden (Broomhead Moor).....	Sheffield Corporation W.W..	5	1	0	1370	48.6	58.16	..
Ewden (Canyard Brook).....	Sheffield Corporation W.W..	5	1	0	585	..	50.95	..
Ewden (Candle Rush).....	Sheffield Corporation W.W..	5	1	0	1400	47.0	60.81	..
Ewden (Wightwizzle).....	Sheffield Corporation W.W..	5	1	0	860	41.5	54.12	..
Ewden (Broomhead Hall).....	Sheffield Corporation W.W..	5	1	0	905	42.1	50.25	..
Ewden (More Hall Reservoir).....	Sheffield Corporation W.W..	8	1	0	408	33.9	40.99	..
Ewden (Broomhead Reservoir) ..	Sheffield Corporation W.W..	8	1	0	600	35.6	48.97	..
Ewden (Margery Hill) .. No. 1 ..	Sheffield Corporation W.W..	5	1	0	1790	49.1	59.08	..

§ Gauge possibly over-exposed.

|| Gauge over-exposed on Moor.

## DIVISION IX—YORKSHIRE—(con.).

STATIONS.	AUTHORITIES.	Diam.	Rain-gauge				1931.		
			Height of		Average	Rain-fall.	Rain-fall.	Days with ·01 in. or more.	Days with ·04 in. or more.
			Rim	Ground	Rain-fall.				
			above	above					
			Ground.	Sea Level.					
WEST RIDING—(con.).			in.	ft. in.	ft.	in.	in.		
<b>7.—OUSE—Don—(con.).</b>									
Ewden (Margery Hill) . . . . .	Sheffield Corporation W.W.	5	1	0	1784	..	63·70	..	..
Ewden (Waldershaigh) . . . . .	Sheffield Corporation W.W.	..	..	..	875	35·3	44·29	..	..
Ewden (Brown Edge) . . . . .	Sheffield Corporation W.W.	5	1	0	1325	50·5	58·12	..	..
d Wentworth Woodhouse . . . . .	Mr. A. Third . . . . .	5	0	10	360	..	34·41	180	133
d Mexborough . . . . .	G. Fenwick Carter, Esq., C.E.	5	1	6	77	..	28·35	183	127
Wortley (Service Reservoir) . . . . .	J. R. Fox, Esq., C.E.	5	1	0	700	30·0	38·11	215	152
Midhope Moor (Barnside) . . . . .	J. R. Fox, Esq., C.E.	5	1	0	1000	43·4	48·57	247	165
Little Don Val. (Laund Clough) . . . . .	Sheffield Corporation W.W.	5	1	0	1515	..	66·15	..	..
d Little Don Val. (Underbank Res.) . . . . .	Sheffield Corporation W.W.	8	1	6	604	34·6	43·08	209	166
§ Little Don Val. (Brockholes) . . . . .	Sheffield Corporation W.W.	5	1	0	902	34·0	45·89	..	..
Little Don Val. (Sheep House) . . . . .	Sheffield Corporation W.W.	5	1	6	945	34·2	41·92	..	..
d Little Don Val. (Bridge Lane) . . . . .	Sheffield Corporation W.W.	8	1	0	761	38·3	49·83	238	169
Langsett Moor (Midhope) . . . . .	J. R. Fox, Esq., C.E.	5	1	0	830	37·6	38·80	220	163
d Langsett Moor (Up. Midhope) . . . . .	Sheffield Corporation W.W.	8	1	6	925	41·6	46·27	230	162
Langsett Moor (Mickleden) . . . . .	Sheffield Corporation W.W.	5	1	0	1217	48·0	61·76	..	..
Langsett Moor (Mickleden) <i>new g.</i> . . . .	Sheffield Corporation W.W.	5	1	0	1110	..	62·48	..	..
Langsett Moor (Catclough) . . . . .	Sheffield Corporation W.W.	8	1	0	1516	47·8	60·62	..	..
Langsett Moor (Fiddlers Green) . . . . .	Sheffield Corporation W.W.	8	1	6	1493	48·7	59·43	..	..
Langsett Moor (Fiddler's G.) <i>new g.</i> . . . .	Sheffield Corporation W.W.	5	1	0	1480	..	60·99	..	..
Langsett Moor (Border Hill) . . . . .	Sheffield Corporation W.W.	5	1	0	1148	46·9	55·19	..	..
d Langsett Moor (Swinden Lodge) . . . . .	Sheffield Corporation W.W.	8	1	0	1037	44·0	54·04	240	172
d Langsett Moor (Flouch Road) . . . . .	Sheffield Corporation W.W.	8	1	0	960	40·3	51·47	232	173
d Wath-upon-Deane (Chapel St.) . . . . .	Dr. T. Crowley . . . . .	8	1	3	188	24·8	30·32	184	124
d Doncaster (Pumping Station) . . . . .	F. O. Kirby, Esq., C.E.	5	1	6	30	..	32·82	183	138
d Doncaster (Pumping Station) <i>new g.</i> . . . .	F. O. Kirby, Esq., C.E.	5	1	0	31	..	33·04	183	138
d Doncaster (Avenue Road) . . . . .	M. H. Stiles, Esq. . . . .	5	1	3	60	..	35·13	190	129
d Bolton-on-Deane (Goldthorpe) . . . . .	E. Washington, Esq. . . . .	5	1	6	93	..	30·91	212	126
w Dunford Bridge (Windledon) . . . . .	Dewsbury Water Works . . . . .	8	2	2	1100	49·3	59·33	..	..
d Dunford Bridge Res. . . . .	Dewsbury Water Works . . . . .	8	2	0	1111	49·2	60·19	209	175
w Dunford Bridge (Dearden) . . . . .	Dewsbury Water Works . . . . .	8	1	6	1244	..	57·97	..	..
w Dunford Bridge (Harden) . . . . .	Dewsbury Water Works . . . . .	8	2	0	1300	50·9	56·53	..	..
w Dunford Bridge (Snailsden) . . . . .	Dewsbury Water Works . . . . .	8	2	0	1477	50·8	60·17	..	..
Penistone (Scout Dike Res.) . . . . .	J. R. Fox, Esq., C.E.	5	1	0	730	32·8	42·66	243	163
Penistone (Ingbirchworth Res.) . . . . .	J. R. Fox, Esq., C.E.	5	1	0	853	38·0	45·35	209	129
Penistone (Broadstone Res.) . . . . .	J. R. Fox, Esq., C.E.	5	1	0	..	36·8	44·31	205	159
d Barnsley (Jordan Hill) . . . . .	J. R. Fox, Esq., C.E.	5	1	0	460	25·4	34·78	201	138
d Bentley Colliery . . . . .	Messrs. Barber, Walker & Co., Ltd.	5	1	0	23	..	30·87	170	117
d Cawthorne (Cannon Hall) . . . . .	J. M. Spencer Stanhope, Esq.	5	0	11	418	29·1	33·80	..	135
d Barnsley (Burntwood Hall) . . . . .	J. Dymond, Esq. . . . .	5	1	0	378	..	36·69	204	135
d Kirk Bramwith . . . . .	C. E. Farran, Esq., C.E.	5	1	6	22	..	28·85	..	115
d Ackworth School . . . . .	The Headmaster . . . . .	8	1	0	125	25·1	(32·19)	..	..
d Goole . . . . .	Aire & Calder Navigation . . . . .	5	1	0	18	22·9	29·89	178	191
<b>8.—OUSE—Aire—Calder. 361 sq. mi.</b>									
d Holmbridge (Yateholme Res.) . . . . .	W. H. Duckworth, Esq., C.E.	5	1	0	1009	60·1	69·78	244	190
d Holmbridge (Yateholme Farm) . . . . .	W. H. Duckworth, Esq., C.E.	5	1	0	861	57·9	70·60	244	190
Holmbridge (Bilberry Res.) . . . . .	Messrs. Mallinson & Son . . . . .	5	1	0	970	55·9	62·52	..	..
Holmfirth (Holme Styes Res.) . . . . .	Messrs. Mallinson & Son . . . . .	5	1	0	830	45·9	50·95	..	..
Holmfirth (Boshaw Whams Res.) . . . . .	Messrs. Mallinson & Son . . . . .	5	1	0	930	49·6	52·59	..	..
d Holmfirth (Thongsbridge) . . . . .	Mrs. Robson . . . . .	8	1	0	..	..	54·53	193	159
d Holmfirth (Snape Res.) . . . . .	Holmfirth U.D.C. . . . .	6	1	0	1060	..	56·00	228	176
Meltham (Harden Moss) . . . . .	<i>new g.</i> J. W. Armitage, Esq., C.E.	8	1	0	1212	..	61·02	..	..
Wessenden Head . . . . .	<i>new g.</i> J. W. Armitage, Esq., C.E.	8	1	0	1270	..	55·72	..	..
Wessenden (Holly Bank Moss) . . . . .	J. W. Armitage, Esq., C.E.	8	1	0	1280	..	57·85	..	..
Wessenden (Old Reservoir) . . . . .	J. W. Armitage, Esq., C.E.	8	1	0	940	..	56·76	..	..
Wessenden (Butterley Moss) . . . . .	J. W. Armitage, Esq., C.E.	8	1	0	1110	..	58·54	..	..
Wessenden (Bobus) . . . . .	J. W. Armitage, Esq., C.E.	8	1	0	1200	43·4	47·90	..	..
Meltham (Brow Grains) . . . . .	J. W. Armitage, Esq., C.E.	8	1	0	900	45·6	57·44	..	..
Meltham (Royd Edge) . . . . .	C. L. Brook, Esq. . . . .	8	1	0	585	49·0	55·74	..	..
d Meltham (Harewood Lodge) . . . . .	C. L. Brook, Esq. . . . .	8	1	0	514	44·5	52·93	210	178
Meltham Grange . . . . .	J. W. Armitage, Esq., C.E.	8	1	0	850	41·2	50·15	..	..
† Marsden Reservoir . . . . .	L.M. & S. Rly. . . . .	8	2	4	692	..	60·18	..	..
Marsden (Deer Hill) . . . . .	J. W. Armitage, Esq., C.E.	8	1	0	1149	43·3	56·67	..	..
Marsden (Deer Hill) . . . . .	<i>new g.</i> J. W. Armitage, Esq., C.E.	8	1	0	1149	45·5	56·50	..	..

† Gauge on a steep bank.

|| Gauge in 6ft. square iron hurdle fence, 6ft. high.

§ Turf wall erected round gauge, January, 1931.

## DIVISION IX—YORKSHIRE—(con.).

STATIONS.	AUTHORITIES.	Diam.	Rain-gauge			Average Rain- fall.	1931.		
			Height of Rim above Ground.	Ground above Sea Level.	in.		Rain- fall.	Days with ·01 in. or more.	Day with ·04 in. or more.
WEST RIDING—(con.).			in.	ft. in.	ft.	in.	in.		
8.—OUSE—Aire—Calder—(con.).									
d Slaithwaite (Blackmoorfoot).....	J. W. Armitage, Esq., C.E.	8	1	0	800	44·1	49·43	230	181
d Slaithwaite (Inglewood).....	J. Woodhead, Esq.	5	1	0	546	45·5	52·25	246	176
d Huddersfield (Bank Field, Golcar).....	Miss M. J. R. Sykes	6	1	0	400	40·2	48·98	..	170
d Huddersfield (Ravensknowle).....	Dr. Woodhead	8	0	11	325	..	36·30	208	145
w Huddersfield (Langley Ter.) (No. 1).....	S. Morris Bower, Esq.	5	1	0	761	..	43·35	..	..
Huddersfield (Crosland Rd.) (No. 2).....	S. Morris Bower, Esq.	4	1	0	761	..	42·75	..	..
d Huddersfield (Oakes).....	S. Morris Bower, Esq.	5	1	0	761	..	42·70	215	163
w Moss Moor (Linsgreave).....	C. Clemesha Smith, Esq., C.E.	5	1	0	1264	..	62·54	..	..
d Rishworth (G. Walden Edge) <i>old</i> .....	C. Clemesha Smith, Esq., C.E.	8	1	2	1135	49·2	60·39	242	189
d Rishworth (G. Walden Edge) <i>new</i> .....	C. Clemesha Smith, Esq., C.E.	5	1	0	1078	49·2	60·83	242	194
w Rishworth (Stott Hall)..... <i>old</i> .....	C. Clemesha Smith, Esq., C.E.	8	1	0	937	..	56·72	..	..
w Rishworth (Stott Hall)..... <i>new</i> .....	C. Clemesha Smith, Esq., C.E.	5	1	0	935	..	56·24	..	..
d Rishworth Lodge.....	C. Clemesha Smith, Esq., C.E.	5	0	11	950	..	55·47	223	184
d Rishworth (Green Withens Res.).....	C. Clemesha Smith, Esq., C.E.	5	1	0	1205	..	57·87	246	186
d Rishworth (Ringstone Res.) (No. 1).....	C. Clemesha Smith, Esq., C.E.	5	1	0	980	42·6	53·36	234	173
d Rishworth (Ringstone Res.) (No. 2).....	C. Clemesha Smith, Esq., C.E.	5	1	0	962	42·6	56·46	234	177
w Rishworth Moor (Greystones).....	C. Clemesha Smith, Esq., C.E.	5	1	4	1192	..	63·74	..	..
d Soyland Moor (Rishworth Drain).....	C. J. Batley, Esq., C.E.	8	1	0	1290	..	64·84	228	196
w Soyland Moor (Summit) (No. 1).....	C. Clemesha Smith, Esq., C.E.	5	1	0	1280	..	60·09	..	..
w Soyland Moor (Summit) (No. 2).....	C. Clemesha Smith, Esq., C.E.	5	0	11	1218	..	64·65	..	..
d Soyland Moor (Stansfield Hey).....	C. Clemesha Smith, Esq., C.E.	5	1	0	700	..	52·51	224	180
d Soyland Moor (Baitings Gate).....	C. Clemesha Smith, Esq., C.E.	5	1	0	943	50·1	62·03	255	189
d Soyland Moor (Byron Edge).....	C. J. Batley, Esq., C.E.	8	1	0	1251	..	55·94	229	188
w Soyland Moor (Manshead).....	C. Clemesha Smith, Esq., C.E.	5	1	0	1225	..	61·38	..	..
d Walsden (White Holme).....	C. J. Batley, Esq., C.E.	8	1	0	1240	..	56·34	229	189
d Walsden (Calf Lee).....	Rochdale Corporation	8	1	0	960	39·6	58·17	241	188
d Walsden (Warland Res.).....	Rochdale Corporation	8	1	0	1245	..	64·13	242	193
d Walsden (Warland Drain).....	Rochdale Corporation	8	1	0	1250	..	58·50	241	185
Walton Hall.....	E. T. B. Simpson, Esq.	5	0	10	137	..	34·16	..	..
d Horbury (Durkar House).....	H. J. Wells, Esq.	8	1	0	140	..	31·00	187	129
d Horbury (Addingford Hos.).....	J. H. Horsfall, Esq.	8	1	0	169	..	32·64	195	134
Horbury (Highfields).....	J. H. Green, Esq.	5	1	0	226	..	30·65	..	..
d Mirfield (Cote Wall).....	F. P. Mitchell, Esq.	8	1	0	200	30·2	37·22	176	141
d Wakefield (Northgate).....	J. H. Garner, Esq.	8	1	0	174	..	29·72	..	..
d Wakefield (Clarence Park).....	C. Clemesha Smith, Esq., C.E.	5	1	0	124	25·4	31·71	208	134
d Wakefield (Fieldhead Res.).....	C. Clemesha Smith, Esq., C.E.	5	1	0	250	..	30·18	..	121
d Normanton (Haw Hill Park).....	The Surveyor, U.D.C.	8	1	1	136	..	30·89	185	123
d Sowerby Br. (Haugh End).....	Lt. S. G. C. Rawson, R.N., Retd.	5	1	0	450	41·9	46·52	181	149
w Walsden (Ramsden Hill).....	Rochdale Corporation	5	1	0	1326	..	60·71	..	..
d Walsden (Ramsden Reservoir).....	Rochdale Corporation	5	1	0	993	..	61·37	211	185
d Todmorden (Fielden Hospital).....	L. A. Crabtree, Esq.	5	1	0	650	..	57·70	245	183
d Todmorden (Sourhall Hospital).....	L. A. Crabtree, Esq.	5	1	0	1020	54·1	67·13	214	188
d Halifax (Public Library).....	E. Green, Esq.	8	1	0	625	34·7	41·83	..	..
d Dewsbury (Mitchell Laithes Sew. Wks.).....	The Manager	8	1	0	115	..	30·50	171	126
d Dewsbury (Crow Nest Park).....	H. Roscoe, Esq.	8	0	9	277	..	33·96	191	138
d Batley (Staincliffe Reservoir).....	W. H. Duckworth, Esq., C.E.	5	1	0	492	..	35·17	166	142
d Ardsley (Jaw Hill Filters).....	C. Clemesha Smith, Esq., C.E.	5	1	0	315	..	31·12	173	129
d Ardsley Reservoir.....	No. 1. C. Clemesha Smith, Esq., C.E.	5	1	2	395	..	33·15	184	134
d Ardsley Reservoir.....	No. 2. C. Clemesha Smith, Esq., C.E.	5	1	2	326	..	32·91	184	134
d Halifax W.W. (Albert).....	E. P. Brook, Esq., C.E.	5	1	0	795	35·3	46·23	212	161
d Halifax W.W. (Gibbet).....	E. P. Brook, Esq., C.E.	5	1	0	568	34·6	44·12	204	160
d Halifax W.W. (Ramsden Wood).....	E. P. Brook, Esq., C.E.	5	1	0	815	38·3	48·54	203	163
d Hebden Bridge (Burnside).....	Miss M. Hoyle	5	1	0	830	44·2	55·34	237	171
d Halifax W.W. (Castle Carr Lo.).....	E. P. Brook, Esq., C.E.	5	1	0	1060	41·2	53·01	242	189
w Halifax W.W. (Midgley Mr.) <i>new</i> .....	E. P. Brook, Esq., C.E.	8	1	0	1350	46·2	53·07	..	..
w Halifax W.W. (Warley Mr.) <i>new</i> .....	E. P. Brook, Esq., C.E.	8	1	0	1325	44·2	53·02	..	..
w Halifax W.W. (Ovenden Mr.) <i>new</i> .....	E. P. Brook, Esq., C.E.	8	1	0	1375	46·1	55·20	..	..
w Halifax W.W. (Gorple).....	E. P. Brook, Esq., C.E.	8	1	0	1320	..	53·43	..	..
d Halifax W.W. (Gorple Res.).....	E. P. Brook, Esq., C.E.	5	1	6	1028	..	55·57	234	182
d Halifax W.W. (Widdop).....	E. P. Brook, Esq., C.E.	5	1	0	1050	46·3	56·22	239	182
d Halifax W.W. (Walshaw Dean L.).....	E. P. Brook, Esq., C.E.	5	1	0	1040	48·8	57·01	222	177
w Halifax W.W. (Walshaw Dean).....	E. P. Brook, Esq., C.E.	8	1	0	1380	44·8	52·36	..	..

§ Exposure un-orthodox.

## DIVISION IX—YORKSHIRE—(con.).

STATIONS.	AUTHORITIES.	Diam.	Rain-gauge			1931.			
			Height of Rim above Ground.	Ground above Sea Level.	Average Rain-fall.	Rain-fall.	Days with ·01 in. or more.	Days with ·04 in. or more.	
WEST RIDING—(con.).			in.	ft. in.	ft.	in.	in.		
9.—OUSE—Aire. 504 sq. mi.									
D Pontefract (The King's School).....	A. Hudson, Esq.....	5	1	0	189	..	29.92	170	121
D Pontefract (Roall W.W.).....	W. H. Newton, Esq., C.E....	8	1	0	42	..	30.97	193	121
Bradford (Grange Rd., Horton)....	A. E. Chilton, Esq.....	5	3	0	450	35.0	39.04	197	150
Bradford (Brayshaw Reservoir)....	Bradford Corporation W.W.	5	1	0	982	37.1	45.81	..	..
D Bradford (Lister Park).....	Mr. J. Moorby.....	8	1	0	439	31.4	36.85	200	145
D Bradford (Thornton Moor Filters)...	Bradford Corporation W.W.	5	1	0	1190	43.9	55.65	224	183
D Bradford (Stubden Res.)....	No. 8. Bradford Corporation W.W.	5	1	0	1071	44.9	52.62	205	168
M Bradford (Nan Scar, Oxenhope)...	Bradford Corporation W.W.	5	1	0	1101	46.9	58.57	..	..
M Bradford (Stairs Top, Oxenhope)...	Bradford Corporation W.W.	5	1	0	1360	47.9	(65.19)	..	..
D Bradford (Leeming Reservoir)....	Bradford Corporation W.W.	5	1	0	850	40.6	53.51	213	167
M Bradford (Doe Park Reservoir)....	Bradford Corporation W.W.	5	1	0	760	40.7	(51.51)	..	..
M Bradford (Leeshaw Res.).....	Bradford Corporation W.W.	5	1	0	875	48.2	57.67	..	..
D Bradford (Chellow Dean Res.)....	Bradford Corporation W.W.	5	1	0	645	35.6	41.41	205	161
D Bradford (Chellow Heights Res.)...	Bradford Corporation W.W.	5	1	0	848	36.6	41.72	210	165
Bradford (Hewenden Res.).....	Bradford Corporation W.W.	5	1	0	701	38.6	45.58	..	..
M Bradford (Heaton Reservoir).....	Bradford Corporation W.W.	5	1	0	531	32.1	36.68	..	..
Leeds (Wortley Reservoir).....	H. Shortreed, Esq., C.E....	8	0	9	307	29.3	33.79	186	138
Leeds (Knostrop).....	H. Shortreed, Esq., C.E....	8	0	9	72	..	26.46	156	119
Leeds (Great George Street).....	H. Shortreed, Esq., C.E....	5	0	9	180	..	30.62	170	139
Leeds (Woodhouse Moor).....	H. Shortreed, Esq., C.E....	8	0	9	307	26.7	33.85	214	148
D Seacroft (Leeds City Hospital)....	Dr. J. S. Anderson.....	8	1	0	235	..	33.22	166	118
Leeds (Weetwood Res.).....	H. Shortreed, Esq., C.E....	8	0	9	328	..	35.42	209	144
d Leeds (Weetwood Garth).....	Mrs. F. Gott, J.P.....	5	1	0	300	..	36.83	..	142
D Leeds (Weetwood).....	F. J. Kitson, Esq.....	5	2	0	250	..	35.15	176	141
Leeds (Allerton Hill).....	T. Harding Churton, Esq....	5	0	8	418	27.5	32.31	..	..
D Haworth (Harbour Lodge).....	A. Atkinson, Esq., C.E....	8	1	0	1187	52.7	62.29	225	185
D Haworth (Lower Laithe Res.) (+A)	A. Atkinson, Esq., C.E....	6	0	10	772	..	54.27	220	173
D Oakworth (Oldfield Filters).....	A. Atkinson, Esq., C.E....	5	1	0	1008	..	51.61	219	175
D Bingley (Sewage Works).....	J. R. Brown, Esq.....	5	1	1	227	..	38.98	209	158
D Rawdon.....	Rawdon U.D.C.....	5	1	0	579	..	32.89	184	134
D Bingley (Gilstead Filters).....	Bradford Corporation W.W.	5	1	0	572	29.3	38.63	199	146
D Bingley (Park Top).....	M. E. Burton, Esq.....	5	1	0	650	..	38.26	212	143
D Keighley (The Knowle).....	P. Clough, Esq.....	5	1	0	390	..	41.87	211	152
D Keighley (Victoria Park).....	Mr. R. Butterfield.....	5	1	0	304	..	39.66	203	149
D Bingley (East Morton).....	J. Rhodes, Esq.....	5	1	0	530	..	36.75	206	146
Bingley (Sunnydale Reservoir)....	Bradford Corporation W.W.	5	1	0	825	33.8	35.86	..	..
D Salterforth (Barnoldswick W.W.)...	J. P. Thompson, Esq.....	8	1	4	832	..	52.92	246	185
D Earby (Sewage Works).....	(+A) H. Pritchard, Esq., C.E....	5	1	9	426	..	41.69	209	160
M Silsden (Gill Grange).....	Bradford Corporation W.W.	5	1	0	883	31.6	37.32	..	..
D Silsden Reservoir.....	Bradford Corporation W.W.	5	1	0	560	31.0	41.22	204	161
M Silsden (Cringles Res. Site).....	Bradford Corporation W.W.	5	1	0	715	32.3	39.16	..	..
D Silsden (Stories Farm).....	J. P. Thompson, Esq.....	5	0	7	675	..	41.70?	211	168
Carleton (Beech Hill).....	W. Cyril Empson, Esq.....	8	1	3	425	..	43.26	..	..
D Skipton (Town Hall).....	(A) A. E. W. Aldridge, Esq....	6	1	6	367	..	37.99	220	161
Gargrave (Banks Hill Bank Nwtn.)...	Leeds & Liv'pool Canal Co..	8	1	0	545	..	37.63	..	..
Gargrave (Ray Bridge Hill).....	Leeds & Liv'pool Canal Co..	8	0	10	459	..	49.19	..	..
D Rylstone Rectory.....	Rev. Canon C. H. Lowe.....	6	0	10	700	..	44.45	218	166
Winterburn (Long Hill).....	Leeds & Liv'pool Canal Co..	8	1	0	705	..	46.19	..	..
Winterburn (Brown Hill).....	Leeds & Liv'pool Canal Co..	8	1	0	961	..	52.26	..	..
10.—OUSE—Wharfe. 408 sq. mi.									
D Aberford (Lotherton Hall)....	Col. R. T. T. Gascoigne, D.S.O...	5	1	0	208	..	33.15	172	140
Adel (Eccup, East).....	H. Shortreed, Esq., C.E....	8	0	9	375	..	36.68	245	155
Harewood (Arthington).....	H. Shortreed, Esq., C.E....	8	0	9	139	..	37.51	217	154
D Harewood House.....	Dowager Countess of Harewood.	5	0	10	300	..	38.64	177	151
d Otley (Sewage Works).....	C. F. Hodgson, Esq., C.E....	5	1	0	172	..	35.09	..	..
D Ilkley (Silverwell Cottage).....	Surveyor, U.D.C.....	5	1	0	900	..	47.07	221	160

§ Gauge over-exposed.

## DIVISION IX—YORKSHIRE—(con.).

STATIONS.	AUTHORITIES.	Diam.	Rain-gauge			Aver- age Rain- fall.	1931.			
			Height of		ft.		in.	Days with ·01 in. or more.	Days with ·04 in. or more.	
			Rim above Ground.	Ground Sea Level.						
WEST RIDING—(con.).			in.	ft.	in.	ft.	in.	in.		
10.—OUSE—Wharfe—(con.).										
D Ilkley (Spence's Garden).....	Surveyor U.D.C.....	5	1	0	314	..	42·63	174	144	
D Ilkley (Crossbeck Road).....	Rev. W. Robinson.....	5	1	6	570	..	45·57	215	151	
Leathley (Lindley Wood, S.).....	H. Shortreed, Esq., C.E.....	8	0	9	312	..	38·05	210	147	
D Ilkley (March Gill Reservoir).....	C. F. Hodgson, Esq., C.E.....	5	1	0	655	..	41·75	213	158	
D York (Middlethorpe Hall).....	No. 2. Mr. J. Fletcher.....	5	1	0	48	..	30·30	205	140	
D York (Chalfonts).....	Arnold S. Rowntree, Esq....	5	0	9	50	..	29·26	175	131	
D York (Bishopthorpe Road).....	J. Terry & Sons Ltd.....	5	1	0	54	..	28·26	182	131	
d York (Cherry Hill).....	Messrs. H. Richardson & Co. 5	5	1	6	50	24·2	29·81	..	..	
D York (Acomb Landing).....	W. H. Humphreys, Esq., C.E. 5	5	1	0	40	..	29·58	170	131	
M Skipton (Counter Hill).....	Bradford Corporation W.W. 5	5	1	0	951	31·3	38·60	..	..	
M Skipton (Chelker Reservoir).....	Bradford Corporation W.W. 5	5	1	0	730	32·9	40·83	..	..	
Fewston (Timble Ings).....	H. Shortreed, Esq., C.E.....	8	0	9	912	..	44·82	213	159	
Fewston (Swinsty, East).....	H. Shortreed, Esq., C.E.....	8	0	9	460	..	39·30	194	130	
Fewston, North.....	H. Shortreed, Esq., C.E.....	8	0	9	525	..	43·84	233	161	
Fewston (Blubberhouses).....	H. Shortreed, Esq., C.E.....	8	0	9	575	..	44·28	226	167	
D Bolton Abbey Estate Office.....	A. Downs, Esq.....	5	1	2	368	..	41·06	211	162	
D Barden Reservoir.....	Bradford Corporation W.W. 5	5	1	0	746	42·9	50·22	243	182	
M Upper Barden Reservoir.....	Bradford Corporation W.W. 5	5	1	0	1170	40·6	48·74	..	..	
M Burnsall (Thorpe Fell).....	Bradford Corporation W.W. 5	5	1	0	1661	39·4	(48·78)	..	..	
M Burnsall (Sandbed Beck).....	Bradford Corporation W.W. 5	5	1	0	676	42·2	47·91	..	..	
D Burnsall Rectory.....	Rev. J. Wood.....	8	4	1	504	..	50·88	221	186	
D Grimwith Reservoir.....	Bradford Corporation W.W. 5	5	1	0	893	44·9	46·98	226	179	
M Grimwith (Trunla Hill).....	Bradford Corporation W.W. 5	5	1	0	1201	38·8	51·80	..	..	
D Buckden.....	G. E. Clayton, Esq.....	5	1	0	800	..	52·43	210	180	
D Oughtershaw Hall.....	Miss G. J. Woodd.....	5	1	6	1175	..	63·18	239	192	
11.—OUSE—Nidd. 254 sq. mi.										
D Wetherby (Stockeld Park).....	H. Demaine, Esq.....	5	1	2	200	..	33·03	158	131	
Spofforth (Sewage Works).....	C. E. Rivers, Esq., C.E.....	5	1	0	184	..	36·36	196	135	
D Tockwith School.....	W. Kirk, Esq.....	5	1	0	200	..	37·80	195	130	
D Wetherby (Ribston Hall).....	Mr. W. D. Boddy.....	5	1	2	130	26·5	35·31	202	143	
M Harrogate W.W. (Ling Cottage).....	A. S. West, Esq., C.E.....	5	1	0	740	..	(39·22)	..	..	
M Harrogate W.W. (Broad Dubb).....	A. S. West, Esq., C.E.....	5	1	0	725	..	(41·01)	..	..	
M Harrogate W.W. (Cobblers Cott.).....	A. S. West, Esq., C.E.....	5	1	0	730	..	(37·77)	..	..	
D Harrogate W.W. (Ten Acres Res.).....	A. S. West, Esq., C.E.....	8	1	6	620	..	43·15	215	158	
D Harrogate W.W. (Scargill Res.).....	A. S. West, Esq., C.E.....	8	1	0	646	..	43·01	217	162	
D Harrogate W.W. (Beaver Dyke R.).....	A. S. West, Esq., C.E.....	8	0	11	575	..	42·23	217	162	
M Harrogate W.W. (John o' Gaunts).....	A. S. West, Esq., C.E.....	5	1	0	600	..	40·22	..	..	
M Harrogate W.W. (Long Stoop).....	A. S. West, Esq., C.E.....	5	1	0	700	..	39·66	..	..	
M Harrogate W.W. (Knab's Moor).....	A. S. West, Esq., C.E.....	5	1	0	700	..	(38·80)	..	..	
D Harrogate (Harlow Moor Obsy.).....	C. E. Rivers, Esq., C.E.....	5	1	0	478	30·6	35·99	192	141	
D Harrogate (Harlow Hill Res.).....	A. S. West, Esq., C.E.....	8	1	0	589	..	37·22	189	147	
D Harrogate (Duchy Road).....	J. S. Farrah, Esq.....	5	1	0	450	..	38·04	186	142	
D Harrogate (Irongate Bridge Res.).....	A. S. West, Esq., C.E.....	8	1	6	455	..	39·17	188	147	
D Knaresborough (Goldsbro Hall Gdns).....	Mr. R. Wilson.....	5	1	0	112	..	35·36	187	134	
D Knaresborough (The Abbey).....	Rev. Canon J. T. Hartley... 5	5	1	0	140	..	36·08	202	142	
Harrogate (Bilton Sewage Works).....	C. E. Rivers, Esq., C.E.....	5	1	0	208	..	37·90	197	145	
D Birstwith Hall.....	Sir F. A. Aykroyd, Bt.....	5	1	0	400	..	45·38	209	157	
D Birstwith (Swarcliffe).....	Capt. C. S. Greenwood.....	5	1	0	510	..	41·41	200	146	
Ramsgill (Holme Ho. Gouthwaite).....	Bradford Corporation W.W. 5	5	1	0	464	..	42·12	..	..	
d Ramsgill (Raygill House).....	Bradford Corporation W.W. 5	5	1	0	925	48·0	43·60	..	160	
D Ramsgill.....	Bradford Corporation W.W. 5	5	1	0	450	39·4	43·49	188	152	
D Middlesmoor (Stean Moor).....	Sir F. A. Aykroyd, Bart.....	5	1	0	1100	..	50·52	174	158	
M Nidderdale (East Gill Head).....	Bradford Corporation W.W. 5	5	1	0	1710	58·6	60·43	..	..	
M Nidderdale (Rain Stang).....	Bradford Corporation W.W. 5	5	1	0	1470	48·6	49·12	..	..	
D Nidderdale (New Houses).....	Bradford Corporation W.W. 5	5	1	0	755	45·3	46·26	193	167	
D Nidderdale (West Houses).....	Bradford Corporation W.W. 5	5	1	0	1165	53·1	58·24	256	187	



## DIVISION IX—YORKSHIRE—(con.).

STATIONS.	AUTHORITIES.	Diam.	Rain-gauge		Average Rain-fall.	1931.			
			Height of Rim above Ground.	Height of Ground above Sea Level.		Rain-fall.	Days with $\cdot 01$ in. or more.	Days with $\cdot 04$ in. or more.	
									in.
WEST RIDING—(con.).						in.			
12.—OUSE—Ure. 110 sq. mi.									
Dallow Moor (Harper Hill).....	H. Shortreed, Esq., C.E.....	8	0	9	858	..	39.59	163	151
D Ripon (The Red House).....	F. D. Wise, Esq., C.E.....	5	1	0	120	..	39.05	167	140
Kirby Malzeard (Drovers' Inn)....	H. Shortreed, Esq., C.E.....	8	0	9	576	..	44.47	212	155
Kirby Malzeard (Hawsett).....	H. Shortreed, Esq., C.E.....	8	0	9	820	..	42.56	203	161
Kirby Malzeard (Hambleton H.)...	H. Shortreed, Esq., C.E.....	8	0	9	1106	..	42.06	..	..
Kirby Malzeard (Bagwith Brae)...	H. Shortreed, Esq., C.E.....	5	0	9	703	..	38.75	223	143
Kirby M. (Stone & Ears Wham.)...	H. Shortreed, Esq., C.E.....	8	0	9	1118	..	41.56	..	..
EAST RIDING. (Area, 1,176 sq. mi.).									
1.—OUSE—Left Bank Tributaries. 82 sq. mi.									
D Osgodby (Fruit Testing Stn.).....	J. W. Eves, Esq.....	5	1	0	30	..	31.57	175	126
D York (Heslington).....	Hn. L. de Yarburgh-Bateson	8	1	0	39	..	32.62	206	153
D York (Dunnington Hall).....	Miss E. C. Hildyard.....	8	1	2	110	..	33.49	230	156
2.—OUSE—Derwent. 248 sq. mi.									
D Birdsall Gardens.....	Mr. J. Anderson.....	5	1	2	308	..	34.67	184	148
D Westow Vicarage.....	Rev. G. T. W. Purchas.....	5	1	0	190	..	30.97	209	138
D Rillington (Scampston Hall).....	W. H. St. Quintin, Esq.....	5	1	6	102	..	31.79	212	158
D Ganton (Ganton Hall).....	Harold Wrigley, Esq.....	5	1	0	250	..	32.01	209	151
3.—HUMBER—Left Bank Tributaries. 675 sq. mi.									
D Spurn Head <i>new g.</i> .....	The Meteorological Office... 8	1	0	29	24.0	27.40	165	131	
D Patrington (Rose Cottage).....	Miss S. A. Kirman, for M.O.. 5	1	3	46	23.3	29.83	165	129	
D Patrington Rectory.....	Rev. P. R. Frost.....	5	1	0	50	..	27.81	184	130
D Hull (Pearson Park).....	The Superintendent.....	5	0	10	8	25.4	31.20	204	125
D Hull (Springhead).....	W. D. Bingham, Esq.....	5	1	0	16	..	30.98	189	127
D Cottingham (Waterworks).....	W. D. Bingham, Esq.....	5	1	0	26	..	29.98	185	131
D Holme-on-Spalding Moor.....	C. J. Pybus, Esq.....	8	1	0	30	..	32.30	215	146
D Beverley (E. Riding Mental Hosp.)	Medical Superintendent... 5	1	0	175	..	32.04	189	138	
Beverley (New Walk).....	W. Evans, Esq., C.E.....	5	3	0	38	..	33.69	208	148
Beverley (Hull Bridge).....	W. Evans, Esq., C.E.....	5	2	6	11	..	30.93	215	146
D Market Weighton (Dalton Holme)	J. P. Jobling, Esq.....	8	6	0	120	..	31.31	191	139
D Brandesburton (Hempholm Lk.)...	W. Evans, Esq., C.E.....	5	2	6	11	25.2	30.90	171	144
D Driffield (Council School).....	A. Y. Jordan, Esq.....	5	1	0	69	..	31.57	203	135
D Lowthorpe (The Elms).....	F. K. Hawes, Esq.....	5	1	0	63	26.5	30.10	208	137
4.—EAST COAST STREAMS. 171 sq. mi.									
D Bridlington (Corpn. Nurseries)...	Parks Superintendent..... 5	1	0	60	..	30.71	218	149	
D Bridlington (Grammar School)...	The Headmaster.....	8	1	0	76	..	30.78	200	140
w Burton Fleming.....	C. B. Thomas, Esq.....	5	0	4	128	..	31.64	..	..
M Ganton (Willerby Wold).....	Major W. F. Wormald.....	5	1	2	565	..	31.31	..	..
D Filey Vicarage.....	Rev. Canon A. N. Cooper... 8	1	0	96	..	29.39	205	151	
NORTH RIDING. (Area, 2,155 sq. mi.).									
1.—OUSE—Ure. 273 sq. mi.									
D West Tanfield Rectory.....	Mr. H. H. Milman.....	5	1	0	150	28.7	38.98	184	134
D Masham Moor (Roundhill Res.)....	A. S. West, Esq., C.E.....	8	1	0	743	37.6	46.36	237	170
Masham Moor (Somerside).....	H. Shortreed, Esq., C.E.....	5	0	9	928	38.8	43.13	215	167
Masham Moor (High Sour Mire)....	H. Shortreed, Esq., C.E.....	5	0	9	884	31.2	41.06	..	..
Masham Moor (Leighton Res.).....	H. Shortreed, Esq., C.E.....	5	0	9	634	35.9	40.54	209	158
Masham Moor (Towler Hill).....	H. Shortreed, Esq., C.E.....	8	0	9	820	36.7	38.97	217	160
Masham Moor (Breary Bank).....	H. Shortreed, Esq., C.E.....	5	0	9	600	36.8	43.73	219	168
Masham Moor (Healey Pasture)....	H. Shortreed, Esq., C.E.....	5	0	9	620	36.1	42.28	219	164
Masham Moor (Low Houses).....	H. Shortreed, Esq., C.E.....	5	0	9	693	37.9	45.43	239	176

## DIVISION IX—YORKSHIRE—(con.).

		Rain-gauge			1931.				
STATIONS.	AUTHORITIES.	Diam.	Height of		Average	Rain-fall.	Days with	Days	
			Rim	Ground	Rain-fall.		·01 in. or more.	·04 in. or more.	
			above Ground.	above Sea Level.					
NORTH RIDING—(con.).			in.	ft. in.	ft.	in.	in.		
1.—OUSE—Ure—(con.).									
d Clifton Castle Gardens.....	Lady Cowell.....	5	1	0	360	29·9	35·39	176	129
d Middleham (Cotescue).....	A. Rowntree, Esq.....	5	1	0	600	..	31·97?	..	133
d Middleham (Castle Hill).....	Col. P. H. Hammond, C.B....	5	1	0	470	31·7	33·42	179	131
d West Burton (Flanders Hall).....	G. T. Whitehead, Esq.....	5	2	2	520	..	37·47	200	159
d West Witton (Ivy House).....	J. B. Espiner, Esq.....	5	1	0	605	34·1	37·29	208	143
d Leyburn (Spennithorne).....	F. M. Curtis, Esq.....	5	1	0	416	..	34·10	213	139
d Leyburn (Bolton Hall).....	Mr. F. Scrivener.....	8	1	0	420	32·6	35·87	206	141
2.—OUSE—Swale. 569 sq. mi.									
d Dalton Parsonage.....	Rev. G. H. Chilman.....	5	1	0	79	23·0	31·71	174	131
d Coxwold (The Old Hall).....	H. Geipel, Esq.....	4	1	6	260	26·1	34·32	173	149
d Thirsk (Sowerby).....	Mrs. W. Brown.....	5	0	11	110	24·7	34·75	..	135
d Thirsk (Brynkellhow).....	A. B. Hall, Esq.....	8	1	0	115	24·6	30·85	188	142
d Thirsk (Stoneybrough).....	T. J. Foggitt, Esq.....	5	1	2	122	24·7	34·92	192	131
m Felixkirk (Thirby).....	A. J. Walker, Esq.....	5	1	0	339	27·1	35·71	..	..
d Felixkirk (Mount St. John).....	(+A) A. J. Walker, Esq.....	5	1	0	541	25·8	37·27	201	152
d Felixkirk (Mount St. John).....	A. J. Walker, Esq.....	5	1	0	541	26·5	36·81	205	152
d Bedale (Snape School).....	The Headmaster.....	5	1	0	145	..	34·58	..	134
d Boltby (Ravensthorpe Manor).....	F. E. Walker, Esq.....	5	1	7	661	27·4	38·89	207	152
m Boltby, East.....	A. J. Walker, Esq.....	5	1	0	460	26·2	38·24	..	..
m Boltby (High Paradise).....	A. J. Walker, Esq.....	5	1	3	1144	..	44·96	..	..
d Bedale (The Hermitage).....	C. Clarke, Esq., F.S.I.....	5	0	10	465	..	34·36	172	133
d Maunby Hall.....	Major A. Hill-Walker, V.C....	5	1	0	90	23·9	34·38	166	140
d Bedale (Park House).....	Miss M. Greenwood.....	5	1	1	180	25·6	32·33	174	129
d Scruton Hall.....	A. Coore, Esq.....	5	1	6	100	23·8	30·49	181	120
m Swaledale (Gunnorside Lodge).....	W. M. Christy, Esq.....	5	1	0	900	47·8	(43·73)	..	..
d Northallerton (Brompton).....	J. P. Yeoman, Esq.....	5	1	0	150	23·7	32·67	220	144
d Osmotherly (Oakdale W.W.).....	Northallerton U.D.C.....	5	1	0	600	..	40·58	..	..
d East Harlsey (Harlsey Hall).....	Mrs. Constantine.....	5	1	0	370	..	33·04	172	144
d Reeth (Arkengarthdale).....	Samuel Gott, Esq.....	5	1	0	940	41·0	41·24	181	..
d Rounton Grange.....	late Sir Hugh Bell, Bt.....	8	0	9	249	25·6	(35·34)	..	..
w Middleton Tyas.....	Mrs. Baker-Baker.....	5	0	10	380	25·7	29·61	..	..
3.—OUSE—Left Bank Tributaries. 153 sq. mi.									
d York (Museum Gardens).....	W. Watson, Esq.....	5	1	0	57	24·3	29·22	191	129
d Stockton-on-Forest (Stockton Hall).....	Mrs. Lloyd.....	5	1	1	30	21·5	28·93	..	135
d Haxby (Moorlands).....	E. G. Tew, Esq.....	6	1	6	59	24·1	29·78	..	..
d Crayke Rectory.....	Rev. T. Catton.....	5	1	0	370	..	28·60	..	120
4.—OUSE—Derwent. 509 sq. mi.									
d Welburn.....	R. Child, Esq.....	5	1	0	190	26·1	31·66	..	..
d Malton (Broughton Rise).....	C. C. Laverack, Esq.....	5	1	0	164	25·5	31·28	207	137
d Terrington (The Cliff).....	Sir Alfred Lascelles.....	5	1	0	340	..	34·15	198	148
d Terrington Rectory.....	Rev. J. S. Wimbush.....	8	1	0	250	..	30·05	195	130
d Hovingham Hall.....	Capt. W. A. Worsley.....	5	0	9	119	29·0	34·81	212	146
d Ampleforth College (new site).....	The Procurator.....	5	1	0	313	..	34·85	205	137
d Oswaldkirk (Layesthorpe Hall).....	Major G. B. Foster.....	5	1	0	231	..	32·94	185	134
d Helmsley (Boys' School).....	E. W. Williams, Esq.....	5	1	0	225	..	33·33	214	151
d Pickering (Hungate Hall).....	Dr. J. L. Kirk.....	5	3	0	90	26·8	36·14	221	142
d Seamer (Irtton Pump Station).....	H. Richardson, Esq., C.E....	8	1	0	94	28·7	32·34	181	143
d Scarborough (Osgodby).....	H. Richardson, Esq., C.E....	8	1	0	166	26·1	(33·48)	200	156
d East Ayton (Derwent House).....	A. H. Robinson, Esq.....	5	1	0	110	27·0	33·83	195	161
d Kirkby Moorside (Ravenswyke).....	Harrison Holt, Esq.....	5	1	0	270	27·2	34·19	..	131
d Thornton Dale (High Dalby Ho.).....	J. A. Coulson, Esq.....	5	1	0	325	..	34·11	..	140
5.—ESK & C. 278 sq. mi.									
d Scarborough.....	Medical Officer of Health....	5	1	1	118	25·8	29·29	202	141
d Scarborough (Scalby).....	Capt. W. H. L. Wordsworth....	5	1	0	210	..	33·91	199	159
d Scarborough (Scalby, St. Philips).....	Rev. W. E. Stewart.....	5	1	0	130	26·1	29·94	203	146
d Egton Bridge (Bridgeholme).....	Lt.-Col. R. Astley Smith.....	5	1	0	150	33·3	40·36	172	149
d Glaisdale (The Gables Gardens).....	Mr. H. Hope.....	5	0	9	400	35·6	45·03	169	149
d Sleights (The Hall).....	P. M. Horsfall, Esq.....	5	1	0	220	30·7	34·16	174	140
d Danby (The School House).....	J. W. Lynas, Esq.....	5	1	0	500	35·2	42·58	201	164
d Castleton.....	Miss M. H. Punch, for R.M.S....	5	1	0	425	..	42·66	210	154
d Danby Lodge.....	Mr. C. Hardy.....	5	1	0	500	35·6	43·17	169	156

## DIVISION IX—YORKSHIRE—(con.).

STATIONS.	AUTHORITIES.	Diam.	Rain-gauge				1931.		
			Height of		Average Rain-fall.	Rain-fall.	Days with .01 in. or more.	Days with .04 in. or more.	
			Rim above Ground.	Ground above Sea Level.					
NORTH RIDING—(con.).			in.	ft. in.	ft.	in.	in.		
5.— <b>ESK &amp; C.</b> —(con.).									
D Whitby (Park Hall, Aislaby).....	Rev. J. H. Richardson.....	5	1	0	500	30.7	33.99	207	147
D Whitby (Westthorpe).....	Rev. M. A. C. Horsfall.....	6	1	6	120	..	30.65	229	155
D Whitby (Mulgrave Castle).....	Mr. J. Corbett.....	5	1	0	410	29.1	34.34	204	138
D Guisborough (Lockwood Res.).....	Cleveland Water Co.....	8	1	0	632	33.0	41.63	240	177
D Saltburn (Skelton Castle).....	Col. W. H. A. Wharton.....	5	0	9	272	28.1	29.92	203	151
6.— <b>TEES.</b> 373 sq. mi.									
D Ingleby Manor.....	Lord DeL'Isle & Dudley....	5	1	2	460	33.9	38.18	208	146
D Kildale Hall.....	Major R. B. Turton.....	5	1	2	600	35.5	40.97	199	155
D Crathorne Hall Gardens.....	J. L. Dugdale, Esq.....	5	1	3	107	25.0	31.04	186	137
D Barningham Park.....	Sir F. Milbank, Bart.....	8	1	0	700	32.6	36.81	226	153
d Worsall (Far End).....	C. Hutton Wilson, Esq.....	5	0	6	150	..	28.11	..	..
d Nunthorpe (The Box).....	G. D. Cochrane, Esq.....	5	1	0	287	25.2	31.68	198	154
d Marton-in-Cleveland (Southleigh)†	Miss H. D. Wilson.....	5	0	11	100	..	28.22	..	..
d Marton-in-Cleveland (Gartheen)...	G. R. Collinson, Esq., C.E....	5	1	0	160	..	28.87	189	144
D Middlesbrough (Albert Park) .....	R. Sutcliffe, Esq.....	5	1	0	30	23.7	28.16	180	131
M Baldersdale (Aygill).....	G. R. Collinson, Esq., C.E....	5	1	0	1250	45.0	48.70	..	..
D Lartington Filters.....	G. R. Collinson, Esq., C.E....	5	1	0	725	..	34.99	190	144
M Baldersdale (Blackton Res.).....	G. R. Collinson, Esq., C.E....	5	1	0	937	40.5	43.20	..	..
M Baldersdale (Balderhead).....	G. R. Collinson, Esq., C.E....	5	1	0	1360	45.7	46.60	..	..
D Baldersdale (Hury R.) <i>old g site</i> ...	G. R. Collinson, Esq., C.E....	5	1	0	866	36.0	36.79	215	156
D Baldersdale (Hury R.) <i>new g site</i> ...	G. R. Collinson, Esq., C.E....	5	1	0	862	..	38.04	215	157
M Lunedale (Dow Crag).....	G. R. Collinson, Esq., C.E....	5	1	0	1720	56.0	67.10	..	..
M Lunedale (Lunehead).....	G. R. Collinson, Esq., C.E....	5	1	0	1450	55.6	61.90	..	..
M Lunedale (Selset).....	G. R. Collinson, Esq., C.E....	5	1	0	924	40.8	39.00	..	..
D Lunedale (Grassholme Res.).....	G. R. Collinson, Esq., C.E....	5	1	0	936	39.7	38.40	195	162
M Lunedale (Keekham).....	G. R. Collinson, Esq., C.E....	5	1	0	1660	59.5	71.50	..	..
M Lunedale (Hargill).....	G. R. Collinson, Esq., C.E....	5	1	0	1320	53.4	57.20	..	..

## DIVISION X—NORTHERN COUNTIES.

DURHAM. (Area, 1,011 sq. mi.).

1.— <b>TEES &amp; C.</b> 396 sq. mi.									
D Darlington (South Park).....	T. J. Morrison, Esq.....	5	1	0	150	27.1	29.10	202	139
d Darlington (Broken Scar).....	G. R. Collinson, Esq., C.E....	5	1	0	158	..	27.89	..	126
D Darlington (Stanhope Road).....	Rev. A. W. M. Close.....	5	1	0	180	27.2	30.05	191	134
d Darlington (Fighting Cocks Res.)...	G. R. Collinson, Esq., C.E....	5	1	0	150	..	29.06	..	130
d Eggleston House.....	G. C. Jones, Esq.....	8	1	2	100	24.0	28.34	192	127
D Whorlton Vicarage.....	Rev. E. E. Gleaves.....	5	1	0	400	..	28.00	201	135
D Piercebridge (Carlbury Hall).....	J. H. Pease, Esq.....	5	1	0	222	26.3	26.02	189	127
d Gainford.....	H. L. Fife, Esq.....	5	1	0	260	..	27.66	..	128
D Barnard Castle (Bowes Museum)...	S. E. Harrison, Esq.....	6	1	0	500	30.4	34.62	224	140
D Barnard Castle (County School)...	The Bursar.....	5	1	6	540	29.1	34.81	215	139
D Long Newton Reservoir.....	G. R. Collinson, Esq., C.E....	5	1	0	184	..	28.82	198	134
D Stockton-on-Tees (Hartburn Lo.)...	C. Nielson, Esq.....	5	0	10	45	24.4	26.97	192	134
D Stockton-on-Tees (Ropner Park)...	W. A. Jenkins, Esq.....	5	1	9	61	22.9	24.09	167	123
D Stockton-on-Tees (Billingham)...	S. Ammonia & Nitrates, Ltd.	5	1	6	35	..	26.27	176	126
D Staindrop (Raby Castle) <i>old g</i> .....	Lord Barnard.....	5	1	0	450	..	31.42	212	153
D Staindrop (Raby Castle) <i>new g</i> .....	Lord Barnard.....	5	1	0	450	..	30.49	213	151
d Stillington Park.....	Messrs. Dorman, Long & Co. Ltd.	5	1	0	140	..	28.58	..	..
d Eggleston House.....	The Headmaster.....	5	1	0	800	..	39.24	241	186
d Middleton-in-Teesdale School.....	The Headmaster.....	5	1	0	740	..	36.88	..	..
D Middleton-in-Teesdale (Newbiggin) <i>old g</i>	R. Coggins, Esq.....	5	1	2	1000	40.9	41.15	209	166
D Middleton-in-Teesdale (Newbiggin) <i>new g</i>	R. Coggins, Esq.....	5	1	0	1000	..	41.03	210	167
D Ferryhill (Winterton).....	Medical Superintendent....	5	1	0	365	26.6	32.38	171	147
D Hurworth Burn (Crookfoot Res.)...	J. R. Bradshaw, Esq.....	10	1	6	296	25.4	25.25	191	130
d West Hartlepool (Waterworks).....	J. R. Bradshaw, Esq.....	10	1	0	35	24.7	26.11	..	..
D Hurworth Burn Reservoir.....	J. R. Bradshaw, Esq.....	10	1	0	357	26.5	29.83	210	141
D Hartlepool (Hart Reservoir).....	J. R. Bradshaw, Esq.....	10	1	0	172	..	25.25	188	133
D Shotton (New Winning P. S.).....	A. B. E. Blackburn, Esq., C.E.	8	1	0	402	29.4	30.64	208	143
D Easington (Mill Hill Res.).....	A. B. E. Blackburn, Esq., C.E.	8	1	0	521	..	29.52	204	137
D Seaham (Dalton Pumping Sta.).....	A. B. E. Blackburn, Esq., C.E.	8	1	0	345	27.0	29.59	202	142

† Station formerly called (Southcroft).

## DIVISION X—NORTHERN COUNTIES—(con.).

STATIONS.	AUTHORITIES.	Diam.	Rain-gauge				1931.		
			Height of		Average	Rain-fall.	Rain-fall.	Days with ·01 in. or more.	Days with ·04 in. or more.
			Rim	Ground	above	above			
			above	above	Sea Level.	Sea Level.			
			in.	ft. in.	ft.	in.	in		
<b>DURHAM—(con.).</b>									
<b>2.—WEAR. 464 sq. mi.</b>									
Wolsingham (Dryderdale).....	Mrs. Cranston.....	5	1	3	700	..	32·36	..	..
d Stanhope (Parson Byers Qy.).....	Messrs. Dorman, Long & Co., Ltd. 5	6	8	846	31·7	39·09	..	126	..
m Burnhope (Grass Meres).....	H. Robinson, Esq., C.E..... 5	1	3	1850	59·1	(56·00)	..	..	..
m Burnhope (Lodgegill Mine).....	H. Robinson, Esq., C.E..... 5	1	3	1950	61·4	(62·10)	..	..	..
d Burnhope Bridge.....	H. Robinson, Esq., C.E..... 8	1	0	1160	..	51·19	226	177	..
m Cowshill (Wellheads Hush).....	H. Robinson, Esq., C.E..... 5	1	6	1690	52·7	(53·90)	..	..	..
d Durham (Houghall Hort. Sta.)....	County Education Com..... 5	1	0	160	27·9	28·38	169	124	..
d Durham Observatory.....	F. Sargent, Esq..... 8	1	0	336	24·6	27·82	189	129	..
d Weardale W.W. (Tunstall Res.)....	H. Robinson, Esq., C.E..... 8	1	2	724	32·4	46·62	221	177	..
d Ushaw (St. Cuthbert's College)....	Rev. J. R. Adamson..... 5	1	0	594	28·2	32·00	185	132	..
m Weardale W.W. (Waskerley 6)....	H. Robinson, Esq., C.E..... 8	4	2	1229	..	(33·03)	..	..	..
m Weardale W.W. (Waskerley 3)....	H. Robinson, Esq., C.E..... 8	4	6	1433	..	(34·88)	..	..	..
d Weardale W.W. (Waskerley).....	H. Robinson, Esq., C.E..... 8	0	11	1179	33·1	34·48	208	151	..
m Weardale W.W. (Waskerley 1)....	H. Robinson, Esq., C.E..... 8	4	4	1317	..	(32·53)	..	..	..
d Consett (Crookhall).....	H. Shackleton, Esq..... 5	1	0	642	..	29·56	..	138	..
d Ryhope Pumping Station.....	A. B. E. Blackburn, Esq., C.E. 8	1	1	228	25·4	27·35	194	129	..
Washington School.....	V. Parkin, Esq..... 5	1	2	160	..	28·37	..	..	..
d Sunderland (W. Hendon H.) No. 5.	Mrs. W. A. Mounsey..... 5	1	0	130	25·6	29·92	192	132	..
d Sunderland (Mowbray Pk.)..(+A).	Medical Officer of Health... 5	1	0	105	25·6	26·30	164	122	..
<b>3.—TYNE, LOWER. 151 sq. mi.</b>									
d Weardale W.W. (Hisehope Res.)....	H. Robinson, Esq., C.E..... 5	1	0	1450	..	34·93	236	155	..
d Weardale W.W. (Smiddy Shaw)....	H. Robinson, Esq., C.E..... 8	1	3	1128	34·1	36·08	218	157	..
d Consett Park Farm.....	T. Hutton, Esq., C.E..... 8	0	7	630	..	27·88	176	135	..
d Rowlands Gill (Chopwellwood)....	Forestry Commission..... 8	1	0	446	28·7	29·86	197	141	..
d Sunderland (Cleaton Pump. Stn.)..	A. B. E. Blackburn, Esq., C.E. 8	1	0	216	24·4	28·15	181	127	..
d South Shields (Bent's Park).....	Dr. W. Campbell Lyons..... 5	1	0	36	24·2	34·30	201	134	..
d South Shields (South Pier Wks.)..	R. F. Hindmarsh, Esq., C.E. 5	1	0	17	..	26·15	185	124	..
<b>NORTHUMBERLAND. (Area, 2,015 sq. mi.).</b>									
<b>1.—EDEN. 20 sq. mi.</b>									
<b>2.—SOUTH TYNE. 232 sq. mi.</b>									
d Allenheads.....	J. W. Metcalfe, Esq..... 8	1	0	1350	..	39·75	..	..	..
<b>3.—TYNE, LOWER. 227 sq. mi.</b>									
d Corbridge (Howden Dene).....	T. D. Straker-Smith, Esq... 5	1	0	200	27·3	30·71	211	138	..
d Newcastle (Leazes Park).....	W. J. Steele, Esq..... 5	1	0	255	26·4	27·46	..	..	..
d Newcastle (Deaf & Dumb Inst.)....	The Superintendent..... 5	1	8	201	27·2	25·70	177	131	..
d Hexham (Causey Hill).....	R. W. Gregory, Esq..... 5	1	2	430	..	30·10	200	139	..
d Hexham (Beaufront Castle).....	The Lady Rayleigh..... 8	1	0	450	27·6	28·87	..	..	..
d Wallsend (Carville School).....	G. R. Pattison, Esq..... 5	1	3	100	..	27·26	..	..	..
d Tynemouth (Tyne Pier Works)....	R. F. Hindmarsh, Esq., C.E. 5	1	0	54	25·1	27·97	..	131	..
d Tynemouth (C.G. Sta.) new g.....	The Meteorological Office... 8	1	0	67	26·1	30·88	211	140	..
d Whittle Dene Filters (N'stle W.W.)	A. Hardcastle, Esq., C.E..... 5	1	1	353	26·6	29·38	217	137	..
d Whittle Dene Res. (Newc. W.W.)..	A. Hardcastle, Esq., C.E..... 5	0	6	380	25·3	29·62	210	134	..
<b>4.—NORTH TYNE. 433 sq. mi.</b>									
Ryal Cottage (Newcastle W.W.)....	A. Hardcastle, Esq., C.E..... 10	0	9	463	29·1	29·88	..	..	..
Hallington Vill. (N'castle W.W.)...	A. Hardcastle, Esq., C.E..... 5	1	0	467	29·9	31·76	..	..	..
d Hallington Res. (N'castle W.W.)...	A. Hardcastle, Esq., C.E..... 5	1	0	470	29·2	31·62	205	147	..
Hallington (Fawcett) (Newc. W.W.)	A. Hardcastle, Esq., C.E..... 5	1	2	537	28·2	31·38	..	..	..
Hallington (Cheviott) (Newc. W.W.)	A. Hardcastle, Esq., C.E..... 5	1	2	576	27·8	30·33	..	..	..
Campbell (Newcastle W.W.).....	A. Hardcastle, Esq., C.E..... 5	1	0	650	29·4	32·28	..	..	..
d Colt Crag Res. (N'castle W.W.)....	A. Hardcastle, Esq., C.E..... 5	1	0	654	..	32·92	203	163	..
Green Crag (Newcastle W.W.).....	A. Hardcastle, Esq., C.E..... 5	1	0	900	30·1	34·33	..	..	..
d Falstone Rectory.....	Rev. A. J. Dexter..... 5	1	0	485	38·6	40·59	223	154	..
d Bellingham (Highgreen)*.....	Sir C. Morrison-Bell, Bt.... 5	1	0	849	35·4	38·80	219	176	..
d Redewater (Catcleugh).....	A. Hardcastle, Esq., C.E..... 5	1	0	819	40·2	46·89	260	174	..
<b>5.—COQUET &amp; C. 840 sq. mi.</b>									
Whittington (Newcastle W.W.)....	A. Hardcastle, Esq., C.E..... 8	0	9	528	28·1	30·46	..	..	..
Burnside (Newcastle W.W.).....	A. Hardcastle, Esq., C.E..... 5	0	9	419	27·2	29·66	..	..	..
d Kirkwhelpington.....	J. R. Wardle, Esq..... 5	1	3	581	..	33·04	..	..	..
d Morpeth (High Stanners).....	R. Matheson, Esq., Jnr..... 8	1	0	90	..	28·14	202	141	..
d Ashington (Bothal School).....	J. Gray, Esq..... 5	8	0	110	25·3	25·77	198	133	..

\* Formerly known as Bellingham (High Green Manor).

## DIVISION X—NORTHERN COUNTIES—(con.).

STATIONS.	AUTHORITIES.	Diam.	Rain-gauge			1931.			
			Height of Rim above Ground.	Height of Ground above Sea Level.	Average Rain-fall.	Rain-fall.	Days with ·01 in. or more.	Days with ·04 in. or more.	
NORTHUMBERLAND—(con.).			in.	ft. in.	ft.	in.	in.		
5.—COQUET & C.—(con.).									
d Morpeth (Cockle Park).....	Northumberland Co. Council	8	1	0	325	29·3	28·40	192	135
d Font Res. (Tynemouth W.W.).....	J. W. McKerrow, Esq.....	10	1	2	620	31·1	35·03	238	160
w Long Framlington (Embleton H.).....	J. C. Fenwick, Esq.....	5	0	9	430	30·3	32·54	..	..
d Acklington (Broomhill Colliery).....	A. M. Morison, Esq.....	5	1	0	92	24·9	27·51	..	..
d Callaly Castle Gardens.....	E. J. Farmer, Esq.....	5	1	0	300	..	30·58	..	..
d Alnmouth (Nether Grange).....	Miss E. Pease, J.P., O.B.E.....	5	1	6	40	26·2	26·17	..	142
d Howick Hall Gardens.....	The Rt. Hon. Earl Grey.....	8	0	10	121	28·2	31·30	211	150
d Belford (Newlands).....	C. H. Sanderson, Esq.....	5	3	10	130	..	25·57	177	127
6.—TWEED. 262 sq. mi.									
d Glanton Pyke Gardens.....	Col. C. G. Collingwood, C.B.	8	4	2	521	29·4	34·92	237	176
d Wooperton.....	Mrs. Burdon.....	6	1	6	..	30·0	33·62	184	152
d Ilderton (Lilburn Tower Gdns.).....	Mr. W. Lovett.....	5	1	0	250	31·0	31·29	187	139
d Wooler (Victoria House).....	Miss E. M. Dodds.....	5	1	0	176	26·8	30·79	..	..
d Mindrum (Thornington House).....	Leonard Briggs, Esq.....	5	..	..	..	28·6	28·35	..	..
d Berwick-on-Tweed (Ramparts).....	S. Hill, Esq.....	5	1	0	76	23·4	21·81	..	112
7.—INSULAR. 1 sq. mi.									
CUMBERLAND. (Area, 1,516 sq. mi.)									
1.—EDEN & SOLWAY. 887 sq. mi.									
d Ullswater (Hallsteads).....	Mrs. F. Thomasson.....	5	1	0	497	..	54·10	200	166
d Watermillock (Gatesgarth).....	Mrs. Spring-Rice.....	5	1	3	874	..	53·24	223	174
d Penrith (Hutton John).....	F. Huddleston, Esq., C.E.....	5	1	0	688	..	47·65	226	162
d Penrith (Laurel Bank).....	A. B. Sinclair, Esq.....	5	1	0	480	..	34·55	212	155
d Penrith (Newton Rigg).....	Cumberland County Council	8	1	0	560	36·4	39·09	203	155
d Uldale (Chapel House Res.).....	J. R. Watters, Esq.....	8	1	0	620	..	52·79	200	181
d Penrith (Nunwick Hall).....	R. Heywood Thompson, Esq.....	5	1	0	268	..	32·80	..	..
d Penrith (Ennism).....	Lt. Col. H. L. Riley, DSO, OBE.	5	1	0	660	..	40·02	201	158
d Mealsgate (Quarry Hill).....	J. R. Watters, Esq.....	8	1	0	481	41·0	45·26	221	159
d Allonby.....	W. H. Williamson, Esq., J.P.	5	1	0	25	..	35·22	..	..
d Renwick (Ravenwood).....	W. Salkeld, Esq.....	5	1	0	750	..	46·27	221	191
d Ainstable (Heather Glen).....	A. Guthrie-Smith, Esq.....	5	1	6	500	..	37·93	209	162
d Wigton (Brookfield).....	David W. Reed, Esq., B.Sc.	5	1	0	124	..	38·83	185	141
d Wreay Vicarage.....	Rev. Canon A. R. Hall.....	5	1	0	310	31·8	33·74	215	154
d Geltsdale.....	P. Dalton, Esq., C.E.....	5	1	2	778	..	40·15	212	179
d Carlisle (Spital Cemetery).....	L. C. Collett, Esq.....	8	1	0	114	31·8	32·71	201	151
d Carlisle (Denton Holme).....	W. Eggleston, Esq.....	5	1	0	57	..	31·18	..	..
d Carlisle (Rose Hill).....	Henry Lonsdale, Esq.....	8	1	1	105	..	34·51	198	146
d Carlisle (Scaleby Hall).....	Lady Allison.....	5	1	0	111	33·7	36·89	204	160
2.—DERWENT. 257 sq. mi.									
m Sprinkling Tarn.....	T. Bainbridge, for M.O.....	5	1	6	1985	..	(166·06)	..	..
m Styhead Tarn.....	T. Bainbridge, for M.O.....	5	1	6	1472	..	(162·71)	..	..
m Sty Head B, new g.....	T. Bainbridge, for M.O.....	5	1	6	1070	..	(164·00)	..	..
Borrowdale (Seathwaite) garden.....	T. Bainbridge, for M.O.....	5	1	6	423	..	133·76	..	..
m§Ullscarf.....	Manchester Corpn. W.W.....	5	1	0	2100	115·1	110·80	..	..
m  Helvellyn (Birkside).....	Manchester Corpn. W.W.....	5	1	0	1900	80·4	91·20	..	..
m Wythburn.....	Manchester Corpn. W.W.....	5	1	0	610	..	98·80	..	..
d Borrowdale (The Moraine)*.....	G. Scott, Esq.....	5	1	0	330	..	101·26	217	185
m§Armboth Fells (The Pewitts).....	Manchester Corpn. W.W.....	5	1	0	1650	82·9	94·60	..	..
m§Helvellyn (Whiteside), new g.....	Manchester Corpn. W.W.....	5	1	0	2100	75·9	89·30	..	..
d Buttermere (Hassness).....	E. Dixon, Esq.....	6	1	0	350	..	101·45	216	194
m Crummock Water (Llanthwaite Grn.).....	R. W. Hall, Esq.....	5	1	0	510	..	74·65	..	..
§ Thirlmere (Dale Head Hall), new g.....	Manchester Corpn. W.W.....	6	1	0	620	78·7	86·10	..	..

\* Formerly known as Rosthwaite (The Moraine).

§ Gauge surrounded by a turf wall in December, 1931.

|| Gauge removed to site selected after inspection and surrounded by a turf wall.

## DIVISION X—NORTHERN COUNTIES—(con.).

STATIONS.	AUTHORITIES.	Diam.	Rain-gauge			1931.		
			Rim	Height of above Ground.	Average Rain- fall.	Rain- fall.	Days with or more.	Days with or more.
			ft.	in.	in.	in.		
CUMBERLAND—(con.).								
2.—DERWENT—(con.).								
D Keswick (Lingholm Gardens).....	J. Elson, Esq.....	5	1	0	300	..	71·18	214 172
D Keswick (Derwent Island) <i>old g.</i> ..	C. E. Marshall, Esq.*.....	5	0	9	280	..	66·70	219 168
D Keswick (Derwent Island) <i>new g.</i> ..	C. E. Marshall, Esq.*.....	5	1	0	290	57·0	62·36	219 165
D Keswick (High Hill).....	Tom. Wilson, Esq.....	5	1	0	254	..	58·12	194 152
D Portinscale (High Moss).....	Mrs. J. E. Brown.....	5	1	0	285	..	66·55	221 169
D Lorton (Kirkfell House).....	R. Wigham, Esq.....	5	0	5	403	..	53·00	223 175
D Keswick (Mirehouse).....	Miss Spedding.....	5	1	6	280	..	54·63	208 164
D Workington (Stainburn Res.).....	The Borough Surveyor.....	5	1	0	180	..	42·38	199 153
D Thelkeld (Blencathra Sanat.).....	Medical Superintendent.....	5	1	0	885	..	68·77	214 184
M Cockermouth (Castlegate Drive).....	R. W. Hall, Esq.....	5	1	0	268	..	48·44	.. ..
Camerton Vicarage.....	Rev. E. C. Bennett.....	5	1	0	200	..	40·87	.. ..
D Bassenthwaite (Higham).....	G. F. Fisher, Esq.....	5	0	9	500	..	51·97	227 175
3.—WEST COAST STREAMS. 235 sq. mi.								
D Ravenglass (The Grove).....	Walter Marchant, Esq.....	5	1	0	70	42·5	50·11	211 164
D Eskdale Green (Gatehouse).....	Mr. E. Hayes.....	5	1	0	250	..	66·47	231 184
D Beckfoot (Eskdale Vicarage).....	Mrs. F. K. Berry.....	5	1	0	169	..	75·83	234 189
Braystones.....	H. H. Watson, Esq.....	10	3	6	36	..	43·04	.. ..
M Egremont (Lank Rigg).....	J. Sherwen, Esq.....	5	1	0	1750	..	83·70	.. ..
D St. Bees (Fern Bank)†.....	Lt.-Col. G. Dixon.....	5	1	0	60	..	47·37	211 158
D Whitehaven (Stanley Pond).....	Whitehaven Colliery Co., Ltd.	12	2	11	45	..	56·43	196 161
D Whitehaven (Scragill Reservoir).....	A. Wilson, Esq., C.E.....	8	1	0	188	..	54·25	217 167
D Workington (Winscales House).....	Miss E. W. Trench.....	5	1	6	440	..	41·14	195 147
4.—DUDDON & C. 50 sq. mi.								
5.—SOUTH TYNE. 87 sq. mi.								
D Alston Vicarage.....	Rev. N. A. Walton.....	5	1	0	940	..	43·66	208 177
WESTMORLAND. (Area, 783 sq. mi.)								
1.—EDEN. 373 sq. mi.								
D Kirkby Stephen (Eden Place).....	Mrs. Paul Mason.....	5	1	0	544	42·3	36·87	189 148
Wasdale Pike.....	Manchester Corp'n. W.W.....	5	1	0	1825	..	71·31	.. ..
Mosedale (Mosedale Cottage).....	Manchester Corp'n. W.W.....	5	1	0	1443	..	92·51	.. ..
Wet Sleddale (Mirethwaite).....	Manchester Corp'n. W.W.....	5	1	0	990	..	66·07	.. ..
Blea Water.....	Manchester Corp'n. W.W.....	5	1	0	1500	..	97·38	.. ..
Mardale (Grove Brae).....	Manchester Corp'n. W.W.....	5	1	0	802	..	85·46	.. ..
Shap (Birkbeck Fell).....	Manchester Corp'n. W.W.....	5	1	0	935	..	53·27	.. ..
Swindale Parsonage.....	Manchester Corp'n. W.W.....	5	1	0	875	..	72·97	.. ..
Swindale Head.....	Manchester Corp'n. W.W.....	5	1	0	1025	..	68·33	.. ..
Grizedale (Ruthwaite Lodge).....	M. Marshall, Esq.*.....	8	1	6	1250	..	115·67	.. ..
Mardale (Low Raise).....	Manchester Corp'n. W.W.....	5	1	0	2465	..	94·25	.. ..
Shap (Thornship Gill).....	Manchester Corp'n. W.W.....	5	1	0	844	..	54·99	.. ..
Shap (Tailbert Head).....	Manchester Corp'n. W.W.....	5	1	0	1100	..	54·63	.. ..
D Stainmore (Rampson), <i>new gauge</i> .....	Capt. T. W. Bracken.....	5	1	0	980	..	40·60	210 161
Hawes Water (Boulderstone Nib).....	Manchester Corp'n. W.W.....	8	1	0	744	..	70·29	.. ..
M Hawes Water (Naddle House).....	Manchester Corp'n. W.W.....	5	1	0	825	..	61·93	.. ..
Hawes Water (Measand).....	Manchester Corp'n. W.W.....	5	1	0	824	..	70·73	.. ..
Measand Beck (Keasgill).....	Manchester Corp'n. W.W.....	5	1	0	1862	..	58·85	.. ..
Patterdale Hall.....	M. Marshall, Esq.*.....	5	1	3	490	86·4	85·25	210 ..
D Patterdale (Greenside Mine).....	Matthew Place, Esq.....	7	1	6	1005	..	94·63	.. 165
Bampton (Low Kop).....	Manchester Corp'n. W.W.....	5	1	0	1876	..	53·92	.. ..
Bampton (Walmhow).....	Manchester Corp'n. W.W.....	5	1	0	615	..	51·55	.. ..
Bampton (Stanegarth).....	Manchester Corp'n. W.W.....	5	1	0	913	..	56·25	.. ..
M Cawdale Beck (Howe Grain).....	Manchester Corp'n. W.W.....	5	1	0	1642	..	60·88	.. ..
Heltondale (Kidmoor).....	Manchester Corp'n. W.W.....	5	1	0	984	..	51·84	.. ..
D Appleby (Castle Bank).....	Lady Holmes.....	5	1	0	440	35·0	40·31	227 173
Ullswater (Sharrow Bay).....	Mr. G. Robinson.....	5	1	0	600	..	(46·22)	.. ..

† Station formerly called (Bickerley House).

\* Per Miss Cordelia Marshall.

## DIVISION X—NORTHERN COUNTIES—(con.).

STATIONS.	AUTHORITIES.	Diam.	Rain-gauge			Average Rain- fall.	1931.			
			Height of		Aver- age Rain- fall.		Rain- fall.	Days with ·01 in. or more.	Days with ·04 in. or more.	
			Rim above Ground.	Ground above Sea Level.						
WESTMORLAND—(con.).			in.	ft.	in.	ft.	in.	in.		
<b>1.—EDEN—(con.).</b>										
d Morland.....	F. R. Markham, Esq.....	5	1	0	455	..	36·59	184	157	
d Morland Hall.....	W. G. Shorrocks, Esq.....	5	1	0	475	..	33·18	..	..	
d Penrith (Lowther Castle).....	Mr. J. Jeffrey.....	5	1	0	760	37·2	43·21	201	162	
d Cliburn (Council School).....	L. S. Chapman, Esq.....	5	1	0	420	..	32·82	191	144	
d Penrith (Barton House).....	Mrs. Legh Tolson.....	5	1	0	500	..	40·15	206	150	
d Temple Sowerby (The Grange)....	Col. E. B. Burton.....	5	1	1	370	..	32·87	204	154	
d Penrith (Brougham Gdns.).....	Mr. B. R. Curtis.....	5	4	7	470	..	35·52	..	155	
<b>2.—LEVEN. 60 sq. mi.</b>										
d Bowness (Dawstone).....	W. H. Milne, Esq.....	5	1	2	550	63·1	67·13	241	183	
d Windermere (Nurseries).....	The Lakeland Nurseries, Ltd. 5	1	5	350	..	66·63	..	..	..	
d Windermere (Hammar Bank).....	Mrs. H. Coutts.....	5	1	0	200	..	67·33	233	180	
d Windermere (Holebird).....	H. L. Groves, Esq.....	5	1	0	483	72·7	72·40	269	195	
d Windermere (Brockhole).....	W. Gaddum, Esq.....	5	1	6	175	..	68·42	231	182	
d Ambleside (Wansfell).....	Miss Wrigley.....	8	1	0	150	..	74·61	219	183	
d Little Langdale (Fell Foot).....	Miss C. Marshall.....	5	2	2	380	..	124·14	..	..	
d Ambleside (White Craggs).....	C. H. Hough, Esq.....	5	1	7	200	..	77·49	214	181	
d Ambleside (King's School).....	The Headmaster.....	5	4	0	300	..	(74·67)	..	..	
d Ambleside (Market Square).....	G. A. Johnston, Esq., M.D.. 5	1	0	180	..	78·33	232	186		
d Elterwater (Eltermere).....	Miss C. Marshall.....	5	1	0	205	..	93·46	213	..	
d Rydal (The Stepping Stones)....	Gordon G. Wordsworth, Esq. 5	1	3	190	85·0	84·67	238	202		
d Rydal (High Close).....	F. E. T. Jones Balme, Esq.. 8	0	9	553	83·3	87·52	235	193		
d Rydal (The Hall).....	R. E. Porter, Esq.....	5	1	0	354	..	86·89	242	196	
d New Dungeon Ghyll Hotel.....	Miss C. Marshall.....	5	1	1	310	..	105·13	..	..	
d Mickleden.....	Miss C. Marshall.....	5	1	6	490	..	118·34	..	..	
d Grasmere (The Wray).....	Miss G. M. Simpson.....	5	1	0	221	88·5	93·06	251	201	
<b>3.—KENT. 188 sq. mi.</b>										
d Burton (Under Fell).....	J. B. Hoyle, Esq.....	5	0	9	225	..	48·28	223	173	
d Heversham (Plumtree Hall).....	Miss M. C. Watson.....	5	0	8	115	..	53·53	234	175	
d Levens (Beathwaite).....	Robert Bush, Esq.....	5	1	0	105	..	53·73	214	176	
d Killington Reservoir.....	L. M. & S. Railway.....	8	3	4	674	..	55·75	204	175	
d Kendal Gasworks.....	Kendal Gas & Water Co.... 5	1	11	140	..	55·85	206	165		
d Kendal (Southfield).....	J. W. Braithwaite, Esq.. 8	1	0	150	..	56·81	231	180		
d Kendal (Highgate).....	R. Rhodes, Esq.....	5	1	3	150	..	52·89	228	173	
d Kendal (Greenside).....	Miss C. E. Wilson.....	5	1	0	380	..	62·16	228	180	
d Kendal (Fisher Tarn Reservoir)...	Kendal Gas & Water Co.... 5	1	5	742	..	62·00	243	185		
d Kendal (Burneside).....	W. E. Brown, Esq.....	5	0	10	165	..	62·32	214	175	
d Kendal (Skelsmergh).....	F. G. Linnell, Esq.....	5	1	0	450	..	61·17	229	189	
d Kendal (Potter Fell).....	J. Cropper & Co., Ltd..... 5	2	0	750	..	85·20	..	..		
d Troutbeck (Dubbs Reservoir).....	J. Lupton, Esq.....	5	1	3	745	..	73·68	..	..	
d Kentmere Head Reservoir.....	Kendal Res. Commissioners. 5	1	6	920	..	98·32	214	194		
<b>4.—LUNE. 122 sq. mi.</b>										
d Kirkby Lonsdale (Stoop Lane)....	Mrs. H. E. Hollins.....	5	1	8	210	..	52·10	213	179	
d Kirkby Lonsdale.....	J. R. Picard, Esq.....	7	1	0	215	..	50·75	..	..	
d Barbon Manor.....	Lord Shuttleworth.....	5	1	3	650	..	50·92	202	191	
d Barbon (The Stores).....	The Late W. Wilkinson, Esq. 5	1	0	310	..	(50·61)	..	..		
d Ravenstonedale (Railway Station)	J. T. Sanderson, Esq.....	5	1	0	800	..	46·71	..	..	
<b>5.—TEES. 40 sq. mi.</b>										
d Lunedale (Conny Pot).....	G. R. Collinson, Esq., C.E... 5	1	0	1840	..	62·00	..	..		

## DIVISION XI—MONMOUTH, WALES, AND THE ISLANDS.

MONMOUTH. (Area, 534 sq. mi.)

<b>1.—RHYMNEY. 39 sq. mi.</b>								
d Rumney (Witla Court).....	Mr. E. Edwards.....	5	1	0	175	39·4	38·25	.. ..
d St. Mellons (Druidstone).....	Mr. G. H. Shoebridge.....	5	1	0	240	..	41·59	180 143
d Machen (Machen Quarry).....	Machen Stone and Lime Co.. 5	1	1	250	..	50·48	(210)	(173)

## DIVISION XI—MONMOUTH, WALES, AND THE ISLANDS—(con.).

STATIONS.	AUTHORITIES.	Diam.	Rain-gauge			1931.			
			Height of Rim above Ground.	Height of Ground above Sea Level.	Average Rain-fall.	Rain-fall.	Days with ·01 in. or more.	Days with ·04 in. or more.	
MONMOUTH—(con.).									
2.—EBBW. 88 sq. mi.		in.	ft.	in.	ft.	in.	in.		
d Rogerstone (Rhiwderin).....	Sir L. Forestier-Walker, K.B.E.	5	1	3	250	44·0	35·25	181	142
d Rogerstone (Newport Golf Links).....	The Head Greenkeeper	5	0	8	304	..	49·14	196	149
d Blackwood.....	D. H. Price, Esq.	5	0	10	630	..	49·81	203	160
d Abertillery (The Park).....	S. E. Thomas, Esq.	5	1	0	700	57·2	62·85	227	175
d Tredegar Laboratory.....	W. Morgan, Esq.	5	2	0	950	59·8	59·31	(215)	(174)
d Ebbw Vale (Iron Works).....	Ebbw Vale Steel & Iron Co., Ltd.	8	1	0	902	56·6	54·77	183	160
3.—USK & C. 290 sq. mi.									
d Redwick.....	Col. Blethyn T. Rees, C.E.	5	1	3	24	..	31·73	180	129
d Portskeewett (Sudbrook).....	S. W. Moore, Esq., C.E.	8	1	0	51	..	31·21	159	126
d Newport (Stow Park).....	A. W. Jupp, Esq., C.E.	5	1	0	200	..	41·09	192	146
d Newport (Alltyn Hosp.).....	Medical Officer of Health	8	1	0	265	..	43·32	190	142
d Newport W.W. (Friar St. Yard).....	Newport Corporation	5	6	0	32	..	39·95	191	138
d Newport W.W. (Ynis-y-fro Res.).....	Newport Corporation	5	1	0	136	..	43·78	217	147
d Caerleon (The Croft).....	Col. Blethyn T. Rees, C.E.	5	1	0	51	..	40·60	196	137
d Newport W.W. (Pant-y-reos Res.).....	Newport Corporation	5	1	0	435	..	51·47	210	155
d Newport W.W. (Llanvaches).....	Newport Corporation	5	0	10	456	..	40·25	192	137
d Newport W.W. (Nantyridd).....	Newport Corporation	5	1	0	500	..	43·38	189	150
d Chepstow (Itton Court).....	Lady Currie	5	1	0	390	..	43·55	185	149
d Newport W.W. (Newchurch).....	Newport Corporation	5	1	0	550	..	43·88	186	141
d Usk (Monmouth Agric. Instn.).....	The Principal	5	1	0	70	..	41·65	151	128
d Abersychan (Glansychan).....	G. W. James, Esq.	5	1	2	699	55·0	58·51	241	161
d Goytre (Goytre Hall).....	Mrs. Lionel Whitehead, O.B.E.	5	1	0	300	46·1	50·61	167	131
d Blaenavon (Estate Office).....	E. J. John, Esq.	8	1	0	1144	55·1	69·03	170	151
d Abergavenny (Plas Derwen).....	Alan Whitehead, Esq.	5	1	3	200	..	48·19	201	138
d Abergavenny (Ty Clyd).....	F. D. Llewelyn, Esq.	5	1	0	272	45·1	48·39	183	132
d Abergavenny (Richmond Road).....	W. H. Edmunds, Esq.	8	1	0	256	40·6	44·95	175	132
d Abergavenny (Larchfield).....	Dr. N. R. Phillips	5	1	0	240	37·5	43·35	179	137
d Abergavenny (The Chain).....	Miss Baker-Gabb	5	1	0	310	..	44·18	192	140
d Grwyne Fawr (Coed Dias).....	Miss Baker-Gabb	5	1	0	900	..	50·87	221	179
4.—WYE. 117 sq. mi.									
d Monmouth (Cornwall House).....	P. G. Harvey, Esq., M.D.	5	0	11	55	..	32·04	176	126
d Trewyn.....	Mr. R. F. Duncombe	5	0	10	500	..	44·32	..	152
GLAMORGAN. (Area, 808 sq. mi.)									
1.—LOUGHOR. 55 sq. mi.									
d Gorseinon (Penllergaer).....	Sir C. Venables Llewelyn, Bt.	5	3	6	240	48·7	52·30	215	176
d Felindre (Blaenant Dhu).....	Lt.-Col. F. Hibbert, C.E.	5	1	3	346	..	59·70	229	187
d Felindre (Lower Lliw Res.).....	Lt.-Col. F. Hibbert, C.E.	8	1	3	426	..	53·83	228	179
d Felindre (Upper Lliw Res.).....	Lt.-Col. F. Hibbert, C.E.	8	1	3	599	..	64·60	239	196
2.—GOWER PENINSULA. 62 sq. mi.									
d Gower (Penrice Castle).....	Mr. George Miller	5	1	6	18	..	47·43	210	174
d Penmaen (Cefn Mor).....	Mrs. R. A. Bostock	5	1	6	300	41·5	42·00	..	166
d Sketty (Rhydyrhelyg).....	E. H. Perkins, Esq.	5	1	0	124	46·0	53·13	228	185
3.—TAFE. 47 sq. mi.									
d Swansea (Victoria Park).....	(+A). D. Bliss, Esq.	8	1	0	27	44·7	52·23	238	181
d Clydach (Wernfadog).....	(R). W. J. P. Player, Esq.	8	1	0	..	..	59·29	232	186
d Ystalyfera (Wern House).....	Miss L. Williams	5	1	6	240	64·8	71·23	211	188
4.—NEATH. 82 sq. mi.									
d Briton Ferry (Brynsiriol).....	H. A. Clarke, Esq., C.E.	5	1	0	33	..	49·85	199	167
d Briton Ferry (Cefn Court).....	H. A. Clarke, Esq., C.E.	5	1	0	503	47·7	53·14	214	179



## DIVISION XI—MONMOUTH, WALES, AND THE ISLANDS—(con.).

STATIONS.	AUTHORITIES.	Diam.	Rain-gauge			1931.		
			Rim	Height of	Average	Rain-fall.	Days with	Days with
			above	Ground	Rain-fall.		·01 in.	·04 in.
			Ground.	above	Sea Level.		or	or
							more.	more.
GLAMORGAN—(con.).			in.	ft. in.	ft.	in.		
<b>4.—NEATH—(con.).</b>								
d Neath (Cimla Reservoir).....	H. A. Clarke, Esq., C.E.....	5	1 0	360	..	52·88	215	180
d Neath (Gnoll Reservoir).....	H. A. Clarke, Esq., C.E.....	5	1 0	204	52·1	53·59	213	178
d Neath (Farm School).....	A. L. Brackey, Esq.....	5	1 0	200	..	49·26	217	168
d Neath (Bryn-Teg).....	H. P. Lloyd, Esq.....	5	0 9	100	..	56·52	227	174
d Neath (Glynfelin).....	T. Gibbins, Esq.....	5	1 4	180	..	60·88	193	182
d Rhondda W.W. (Llyn Fawr Res.) (old)	J. B. Hughes, Esq.....	8	1 0	1220	88·6	90·49	234	195
d Rhondda W.W. (Llyn Fawr Res.) new g	J. B. Hughes, Esq.....	5	1 0	1220	..	91·78	234	195
Pontardawe (Plas Cilybebyll).....	J. H. P. Lloyd, Esq.....	5	1 3	500	..	67·82	..	..
<b>5.—OGMORE &amp; C. 350 sq. mi.</b>								
Barry W.W. (Merthyr Dyfan R.) ..	T. E. Franklin, Esq., C.E... 5		1 0	300	37·6	42·34	..	..
Lower Penarth.....	E. I. Evans, Esq., C.E..... 5		1 0	66	34·9	36·61	..	..
Penarth Cemetery.....	E. I. Evans, Esq., C.E..... 5		1 4	99	..	38·98	..	..
Penarth (Council Offices).....	E. I. Evans, Esq., C.E..... 5		5 0	160	37·1	39·35	181	143
d Dunraven Castle.....	J. P. Maitland, Esq..... 5		1 0	80	..	40·78	208	155
d Cardiff (Cogan Pumping Statn.) ..	N. J. Peters, Esq., C.E..... 5		1 0	121	37·7	43·84	196	150
d Cardiff (Ely Pumping Station) ..	N. J. Peters, Esq., C.E..... 5		1 0	53	42·1	41·12	241	150
d Fairwater (Glan Ely Hosp.) ..	Medical Superintendent... 8		1 0	122	..	44·40	..	156
Barry W.W. (Pencoedtre Res.) ..	T. E. Franklin, Esq., C.E... 5		1 0	200	..	39·41	..	..
d Cardiff (St. Fagans Castle) ..	Capt. H. A. Pettigrew..... 5		1 0	100	48·5	47·38	200	166
d Cowbridge (Pentre Meyrick) ..	F. E. P. Dunn, Esq..... 5		1 0	300	..	47·57	218	166
d Merthyr Mawr ..	Lt.-Col. J. I. D. Nicholl... 5		1 6	75	42·9	46·38	262	190
d Bridgend (Eiw Graig).....	H. J. Randall, Esq..... 8		1 6	50	..	45·63	214	169
d Bridgend (Waterworks).....	E. W. Davies, Esq..... 5		1 0	140	..	45·37	..	155
Pencoed (Glan Ffrwd).....	E. Tudor Owen, Esq..... 8		3 6	77	..	53·47	207	175
Pencoed (Brynna).....	E. W. Davies, Esq..... 12		2 6	172	..	49·89	..	..
d Pencoed (Heol-y-Cyw Sch.) ..	W. Morgan-Richards, Esq... 5		1 0	330	..	52·51	..	..
d Port Talbot (Twyn-yr-hydd) ..	E. N. David, Esq..... 5		1 3	180	42·6	48·50	223	167
d Port Talbot (Groeswen Ganol) ..	A. Bishop, Esq..... 8		1 0	51	40·3	45·15	216	166
d Maesteg (Isolation Hospital) ..	G. E. Howells, Esq..... 8		0 10	700	..	75·51	..	181
d Pontycymmer† ..	E. W. Davies, Esq..... 8		1 0	560	..	83·87	216	183
d Pontycymmer (Garw Sec. Sch.) ..	J. J. Morgan, Esq., .. 5		1 0	600	..	80·48	218	189
d Ogmores Vale ..	E. W. Davies, Esq..... 8		0 6	600	..	85·25	216	181
<b>6.—TAFF. 157 sq. mi.....</b>								
d Cardiff (Trade Street Depot) ..	N. J. Peters, Esq., C.E..... 5		1 0	45	39·5	42·78	198	151
d Llandaff (West Hill).....	J. E. Gladstone, Esq..... 5		1 0	110	42·2	46·94	221	170
d Rhubina Reservoir.....	N. J. Peters, Esq., C.E..... 5		1 0	336	48·1	48·86	207	172
d Pontypridd (Lan Wood R.) new s. H.	E. Maltby, Esq., C.E..... 5		1 6	300	..	59·85	212	184
Pontypridd (Llanfabon).....	H. E. Maltby, Esq., C.E... 5		2 3	600	..	64·10	..	..
d Ystradyfodwg (Tyntyla Hos.) ..	J. D. Jenkins, Esq., M.D... 5		1 0	590	60·1	58·49	210	174
d Treharris Service Reservoir.....	A. J. Marshall, Esq., C.E... 5		1 3	765	52·3	56·76	192	171
d Mountain Ash (Darranlas Res.) ..	W. G. Thomas, Esq., C.E... 5		0 11	540	63·0	65·32	218	176
d Mountain Ash (Maesydderwen) ..	W. N. Morgan, Esq..... 5		1 0	483	56·6	60·08	212	166
d Treherbert (Tyn-y-waun) old g. ...	O. Thomas, Esq..... 5		1 0	801	87·0	91·26	235	190
d  Treherbert (Tyn-y-waun) new g. ...	O. Thomas, Esq..... 5		1 0	801	..	91·40	235	194
d Cwmaman Colliery ..	The Agent..... 5		1 0	711	..	73·38	..	162
d Rhondda (Castell Nos. Res.) ..	H. E. Maltby, Esq., C.E... 5		1 6	1100	82·1	77·55	210	180
d Rhondda (Castell Nos. Res.) new g. H.	E. Maltby, Esq., C.E... 5		1 6	1060	..	(84·25)	(210)	(182)
d Rhondda (Lluest Wen Res.) ..	H. E. Maltby, Esq., C.E... 5		1 6	1280	89·0	93·48	210	192
d Merthyr Tydfil (Penybryn Filters) ..	A. J. Marshall, Esq., C.E... 5		1 3	937	54·0	60·12	255	193
d Dowlais (Gwernllwyn).....	C. C. Blower, Esq..... 5		1 6	1071	51·4	(52·17)	216	173
d Dowlais (Garth Filter Beds).....	A. C. Quiningborough, Esq.. 5		1 0	1245	..	57·53	244	189
<b>7.—RHYMNEY. 55 sq. mi.</b>								
d Cardiff (Roath Park).....	A. A. Pettigrew, Esq..... 5		0 11	49	41·6	43·83	209	156
d Cardiff (Penylan) (+A).....	Medical Officer of Health... 5		1 0	202	41·4	42·53	187	155
d Cardiff (Heath Filters).....	N. J. Peters, Esq., C.E..... 5		1 0	132	41·3	44·45	201	154
d Llanishen Reservoir.....	N. J. Peters, Esq., C.E..... 5		1 0	155	39·4	41·03	195	152
d Lisvane Reservoir.....	N. J. Peters, Esq., C.E..... 5		1 0	150	37·4	39·26	193	153
d Rhymney Bridge Reservoir.....	E. Watkin Edwards, Esq., C.E. 8		0 6	1150	56·8	65·24	247	200

† Station formerly called Pontycymmer (Police Station).

|| Turf wall round gauge.

§ Exposure unorthodox.

## DIVISION XI—MONMOUTH, WALES, AND THE ISLANDS—(con.).

		Rain-gauge					1931.		
STATIONS.	AUTHORITIES.	Diam.	Height of		Average	Rain-fall.	Rain-fall.	Days with .01 in. or more.	Days with .04 in. or more.
			Rim above Ground.	Ground above Sea Level.					
CARMARTHEN. (Area, 918 sq. mi.)		in.	ft.	in.	ft.	in.	in.		
1.—TEIFI. 87 sq. mi.									
2.—TOWY & C. 715 sq. mi.									
d Carmarthen (The Friary) . . . . .	Dr. L. M. Bowen-Jones. . . . .	5	1	5	62	48·3	52·55	239	163
d Carmarthen (Model & Prac. Sch.) . . . . .	C. W. Wilford, Esq. . . . .	5	1	5	65	..	54·65	201	153
d Llandilo (Dynevor Castle) . . . . .	Lord Dynevor. . . . .	8	1	4	202	53·2	52·40	249	190
d Llandilo (Bryneithen) . . . . .	H. L. Puxley, Esq. . . . .	5	1	0	400	49·8	53·15	234	188
w Llyn-y-fan Fach (Waen Sychlwch) . . . . .	Llanelly W.W. . . . .	5	1	0	1647	83·2	121·60	..	..
d Llyn-y-fan Fach (Nant Coch) . . . . .	Llanelly W.W. . . . .	5	1	0	1172	74·5	91·06	225	206
w Llyn-y-fan Fach (Bua'r Llyn) . . . . .	Llanelly W.W. . . . .	5	1	0	1650	..	126·69	..	..
d Llyn-y-fan Fach (Troed-y-Foel) . . . . .	Llanelly W.W. . . . .	5	1	0	867	..	74·85	227	196
d Llanddeusant (Pontcrynfe) . . . . .	J. Thomas, Esq. . . . .	5	1	0	323	55·6	57·36	238	187
d Abergorlech . . . . .	S. L. Davies, Esq. . . . .	5	1	0	250	..	59·49	206	174
d Llandovery (Nantyrhogfaen) . . . . .	D. T. M. Jones, Esq. . . . .	5	1	0	249	50·8	57·15	243	198
3.—LOUGHOR & C. 104 sq. mi.									
d Llanelly (Old Market Yard) . . . . .	Borough Surveyor. . . . .	5	12	0	35	44·6	56·20	220	181
d Llanelly (Filter Beds) . . . . .	Borough Surveyor. . . . .	5	1	0	237	45·1	58·95	219	183
d Llanelly (Cwmlliedi W.W.) <i>new g.</i> . . . . .	Borough Surveyor. . . . .	5	1	1	240	..	59·72	227	183
d Llanelly (Upper Lliedi Res.) <i>new g.</i> . . . . .	Borough Surveyor. . . . .	5	0	11	290	..	63·36	233	197
w Llannon Res. . . . .	Llanelly W.W. . . . .	5	1	0	860	..	64·88	..	..
4.—TAFE. 7 sq. mi.									
5. USK. 5 sq. mi.									
6.—WYE.									
PEMBROKE. (Area, 617 sq. mi.)									
1.—TEIFI. 37 sq. mi.									
2.—NEVERN & C. 91 sq. mi.									
3.—WEST COAST STREAMS. 82 sq. mi.									
4.—CLEDDAU & C. 407 sq. mi.									
d Pembroke (Stackpole Court) . . . . .	Mr. F. G. Garlick. . . . .	6	1	6	60	39·3	42·61	..	133
d Tenby (The Priory) . . . . .	G. P. Webb, Esq. . . . .	8	0	10	87	40·9	43·77	215	156
d St. Ann's Head . . . . .	The Meteorological Office . . . . .	8	1	0	142	35·3	33·22	196	147
d Pembroke Dock (County School) . . . . .	J. H. Garnett, Esq. . . . .	5	1	0	85	42·7	45·66	231	176
d Pembroke Dock (R.A.F.) . . . . .	Air Ministry . . . . .	8	1	0	90	..	43·32	209	167
d Milford Haven (Co. School) . . . . .	The Headmaster. . . . .	5	12	0	150	..	38·46	..	..
d Saundersfoot (Hean Castle) . . . . .	Lord Merthyr. . . . .	5	1	0	206	36·3	41·30	174	141
d Saundersfoot (Stepaside, Merryvale) . . . . .	J. C. Pickering, Esq. . . . .	5	0	10	105	..	44·47	196	159
d Narberth (Cwmderwen) . . . . .	Mrs. Allen. . . . .	5	1	0	300	..	50·69	224	170
d Haverfordwest (Picton Castle) . . . . .	Sir C. E. G. Philipps, Bt. . . . .	5	0	10	138	46·8	51·77	..	..
d Haverfordwest (Portfield) . . . . .	J. W. Phillips, Esq. . . . .	5	1	0	250	44·8	51·08	233	165
d Haverfordwest (Grammar Sch.) . . . . .	J. W. Phillips, Esq. . . . .	5	1	0	95	46·4	51·36	226	164
d Mynachlogddu (Cl. School) . . . . .	W. H. Parry, Esq. . . . .	5	1	4	630	..	65·16	..	..
d Fishguard (Langton, Dwrbach) . . . . .	The late J. C. Yorke, Esq. . . . .	5	1	0	320	45·4	46·34	256	196
CARDIGAN. (Area, 688 sq. mi.)									
1.—DOVEY. 20 sq. mi.									

## DIVISION XI—MONMOUTH, WALES, AND THE ISLANDS—(con.).

STATIONS.	AUTHORITIES.	Diam.	Rain-gauge			1931.		
			Height of		Average	Rain-fall.	Days with .01 in. or more.	Days with .04 in. or more.
			Rim above Ground.	Ground above Sea Level.	Rain-fall.			
		in.	ft. in.	ft.	in.	in.		
CARDIGAN—(con.).								
2.—YSTWYTH & C. 347 sq. mi.								
D Llanafan (Crosswood Park).....	The Earl of Lisburne.....	5	1 0	201	..	49·89	263	213
D Ysptyty-Ystwyth (Hafod).....	T. J. Waddingham, Esq....	5	1 3	580	56·4	63·75	276	218
D Aberystwyth (Corporation Yard)...	The Town Clerk.....	8	1 0	69	..	40·79	233	179
D Aberystwyth (North Parade).....	Dr. A. Thomas.....	8	2 6	16	..	40·67	231	182
D Aberystwyth (Plant Breeding Stn.)	Prof. R. G. Stapledon.....	5	1 0	450	..	45·50	254	188
D Elerch (Lletty-evan-hen).....	Prof. R. G. Stapledon.....	5	1 0	900	..	49·91	225	195
3.—TEIFI. 260 sq. mi.								
D Cardigan (County School).....	Dr. D. Rees.....	5	1 6	72	..	41·21	212	164
D Lampeter (Falcondale).....	Mr. A. R. Taylor.....	5	1 0	498	..	50·80	242	200
Ysptyty-Ystwyth (Dolgroes).....	R. Roberts, Esq., for M.O....	5	1 0	780	..	60·80	..	..
4.—TOWY. 46 sq. mi.								
d Abergwesyn (Nantneuadd).....	W. Roberts, Esq., for M.O....	5	1 0	1000	..	69·35	..	..
M Tregaron (Maes-y-bettws).....	T. Jones, Esq., for M.O....	5	1 0	910	..	(69·45)	..	..
5.—WYE. 15 sq. mi.								
M Birmingham W.W. (Llyn Gynon)...	J. W. Wilkinson, Esq., C.E. 5	1 0	1500	..	72·50	..	..	..
M Birmingham W.W. (Bwlchyrhendre)	J. W. Wilkinson, Esq., C.E. 5	1 0	1585	..	73·10	..	..	..
M Birmingham W.W. (Claerddu)....	J. W. Wilkinson, Esq., C.E. 5	1 0	1470	..	79·65	..	..	..
M Birmingham W.W. (Gwngu).....	J. W. Wilkinson, Esq., C.E. 5	1 0	1490	..	(72·55)	..	..	..
d Birmingham W.W. (Abergwngu)...	J. W. Wilkinson, Esq., C.E. 5	1 0	1150	..	69·25	..	198	..
M Plynlimon.....	J. Thomas, Esq., for M.O....	5	1 0	1630	108·0	113·50	..	..
BRECON. (Area, 733 sq. mi.)								
1.—TOWY. 17 sq. mi.								
2.—TAFE. 41 sq. mi.								
D Ystradgynlais (Yniscedwyn Ho.)...	G. Coleman, Esq.....	5	0 9	232	65·2	64·39	229	197
D Swansea W.W. (Nantyrwydd)....	Lt.-Col. F. Hibbert, C.E....	5	0 10	908	90·8	80·49	247	202
3.—NEATH. 48 sq. mi.								
D Ystradfellte Reservoir.....	D. M. Davies, Esq., C.E....	5	1 0	1147	85·4	78·79	227	187
4.—TAFF. 48 sq. mi.								
D Aberdare (Nanthir Reservoir).....	O. Williams, Esq., C.E....	5	1 0	860	59·6	64·05	236	182
D Taf Fechan (Pontsticill) No. 12....	A. C. Quiningborough, Esq..	5	1 0	1031	..	59·54	240	203
M Taf Fechan (Pontsticill West) 14...	A. C. Quiningborough, Esq..	5	1 0	1254	..	61·80	..	..
D Cardiff W.W. (Llwynon Res.).....	N. J. Peters, Esq., C.E....	5	1 0	860	..	63·93	237	188
D Cardiff W.W. (Pont-ar-daf).....	N. J. Peters, Esq., C.E....	5	1 0	850	64·8	65·34	239	184
w Cardiff W.W. (Garw-nant).....	N. J. Peters, Esq., C.E....	5	1 0	1100	67·1	70·18	..	..
w Cardiff W.W. (Nant-Gwineu).....	N. J. Peters, Esq., C.E....	5	1 0	1200	..	67·70	..	..
w Cardiff W.W. (Cefn Gougarn)†....	N. J. Peters, Esq., C.E....	5	1 0	1362	..	(75·85)	..	..
D Taf Fechan (Pentwyn Res. S.)....	A. C. Quiningborough, Esq..	5	1 0	1120	..	67·89	253	200
Taf Fechan (Pentwyn Res. N.)....	A. C. Quiningborough, Esq..	5	1 0	1090	..	65·67	..	..
w Cardiff W.W. (Nant Ddu).....	N. J. Peters, Esq., C.E....	5	1 0	1560	71·5	72·23	..	..
D Cardiff W.W. (Cantref R.) No. 2....	N. J. Peters, Esq., C.E....	5	1 0	1080	70·1	70·47	234	195
D Cardiff W.W. (Beacons Res.) No. 6...	N. J. Peters, Esq., C.E....	5	1 0	1340	79·4	78·22	246	210
w Cardiff W.W. (Nant Penig) No. 3....	N. J. Peters, Esq., C.E....	5	1 0	2000	87·5	90·26	..	..
w Cardiff W.W. (Blaen Taf Fawr) new g	N. J. Peters, Esq., C.E....	5	1 0	1430	..	87·52	..	..

† Gauge moved from Nant-y-gou garn, June 1st, 1931.

## DIVISION XI—MONMOUTH, WALES, AND THE ISLANDS—(con.).

STATIONS.	AUTHORITIES.	Diam.	Rain-gauge			1931.			
			Height of		Average Rain-fall.	Rain-fall.	Days with .01 in. or more.	Days with .04 in. or more.	
			Rim above Ground.	Ground above Sea Level.					
BRECON—(con.).			in.	ft. in.	ft.	in.	in.		
4.—TAFF—(con.).									
D Taf Fechan (Neuadd Rs.) No. 1...A. C. Quiningborough, Esq..	5	1 0	1462	70.3	76.88	257	214		
D Taf Fechan (Neuadd Rs.) No. 1A...A. C. Quiningborough, Esq..	5	1 0	1423	..	84.68	257	216		
D Taf Fechan (Neuadd Rs.) No. 4...A. C. Quiningborough, Esq..	5	1 0	1487	82.7	83.61	257	217		
D Taf Fechan (Neuadd Rs.) No. 11...A. C. Quiningborough, Esq..	5	1 0	1524	68.3	77.91	257	213		
D Taf Fechan (Neuadd Rs.) No. 11A...A. C. Quiningborough, Esq..	5	1 0	1520	..	82.81	257	216		
M Taf Fechan (Neuadd Rs.) No. 2...A. C. Quiningborough, Esq..	5	1 0	1993	72.7	74.20	..	..		
M Taf Fechan (Neuadd Rs.) No. 5...A. C. Quiningborough, Esq..	5	1 0	1515	81.1	81.27	..	..		
M Taf Fechan (Neuadd Rs.) No. 10...A. C. Quiningborough, Esq..	5	1 0	1700	72.7	80.27	..	..		
M Taf Fechan (Neuadd Rs.) No. 3...A. C. Quiningborough, Esq..	5	1 0	1843	60.6	83.70	..	..		
M Taf Fechan (Neuadd Rs.) No. 7...A. C. Quiningborough, Esq..	5	1 0	2017	81.1	95.77	..	..		
M Taf Fechan (Neuadd Rs.) No. 8...A. C. Quiningborough, Esq..	5	1 0	1723	85.7	89.68	..	..		
M Taf Fechan (Neuadd Rs.) No. 8A...A. C. Quiningborough, Esq..	5	1 0	1780	..	83.68	..	..		
M Taf Fechan (Neuadd Rs.) No. 6...A. C. Quiningborough, Esq..	5	1 0	2099	92.4	97.28	..	..		
5.—RHYMNEY. 2 sq. mi.									
6.—EBBW. 7 sq. mi.									
D Ebbw Vale W.W. (Llangynidr) 1...P. I. Davies, Esq., C.E.....	5	1 0	1413	58.8	65.72	202	193		
D Ebbw V. W.W. (Llangynidr) W 3...P. I. Davies, Esq., C.E.....	5	1 0	1468	..	66.59	202	193		
D Ebbw V.N.W.2 (Llangynidr) NW2...P. I. Davies, Esq., C.E.....	5	1 0	1471	..	65.94	202	191		
D Ebbw Vale W.W. (Carno, S.)...P. I. Davies, Esq., C.E.....	5	1 0	1262	..	65.21	202	193		
D Ebbw Vale W.W. (Carno, E.)...P. I. Davies, Esq., C.E.....	5	1 0	1391	..	64.02	202	192		
D Ebbw Vale W.W. (Carno, W.)...P. I. Davies, Esq., C.E.....	5	1 0	1412	..	67.10	202	194		
D Ebbw Vale W.W. (Carno, N.)...P. I. Davies, Esq., C.E.....	5	1 0	1491	..	63.70	202	192		
7.—USK. 299 sq. mi.									
Torpantau (Darenfawr).....Newport Corporation.....	5	1 0	1172	..	67.76	..	..		
Torpantau (Ynysposte).....Newport Corporation.....	5	1 0	741	..	61.15	..	..		
Torpantau (Blaen-caer-fanell).....Newport Corporation.....	5	1 0	1584	..	72.31	..	..		
D Talybont (Ffynonwen).....Newport Corporation.....	5	1 0	610	..	61.96	225	177		
Talybont (Pwll Ifor).....Newport Corporation.....	5	1 0	1224	..	62.75	..	..		
D Talybont (Aberclydach).....G. Garnons Williams, Esq..	8	0 9	520	..	49.56	192	156		
D Crickhowell Rectory.....Rev. G. Roberts.....	5	1 0	320	..	45.22	176	149		
D Crickhowell (Gwernvale).....E. Pirie Gordon, Esq.....	5	1 0	393	41.5	44.16	239	160		
D Crickhowell (Glanusk Park).....Lord Glanusk.....	5	1 0	290	..	44.11	210	162		
M Swansea W.W. (Cray Rs.) No. 2...Lt.-Col. F. Hibbert, C.E....	5	1 0	1019	..	88.24	..	..		
D Swansea W.W. (Cray Rs.) No.1 (+A) Lt.-Col. F. Hibbert, C.E....	5	1 0	1043	..	73.21	240	190		
M Cray Post Office.....J. A. Jones, Esq., for M.O....	5	1 0	930	..	74.25	..	..		
D Talybont (Ashford).....J. Henderson, Esq.....	5	1 0	360	..	45.59	178	149		
M Talybont (Cwy Parc).....Rev. D. W. G. Bartlett....	5	1 6	480	..	39.35	..	..		
D Llanfrynach (Ty-mawr).....Miss M. D. de Winton.....	5	1 0	450	..	40.42	198	158		
D Crickhowell (Dan-y-Parc).....R. G. C. C. Sandeman, Esq..	8	1 0	230	..	44.33	209	147		
D Crickhowell (Cwmdu Rectory).....Rev. W. A. Davies.....	5	1 0	430	..	33.36	..	..		
d Treacastle (Blaenau-hydyfer).....Mrs. Morgan, for M.O.....	5	1 0	970	..	78.47	..	162		
D Brecon (Tairbull School).....I. L. Price, Esq.....	5	1 0	660	52.0	53.83	238	193		
D Brecon (Ffrwdgrech).....Capt. J. D. D. Evans.....	8	1 1	570	..	46.68	190	166		
d Brecon (Mount St. Sch. Gdns.).....The Headmaster.....	5	0 11	500	..	44.94	..	..		
d Battle (Penoyre).....G. E. Weekes, Esq.....	5	1 0	830	..	45.47	233	189		
D Black Mountains (Blaen-y-cwm).....J. F. Jupp, Esq., C.E.....	5	1 0	1423	..	61.43	218	184		
D Black M. (Dam Site Grwyne Fawr).....J. F. Jupp, Esq., C.E.....	5	1 0	1620	..	64.27	216	194		
M Upper Chapel (Tymawr).....Mrs. Probert.....	5	1 0	945	46.9	(50.30)	..	..		

## DIVISION XI—MONMOUTH, WALES, AND THE ISLANDS—(con.).

STATIONS.	AUTHORITIES.	Diam.	Rain-gauge			1931.		
			Height of		Average	Rain-fall.	Days with	Days with
			Rim	Ground	Rain-fall.		·01 in. or more.	·04 in. or more.
			above Ground.	above Sea Level.				
BRECON—(con.).			<i>in.</i>	<i>ft. in.</i>	<i>ft.</i>	<i>in.</i>		
8.—WYE. 271 sq. mi.								
D Cathedine Rectory.....	D. H. Picton, Esq., for M.O..	5	1 6	650	..	32·06	181	138
d Talgarth (Arfryn)†.....	F. Morgan, Esq.....	5	1 0	450	33·2	31·37	..	..
D Talgarth (Pontiwal Sanatorium).....	Dr. H. E. Watson.....	5	0 10	500	..	37·38	238	174
D Glasbury (Gwernyfed Park).....	H. H. Miller, Esq.....	5	1 0	375	31·5	32·43	177	135
M Abergwesyn (Trallwn).....	J. Felix, Esq., for M.O....	5	1 0	1000	..	80·10	..	..
M Newbridge (Pengraig).....	Miss A. Williams, for M.O..	5	1 0	960	56·8	61·90	..	..
D Newbridge (Llysdinam).....	Sir C. Venables Llewelyn, Bt.	5	1 3	646	41·2	46·25	220	173
M Birmingham W.W. (Cors-yr-hwch).....	J. W. Wilkinson, Esq., C.E..	5	1 0	1775	..	93·28	..	..
M Birmingham W.W. (Esgair Ceiliog).....	J. W. Wilkinson, Esq., C.E..	5	1 0	1560	..	(82·45)	..	..
M Birmingham W.W. (Llyn-Carw).....	J. W. Wilkinson, Esq., C.E..	5	1 0	1775	..	85·46	..	..
M Birmingham W.W. (Nant-y-car).....	J. W. Wilkinson, Esq., C.E..	5	1 0	1545	..	82·24	..	..
M Birmingham W.W. (Arban).....	J. W. Wilkinson, Esq., C.E..	5	1 0	1500	..	(82·05)	..	..
M Birmingham W.W. (Tyn-y-pant).....	J. W. Wilkinson, Esq., C.E..	5	1 0	1320	63·2	(64·56)	..	..
M Birmingham W.W. (Esgair Garthen).....	J. W. Wilkinson, Esq., C.E..	5	1 0	1590	..	(85·70)	..	..
D Birmingham W.W. (Elan Village).....	J. W. Wilkinson, Esq., C.E..	5	1 0	700	..	57·87	232	197
RADNOR. (Area, 474 sq. mi.)								
1.—WYE. 424 sq. mi.								
D Glasbury-on-Wye (Hampton Sc.).....	D. W. Lloyd, Esq.....	5	1 0	274	33·9	31·64	180	136
D Builth (Cefndyrys).....	Capt. E. A. Thomas.....	5	1 10	740	41·5	43·99	205	197
M New Radnor (Gryliss).....	H. Langston, Esq.....	5	1 0	1200	..	47·70	..	..
d New Radnor (Harpton Crt. Gdns.).....	Mr. C. W. Bowen.....	5	0 9	700	..	46·62	..	..
New Radnor.....	John Langston, Esq.....	5	1 0	750	44·1	47·70	249	..
D Llandrindod Wells.....	Rev. J. L. Herbert.....	5	1 0	712	39·3	47·56	226	185
D Birmingham W.W. (Tyrmynydd).....	J. W. Wilkinson, Esq., C.E..	5	1 0	832	62·1	63·79	244	198
D Birmingham W.W. (Nantgwillt).....	J. W. Wilkinson, Esq., C.E..	5	1 0	840	63·2	63·68	245	199
M Birmingham W.W. (Dwfnant).....	J. W. Wilkinson, Esq., C.E..	5	1 0	1050	67·8	68·90	..	..
M Birmingham W.W. (Esgair Gader).....	J. W. Wilkinson, Esq., C.E..	5	1 0	1500	68·9	(77·85)	..	..
M Birmingham W.W. (Tynllidiart).....	J. W. Wilkinson, Esq., C.E..	5	1 0	1006	..	67·85	..	..
d Birmingham W.W. (Claerwen).....	J. W. Wilkinson, Esq., C.E..	5	1 0	1250	65·2	69·85	..	194
D Birmingham W.W. (Tynant).....	J. W. Wilkinson, Esq., C.E..	5	1 0	1020	63·6	68·06	243	199
D Rhayader (Penrally).....	E. D. Prothero, Esq.....	5	1 0	757	50·6	48·31	254	178
Rhayader (East Street).....	R. Ashton, Esq.....	5	1 0	700	..	50·35	..	..
M Birmingham W.W. (Cerigllwydion).....	J. W. Wilkinson, Esq., C.E..	5	1 0	1710	74·8	(80·20)	..	..
M Birmingham W.W. (Pen-y-gareg).....	J. W. Wilkinson, Esq., C.E..	5	1 0	1500	55·2	55·60	..	..
M Birmingham W.W. (Pen-y-gareg)2.....	J. W. Wilkinson, Esq., C.E..	5	1 0	1540	43·9	57·05	..	..
M Birmingham W.W. (Bryn Hir).....	J. W. Wilkinson, Esq., C.E..	5	1 0	1470	..	(81·25)	..	..
M Birmingham W.W. (Abercaethon).....	J. W. Wilkinson, Esq., C.E..	5	1 0	1240	..	69·70	..	..
M Birmingham W.W. (Calettwr).....	J. W. Wilkinson, Esq., C.E..	5	1 0	1490	71·1	80·00	..	..
M Birmingham W.W. (Figin) No. 2.....	J. W. Wilkinson, Esq., C.E..	5	1 0	1700	83·3	91·65	..	..
M Birmingham W.W. (Aberhenllan).....	J. W. Wilkinson, Esq., C.E..	5	1 0	1070	58·8	67·25	..	..
M Llanbister (Llananno).....	Mrs. A. Jones, for M.O....	5	1 0	900	45·1	51·10	..	..
2.—SEVERN—Right Bank Tributaries. 50 sq. mi.								
MONTGOMERY. (Area, 797 sq. mi.)								
1.—DOVEY. 120 sq. mi.								
2.—YSTWYTH. 7 sq. mi.								
3.—WYE. 37 sq. mi.								
D Llangurig (Dernol).....	E. Price, Esq., for M.O....	5	1 0	870	61·5	57·23	213	204
4.—SEVERN—Right Bank Tributaries. 154 sq. mi.								
D Llanidloes (Llidiartywaen Sch.).....	G. E. Edwards, Esq.....	5	1 3	1150	..	44·91	243	172
d Llandinam (Broneirion).....	D. Humphreys, Esq.....	5	1 3	450	..	39·04	..	..
d Newtown (Penarth Weir).....	Canal Engr., L M & S Rly...	8	1 0	321	35·0	41·29	..	..
D Montgomery (Oakfield).....	Dr. R. E. Game Phillips.....	5	1 0	450	..	35·16	202	156

† Station formerly called Talgarth (Dan-y-garth).

## DIVISION XI—MONMOUTH, WALES, AND THE ISLANDS—(con.).

STATIONS.	AUTHORITIES.	Diam.	Rain-gauge			Average Rain-fall.	1931.			
			Height of Rim above Ground.	Ground above Sea Level.	Rain-fall.		Rain-fall.	Days with .01 in. or more.	Days with .04 in. or more.	
MONTGOMERY—(con.).			in.	ft.	in.	ft.	in.	in.		
5. SEVERN—Left Bank Tributaries. 479 sq. mi.										
d Trefeglwys	Hugh Pugh, Esq., for M.O.	5	1	0	350	..	40.06	197	164	
d Berriew (Brithdir Hall)	Mrs. F. E. Marston	5	1	0	350	30.7	34.85	254	137	
d Welshpool (County School)	John Ward, Esq.	5	1	0	254	30.1	34.35	189	155	
d Welshpool (Fron Llwyd)	Col. G. B. D. Harrison	5	1	3	500	33.7	36.82	207	153	
d Garthbibio (Bwlch Tomlyd)	J. R. Jones, Esq., for M.O.	5	1	0	1200	71.0	75.05	..	..	
d Llandysilio Rectory	Rev. H. G. Dickinson	5	1	6	250	..	31.62	174	136	
d Lake Vyrnwy	J. E. Bradley, Esq.	5	0	7	770	54.0	62.17	205	196	
d Lake Vyrnwy (Bryn Gwyn)	Col. J. R. Davidson, C.E.	8	1	0	1311	..	61.88	..	..	
d Lake Vyrnwy (Bank Cynon Isaf)	Col. J. R. Davidson, C.E.	8	1	0	750	55.3	56.05	223	178	
d Lake Vyrnwy (Ty Uchaf)	Col. J. R. Davidson, C.E.	8	1	0	860	..	61.21	..	..	
d Lake Vyrnwy (Heol-y-ffridd) 1	Col. J. R. Davidson, C.E.	8	1	0	913	..	73.00	..	..	
d Lake Vyrnwy (Heol-y-ffridd) 2	Col. J. R. Davidson, C.E.	8	1	0	830	..	71.08	..	..	
d Lake Vyrnwy (Tyn-y-ffridd)	Col. J. R. Davidson, C.E.	8	1	0	1010	..	59.29	..	..	
d Lake Vyrnwy (Lluestwen)	Col. J. R. Davidson, C.E.	8	1	0	1667	..	74.40	..	..	
d Lake Vyrnwy (Llwynrhiw)	Col. J. R. Davidson, C.E.	8	1	0	1428	..	83.83	..	..	
d Lake Vyrnwy (Craig-y-Gribin)	Col. J. R. Davidson, C.E.	8	1	0	1422	..	74.59	..	..	
d Lake Vyrnwy (Eunant Bridge)	Col. J. R. Davidson, C.E.	8	1	0	830	..	90.41	..	..	
d Lake Vyrnwy (Carreg Goch)	Col. J. R. Davidson, C.E.	8	1	0	1750	..	70.88	..	..	
d Lake Vyrnwy (Fawnog)	Col. J. R. Davidson, C.E.	8	1	0	1315	55.7	64.25	..	..	
FLINT. (Area, 256 sq. mi.)										
1.—DEE. 198 sq. mi.										
d Hanmer (Gredington)	Lady Kenyon	5	1	0	300	30.4	34.34	176	155	
d Overton (Fairleigh)	Dr. B. J. E. Wright	5	1	0	220	26.8	35.81	214	151	
w Buckley (Hawarden W.W.)	W. Simmons, Esq.	5	1	0	540	28.7	38.00	..	..	
d Hawarden (County School)	C. F. Williams, Esq.	5	0	9	257	27.2	34.58	178	145	
d Mold (Alun County School)	The Headmaster	5	1	0	365	..	38.31	204	156	
d Mold (Mount Pleasant)	R. F. Baker, Esq., C.E.	5	1	0	503	..	38.51	242	158	
d Cilcain (No. 2 Reservoir) old g.	W. Simmonds, Esq.	5	1	0	785	..	42.72	230	173	
w Cilcain (No. 4 Reservoir) new g.	W. Simmonds, Esq.	5	1	0	900	..	45.53	..	..	
d Northop (Soughton Hall)	Sir John Bankes	5	1	0	418	32.1	39.76	194	161	
d Cilcain (Cilcen Hall)	W. B. Yates, Esq., C.B.E.	5	1	0	650	29.7	37.25	204	159	
d Connah's Quay (Mold Road)	R. F. Baker, Esq., C.E.	5	1	0	43	..	34.92	209	153	
d Connah's Quay (Pengwladys)	R. F. Baker, Esq., C.E.	5	1	0	231	..	35.63	203	160	
d Hawarden Bridge	Messrs. J. Summers & Sons.	8	1	3	20	24.3	32.60	190	141	
d Sealand Aerodrome	(+A) The Meteorological Office.	8	1	0	16	26.0	32.93	188	140	
2.—CLWYD. 51 sq. mi.										
d Bodfari (Nantlys)	D. F. Pennant, Esq., D.L.	5	1	5	178	27.4	33.83	185	149	
d St. Asaph (St. Beuno's Coll.)	The Procurator	5	1	0	479	..	33.82	202	147	
d Dyserth Castle	J. B. Price, Esq.	5	1	0	350	..	27.66?	..	..	
d Rhyl (Sewage Works)	The Town Clerk	8	1	0	30	25.8	27.85	197	130	
d Prestatyn	Town Clerk	5	1	0	52	..	28.87	187	134	
3.—SEVERN—Left Bank Tributaries. 7 sq. mi.										
DENBIGH. (Area, 668 sq. mi.)										
1.—DEE. 278 sq. mi.										
Glynceiriog (Plas Nantyr)	C. B. C. Storey, Esq.	6	1	0	1450	..	58.24	..	..	
d Chirk Castle Gardens	Lord Howard de Walden	5	1	0	630	..	42.21	180	153	
d Llangollen (Vivod)	Capt. W. Best	5	2	6	640	..	42.84	209	158	
d Ruabon (Trevor Hall)	E. Lloyd Edwards, Esq.	5	1	0	500	30.9	43.50	183	162	
d Wrexham W. W. (Ty Mawr Res.)	J. A. Davies, Esq.	5	0	9	805	39.1	47.72	(231)	(176)	
d Wrexham W.W. (Pack Saddle Res.)	J. A. Davies, Esq.	5	0	9	376	32.0	42.40	232	172	
d Wrexham W.W. (Cae Llwyd Res.)	J. A. Davies, Esq.	8	0	9	918	41.1	47.18	(231)	(176)	
d Wrexham W.W. (Cae Llwyd Res.)	J. A. Davies, Esq.	5	0	9	918	40.5	47.12	(231)	(174)	

§ Gauge somewhat over-sheltered.

## DIVISION XI—MONMOUTH, WALES, AND THE ISLANDS—(con.).

		Rain-gauge					1931.		
STATIONS.	AUTHORITIES.	Diam.	Height of		Average Rain-fall.	Rain-fall.	Days with ·01 in. or more.	Days with ·04 in. or more.	
			Rim above Ground.	Sea Level.					
DENBIGH—(con.)									
		in.	ft.	in.	ft.	in.	in.		
1.—DEE—(con.)									
D Wrexham (Beechley Road).....	O. L. Jones, Esq.....	2	1	0	278	..	42·56	170 152	
Wrexham (Madeira Hill).....	O. L. Jones, Esq.....	5	1	0	281	..	40·55	.. ..	
D Llanfihangel-glyn-myfyr.....	R. F. Baker, Esq., C.E.....	5	1	0	898	..	54·15	186 177	
D R. Alwen (Alwen Filter House)....	R. F. Baker, Esq., C.E.....	5	1	0	1100	..	56·90	243 199	
D R. Alwen (Alwen Dam).....	R. F. Baker, Esq., C.E.....	5	1	0	1189	..	59·35	247 204	
D R. Alwen (Hafod-llan-isaf) No. 2..	R. F. Baker, Esq., C.E.....	5	1	0	1172	39·2	51·28	245 194	
D R. Alwen (Hafod-llan-isaf) No. 3..	R. F. Baker, Esq., C.E.....	5	1	0	1169	36·8	52·79	243 199	
Pentre Voelas (Nant Heilyn).....	R. F. Baker, Esq., C.E.....	5	1	0	1225	..	59·31	.. ..	
D R. Brenig (Hafod-yr-Onen).....	R. F. Baker, Esq., C.E.....	5	1	0	1175	..	49·72	212 181	
M Nantglyn (Pant-y-maen).....	R. F. Baker, Esq., C.E.....	8	1	0	1320	..	60·28	.. ..	
M Llyn Bran.....	R. F. Baker, Esq., C.E.....	8	1	0	1428	..	63·11	.. ..	
2.—CLWYD & C. 267 sq. mi.									
Derwen (Ty Cerrig).....	Edgar Billson, Esq.....	5	1	0	1030	..	48·60	.. ..	
D Pentre Celyn (Council School)....	E. E. Davies, Esq.....	5	1	3	400	..	37·24	191 160	
d Clawdd-newydd No. 2.....	R. F. Baker, Esq., C.E.....	5	1	0	983	..	47·79	.. ..	
Ruthin (Corwen Road).....	R. F. Baker, Esq., C.E.....	5	1	0	234	..	36·27	.. ..	
D Ruthin (Bwlch Tunnel).....	R. F. Baker, Esq., C.E.....	5	1	0	908	..	42·05	238 186	
D Llangynhafal (Plas Draw).....	Major R. Bromhead.....	5	1	0	419	31·1	40·61	235 162	
d Gwytherin Council School.....	C. E. Jones, Esq.....	5	1	1	730	50·1	52·22	.. ..	
D Denbigh (Mental Hospital).....	W. Barker, Esq.....	4	1	0	316	..	38·62	213 157	
D Denbigh (Garn).....	J. D. W. Griffith, Esq.....	5	1	0	447	32·7	37·44	220 166	
d Trefnant School.....	The Head Teacher.....	5	1	0	300	..	33·95	.. ..	
M Llanefydd (Dolwen Res., S.).....	O. P. Cronshaw, Esq.....	5	1	0	600	..	39·40	.. ..	
M Llanefydd (East).....	O. P. Cronshaw, Esq.....	5	1	0	570	..	37·71	.. ..	
D Llanefydd (Plas Uchaf Res.).....	O. P. Cronshaw, Esq.....	5	1	0	485	..	38·48	233 157	
D Llanefydd (Glascoed Res.).....	O. P. Cronshaw, Esq.....	5	1	0	360	..	32·10	208 148	
St. Asaph (Wigfair).....	(R.) Col. H. C. Ll. Howard, C.M.G.	8	2	4	25	..	24·53	.. ..	
D Abergele (Sea Road).....	Sydney Wilson, Esq.....	5	1	0	250	28·4	30·67	188 137	
D Colwyn Bay (Eirias Park).....	The Borough Surveyor.....	5	1	0	81	..	36·24	210 153	
3.—CONWAY—4 sq. mi.									
D Pentre Voelas (Voelas Hall).....	Mr. T. N. Dickie.....	5	1	3	640	..	57·79	231 190	
D Bettws-y-Coed (Rhydycrena).....	Mrs. G. Bovill.....	5	1	0	50	..	54·97	234 183	
4.—SEVERN—Left Bank Tributaries. 47 sq. mi.									
D Llansilin (Penygwely Res.).....	G. W. Lacey, Esq., C.E.....	5	1	0	1095	..	45·08	212 168	
MERIONETH. (Area, 661 sq. mi.)									
1.—DEE. 218 sq. mi.									
D Llanuwchllyn.....	O. L. Jones Esq.....	5	1	0	550	..	65·41	225 195	
D Bala (Eryl Aran).....	Mrs. Burton.....	8	1	0	600	54·6	63·50	219 192	
D Llanderfel (Pale Gardens).....	Mr. E. Sturgess.....	8	1	0	606	48·2	51·55	193 170	
Trawsfynydd (Cwm Prysor).....	N. Wales Power Co., Ltd....	5	1	3	1300	..	95·80	.. ..	
D Corwen (Rûg Gardens).....	Col. R. Vaughan Wynn.....	8	1	2	600	36·2	39·32	194 159	
w Derwen (Minfordd).....	R. F. Baker, Esq., C.E.....	5	1	0	971	..	47·68	.. ..	
2.—CLWYD. 7 sq. mi.									
3.—GLASLYN. 92 sq. mi.									
Trawsfynydd (Tyn Twll).....	N. Wales Power Co., Ltd....	5	1	3	750	..	89·05	.. ..	
D Minfordd (Hafod-Cae-Maen).....	G. H. C. Haigh, Esq.....	5	1	0	100	50·5	59·64	249 201	
D Tan-y-bwlch (Plas Gardens).....	Mr. F. W. Dawe.....	5	1	0	55	..	72·90	239 196	
D Tan-y-bwlch (Dol-y-Moch).....	Mrs. Howland Jackson.....	5	1	0	55	..	75·48	227 209	
D Festiniog (Hafod Fawr).....	Forestry Commission.....	8	1	0	900	74·6	85·89	221 202	
d Blaenau Festiniog (Oakeley Q.)....	J. Lloyd Humphreys, Esq....	5	1	0	1100	97·1	113·55	(230) (221)	
d Blaenau Festiniog (Llechwedd Q.)..	Messrs. J. W. Greaves & Sons	5	1	0	700	..	120·70	276 244	

## DIVISION XI—MONMOUTH, WALES, AND THE ISLANDS—(con.).

		Rain-gauge			1931.			
STATIONS.	AUTHORITIES.	Diam.	Height of		Average Rain-fall.	Rain-fall.	Days with ·01 in. or more.	Days with ·04 in. or more.
			Rim above Ground.	Ground above Sea Level.				
MERIONETH—(con.).		in.	ft.	in.	ft.	in.	in.	
4.—MAWDDACH & C. 262 sq. mi.								
D Towyn (Ynys-y-Maengwyn).....	R. Corbett, Esq.....	5	1	0	14	..	50·14	220 184
D Towyn (Bronffynnon) <i>new g.</i> .....	Dr. T. Henry Jones.....	5	1	0	180	..	51·01	235 187
D Towyn (Peniarth).....	Mrs. Wynne.....	8	1	0	25	..	61·64	226 216
D Tal-y-llyn Rectory.....	Rev. J. Pryce Jones.....	5	1	0	280	..	82·35	228 196
D Dolgelly (Dol'rhyd).....	Col. P. H. Enthoven, D.L....	5	1	0	150	..	70·01	235 210
D Dolgelly (Bryntirion).....	E. P. Beale, Esq.....	5	0	10	50	58·8	75·09	241 210
D Trawsfynydd Camp.....	E. Jones, Esq.....	5	1	0	800	67·0	76·93	216 202
5.—DOVEY. 82 sq. mi.								
D Aberdovey (Plas Penhelig).....	J. M. Howell, Esq., D.L....	5	1	0	120	..	48·49	225 198
D Llwyn-Celyn .....	Lt.-Col. M. V. O. P. Trench.	5	7	3	30	..	63·23	237 197
D Pennal (Talgarth Hall) .....	Owen D. Jones, Esq.....	5	0	9	125	..	68·28	239 199
6.—SEVERN—Left Bank Tributaries.								
CARNARVON. (Area, 572 sq. mi.)								
1.—BARDSEY ISLAND.								
2.—CONWAY & C. 146 sq. mi.								
Lake Cowlyd (Llethyr Gwyn) c....	C. F. Farrington, Esq., C.E..	5	1	0	1700	..	103·83	205 ..
L. Cowlyd (Ffrith Carreg Wen) AC.	F. Farrington, Esq., C.E....	5	1	0	1168	..	96·60	205 ..
D Trefriw Wells.....	C. P. Adamson, Esq.....	5	1	0	25	..	58·68	(198) (165)
D Lake Eigiau (Dam Site).....	(+A) N. Wales Power Co., Ltd..	5	1	5	1244	83·9	89·98	251 209
D Llanbedr-y-Cennin (Melynlllyn)...	W. T. Ward, Esq., C.E....	5	1	0	2065	..	142·67	.. ..
Llanbedr-y-Cennin (Llyndulyn) <i>old g.</i>	W. T. Ward, Esq., C.E....	8	1	6	1632	93·6	113·34	.. ..
Llanbedr-y-Cennin (Llyndulyn) <i>new g.</i>	W. T. Ward, Esq., C.E....	8	1	6	1632	..	124·45	.. ..
W Llanbedr-y-Cennin (Plasdulyn)...	W. T. Ward, Esq., C.E....	8	1	0	509	..	64·91	.. ..
D Tyn-y-Groes (Dolcrwm).....	R. S. Fisher, Esq.....	5	1	0	100	..	52·22	208 165
D Tyn-y-Groes (Roe Wen).....	Albert Wilson, Esq.....	5	1	0	140	..	52·86	233 172
D Conway (Mussel Tks.).....	Ministry of Agric. & Fisheries	5	1	0	50	..	33·63	185 138
Deganwy (Y Berlfa).....	Willoughby Gardner, Esq... 5	1	0	35	..	34·48	.. ..	
D Llandudno (Glanwydden School)...	Thomas Roberts, Esq.....	5	2	0	28	28·7	34·97	.. ..
D Llandudno.....	E. R. Williams, Esq.....	5	1	0	22	30·0	30·33	196 142
3.—MENAI STRAITS. 221 sq. mi.								
D Edeyrn Tydweiliog (Cefnamwlch)...	W. H. Stark, Esq.....	5	1	0	300	..	49·81	213 172
D Madryn Castle (Farm School)...	J. Hines, Esq.....	5	1	0	278	39·0	49·58	229 194
D Llanaelhaearn (Cl. School).....	J. Hughes, Esq.....	5	1	0	300	51·6	57·53	.. ..
Nantlle (Dorothea Quarries).....	W. J. Griffith, Esq.....	8	50	0	350	..	66·66	.. ..
Llandwrog (Glynllivon Park) .....	The Late Hon. F. G. Wynn.	5	1	0	100	44·7	50·77	.. ..
D Llandwrog (Glynllivon Nursery)...	The Late Hon. F. G. Wynn.	5	1	0	180	..	53·46	228 183
Llandwrog (Glynllivon Garden)...	The Late Hon. F. G. Wynn.	5	1	0	100	..	53·20	242 193
Llandwrog (Glynllivon Fort).....	The Late Hon. F. G. Wynn.	5	1	0	180	..	53·16	226 183
D Bettws Garmon.....	Rev. T. C. V. Bastow.....	5	1	0	414	64·4	(72·46)	(225) (193)
M Lake Ogwen.....	R. Hughes, Esq.....	5	1	0	1006	..	112·73	.. ..
Carnarvon (Belan Fort).....								
D Llanbeblig (Cefn Rhos).....	Miss A. Preece .....	8	1	0	..	..	48·67	242 192
D Llanberis (Llandinorwig School)...	John Roberts, Esq.....	5	0	10	850	59·4	74·14	.. ..
D Bethesda (St. Ann's Vicarage)...	Rev. Canon W. Morgan....	5	1	6	500	59·8	64·47	260 204
D Bethesda (Penrhyn Quarries) .....	A. H. Richards, Esq.....	8	1	0	527	65·8	71·65	234 205
D Bangor (Town Hall).....	Water Engineer & Surveyor.	8	1	6	50	..	43·85	.. 192
D Bangor (Penrhyn Castle Gdns.)...	Mr. J. Kneller.....	5	1	0	150	..	38·66	231 186
D Aber (University Coll. Farm).....	Prof. R. G. White .....	5	1	0	60	..	41·51	219 170
D Llanfairfechan (Cae Cawr).....	W. Timmins, Esq.....	5	1	0	400	..	38·45	201 160
Penmaenmawr (Mountain).....	J. Parry Hughes, Esq.....	5	1	6	1100	..	44·26	.. ..



## DIVISION XI—MONMOUTH, WALES, AND THE ISLANDS—(con.).

STATIONS.	AUTHORITIES.	Diam.	Rain-gauge			Average Rain-fall.	1931.		
			Height of Rim above Ground.	Height of Ground above Sea Level.			Rain-fall.	Days with .01 in. or more.	Days with .04 in. or more.
CARNARVON—(con).			ins.	ft. ins.	ft.	ins.	in.		
4.—ERCH & C. 155 sq. mi.									
D Pwllheli (Talcymerau Bach).....	B. V. Howell, Esq.....	8	1	0	9	..	41.55	221	159
D Pwllheli (Bodfean Hall).....	The Late Hon. F. G. Wynn. 5	1	0	155	43.7	..	49.55	..	..
D Pwllheli (Bodfean Hall Gdns.)....	The Late Hon. F. G. Wynn. 5	3	9	155	43.2	..	49.17	203	182
D Criccieth (Bron Eifion).....	J. E. Greaves, Esq.....	5	1	0	100	..	(54.33)	..	..
5.—GLASLYN 50 sq. mi.									
D Portmadoc (Wern).....	R. M. Greaves, Esq.....	5	1	0	90	..	61.62	242	196
D Beddgelert (Co. School).....	The Headmaster.....	5	1	2	133	..	102.34	..	..
D Snowdon (Wenallt).....	No. 6. N. Wales Power Co., Ltd... 5	1	2	1050	..	..	158.95	..	..
D Snowdon (Cwm Dyli).....	No. 11. N. Wales Power Co., Ltd... 5	1	0	310	117.9	..	139.24	250	229
D Snowdon (Cwm Dyli, Old Rd.) 14..	N. Wales Power Co., Ltd... 5	0	10	325	..	..	133.29	..	..
D Snowdon (Llewedd).....	No. 2. N. Wales Power Co., Ltd... 5	1	3	1485	..	..	132.00	..	..
M Snowdon (Delta).....	No. 7. N. Wales Power Co., Ltd... 5	1	0	1435	..	..	186.90	..	..
M Snowdon (Glaslyn).....	No. 3. N. Wales Power Co., Ltd... 5	0	8	2050	..	..	165.65	..	..
M Snowdon (Teryn).....	No. 1. N. Wales Power Co., Ltd... 5	1	0	1080	..	..	161.40	..	..
D Snowdon (Llydaw Intake) No. 10..	N. Wales Power Co., Ltd... 5	1	0	1480	..	..	158.76	..	..
D Snowdon (L. Llydaw Copper M.) 9..	N. Wales Power Co., Ltd... 5	1	5	1480	..	..	181.35	..	..
M Snowdon (Llyn Llydaw)....	No. 5. N. Wales Power Co., Ltd... 5	1	0	1470	..	..	146.05	..	..
M Snowdon (Grib Goch).....	No. 8. N. Wales Power Co., Ltd... 5	1	3	2340	..	..	189.50	..	..
ANGLESEY. (Area, 275 sq. mi.)									
D Bryn-siencyn (Trefarthen).....	Miss E. Meyrick.....	5	1	0	30	..	42.27	207	169
D Llangadwaladr (Bodorgan).....	Mr. W. Pilgrim.....	5	1	0	100	37.5	43.32	232	169
D Llanfaelog.....	H. S. Lowe, Esq., J.P.....	5	0	8	50	32.0	35.70	..	..
D Plas Cadnant.....	Major T. Fanning Evans... 5	1	0	156	..	..	49.95	211	191
D Llangefni (Fronheulog).....	A. H. Withinshaw, Esq. .... 5	1	0	125	..	..	40.76	..	148
D Llansadwrn (Treffos).....	C. Pantton Vivian, Esq.....	5	..	..	318	..	47.50	..	162
D Beaumaris (Fryars).....	(R) Mrs. Burton.....	10	2	0	20	37.4	42.04	..	..
D Llangwlog (Trescawen).....	Mrs. Pritchard-Rayner .... 5	1	0	239	42.2	..	46.08	222	187
D Bodedern (Presaddfedd).....	Lt.-Col. W. A. Fox-Pitt .... 5	1	0	150	38.9	..	46.54	285	187
D Holyhead (Soldiers Point).....	A. Pearson, Esq.....	..	..	..	..	..	(35.70)	..	..
D Holyhead (Salt Island).....	(+A) The Meteorological Office.. 8	1	0	26	34.8	..	33.53	204	145
D Llanerchymedd (Llwydiarth Esghb).	E. Thomas, Esq.....	5	1	0	175	38.1	41.86	222	177
D Penrhoslligwy School.....	T. Rowlands, Esq.....	5	1	0	140	39.9	41.66	193	167
D Amlwch (Dyffryn Adda).....	Major T. Fanning Evans ... 5	1	3	178	36.3	..	38.81	214	148
ISLE OF MAN. (Area, 227 sq. mi.)									
D Castletown (Langness).....	Com'rs. of N. Lighth's.....	5	1	9	38	..	36.79	..	..
D Port St. Mary (Beach Villa).....	C. F. Butterworth, Esq.....	5	3	0	40	..	30.46	179	139
D St. Marks (Ballahowin).....	Rev. R. Jones.....	5	1	0	..	..	52.94	..	..
D Douglas (Borough Cemetery)....	The Borough Surveyor .... 8	1	0	284	41.2	..	50.60	219	165
D Douglas (Clypse Res., Onchan)....	T. C. Greenfield, Esq., C.E.. 8	1	0	440	43.9	..	52.62	232	168
D West Baldwin Reservoir old g....	T. C. Greenfield, Esq., C.E.. 8	1	0	480	..	..	65.71	223	174
D West Baldwin Reservoir new g....	T. C. Greenfield, Esq., C.E.. 5	1	0	470	..	..	69.25	222	177
D Maughold Head.....	Com'rs. of N. Lighth's.....	5	0	6	230	..	42.01	..	164
D Ramsey (Town Hall).....	The Town Surveyor.....	8	21	0	18	..	54.25	183	147
D Ramsey (North Promenade).....	The Town Surveyor.....	5	1	0	15	..	54.16	204	152
CHANNEL ISLANDS. (Area, 76 sq. mi.)									
JERSEY. 45 sq. mi.									
D Pontac.....	Mrs. E. G. Barnes*.....	5	1	6	30	..	33.80	187	137
D St. Saviours (Petit Menage).....	G. T. Robin, Esq.....	5	0	10	30	..	35.87	184	150
D Grouville.....	L. de Carteret Malet, Esq.*. 5	1	6	70	..	..	38.12	169	136
D St. Helier (Harbour Office).....	The Greffier.....	8	0	10	28	..	34.81	174	134
D St. Helier (St. Louis O.) new.....	Rev. C. Burdo, S.J.....	8	1	5	180	31.9	35.40	177	133
D St. Brelade (La Sergente).....	W. Benest, Esq.....	5	1	4	194	..	34.84	173	130
D St. Aubins (Belle Vue).....	C. J. Sumner, Esq.....	5	1	2	220	..	35.16	189	134
D St. Lawrence (Little Grove).....	R. E. B. Voisin, Esq.....	5	1	0	60	..	37.45	177	140
D Millbrook (St. Helier W.W.).....	A. J. Jenkins, Esq., C.E.. 5	0	11	53	..	..	37.54	171	136
D St. Ouen's Manor.....	R. Malet de Carteret, Esq... 5	2	0	270	..	..	34.74	175	135
D Trinity Rectory.....	Rev. S. J. Gruchy.....	5	1	0	375	..	32.93	187	131

\* Per A. J. Jenkins, Esq.

## DIVISION XI—MONMOUTH, WALES, AND THE ISLANDS—(con.).

STATIONS.	AUTHORITIES.	Diam.	Rain-gauge			Average Rain- fall.	1931.		
			Height of		ft.		in.	Days with ·01 in. or more.	Days with ·04 in. or more.
			Rim above Ground.	Ground above Sea Level.					
CHANNEL ISLANDS—(con.).			in.	ft.	in.	ft.	in.	in.	
GUERNSEY. 25 sq. mi.									
d St. Peter in the Wood (Hawthorns)	L. J. Nicolle, Esq.....	5	1	0	100	..	29.13	179	123
d St. Martin's (Les Blanchés)	B. T. Rowswell, Esq.....	5	1	0	309	..	33.74	181	132
d St. Martin's (Hatnez)	A. A. Allain, Esq., C.E.....	5	0	8	336	..	33.51	180	133
d Villiaze	A. A. Allain, Esq., C.E.....	5	0	6	302	..	34.92	180	134
d St. Andrew (Vauxbelets Col.)	The Director.....	5	1	5	260	..	32.15	161	120
d St. Peter-in-the-Wood (Les Prés)	Miss M. A. Brock.....	5	1	0	250	..	34.18	170	131
d St. Peter Port (Grange Road)	H. Vere Miles, Esq.....	5	1	0	173	33.2	35.61	186	144
d St. Peter Port (Market Street)	B. T. Rowswell, Esq.....	5	52	8	99	..	33.52	172	130
d Castel (King's Mills)	A. A. Allain, Esq., C.E.....	5	2	0	47	..	32.89	179	135
d Rohais (Colborne Villa)	T. J. Guilbert, Esq., C.E.....	5	1	0	116	..	33.76	(190)	(139)
d Menheniot Vineries	Major H. Roper.....	5	1	1	97	..	35.16	180	168
SARK. 2 sq. mi.									
d Pointe Robert	B. T. Rowswell, Esq.....	5	1	0	214	..	30.64	172	134
HERM. 1 sq. mi.									
d Herm	Sir Percival Perry.....	5	1	3	8	..	31.33	190	124
ALDERNEY, 3 sq. mi.									
d St. Anne (Gros Nez House)	B. T. Rowswell, Esq.....	5	1	0	214	..	33.73	196	142

## SCOTLAND.

## DIVISION XII—SOUTHERN COUNTIES.

STATIONS.		AUTHORITIES.	Diam.	Rain-gauge		Average Rain-fall.	1931.			
				Height of Rim above Ground.	Height of Ground above Sea Level.		Rain-fall.	Days with .01 in. or more.	Days with .04 in. or more.	
WIGTOWN. (Area, 488 sq. mi.)										
1.—LOCH RYAN. 46 sq. mi.										
d	Castle Kennedy (Lochinch).....	Earl of Stair.....	8		10	85	..	47-02	223	188
2.—WESTERN GALLOWAY, 44 sq. mi.										
d	Logan House.....	K. McDouall, Esq.....	8	1	0	80	37-3	40-75	272	169
	Corsewall.....	Com'rs. of N. Lighthouses..	8	4	1	48	..	40-63	..	155
3.—LUCE BAY. 186 sq. mi.										
d	Whithorn (Physgill).....	F. B. Hopkins, Esq.....	5	1	0	170	36-4	40-99	220	157
d	Whithorn (Glasserton).....	Adm. Johnston Stewart, C.B.	5	1	0	225	39-5	43-52	209	161
d	Port William (Monreith).....	L. R. Younger, Esq.....	5	1	0	145	38-5	44-73	..	160
	Stoneykirk (Ardwell House).....	Sir E. Orde Stewart, Bt....	8	3	0	65	36-3	40-91	..	..
d	New Luce (Public School).....	J. Mackay, Esq.....	5	1	0	200	46-6	47-87	226	183
4.—CREE & WIGTOWN BAY. 212 sq. mi.										
d	Kirkcowan (Craighlaw).....	Major W. M. F. Hamilton..	5	1	0	300	48-3	54-10	263	192
d	Newton Stewart (Little Barraer) ..	Brig.-Gen. G. M. P. Hawthorn, C.B.E., D.S.O.	5	1	0	180	..	48-05	216	169
d	Newton Stewart (Duncree).....	Maj.-Gen. Sir Keith Stewart K.C.B.	8	5	5	125	..	46-05	239	165
KIRKCUDBRIGHT. (Area, 902 sq. mi.)										
1.—DOON. 16 sq. mi.										
2.—CREE & WIGTOWN BAY. 222 sq. mi.										
d	Borgue (Corseyard).....	J. Douglas Brown, Esq.....	5	1	0	50	39-8	41-41	183	170
3.—DEE. 377 sq. mi.										
d	Mossdale (Hensol).....	Mrs. Cuninghame.....	8	1	0	200	51-7	56-33	218	186
d	Dalry (Glendarroch).....	Miss M. Barbour.....	5	2	0	190	54-5	55-90	224	183
d	Dalry (Garroch).....	Arthur Young, Esq.....	8	1	0	250	59-7	65-58	227	187
d	Dalry (Forrest Lodge).....	Sir John Wood, Bart.....	5	1	0	500	63-2	74-76	216	185
d	Carsphairn (Shiel).....	S. Wilson, Esq.....	5	1	0	825	73-9	80-11	241	215
d	Carsphairn (Knockgray).....	Miss Clark Kennedy.....	8	1	0	641	56-0	63-24	245	200
4.—URR & C. 196 sq. mi.										
	Auchencairn (Torr House).....	Thomas Ovens, Esq.....	5	1	0	50	47-1	50-30	..	..
d	Dalbeattie (Kirkennan).....	Wellwood Maxwell, Esq....	5	0	9	30	46-2	51-41	241	180
d	Dalbeattie (Drumstinchall).....	Mrs. R. F. Hanbury.....	8	0	9	400	46-1	53-27	203	181
d	Chipperkyle.....	Lt.-Col. Rollo Morris.....	5	1	6	310	..	(41-95)	..	..
5.—NITH & C. 91 sq. mi.										
d	Lochrutton (Dumfries W.W.).....	J. Smellie, Esq.....	5	1	0	273	44-0	50-49	230	172
d	Carrachan.....	Rev. W. G. Clark Maxwell..	5	1	0	..	..	47-53	207	162
DUMFRIES. (Area, 1,074 sq. mi.)										
1.—CLYDE—Right Bank Tributaries. 5 sq. mi.										
2.—URR. 6 sq. mi.										
3.—NITH & C. 421 sq. mi.										
d	Ruthwell (Comlongon Castle).....	Earl of Mansfield.....	5	1	0	67	..	40-45	189	143
d	Mouswald (Schoolhouse).....	Jas. F. Young, Esq.....	8	0	10	115	..	45-52	223	160
d	Dumfries (Crichton Roy. Inst.)....	C. C. Easterbrook, Esq., M.D.	5	1	0	140	36-8	41-43	196	149

## DIVISION XII—SOUTHERN COUNTIES—(con.).

STATIONS.	AUTHORITIES.	Diam.	Rain-gauge			1931.			
			Height of Rim above Ground.	Ground above Sea Level.	Average Rain- fall.	Rain- fall.	Days with ·01 in. or more.	Days with ·04 in. or more.	
DUMFRIES—(con.).			in.	ft. in.	ft.	in.	in.		
3.—NITH & C.—(con).									
D Carnsalloch.....	Miss K. M. Buchanan.....	5	0 8	20	..	44·41	198	168	
D Moniaive (Glencrosh).....	Miss Macmillan.....	5	1 1	400	..	56·79	207	175	
Maxwelton House.....	Sir W. E. Laurie, Bt. ....	5	1 3	375	..	54·18	221	170	
D Durrisdeer (Drumlanrig).....	R. A. S. Ritchie, Esq.....	5	0 9	191	43·6	52·25	243	181	
4.—ANNAN. 367 sq. mi.									
D Dalton (Whitcroft).....	Sir W. Maitland-Heriot, K.B.E.	5	0 11	240	..	47·23	230	173	
D Dalton (Kirkwood).....	Captain J. Steel.....	5	1 0	250	..	51·94	267	175	
M Lockerbie (Thornbank).....	W. Murdoch, Esq.....	5	1 0	259	..	47·54	..	..	
D Lochmaben (Esthwaite).....	W. J. Halliday, Esq., M.B.E.	5	1 0	166	41·9	46·07	228	173	
D Gubhill School.....	Miss J. A. Riddick.....	5	1 0	560	..	55·95	218	170	
D Evan Water School.....	Mrs. Grossart.....	5	1 0	560	..	53·98	211	176	
5.—ESK. 275 sq. mi.									
D Eaglesfield (Springkell Gdns.)....	Mr. Charles George.....	5	1 0	300	..	46·45	197	171	
D Canonbie (Irvine House).....	J. H. Milne Home, Esq.....	5	0 9	200	..	52·68	212	165	
D Langholm (Drove Road).....	Mrs. Jackson.....	5	0 9	270	..	58·36	204	170	
Langholm (Ewes).....	Mrs. Lyall.....	5	1 0	445	53·4	54·96	..	..	
D Eskdalemuir Observatory..(+A)..	The Meteorological Office..	8	1 4	794	56·3	61·50	230	181	
ROXBURGH. (Area, 666 sq. mi.)									
1.—NORTH TYNE. 6 sq. mi.									
2.—TWEED LOWER—Right Bank Tributaries. 57 sq. mi.									
3.—TWEED—Teviot & c. 431 sq. mi.									
d Hawick (Wolfelee).....	Mrs. Browne.....	5	0 10	537	37·6	38·94	..	162	
D Hawick (Bransholm Park).....	C. W. Grieve, Esq.....	5	0 6	457	33·4	38·36	211	172	
d Todshawhaugh.....	R. J. Usher, Esq.....	5	1 0	450	..	35·25	(203)	(156)	
d Hawick (Dominican Priory).....	Sister Mary Augustine.....	5	1 0	440	..	33·58	(226)	(149)	
D Denholm (Spital Tower).....	Mrs. G. Leadbetter.....	5	0 9	410	32·7	31·49	217	156	
D Jedburgh (Jedneuk).....	T. Yool, Esq.....	5	1 0	271	26·3	27·46	189	133	
D Jedburgh (Crailing).....	Major J. A. Paton.....	5	1 1	190	..	28·56	194	137	
D Ancrum (Monteviot).....	Bertram Talbot, Esq.....	5	1 0	210	29·8	28·95	182	139	
Linton (Clifton Park).....	T. R. B. Elliot, Esq.....	5	1 0	250	..	28·35	..	..	
d St. Boswells (The Fens).....	J. J. Fairbairn, Esq.....	5	1 6	260	28·0	25·76	..	124	
D St. Boswells (Monksford).....	Lt.-Col. A. Mitchell.....	5	0 11	320	26·9	29·48	202	144	
4.—TWEED—Ettrick & c. 10 sq. mi.									
D Melrose (Asylum) gauge A.....	T. C. Mitchell, Esq.....	5	0 6	480	31·4	31·47	203	142	
D Melrose (Asylum) gauge B.....	T. C. Mitchell, Esq.....	5	1 0	480	30·8	29·80	203	142	
5.—TWEED—Gala. 6 sq. mi.									
6.—TWEED—Leader & c. 25 sq. mi.									
7.—TWEED, LOWER—Left Bank Tributaries. 25 sq. mi.									
D Kelso (Broomlands).....	J. C. Scott, Esq.....	5	1 0	193	26·0	26·39	203	126	
8.—ESK. 106 sq. mi.									
D Newcastle Forest.....	Forestry Commission.....	5	1 0	700	..	58·25	..	..	

## DIVISION XIII—SOUTH-EASTERN COUNTIES.

SELKIRK. (Area, 268 sq. mi.)

<b>1.—TWEED—Teviot &amp; c. 34 sq. mi.</b>								
d Selkirk (Whitmuir Hall).....	Miss M. E. Maxwell.....	5	1 6	800	32·5	36·36	247	156
<b>2.—TWEED—Ettrick &amp; c. 192 sq. mi.</b>								
d Ettrick Manse.....	Rev. W. Addison.....	5	1 2	787	55·6	55·09	214	182
m Edinburgh W. W. (Meggat Hd.) I..	Messrs. Leslie & Reid, C.E....	8	1 3	1496	54·5	55·90	..	..

## DIVISION XIII—SOUTH-EASTERN COUNTIES.—(con.).

STATIONS.	AUTHORITIES.	Diam.	Rain-gauge			Average Rain- fall.	1931.			
			Height of		ft.		in.	Days with ·01 in. or more.	Days with ·04 in. or more.	
			Rim above Ground.	Ground above Sea Level.						
SELKIRK—(con.).			in.	ft.	in.	ft.	in.	in.		
3.—TWEED, UPPER—Right Bank Tributaries. 17 sq. mi.										
4.—TWEED, UPPER—Left Bank Tributaries. 19 sq. mi.										
D Caddenfoot (Fairnilee).....	Mr. R. F. Williams.....	5	1	0	450	32·5	37·14	219	163	
Galashiels (The Peel, Clovenfords)...	W. R. Ovens, Esq.....	5	1	0	450	35·5	35·34	..	..	
5.—TWEED—Gala. 6 sq. mi.										
PEEBLES. (Area, 348 sq. mi.)										
1.—TWEED, UPPER—Right Bank Tributaries, 127 sq. mi.										
M Edin. WW (Ravenscraig).....	3.. Messrs. Leslie & Reid, C.E..	5	1	3	2258	..	88·71	..	..	
M Edin. WW (Gameshope Loch)...	4.. Messrs. Leslie & Reid, C.E..	5	1	3	1860	..	76·29	..	..	
M Edin. WW (Loch Craig Head) 2..	Messrs. Leslie & Reid, C.E..	5	1	0	2627	..	87·01	..	..	
M Edin. WW (Gameshope Farm) 5..	Messrs. Leslie & Reid, C.E..	5	1	3	1538	..	80·91	..	..	
M Edin. WW (Talla Linns Foot)...	6.. Messrs. Leslie & Reid, C.E..	8	1	3	966	..	57·52	..	..	
M Edin. WW (Quarter Hill).....	7.. Messrs. Leslie & Reid, C.E..	8	1	3	1196	..	51·89	..	..	
D Edin. WW (Victoria Lodge)...	8.. Messrs. Leslie & Reid, C.E..	5	1	3	900	..	49·67	232	194	
2.—TWEED, UPPER—Left Bank Tributaries. 192 sq. mi.										
D Stobo Castle.....	Mr. J. Finnie.....	5	1	0	594	34·9	36·72	217	169	
D Peebles (Hydro.).....	R. Turner, Esq., O.B.E.....	5	0	9	700	..	37·97	263	193	
D Peebles (Glentress Forest).....	Forestry Commission.....	5	1	0	500	..	34·01	210	146	
D West Linton (Woodlea Cottage)...	Messrs. Leslie & Reid, C.E..	5	1	0	801	..	38·17	249	186	
d West Linton (Cairnton).....	Dr. R. Graham Yooll.....	5	1	0	820	..	40·00	..	179	
D West Linton (Baddingsgill Res.)...	A. Simpson, Esq.....	5	1	0	1100	..	46·83	240	191	
3.—ESK. 23 sq. mi.										
D Eddlestone (Portmore Res.).....	Messrs. Leslie & Reid, C.E..	11	1	0	1000	..	38·25	253	178	
D Carlups (North Esk Res.).....	Mr. J. Gilmour.....	5	1	6	1150	..	40·87	255	182	
4.—CLYDE—Right Bank Tributaries. 6 sq. mi.										
BERWICK. (Area, 457 sq. mi.)										
1.—TWEED—Gala. 6 sq. mi.										
2.—TWEED—Leader. 92 sq. mi.										
M Lauder (Burncastle).....	J. G. S. Turnbull, Esq.....	5	1	0	900	30·2	32·52	..	..	
M Earnsclough Burn (Blythe Rig)...	J. G. S. Turnbull, Esq.....	5	1	0	1200	36·1	41·33	..	..	
3.—TWEED, LOWER—Left Bank Tributaries. 115 sq. mi.										
Coldstream (Lochton).....	J. Aitchison, Esq.....	5	1	0	151	25·9	27·34	..	..	
d Coldstream School.....	D. Campbell Hardie, Esq...	5	1	0	100	..	25·13	..	128	
d Coldstream (The Hirsell).....	Mr. D. Black.....	5	1	6	130	25·6	23·86	..	119	
D Swinton House (Snowdon).....	(+A) Rev. A. E. Swinton.....	5	1	0	200	26·4	27·97	202	131	
Whitsomehill .....	J. T. Crane, Esq.....	5	0	8	245	..	25·92	..	..	
4.—TWEED—Whiteadder. 164 sq. mi.										
D Marchmont House.....	Mr. Peter Ross.....	5	1	0	498	32·2	31·76	220	132	
d Duns (Caldra) .....	H. W. Guthrie-Smith, Esq. ..	..	..	..	300	..	29·98	..	..	
D Duns (Nisbet House Gdns.).....	Mr. W. Cowieson.....	5	1	0	290	26·8	32·40	214	143	
D Duns (Oxendean).....	A. C. Fraser, Esq.....	8	0	7	600	..	33·82	211	141	
D Duns Castle .....	F. S. Hay, Esq.....	5	1	0	500	30·8	34·10	209	134	
D Duns (Manderston).....	Mr. F. J. Marshall.....	5	1	6	356	30·7	34·04	206	143	
5.—EAST COAST STREAMS. 80 sq. mi.										
St. Abb's Head.....	Comm'rs of N. Lighthouses. 8	8	5	6	212	23·6	31·77	173	148	

## DIVISION XIII—SOUTH-EASTERN COUNTIES—(con.).

STATIONS.	AUTHORITIES.	Diam.	Rain-gauge			1931.		
			Height of Rim above Ground.	Ground above Sea Level.	Aver- age Rain- fall.	Rain- fall.	Days with ·01 in. or more.	Days with ·04 in. or more.
EAST LoTHIAN (HADDINGTON). (Area, 267 sq. mi.)								
1.—TWEED—Leader. 1 sq. mi.								
2.—TWEED—Whiteadder. 35 sq. mi.								
3.—EAST COAST STREAMS. 69 sq. mi.								
M Garvald (Donolly Reservoir).....	A. Robertson, Esq., C.E....	5	1 0	550	32·8	31·25	..	..
M Garvald (Thorther Reservoir).....	A. Robertson, Esq., C.E....	5	1 0	700	..	31·66	..	..
d Dunbar (Belhaven Hill).....	W. Ingham, Esq.....	..	..	..	24·2	(25·53)	(177)	(116)
d Dunbar (St. Margarets).....	Sir Wm. Keith, Esq., .. K.C.S.I., C.I.E.	5	1 0	75	..	24·44	178	113
4.—TYNE & C. 114 sq. mi.								
w Lammermuir H. (West Hopes)....	J. Ross, Esq., C.E.....	5	1 0	736	34·4	35·54	..	..
w Lammermuir H. (Stobshiell Res.) B.	J. Ross, Esq., C.E.....	5	1 0	950	33·0	36·05	..	..
w Lammermuir H. (Stobshiell Res.) A.	J. Ross, Esq., C.E.....	5	1 0	998	..	30·78	..	..
w Lammermuir H. (Lammerloch Res.)	J. Ross, Esq., C.E.....	5	1 0	900	..	31·56	..	..
d Lammermuir H. (Stobshiell Fil.)...	J. Ross, Esq., C.E.....	5	1 0	650	..	25·53	..	116
d Prestonkirk (Smeaton).....	Sir J. Buchan-Hepburn, Bt.	5	1 0	100	24·9	28·00	190	129
5.—FIRTH OF FORTH. 48 sq. mi.								
d East Fortune Sanatorium.....	The Clerk of Works.....	5	1 4	101	..	28·31	..	129
d Dirleton .....	W. S. Curr, Esq., J.P.....	5	1 6	149	..	27·86	..	111
d North Berwick Reservoir.....	A. Robertson, Esq., C.E....	5	1 0	150	25·4	29·78	189	133
d North Berwick (Hospital).....	A. Robertson, Esq., C.E....	5	1 0	152	22·8	27·99	173	126
6.—INSULAR.								
Fidra .....	Com'rs. of N. Lighthouses...	..	..	..	..	21·75	..	..
MIDLoTHIAN. (Area, 369 sq. mi.)								
1.—TWEED—Gala. 68 sq. mi.								
M Stow (Cragdale).....	J. Pringle, Esq.....	5	0 6	642	33·3	34·84	..	..
2.—TYNE. 28 sq. mi.								
d Oxenford Castle Gardens.....	Mr. D. M. Welsh.....	5	1 6	409	27·6	34·65	201	148
3.—FIRTH OF FORTH. 3 sq. mi.								
4.—ESK. 116 sq. mi.								
M Moorfoot Hills (Bowbate) <i>old g.</i> ....	Messrs. Leslie & Reid, C.E..	11	0 6	1260	46·6	43·36	..	..
M Moorfoot Hills (Bowbate) <i>new g.</i> ....	Messrs. Leslie & Reid, C.E..	5	1 0	1260	..	43·89	..	..
d Moorfoot Hills (Gladhouse Res.)...	Messrs. Leslie & Reid, C.E..	5	0 8	915	35·3	37·37	255	176
d Moorfoot Hills (Rosebery).....	Messrs. Leslie & Reid, C.E..	5	0 9	750	..	35·32	221	160
d Moorfoot Hills (Edgelaw).....	Messrs. Leslie & Reid, C.E..	5	0 10	654	..	32·94	221	162
d Gorebridge .....	W. S. B. Brown, Esq.....	5	1 0	560	29·5	32·12	222	146
M Pentland Hills (Harehill).....	Messrs. Leslie & Reid, C.E..	11	1 7	1297	..	37·25	..	..
d Pentland Hills (Martyrs Cross)...	Messrs. Leslie & Reid, C.E..	5	1 0	750	..	34·58	218	159
d Pentland Hills (Loganlea).....	Messrs. Leslie & Reid, C.E..	5	1 0	811	..	36·00	205	153
d Pentland Hills (Glencorse Fil.)...	Messrs. Leslie & Reid, C.E..	5	1 0	638	..	35·72	207	157
d Pentland Hills (Glen Cottage)...	Messrs. Leslie & Reid, C.E..	5	1 2	739	..	36·99	212	158
d Milton Bridge (Bush).....	J. S. Abernethy, Esq.....	5	1 0	600	33·0	34·93	209	156
d Newbattle (Public School).....	W. Fowler, Esq.....	5	4 3	300	26·1	28·82	..	..
5.—ALMOND & C. 153 sq. mi.								
d Pentland Hills (Crosswood).....	Messrs. Leslie & Reid, C.E..	5	1 0	950	..	43·65	257	184
d Pentland Hills (Harperrig).....	Messrs. Leslie & Reid, C.E..	5	1 0	900	..	42·43	238	181
d Pentland Hills (Morton).....	Messrs. Leslie & Reid, C.E..	5	1 0	749	..	39·30	245	172
d West Calder (Addiewell).....	Scottish Oils, Ltd.....	12	21 0	620	35·7	39·45	..	..
d Pentland Hills (Boghall).....	(+A). College of Agriculture.....	8	1 0	639	31·4	34·90	214	144
d Pentland Hills (Harlaw Res.).....	Messrs. Leslie & Reid, C.E..	5	1 0	800	..	32·38	194	152
M Pentland Hills (Bonally Res.).....	Messrs. Leslie & Reid, C.E..	11	0 6	1112	..	35·15	..	..
d Pentland Hills (Clubbiedean Rs.)...	Messrs. Leslie & Reid, C.E..	5	0 6	773	..	34·16	215	140
M Pentland Hills (Swanston).....	Messrs. Leslie & Reid, C.E..	5	0 6	550	..	33·52	..	..
d Pentland Hills (Fairmilehead)....	Messrs. Leslie & Reid, C.E..	5	1 0	590	..	32·65	185	139

## DIVISION XIII—SOUTH-EASTERN COUNTIES—(con.).

STATIONS.	AUTHORITIES.	Diam.	Rain-gauge			1931.			
			Height of Rim above Ground.	Ground above Sea Level.	Aver- age Rain- fall.	Rain- fall.	Days with ·01 in. or more.	Days with ·04 in. or more.	
MIDLOTHIAN—(con).			in.	ft. in.	ft.	in.	in.		
5.—ALMOND & C.—(con.)									
d Liberton (Alnwick Hill).....	Messrs. Leslie & Reid, C.E..	5	1 0	407	..	30·42	188	138	
d Colinton (Firhill Tank).....	Messrs. Leslie & Reid, C.E..	5	0 6	412	..	32·63	235	133	
d Liberton (College Garden).....	College of Agriculture.....	5	1 0	190	27·2	30·69	198	139	
d Edinburgh (Royal Observatory)...	Prof. R. A. Sampson, F.R.S.	8	1 0	441	26·3	31·89	200	131	
d Edinburgh (Napier Road).....	Mrs. H. G. Harrison.....	5	1 0	300	26·0	30·79	187	131	
d Edinburgh (Corstorphine).....	J. Laughton, Esq. ....	5	0 8	180	..	30·71	..	..	
d Edinburgh (The Academy).....	M. McC. Fairgrieve, Esq....	5	1 0	70	25·3	30·98	196	139	
d Edinburgh (Univ. Engin. Lab.)...	Prof. Sir T. Hudson Beare..	5	1 0	227	26·0	30·86	192	128	
d Edinburgh (St. Roque).....	Mr. H. B. Waugh.....	5	0 10	270	26·6	31·18	190	131	
d Edinburgh (City Observatory)....	J. McDougall Field, Esq....	8	1 0	348	24·1	29·70	183	132	
d Edinburgh (Royal Botanic Gd.)...	Prof. W. Wright-Smith....	5	0 7	74	26·0	31·31	..	125	
d Davidson's Mains (Broomfield)....	J. I. Balfour-Melville, Esq..	5	0 10	42	24·7	30·47	182	141	
6.—CLYDE—Right Bank Tributaries. 1 sq. mi.									
WEST LoTHIAN (LINLITHGOW). (Area, 120 sq. mi.)									
1.—ALMOND & C. 60 sq. mi.									
m Uphall.....	No. 7. Messrs. Leslie & Reid, C.E..	8	1 4	790	..	37·88	..	..	
m Uphall.....	No. 8. Messrs. Leslie & Reid, C.E..	8	1 4	577	..	37·63	..	..	
m Uphall.....	No. 6. Messrs. Leslie & Reid, C.E..	8	1 4	680	..	37·38	..	..	
m Uphall.....	No. 3. Messrs. Leslie & Reid, C.E..	8	1 2	711	..	37·52	..	..	
d Uphall (Bangour Asylum).....	Col. J. Keay, M.D.....	5	1 0	587	..	35·08	227	167	
d Uphall.....	Scottish Oils, Ltd.....	8	0 10	380	31·2	36·85	..	..	
Winchburgh (Hopetown Oil Wks.)...	Scottish Oils, Ltd.....	8	2 2	327	..	38·09	..	..	
2.—FORTH—Right Bank Tributaries.—59 sq. mi.									
d Bathgate (Filters).....	No. 1. A. L. Reid, Esq.....	5	0 9	640	33·0	38·02	..	157	
m Bathgate (Petershill Res.)...	No. 2. A. L. Reid, Esq.....	5	0 9	710	30·3	35·48	..	..	
m Bathgate (Ballencreeff R.)...	No. 3. A. L. Reid, Esq.....	5	0 9	792	31·0	36·11	..	..	
m Torpichon (Lochcote).....	Wm. Beattie, Esq. ....	5	0 9	550	33·2	38·96	..	..	
d Uphall (Beecraigs).....	Messrs. Leslie & Reid, C.E..	5	1 0	531	..	34·06?	217	167	
m Carribber Reservoir.....	Wm. Beattie, Esq. ....	5	0 9	350	..	39·51	..	..	
d Linlithgow (Grange).....	H. M. Cadell, Esq.....	5	0 9	430	..	36·42	210	154	
d Linlithgow (Preston House).....	Mr. C. Blair.....	5	1 0	380	..	37·52	205	166	
d Linlithgow Academy.....	The Rector.....	5	1 0	170	..	36·52	205	147	
3.—CLYDE.—Right Bank Tributaries. 1 sq. mi.									

## DIVISION XIV—SOUTH-WESTERN COUNTIES.

LANARK. (Area, 881 sq. mi.)

<b>1.—TWEED, UPPER—Left Bank Tributaries. 20 sq. mi.</b>								
<b>2.—ALMOND. 14 sq. mi.</b>								
<b>3.—FORTH—Right Bank Tributaries. 9 sq. mi.</b>								
d Airdrie (Forrestburn Res.).....	A. Simpson, Esq., C.E.....	5	0 6	722	36·6	42·69	220	183
<b>4.—CLYDE—Right Bank Tributaries. 378 sq. mi.</b>								
Crawford (Camps Res.).....	Jas. McMillan, Esq.....	11	0 10	969	..	46·54	202	190
d Crawford (Camps Res.) <i>new g</i> .....	Jas. McMillan, Esq. ....	5	0 10	969	..	44·67	202	188
Crawford (Camps Res.) No. 3.....	Jas. McMillan, Esq. ....	11	0 10	968	..	(50·20)	(207)	(188)
m Coulter Reservoir.....	No. 1. L. Costley, Esq., C.E.....	11	1 0	1250	..	52·65	..	..
Lamington (Cowgill Reservoir)....	J. Chisholm, Esq., C.E. ....	5	1 0	1012	..	39·37	..	..
d Biggar (Shieldhill).....	Miss Dunlop.....	5	1 0	850	32·7	34·34	236	160
d Lamington House.....	Rt. Hon. Lord Lamington..	5	1 0	730	38·0	37·15	232	170
Carlisle (Coldstream Reservoir)...	L. Costley, Esq., C.E.....	11	1 0	800	36·2	41·30	..	..
Wishaw (Kirk Road).....	J. Y. Scott, Esq.....	6	1 0	480	32·1	33·45	..	..
Wishaw (Coronation Street).....	A. Hinshelwood, Esq.....	5	1 3	510	..	32·30	..	..

## DIVISION XIV—SOUTH-WESTERN COUNTIES.—(cont.).

STATIONS.	AUTHORITIES.	Diam.	Rain-gauge			1931.				
			Height of		Average Rain-fall.	Rain-fall.	Days with .01 in. or more.	Days with .04 in. or more.		
			Rim above Ground.	Ground above Sea Level.						
LANARK—(con.).			in.	ft.	in.	ft.	in.	in.		
4.—CLYDE—(con.).										
d Bothwell (Mt. Pleasant).....	A. Muir, Esq.....	5	1	0	150	..	36.48	197	160	
Glasgow (Tollcross Park).....	W. Besant, Esq.....	5	0	6	85	37.5	40.10	221	175	
Glasgow Green.....	W. Besant, Esq.....	5	0	6	35	36.8	39.32	220	168	
Glasgow (Alexandra Park).....	W. Besant, Esq.....	5	0	6	141	36.4	40.02	224	168	
d Glasgow (Riddrie).....	K. McKenzie Topping, Esq. 5	1	0	252	..	40.81	226	170		
Glasgow (Botanic Gardens).....	W. Besant, Esq.....	5	0	6	110	35.5	37.36	211	168	
d Glasgow University.....	Prof. J. R. Currie, M.D.....	8	1	0	139	35.4	35.89	214	162	
Glasgow (Kelvingrove Park).....	W. Besant, Esq.....	5	0	6	48	36.2	35.87	193	171	
Glasgow (Victoria Park).....	W. Besant, Esq.....	5	0	6	30	36.8	37.26	208	179	
Glasgow (Ruchill Park).....	W. Besant, Esq.....	5	0	6	222	36.1	37.71	217	160	
Glasgow (Springburn Park).....	W. Besant, Esq.....	5	0	6	352	38.0	43.06	251	184	
Clarkston (Roughrigg Res.).....	J. Chisholm, Esq., C.E.....	5	1	0	664	..	40.24	..	..	
d Airdrie (Broomknoll Street).....	J. Chisholm, Esq., C.E.....	5	1	0	402	35.1	37.51	219	161	
d Gartcosh (Gartloch Hospital).....	Mr. James McEwen.....	5	1	1	291	38.0	42.38	228	172	
d Caldercruix (Hillend Res.).....	Mr. Boyd Drummond.....	5	3	6	620	37.3	42.68	191	176	
5.—CLYDE—Left Bank Tributaries. 448 sq. mi.										
Elvanfoot (Potrenick Burn).....	L. Costley, Esq., C.E.....	11	1	0	1018	63.5	67.60	..	..	
Elvanfoot (Peden Reservoir).....	L. Costley, Esq., C.E.....	11	1	0	1030	62.0	(62.10)	..	..	
d Douglas (Kilncroft).....	The Earl of Home.....	8	1	1	696	43.4	40.66	..	173	
Strathaven (Glengavel Res.).....	J. McMillan, Esq., C.E.....	5	1	0	880	..	48.31	242	194	
d Strathaven (Glengavel Res.) new site	J. McMillan, Esq., C.E.....	5	1	0	839	..	54.52	244	197	
d Coalburn.....	D. Todd, Esq.....	5	0	6	735	..	42.48	256	195	
d Symington (Birkwood).....	Col. D. E. Brand, D.S.O.....	5	1	6	750	..	34.65	233	170	
d Strathaven (Dungavel).....	A. K. Foulis, Esq.....	5	1	0	798	..	50.46	226	187	
Strathaven (Dunside Res.).....	J. McMillan, Esq., C.E.....	5	0	10	1010	..	52.65	232	193	
d Strathaven (Dunside Res.) new site	J. McMillan, Esq., C.E.....	5	1	0	1002	..	55.21	232	193	
d Strathaven (Kype Res.).....	W. H. Purdie, Esq., C.E.....	5	1	0	941	..	51.15	203	176	
w Lesmahagow (Auchtyfardle).....	Major T. E. Lander.....	5	1	0	578	37.0	37.18	..	..	
d Strathaven (East Overton Ho.).....	H. Lee Dykes, Esq.....	5	1	0	700	43.8	44.43	209	177	
d Stonehouse (Glassford Filters).....	J. McMillan, Esq., C.E.....	5	0	9	775	..	46.35	249	183	
d Hamilton W.W. (Townhill).....	W. H. Purdie, Esq., C.E.....	5	1	0	436	35.6	40.71	218	182	
d Hamilton (Scott Street).....	S. B. Becket, Esq.....	5	1	6	260	33.0	38.15	210	159	
d Hamilton (Woodlea).....	W. Fletcher, Esq.....	5	1	4	192	..	38.18	224	174	
d Busby (Thorntonhall).....	A. H. Bishop, Esq.....	5	1	0	441	38.4	42.28	229	169	
Carmunnock (Carnbooth).....	R. Robertson, Esq., C.E.....	5	1	0	365	39.3	43.24	227	171	
d Cambuslang (Greenlees Filters).....	J. McMillan, Esq., C.E.....	5	1	0	322	35.6	40.86	216	163	
d Glasgow (Dumbreck).....	W. Gillies, Esq., Jr., LL.B.....	5	1	0	76	..	37.06	209	163	
d Glasgow (Maxwell Drive).....	Rev. F. C. Newbery.....	5	1	0	60	..	39.43	209	193	
Glasgow (Bellahouston Park).....	W. Besant, Esq.....	5	0	6	160	36.5	41.29	226	172	
Glasgow (Elder Park).....	W. Besant, Esq.....	5	0	6	40	37.4	(38.45)	(207)	(165)	
6.—IRVINE. 2 sq. mi.										
7.—AYR. 1 sq. mi.										
8.—NITH. 2 sq. mi.										
9.—ANNAN. 7 sq. mi.										
AYR. (Area, 1,135 sq. mi.)										
1.—CLYDE—Left Bank Tributaries. 7 sq. mi.										
d Glengarnock (Chemical Works).....	Messrs. Colvilles, Ltd.....	8	15	0	105	54.4	49.62	(224)	(176)	
2.—FIRTH OF CLYDE. 60 sq. mi.										
d Ardrossan (Burnfoot).....	J. C. Duncan, Esq., C.E.....	5	1	0	63	..	39.48	221	165	
d Stevenston (Greenhead Filters).....	Gilbert Christie, Esq., C.E.....	5	1	0	186	41.6	41.73	221	181	
Ardrossan (Busbie Res.).....	J. C. Duncan, Esq., C.E.....	5	1	0	374	..	44.95	..	..	
d Seamill.....	A. McDonald, Esq.....	5	1	0	38	..	37.84	228	169	
d West Kilbride School.....	Alex. M. Fleming, Esq.....	5	1	0	200	..	38.69	226	164	
West Kilbride (Crosbie Res.).....	W. Gray, Esq., C.E.....	5	1	0	400	..	41.88	..	..	
d West Kilbride (Hunterston).....	Lt.-Gen. Sir A. Hunter-Weston, K.C.B.....	5	1	0	40	42.4	42.35	220	174	
Fairlie (Water Works).....	W. Gray, Esq., C.E.....	5	1	0	270	..	52.30	..	..	
d Largs (Stevenson Institute).....	G. Arkieson, Esq.....	5	1	0	20	..	48.24	240	180	
d Largs (Woodbank).....	A. Simpson, Esq.....	5	1	0	25	..	48.33	232	181	
d Largs (Noddsdale).....	H. P. Ramage, Esq.....	5	1	3	200	..	53.87	233	198	



## DIVISION XIV—SOUTH-WESTERN COUNTIES—(con.).

STATIONS.	AUTHORITIES.	Diam.	Rain-gauge			Average Rain-fall.	1931.			
			Rim above Ground.	Height of Ground above Sea Level.	ft.		in.	Rain-fall.	Days with or more.	Days with or more.
AYR—(con.).			in.	ft	in.	ft.	in.	in.		
2.—FIRTH OF CLYDE—(con.).										
D Largs (Middleton Filters).....	G. Arkieson, Esq. ....	5	1	0	230	..	49.37	236	191	
D Skelmorlie (West Park).....	J. Wilkinson, Esq. ....	5	1	6	150	53.5	53.53	227	197	
M Shaws W.W. (Knockencorsan) <i>new site</i>	J. MacAlister, Esq., C.E. ....	5	1	0	1040	..	73.40	..	..	
M Shaws W.W. (Largs Road).....	J. MacAlister, Esq., C.E. ....	5	1	0	910	57.0	76.58	..	..	
3.—IRVINE & C. 296 sq. mi.										
D Auchincruive .....	W. Scotland Agric. Coll. ....	8	1	0	..	..	37.33	215	164	
D Monkton (Orangefield).....	H. Carrick Webster, Esq. ....	5	1	0	30	..	36.42	213	160	
D Prestwick (Ladykirk Filters).....	F. Priddy, Esq., C.E. ....	6	1	2	179	..	35.48	220	164	
D Troon .....	M. S. Brodie, Esq. ....	5	1	0	15	..	36.17	202	160	
d Symington .....	T. McMillan, Esq., M.A. ....	5	0	11	290	..	40.96	(219)	(169)	
D Hurlford (Carnell).....	G. D. Findlay Hamilton, Esq. ....	5	1	6	250	..	38.07	199	160	
D Barassie (The Tower).....	Mrs. Hutchison .....	5	1	0	12	..	35.51	218	154	
D Troon (Collenan Reservoir).....	M. S. Brodie, Esq., C.E. ....	5	1	0	203	..	40.88	..	..	
D Irvine (Gailes).....	H. W. Aitken, Esq. ....	5	1	0	12	35.9	40.31	220	172	
D Cessnock Castle .....	J. Harling Turner, Esq. ....	5	1	0	360	..	45.72	232	179	
D Newmilns (Lanfine).....	G. R. Shield, Esq. ....	5	1	6	500	..	49.54	238	192	
D Kilmarnock (Craig House).....	Col. W. Pollock Morris.....	5	1	0	70	..	41.06	218	175	
D Kilmarnock (The Mount).....	J. L. Lawson, Esq. ....	5	0	11	..	..	43.03	264	173	
D Templetonburn .....	F. C. Howie, Esq. ....	5	1	0	140	..	42.68	236	179	
D Darvel (Kirkland Park).....	W. Dunbar, Esq., C.E. ....	5	1	0	350	..	51.88	236	196	
D Raithhill.....	W. Dunbar, Esq., C.E. ....	5	1	0	640	..	51.41	..	..	
D Kilmarnock (Kay Park).....(R)	W. Dunbar, Esq., C.E. ....	5	4	0	130	..	42.43	226	178	
D Kilmarnock (Dean Castle).....	J. Middleton, Esq. ....	5	1	0	190	40.7	43.96	236	183	
D Kilmarnock (North Craig Res.)...	W. Dunbar, Esq., C.E. ....	5	1	0	319	41.2	45.97	234	191	
D Montgreenan Gardens .....	A. Dow, Esq. ....	5	1	3	180	..	45.67	210	178	
D Fenwick (Whiteliehill) .....	D. C. Dick, Esq. ....	5	1	0	915	..	52.12	237	197	
D Fenwick (Hareshaw Lodge).....	E. Richmond Paton, Esq. ....	5	0	3	600	48.5	51.68	195	188	
D Croilburn.....	W. Dunbar, Esq., C.E. ....	5	1	0	725	..	51.20	..	..	
D Fenwick (Amlaird Filters).....	W. Dunbar, Esq., C.E. ....	5	1	0	590	43.3	48.57	246	187	
D Craigendunton Reservoir.....	W. Dunbar, Esq., C.E. ....	5	1	0	805	46.4	53.17	..	..	
D Loch Goin Reservoir.....	W. Dunbar, Esq., C.E. ....	5	1	0	865	49.4	54.52	..	..	
D Blair Gardens .....	W. Dunbar, Esq., C.E. ....	5	1	0	155	..	48.60	215	185	
D Moor Farm.....	W. Dunbar, Esq., C.E. ....	5	1	0	810	..	57.07	..	..	
D Stewarton Filters.....	C. Bodie, Esq. ....	5	1	0	515	..	49.14	237	196	
D Kirkland (Dunlop).....	R. Clement, Esq. ....	5	1	0	400	..	51.85	215	190	
D Dalry (Munnock Reservoir).....	Gilbert Christie, Esq., C.E. ....	5	1	0	325	47.9	50.55	243	191	
D Dalry (Caaf Reservoir).....	Gilbert Christie, Esq., C.E. ....	5	1	3	515	53.2	55.04	243	195	
D Dalry (Birkheadsteel).....	Gilbert Christie, Esq., C.E. ....	5	1	0	520	..	58.64	243	203	
D Dalry W.W. (Filters).....	W. Gray, Esq., C.E. ....	5	1	0	320	46.5	53.98	238	198	
D Dalry (Templand).....	A. Shanks, Esq. ....	5	1	0	154	..	49.99	231	180	
D Dalry W.W. (Thirdpart).....	W. Gray, Esq., C.E. ....	5	1	0	560	52.0	54.06	..	..	
D Dalry (Campmill Reservoir).....	James Lee, Esq., C.E. ....	11	1	0	611	..	67.70	..	..	
D Beith (Filter Station).....	W. Gray, Esq., C.E. ....	5	1	5	415	..	55.98	241	200	
D Kilbirnie (Hole House Filters).....	W. Gray, Esq., C.E. ....	5	1	0	377	..	66.38	257	208	
M Kilbirnie (Pundeavon Res.).....	W. Gray, Esq., C.E. ....	11	1	0	898	..	84.84	..	..	
4.—AYR. 222 sq. mi.										
D Ayr Cemetery.....	J. Young, Esq., C.E. ....	5	1	0	40	34.8	36.23	200	153	
D Annbank House.....	Jas. Dickie, Esq. ....	5	1	0	240	..	37.44	231	167	
D Catrine.....	Messrs. J. Findlay & Co. ....	6	1	0	300	..	42.54	227	181	
D Montgomery .....	T. Allan Arthur, Esq. ....	5	1	0	340	..	39.64	213	180	
D Muirkirk (Kaimshill).....	Dugald Baird, Esq. ....	5	1	6	750	43.4	54.48	235	196	
D Sorn (Blackside Water Tank) ....	W. Gray, Esq., C.E. ....	5	1	0	840	..	50.04	..	..	
5.—DOON. 119 sq. mi.										
w Loch Finlas.....	J. Young, Esq., C.E. ....	5	1	0	849	55.1	52.67	..	..	
D Dalmellington (Mosssdale W.W.)...	W. Gray, Esq., C.E. ....	5	1	0	764	..	44.24	254	198	
D Patna (Kerse Filters).....	W. Gray, Esq., C.E. ....	11	1	0	743	44.4	43.31	227	183	
D Maybole (Knockdon).....	Iate Thomas Cross, Esq. ....	5	1	6	352	..	46.30	..	..	
D Maybole (Otterden).....	Robert Cross, Esq. ....	5	1	3	314	..	44.96	212	181	
D Ayr (Doonholm).....	Col. N. Kennedy, D.S.O. ....	5	1	0	90	38.8	42.53	229	187	
D Alloway (Doonside).....	J. Ferrier, Esq. ....	5	1	5	99	..	43.69	215	176	
6.—CULZEAN BAY & C. 32 sq. mi.										
D Turnberry Lighthouse.....	Com'rs. of N. Lighthouses..	5	2	6	40	32.5	35.50	..	..	
D Maybole (Culzean Castle Gdns)....	Mr. W. J. Orr.....	8	1	3	138	36.4	41.39	211	171	

## DIVISION XIV—SOUTH-WESTERN COUNTIES—(con.).

		Rain-gauge					1931.		
STATIONS.	AUTHORITIES.	Diam. in.	Height of		Average Rain-fall. in.	Rain-fall. in.	Days with ·01 in. or more.	Days with ·04 in. or more.	
			Rim above Ground.	Ground above Sea Level.					
AYR—(con.).									
7.—GIRVAN. 105 sq. mi.									
Girvan (Glendoune Gardens).....	Mr. J. Simons.....	5	1	0	100	41·8	46·76	200 ..	
Loch Bradan.....	M. S. Brodie, Esq., C.E.....	11	0	10	990	57·6	62·36	.. ..	
8.—STINCHAR & C. 155 sq. mi.									
d Glenapp Castle Gardens.....	Mr. A. W. Taylor.....	5	0	8	100	..	47·12	.. ..	
d Ballantrae (Windyknowe).....	Capt. J. M. Borland, C.B., D.S.O. 5	1	0	62	..	40·44	222	177	
d Colmonell (Knockdolian).....	Capt. McConnell.....	5	1	0	170	44·8	45·67	236 175	
d Pinwherry (Alticane).....	D. I. W. Gray, Esq.....	5	1	0	200	51·4	52·01	240 183	
d Pinwherry (Daljarrock).....	Major W. H. Coltman.....	5	0	5	190	..	54·88	.. ..	
d Girvan (Pinmore).....	Major E. C. Maxwell.....	5	0	5	207	49·8	50·48	239 181	
d Barr (Alton Albany).....	Lt.-Cdr. G. Hughes-Onslow, D.S.C. 5	1	6	330	..	52·05	229	198	
9.—LOCH RYAN. 12 sq. mi.									
10.—LUCE BAY. 15 sq. mi.									
d Ballantrae (Lagafater Lodge).....	Cedric R. Boulton, Esq.....	5	0	11	792	64·8	70·92	.. 176	
11.—CREE. 40 sq. mi.									
12.—DEE. 9 sq. mi.									
13.—NITH. 62 sq. mi.									
d Glen Afton (Ayr Sanatorium).....	Dr. E. E. Prest.....	5	1	0	850	53·2	60·03	233 210	
14.—INSULAR. 1 sq. mi.									
Ailsa Craig.....	Com'rs. of N. Lighthouses..	5	1	0	35	27·0	37·23	.. ..	
RENFREW. (Area, 241 sq. mi.)									
1.—CLYDE—Right Bank Tributaries. 3 sq. mi.									
2.—CLYDE—Left Bank Tributaries. 194 sq. mi.									
Gorbals Dist. W.W. (Nether Cairn).....	G. Henshilwood, Esq., C.E.. 12	0	5	700	57·2	54·10	.. ..	..	
Gorbals Dist. W.W. (Middleton).....	G. Henshilwood, Esq., C.E.. 12	0	5	550	55·8	50·80	.. ..	..	
Gorbals Dist. W.W. (Ryat Lynn).....	G. Henshilwood, Esq., C.E.. 8	0	5	310	49·0	48·46	.. ..	..	
Gorbals Dist. W.W. (Waulk Glen).....	G. Henshilwood, Esq., C.E.. 12	0	5	280	47·2	49·55	.. ..	..	
Paisley W. W. (Muirhead).....	James Lee, Esq., C.E..... 12	1	0	482	..	59·24	.. ..	..	
Paisley W. W. (Springside).....	James Lee, Esq., C.E..... 12	1	0	532	..	68·37	.. ..	..	
Paisley W.W. (Back Thornlymuir).....	James Lee, Esq., C.E..... 12	1	0	646	50·9	56·51	.. ..	..	
Paisley W.W. (Stanely).....	James Lee, Esq., C.E..... 12	1	0	190	..	44·21	.. ..	..	
d Howwood (Midton House).....	A. D. McNab, Esq. .... 5	1	3	232	..	59·41	206	186	
d Pollokshaws (Rouken Glen).....	W. Besant, Esq. .... 5	0	6	156	..	44·13	239	166	
d Pollokshaws (Pollok House).....	Sir J. Stirling Maxwell, Bt... 5	1	0	50	..	37·85	223	171	
d Glasgow (Queens Park).....	W. Besant, Esq. .... 8	0	9	145	36·1	39·32	237	169	
Glasgow (Maxwell Park).....	W. Besant, Esq. .... 5	0	6	69	..	36·32	211	166	
d Kilbarchan (Milliken Park).....	M. Douglas Anderson, Esq.. 5	1	6	75	..	50·59	214	189	
d Kilbarchan (Glentyan).....	(R) R. H. Hunter, Esq..... 8	3	9	285	..	49·16	247	182	
d Paisley (The Coats Observatory).....	Observatory Committee.... 8	1	0	106	40·7	42·57	223	164	
d Houston Manse.....	Rev. George Muir..... 5	1	0	103	..	50·94	226	175	
§ Shaws W.W. (Duchal Moor) <i>new g</i> .....	J. MacAlister, Esq., C.E.. 5	1	0	1150	..	85·50	.. ..	..	
§ Shaws W.W. (Creuch Hill) <i>new g</i> .....	J. MacAlister, Esq., C.E.. 5	1	0	1350	..	80·70	.. ..	..	
§ Shaws W.W. (Green Water).....	J. MacAlister, Esq., C.E.. 5	1	0	788	68·1	76·20	.. ..	..	
d Renfrew Aerodrome.....	(+A) The Meteorological Office... 8	1	0	33	36·4	39·97	219	168	
d Kilmacollum W.W. ....	James Grier, Esq. .... 5	1	0	600	..	73·26	248	203	
d Kilmacollum Village.....	James Grier, Esq. .... 5	1	0	300	..	55·84	243	199	
Bishopton (Ingliston).....	D. Cross, Esq. .... 5	1	0	195	..	46·17	.. ..	..	
Bishopton (Dargavel).....	Capt. R. Maxwell..... 5	1	0	33	..	44·50	.. ..	..	
d Shaws W.W. (Gryfe Reservoir).....	J. MacAlister, Esq., C.E.. 5	1	0	640	65·1	67·43	231	196	
d Shaws W.W. (Mansfield).....	J. MacAlister, Esq., C.E.. 5	1	0	573	64·5	65·37	232	194	
d Shaws W.W. (Darndaff Moor).....	J. MacAlister, Esq., C.E.. 5	1	0	850	65·7	69·50	.. ..	..	
3.—FIRTH OF CLYDE. 34 sq. mi.									
Inverkip (Daff Burn Reservoir).....	Alex. Duthie, Esq. .... 8	1	0	506	..	65·08	.. ..	..	
w Dougiehill Filters (Pt. Glas. W.W.).....	James Murray, Esq., C.E.. 8	1	6	540	..	51·29	.. ..	..	
w Parkhill Filters (Pt. Glas. W.W.).....	James Murray, Esq., C.E.. 8	1	6	275	..	47·78	.. ..	..	
d Shaws W.W. (Compens. Res.) <i>new g</i> .....	J. MacAlister, Esq., C.E.. 5	1	0	600	..	68·55	247	209	
d Shaws W.W. (Loch Thom).....	J. MacAlister, Esq., C.E.. 5	1	0	643	65·4	68·71	249	210	

§ Turf wall round gauge.

## DIVISION XIV—SOUTH-WESTERN COUNTIES—(con.).

STATIONS.	AUTHORITIES.	Diam.	Rain-gauge			1931.		
			Height of Rim above Ground.	Ground above Sea Level.	Average Rain- fall.	Rain- fall.	Days with ·01 in. or more.	Days with ·04 in. or more.
RENFREW—(con.).		in.	ft. in.	ft.	in.	in.		
3.—FIRTH OF CLYDE—(con.).								
Shaws W.W. (Shielhill) . . . . .	J. MacAlister, Esq., C.E. . . . .	6	1 0	962	65·7	68·20	..	..
D Shaws W.W. (New Yett's Dam) . . . . .	J. MacAlister, Esq., C.E. . . . .	5	1 0	800	65·0	65·50	271	211
Shaws W.W. (Spango Burn) . . . . .	J. MacAlister, Esq., C.E. . . . .	5	1 0	757	65·1	68·60	..	..
D Shaws W.W. (Hole Glen) . . . . .	J. MacAlister, Esq., C.E. . . . .	5	1 0	603	62·2	74·64	265	216
D Greenock (Prospect Hill) . . . (+A) . . . . .	J. MacAlister, Esq., C.E. . . . .	5	1 0	199	61·6	61·00	244	195
D Gourrock (Coves Reservoir) . . . . .	Alex. Duthie, Esq. . . . .	5	1 0	221	..	57·96	223	194
4.—IRVINE. 10 sq. mi.								

## DIVISION XV—WEST MIDLAND COUNTIES.

DUMBARTON. (Area, 270 sq. mi.)

<b>1.—FORTH—Right Bank Tributaries. 10 sq. mi.</b>								
<b>2.—FIRTH OF CLYDE &amp; COWAL. 52 sq. mi.</b>								
D Cardross (Kilmahew) . . . . .	Claud A. Allan, Esq. . . . .	5	1 0	130	44·7	46·01	231	196
D Helensburgh (Ferniegair) . . . . .	J. N. Stirling, Esq., C.E. . . . .	5	1 0	21	49·7	48·79	244	200
D Helensburgh (Valve House) . . . . .	J. N. Stirling, Esq., C.E. . . . .	8	1 0	293	52·7	54·28	251	209
D Rosneath Castle Gardens . . . . .	Mr. J. Dawson . . . . .	5	0 4	33	50·7	49·72	242	201
D Garelochhead (Ardarroch Gdns) . . . . .	F. A. Bush, Esq. . . . .	5	1 0	100	..	75·21	246	220
D Arrochar (Benreoch Tighness) . . . . .	Mrs. D. Little . . . . .	5	1 0	50	..	90·42	257	222
D Arrochar (Braeside) . . . . .	J. Lindsay, Esq. . . . .	5	1 0	40	74·6	78·89	269	227
<b>3.—CLYDE—Leven. 149 sq. mi.</b>								
D Renton (Carman Filters) . . . . .	W. Buchanan, Esq. . . . .	8	4 0	292	47·6	47·35	226	190
D Loch Lomond Park . . . . .	W. Besant, Esq. . . . .	5	1 0	156	49·5	51·30	239	..
M Glen Finlas Reservoir . . . . .	No. 1. George Beaton, Esq. . . . .	5	1 1	782	69·1	74·92	..	..
M Glen Finlas Reservoir . . . . .	No. 2. George Beaton, Esq. . . . .	5	1 6	1194	67·0	72·21	..	..
M Glen Finlas Reservoir . . . . .	No. 3. George Beaton, Esq. . . . .	5	1 5	1627	75·2	76·63	..	..
M Glen Finlas Reservoir . . . . .	No. 4. George Beaton, Esq. . . . .	5	2 0	2040	73·6	76·72	..	..
M Glen Finlas Reservoir . . . . .	No. 5. George Beaton, Esq. . . . .	5	0 10	1635	64·6	64·86	..	..
M Glen Finlas Reservoir . . . . .	No. 6. George Beaton, Esq. . . . .	5	1 0	1172	62·8	62·20	..	..
D Glen Finlas Reservoir . . . . .	No. 7. George Beaton, Esq. . . . .	12	1 6	810	81·4	89·73	250	218
<b>4.—CLYDE—Right Bank Tributaries. 59 sq. mi.</b>								
D Drumchapel (Wasdale) . . . . .	F. C. Thomson, Esq. . . . .	5	1 0	49	38·5	40·19	246	170
W Bearsden (Glenargnock) . . . . .	A. Lithgow, Esq. . . . .	8	1 0	132	40·4	43·98	..	..
D Gartshore Gardens . . . . .	Mr. Hugh Black . . . . .	5	1 0	261	..	45·24	242	181
D Milngavie (Dougalston) . . . . .	Mr. J. Hamilton . . . . .	5	1 0	150	43·7	48·50	233	191
D Duntocher (Cochno Filters) . . . . .	E. T. Collins, Esq., C.E. . . . .	5	1 0	400	43·7	46·14	209	177
W Kilpatrick Hills (Greenside Res.) . . . . .	E. T. Collins, Esq., C.E. . . . .	5	1 0	876	50·8	57·32	..	..
W Kilpatrick Hills (Loch Cochno) . . . . .	E. T. Collins, Esq., C.E. . . . .	5	1 0	909	52·4	57·57	..	..
W Kilpatrick Hills (Jaw Reservoir) . . . . .	E. T. Collins, Esq., C.E. . . . .	5	1 0	912	52·7	56·86	..	..

STIRLING. (Area, 463 sq. mi.)

<b>1.—FORTH—Right Bank Tributaries. 263 sq. mi.</b>								
D Polmont (Vellore) . . . . .	R. M. W. Brown, Esq. . . . .	5	1 0	320	36·3	38·28	194	156
D Polmont (Carhowden) . . . . .	T. B. G. Harvey, Esq. . . . .	5	1 0	110	..	37·12	189	167
D Falkirk (Inglewood, Laurieston) . . . . .	Miss H. S. D. Ballantine . . . . .	5	1 0	133	36·6	36·74	..	..
D Falkirk (Westbank) . . . . .	A. Nimmo, Esq. . . . .	5	1 0	75	37·6	40·95	209	162
D Falkirk (Westbank) . . . . .	Lawn. A. Nimmo, Esq. . . . .	5	1 0	105	36·5	38·73	209	156
D Falkirk (Arnotdale) . . . . .	W. Gibson, Esq. . . . .	5	1 0	105	37·4	38·99	198	152
D Falkirk (Kerse) . . . . .	George Smith, Esq. . . . .	5	1 0	18	31·9	35·47	..	..
D Grangemouth (Burgh Stables) . . . . .	J. C. Wallace, Esq., C.E. . . . .	5	1 0	15	31·8	34·01	..	..
M Little Denny Reservoir . . . . .	C. Massie, Esq., C.E. . . . .	8	1 0	326	43·1	44·36	..	..
Little Denny Reservoir new g . . . . .	C. Massie, Esq., C.E. . . . .	..	..	..	..	45·21	..	..
M Little Denny Filters . . . . .	C. Massie, Esq., C.E. . . . .	8	1 0	243	42·2	46·91	..	..
M Kilsyth (Faughlin Res.) . . . . .	C. Massie, Esq., C.E. . . . .	8	1 0	707	55·2	61·05	..	..
Denny (Buckieburn Reservoir) . . . . .	C. Massie, Esq., C.E. . . . .	8	1 0	825	45·9	47·80	..	..
Denny (Buckieburn Filters) . . . . .	C. Massie, Esq., C.E. . . . .	8	1 0	760	43·3	40·88	..	..
M Earlsburn Reservoir . . . . .	C. Massie, Esq., C.E. . . . .	8	1 0	1202	58·0	57·75	..	..
D Stirling (North Third Res.) . . . . .	J. C. Wallace, Esq., C.E. . . . .	8	1 0	560	44·8	54·39	249	176
D Stirling (Touch Res.) . . . . .	No. 3. A. H. Goudie, Esq. . . . .	8	1 0	759	47·7	53·56	234	181

## DIVISION XV—WEST MIDLAND COUNTIES—(con.).

STATIONS.	AUTHORITIES.	Diam.	Rain-gauge			1931.			
			Height of Rim above Ground.	Ground above Sea Level.	Aver- age Rain- fall.	Rain- fall.	Days with ·01 in. or more.	Days with ·04 in. or more.	
STIRLING—(con.).						in.			
1.—FORTH—Right Bank Tributaries—(con.).						in.			
d Stirling (Touch Res.) . . . . . No. 2 . . . . .	A. H. Goudie, Esq.	8	1	0	707	47·1	51·99	234	181
d Stirling (Touch Res.) . . . . . No. 1 . . . . .	A. H. Goudie, Esq.	8	1	0	455	47·6	53·93	234	184
Polmain Castle Gardens . . . . .	Mr. J. McAndie . . . . .	5	1	11	220	..	46·57	..	..
w Touch Gardens . . . . .	Mr. T. Davidson . . . . .	5	1	1	90	..	51·24	..	..
Endrick Lodge . . . . .	W. M. Wallace, Esq. . . . .	5	1	0	136	..	43·66	..	..
d Stirling (Sauchie House) . . . . .	J. Fyfe, Esq., C.S.I. . . . .	5	1	0	151	36·5	41·21	..	149
Stirling (Westerlands) . . . . .	J. W. Drummond, Esq. . . . .	5	1	0	110	36·9	41·16	..	..
d Stirling (Craigforth) . . . . .	A. J. Couper, Esq. . . . .	5	1	0	32	39·1	43·97	267	160
Bucklyvie (Gartinstarry) . . . . .	C. Stirling, Esq. . . . .	5	1	0	150	..	47·09	..	..
d Gargunnoch House . . . . .	C. Stirling, Esq. . . . .	5	1	0	85	43·4	48·51	215	159
d Kippen (Arngomery) . . . . .	Mr. A. Leitch . . . . .	5	4	6	150	47·5	46·99	239	172
Micklewood . . . . .	J. McNaughton, Esq. . . . .	5	1	0	35	..	45·55	..	..
w Duchray Valley (Ben Lomond) . . . . .	G. Henshilwood, Esq., C.E. . . . .	8	0	6	1500	88·0	89·00	..	..
w Duchray Valley (Glen Dhu) . . . . .	G. Henshilwood, Esq., C.E. . . . .	8	1	0	500	83·8	86·15	..	..
w Duchray Valley (Comer) . . . . .	G. Henshilwood, Esq., C.E. . . . .	8	1	0	600	88·0	88·75	..	..
w Duchray Valley (Achaidd Burn) . . . . .	G. Henshilwood, Esq., C.E. . . . .	8	1	0	1200	97·4	98·75	..	..
w Duchray Val. (Hd. of Main Stream) . . . . .	G. Henshilwood, Esq., C.E. . . . .	8	1	0	950	92·8	89·90	..	..
2.—FORTH—Teith. 5 sq. mi.									
d Stronachlachar (Invergyle) . . . . .	G. Henshilwood, Esq., C.E. . . . .	8	1	0	376	82·4	82·80	236	..
3.—FORTH—Left Bank Tributaries. 15 sq. mi.									
d Bridge of Allan (The Lea) . . . . .	Mr. W. Watt . . . . .	5	0	8	100	35·9	37·74	242	161
d Bridge of Allan (Langlands) . . . . .	W. H. Gillespie, Esq. . . . .	5	1	0	45	..	39·10	218	147
d Bridge of Allan (Lynwood) . . . . .	J. Wallace Walker, Esq. . . . .	5	1	0	250	..	38·07	(206)	(151)
4.—CLYDE—Leven. 128 sq. mi.									
Strathblane (Blanehead) . . . . .	G. Henshilwood, Esq., C.E. . . . .	8	1	0	250	50·5	54·40	..	..
d Killearn (Achnagowan) . . . . .	Miss A. L. Guthrie-Smith . . . . .	5	1	0	332	56·1	53·95	225	181
w Loch Arklet (Corriehead) . . . . .	G. Henshilwood, Esq., C.E. . . . .	8	0	6	870	89·3	84·65	..	..
w Loch Arklet (Corriehead) . . . . .	G. Henshilwood, Esq., C.E. . . . .	8	0	6	950	90·2	89·95	..	..
5.—CLYDE—Right Bank Tributaries. 52 sq. mi.									
Strathblane (Mugdock Res.) . . . . .	G. Henshilwood, Esq., C.E. . . . .	8	0	6	320	46·2	52·75	..	..
d Milngavie (Eastertoun) . . . . .	Major R. M. Ker . . . . .	5	1	0	474	45·0	52·80	226	181
Kilpatrick H. (Burncrooks Res.) . . . . .	E. T. Collins, Esq. . . . .	5	1	0	835	49·5	52·82	..	..
d Kilsyth (Queenzieburn) . . . . .	Mr. Scott . . . . .	5	1	0	175	..	47·64	239	187
d Kilsyth (Innsbridge) . . . . .	J. I. Little, Esq. . . . .	5	4	6	197	47·3	55·94	278	212
d Lennoxton . . . . .	W. R. Partterson, Esq. . . . .	5	1	0	200	..	57·25	230	190
BUTE. (Area, 218 sq. mi.)									
1.—ISLE OF BUTE. 50 sq. mi.									
d Rothsay (Ardencraig) . . . . .	Sir John Reid . . . . .	5	1	0	200	49·0	64·82	272	250
d Port Bannatyne (Ettrickdale) . . . . .	Lt.-Col. M. R. Gray Buchanan . . . . .	5	1	0	160	..	56·36	252	223
2.—CUMBRAES. 4 sq. mi.									
Millport (St. Andrew's Home) . . . . .	Dr. J. H. Paul . . . . .	5	0	9	12	..	44·13	225	176
d Millport (Marine Biog. Stat.) . . . . .	R. Elmhirst, Esq. . . . .	5	1	0	16	..	41·98	224	169
3.—ARRAN. 164 sq. mi.									
Holy Island (Pillar Rock) . . . . .	Com'rs. of N. Lighthouses . . . . .	5	0	11	68	48·6	44·07	207	173
d Dougarie Lodge . . . . .	David Reside, Esq. . . . .	5	1	0	10	46·0	45·03	226	179
d Corrie Manse . . . . .	Rev. James Brown . . . . .	5	1	0	20	..	70·20	241	194
ARGYLL. (Area, 3,181 sq. mi.)									
1.—TAY—Tummel. 36 sq. mi.									
2.—SOUND OF ARISAIG, SOUND OF MULL & C. 317 sq. mi.									
d Morvern (Ardtornish) . . . . .	O. H. Smith, Esq. . . . .	5	1	0	48	83·3	77·72	216	211
d Morvern (Drimnin) . . . . .	Mrs. Gordon . . . . .	5	1	0	225	62·7	53·68	243	226
d Loch Sunart (Glenborrodale) . . . . .	K. M. Clark, Esq. . . . .	5	1	0	30	69·0	68·40	264	238
d Acharacle (Shielbridge) . . . . .	K. M. Clark, Esq. . . . .	8	3	0	51	68·2	63·66	253	225
d Loch Shiel (Polloch House) . . . . .	Forestry Commission . . . . .	5	0	9	30	83·5	86·51	..	190
3.—LOCH LINNHE—Right Bank Tributaries. 139 sq. mi.									
d Morvern (Kingairloch) . . . . .	Mrs. G. H. Strutt . . . . .	5	1	0	40	98·2	92·45	244	217
d Corran Lighthouse . . . . .	Com'rs. of N. Lighthouses . . . . .	5	1	0	13	81·0	81·86	248	226
d Ardgor House . . . . .	Maclean of Ardgor . . . . .	5	0	10	60	90·0	102·20	293	246

## DIVISION XV—WEST MIDLAND COUNTIES—(con.).

STATIONS.	AUTHORITIES.	Diam.	Rain-gauge			1931.			
			Height of Rim above Ground.	Height of Ground above Sea Level.	Average Rain-fall.	Rain-fall.	Days with ·01 in. or more.	Days with ·04 in. or more.	
ARGYLL—(con.).									
4.—LOCH LINNHE.—Left Bank Tributaries. 165 sq. mi.									
D Duror (Achara) .....	W. D. Stewart, Esq. ....	5	1	2	45	72·4	73·48	268	214
D Barcaldine .....	Forestry Commission .....	5	1	0	50	72·0	62·23	257	210
D Barcaldine Gardens .....	Sir Charles Stewart, K.B.E. ....	5	1	0	50	..	68·81	286	231
D Carnach .....	L. R. Sutherland, Esq. ....	5	1	0	27	..	83·18	(250)	(215)
D Glencoe Gardens .....	Mr. J. B. Crichton .....	8	1	0	85	..	75·69	248	216
Glenleven (Blackwater House) ..	British Aluminium Co. Ltd. ....	8	1	0	1069	83·8	84·58	..	..
D Glenleven (Blackwater Dam, S.) ..	British Aluminium Co. Ltd. ....	8	1	0	1072	87·7	90·85	277	231
D Glenleven (Kinlochleven) .....	British Aluminium Co. Ltd. ....	8	1	0	140	90·0	94·79	251	231
5.—LOCH ETIVE. 197 sq. mi.									
D Glen Etive .....	W. D. Fordyce, Esq. ....	..	1	0	200	94·0	98·63	235	220
6.—LOCH ETIVE—Loch Awe. 319 sq. mi.									
D Loch Awe (Dalavich) .....	D. Macdonald, Esq. ....	8	1	0	350	..	81·45	231	228
D Dalmally (Manse of Glenorchy) ..	Rev. Farquhar MacRae ....	5	1	0	150	76·0	77·72	..	..
D Bridge of Orchy (Inveroran) .....	J. Ainscouth, Esq. ....	5	1	0	580	83·5	71·02	..	..
7.—FIRTH OF LORNE. 112 sq. mi.									
D Kilmelfort (Arduaine) .....	Lt.-Col. B. A. Campbell ....	5	0	10	23	57·6	70·80	211	208
D Kilmelfort (Ardmaddy Castle) ..	Marchioness of Breadalbane. ....	5	1	0	70	..	65·38	250	214
W Oban (Gleann-a-Bhearraidh Res.) ..	D. Galloway, Esq. ....	8	1	6	400	57·5	54·92	..	..
D Oban .....	D. Galloway, Esq. ....	8	1	0	21	53·0	49·72	239	200
8.—SOUND OF JURA. 163 sq. mi.									
D Lochgilphead (Poltalloch) .....	Mr. D. S. Melville .....	5	1	6	135	52·7	52·95	236	217
9.—KINTYRE, WEST. 146 sq. mi.									
Mull of Kintyre .....	Com'r. of N. Lighthouses ...	5	1	0	270	41·1	43·79	..	..
D Largie Castle .....	Mrs. Moreton Macdonald ...	5	1	1	160	48·4	40·18	230	177
10.—KINTYRE, EAST. 177 sq. mi.									
D Campbeltown (South Park) .....	J. A. Gardiner, Esq. ....	8	0	10	20	50·6	53·46	258	194
D Campbeltown (Devaar) .....	Com'rs. of N. Lighthouses ..	5	1	9	76	45·1	46·52	..	..
D Carradale (Torrisdale Castle) ..	Major W. Macalister Hall ...	5	1	0	84	62·6	65·52	244	200
D Skipness (Claonaig) .....	R. F. Graham, Esq. ....	5	1	0	160	..	51·70	229	202
11.—LOCH FYNE. 264 sq. mi.									
D Ardlamont (Kilbride) .....	J. W. Turnbull, Esq. ....	5	1	0	110	49·0	46·56	..	..
D Otter Ferry (Ballimore) .....	Lt.-Col. J. MacRae-Gilstrap. ....	5	0	10	70	52·1	54·08	..	..
D Ardrishaig (Canal Office) .....	E. A. Bly, Esq., C.E. ....	5	1	0	48	67·9	63·96	247	211
D Loch Fyne (Castle Lachlan) .....	The MacLachlan of Machlachlan ..	5	1	0	25	65·3	69·57	247	220
D Crarae Lodge .....	Capt. G. I. Campbell .....	5	1	0	20	68·2	70·82	240	212
D Strachur Park .....	Lady G. Campbell .....	5	1	0	25	66·7	70·96	248	224
D Brechoillie .....	A. R. Page, Esq. ....	5	1	0	240	..	(72·55)	(211)	(204)
D Inveraray Castle Gardens .....	A. R. Page, Esq. ....	5	1	0	40	77·2	77·36	223	208
D Ardkinglas .....	Mr. J. Payne .....	8	1	6	37	70·8	74·06	255	223
12.—FIRTH OF CLYDE & COWAL. 242 sq. mi.									
D Toward (Knockdow Gardens) .....	Sir Norman Lamont, Bt. ....	5	1	6	101	59·7	61·89	247	203
D Toward (Inverchaolain) .....	Sir Norman Lamont, Bt. ....	5	1	0	..	67·9	68·47	245	215
D Ardnadam (Hafton Ho.) .....	R. Allan, Esq. ....	5	1	0	73	76·5	74·19	230	214
D Loch Eck (Benmore) .....	H. G. Younger, Esq. ....	5	1	3	40	86·6	97·41	253	216
D Glenbranter .....	Forestry Commission .....	5	1	0	188	88·2	88·07	252	216
D Lochgoilhead (Ardgoil) .....	W. Besant, Esq. ....	5	0	6	20	86·3	87·18	266	220
D Lochgoilhead (Nuthill) .....	Mrs. Henderson .....	5	1	0	15	74·8	72·83	201	196
D Glencroe (Guithas Cottage) .....	D. Spraggan, Esq. ....	5	1	2	120	101·0	95·41	250	224

## DIVISION XV—WEST MIDLAND COUNTIES—(con.).

STATIONS.	AUTHORITIES.	Diam.	Rain-gauge				1931.		
			Height of		Average	Rain-fall.	Rain-fall.	Days with .01 in. or more.	Days with .04 in. or more.
			Rim above Ground.	Ground above Sea Level.					
			in.	ft. in.	ft.	in.	in.		
<b>ARGYLL—(con.).</b>									
<b>14.—INSULAR. 900 sq. mi.</b>									
d Islay (Ardbeg) . . . . .	A. H. MacDougall, Esq. . . . .	5	5	6	60	45.1	47.88	243	198
Sanda Lighthouse . . . . .	Com'rs. of N. Lighthouses . . . . .	5	2	9	134	36.8	34.02	220	168
Islay (Rhinn) . . . . .	Com'rs. of N. Lighthouses . . . . .	7	3	6	74	..	43.51	..	..
Islay (Lochindaal) . . . . .	Com'rs. of N. Lighthouses . . . . .	5	0	7	45	44.0	43.85	..	..
Islay (McArthur's Head) . . . . .	Com'rs. of N. Lighthouses . . . . .	5	0	6	173	58.4	68.18	246	207
d Islay (Eallabus) <i>old g.</i> . . . . .	J. MacKillop, Esq. . . . .	5	1	0	68	48.9	53.89	247	208
d Islay (Dunlossit) . . . . .	Mrs. N. M. Dunlop . . . . .	5	1	0	100	..	53.68	..	..
Islay (Rhuvaal) . . . . .	Com'rs. of N. Lighthouses . . . . .	5	1	0	69	42.0	40.62	227	208
d Jura (Ardfin) . . . . .	Colin Campbell, Esq. . . . .	5	1	0	160	53.8	55.35	260	214
Lismore (Mousedale) . . . . .	Com'rs. of N. Lighthouses . . . . .	7	3	10	38	43.7	41.86	204	183
d Mull (Bunessan) . . . . .	Angus Cameron, Esq. . . . .	5	1	3	50	51.6	46.52	232	198
d Mull (Kinlochspelve) . . . . .	G. W. Duncan, Esq. . . . .	8	1	0	100	93.2	92.05	230	222
Mull (Benmore) . . . . .	The Meteorological Office . . . . .	5	2	0	2800	135.8	128.50	..	..
d Mull (Glencannel) . . . . .	W. H. Mackay, Esq. . . . .	5	1	3	140	116.9	93.38	268	232
d Mull (Ulva) . . . . .	F. W. Clark, Esq. . . . .	5	1	0	30	64.8	62.90	275	220
d Mull (Gruline) . . . . .	J. W. Melles, Esq. . . . .	8	1	0	100	79.0	76.77	288	234
Mull, Sound of . . . . .	Com'rs. of N. Lighthouses . . . . .	..	..	..	..	61.5	59.68	242	214
Fladda Lighthouse . . . . .	Com'rs. of N. Lighthouses . . . . .	5	1	6	25	58.2	51.37	229	217
d Tiree (Hynish House) . . . . .	M. Maclean, Esq. . . . .	5	1	2	65	..	37.56	265	205
d Tiree (Cornaigmore School) . . . . .	Meteorological Office . . . . .	5	1	0	22	44.7	42.12	261	202

## DIVISION XVI—EAST MIDLAND COUNTIES.

CLACKMANNAN. (Area 55 sq. mi.)

## 1.—FORTH, LOWER—Left Bank Tributaries. 55 sq. mi.

d Alloa House Gardens . . . . .	Earl of Mar & Kellie, K.T. . . . .	5	3	0	40	34.3	37.34	208	151
w Alloa W.W. (Gartmorn Res.) . . . . .	Robert Cairns, Esq., C.E. . . . .	11	1	0	172	33.2	34.60	..	..
d Dollar (Dollarbeg) . . . . .	James Bleloch, Esq. . . . .	5	0	9	300	38.6	43.16	239	169
d Tillicoultry (Westbourne) . . . . .	Mrs. Willison . . . . .	5	1	0	66	37.0	39.57	207	161
m Glendevon (Broich Burn) . . . . .	No. 2. H. F. Hodge, Esq., C.E. . . . .	8	1	0	1333	76.5	75.83	..	..
m Glendevon (Burnfoot Hill) . . . . .	No. 8. H. F. Hodge, Esq., C.E. . . . .	8	1	0	1721	49.2	53.84	..	..
m Glendevon (Backhill) . . . . .	No. 9. H. F. Hodge, Esq., C.E. . . . .	8	1	0	1067	58.7	61.87	..	..
d Glendevon (Backhill) . . . . .	H. F. Hodge, Esq., C.E. . . . .	8	1	0	1067	60.5	60.87	253	198

KINROSS. (Area, 87 sq. mi.)

## 1.—FORTH, LOWER—Left Bank Tributaries. 15 sq. mi.

d Dollar (Blairingone Manse) . . . . .	Rev. J. F. Cameron . . . . .	5	1	6	296	39.8	41.61	221	164
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## 2.—LEVEN &amp; C. 67 sq. mi.

d Loch Leven Sluice . . . . .	Mr. J. Thomson . . . . .	8	0	9	360	35.8	34.95	..	..
d Milnathort (Laurel Bank) . . . . .	Capt. L. Kininmonth . . . . .	5	1	0	398	36.0	36.65	..	..
d Milnathort (Ledlanet) . . . . .	Sir James C. Calder, C.B.E. . . . .	5	1	3	700	44.4	45.94	205	169
d Milnathort (Ochil Hills San.) . . . . .	Dr. R. H. Williamson . . . . .	5	1	0	800	..	46.96	219	171

## 3.—EDEN. 2 sq. mi.

## 4.—TAY—Earn. 3 sq. mi.

FIFE. (Area, 505 sq. mi.)

## 1.—FORTH, LOWER—Left Bank Tributaries. 68 sq. mi.

d Rosyth (H. M. Dockyard) . . . . .	The Supt. Civil Engineer . . . . .	8	1	0	53	25.7	28.94	..	..
Carnock (Craigluscar Res.) . . . . .	D. H. Shaw, Esq., M.C., C.E. . . . .	12	0	4	480	36.1	40.10	..	..

§ Gauge over-exposed.

## DIVISION XVI—EAST MIDLAND COUNTIES—(con.).

		Rain-gauge				1931.		
STATIONS.	AUTHORITIES.	Diam.	Height of		Average Rain-fall.	Rain-fall.	Days with .01 in. or more.	Days with .04 in. or more.
			Rim above Ground.	Ground above Sea Level.				
FIFE—(con.).		in.	ft.	in.	ft.	in.	in.	
2.—LEVEN & C. 208 sq. mi.								
Inverkeithing (Pitreavie Castle)...	R. Richardson, Esq.....	5	0	9	150	..	23.11	..
d Dunfermline (Fordell House) .....	Countess of Buckinghamshire	5	1	0	250	32.0	35.87	.. 130
d Burntisland (Cullaloe Res.).....	J. A. Waddell, Esq. ....	5	1	0	294	..	32.11	177 155
d Kirkcaldy (Munro Street).....	F. Braid, Esq. ....	5	1	0	66	30.0	32.80	205 138
Cowdenbeath (Stenhouse St.) .....	C. A. Alexander, Esq.....	5	1	0	516	36.1	35.24	.. ..
M Cleish Hills (Craigaveral).....	C. A. Alexander, Esq.....	5	1	0	760	41.0	38.80	.. ..
M Cleish Hills (Roscobie Res.) .....	C. A. Alexander, Esq.....	5	1	0	660	39.6	37.85	.. ..
d Kirkcaldy (Carberry) .....	R. Ritchie, Esq. ....	5	1	0	326	..	31.61	200 138
M Cleish Hills (Blairadam).....	C. A. Alexander, Esq. ....	5	1	0	670	35.8	34.20	.. ..
M Cleish Hills (Lochglow Res..).....	C. A. Alexander, Esq. ....	5	1	0	900	39.3	34.70	.. ..
d Leslie (Lothrie Reservoir).....	R. Ritchie, Esq. ....	5	1	0	700	36.7	39.00	229 158
d Elie (The Castle).....	Miss E. E. Scott Moncrieff..	5	0	8	9	25.2	27.23	189 121
d Colinsburgh (Cairnie House).....	Maj. R.A. Anstruther, D.S.O.	5	3	6	125	28.8	36.34	189 138
d Colinsburgh (Balcarres).....	Mr. W. H. Adams .....	5	1	0	300	..	37.73	187 151
d Carnbee (Ovenstone W. W.).....	C. Birrell, Esq. ....	5	1	0	168	25.8	27.89	184 119
Kirkmay (Crail) .....	J. Duncan, Esq.....	5	1	0	110	..	35.91	.. ..
3.—EDEN & C. 205 sq. mi.								
d Cupar (Clatto Reservoir).....	Jas. M. Alexander, Esq. ....	5	1	0	505	..	38.89	202 155
d Cameron Waterworks .....	W. Watson, Esq., C.E.....	5	1	0	478	29.9	36.17	169 137
d Cupar (Pitlair).....	Mr. P. Webster .....	5	1	0	126	29.5	33.78	199 151
d Cupar (Rankeillour) .....	Mr. R. Tunstall .....	5	1	0	240	28.7	34.93	190 145
d Cupar (Fife & Kinross Asylum)....	Medical Superintendent ....	5	1	0	210	..	34.05	192 143
d Kingsbarns.....	Miss M. R. Nimmo .....	5	1	0	35	..	29.92	175 122
d Cupar (Over Rankeillour) .....	H. Giles Walker, Esq.....	5	1	0	200	28.7	30.90	189 122
d St. Andrews (Waterworks) .....	W. Watson, Esq., C.E.....	5	1	0	217	27.3	32.40	.. 122
d St. Andrews .....	W. Watson, Esq., C.E.....	5	1	0	20	27.1	32.87	186 123
d Leuchars (Training Base) ..(+A)...	The Meteorological Office...	8	1	0	30	25.7	30.06	186 123
4.—FIRTH OF TAY. 25 sq. mi.								
d Newport (Tayfield).....	W. Berry, Esq.....	5	0	7	100	28.3	34.27	187 137
d Newport Manse.....	Rev. John A. Lees.....	5	1	0	150	27.1	30.80	177 123
d Newport (Seabank).....	J. Grant Bruce, Esq.....	5	4	6	15	27.5	30.61	178 132
d Tayport (Lighthouse).....	J. H. Thompson, Esq., C.E..	5	1	0	27	26.3	31.72	199 131
5.—TAY—Earn. 1 sq. mi.								
6.—INSULAR.								
d Inchkeith .....	The Meteorological Office ..	8	1	0	190	21.8	28.01	173 125
Inchkeith Lighthouse.....	Com'rs. of N. Lighthouses ..	5	1	0	190	..	25.60	162 116
Isle of May.....	Com'rs. of N. Lighthouses ..	5	4	0	180	..	26.73	.. ..
PERTH. (Area, 2535 sq. mi.)								
1.—FORTH—Right Bank Tributaries. 17 sq. mi.								
d Gartmore House Gardens .....	Mr. H. B. Matheson.....	5	1	0	160	56.0	56.35	235 179
d Loch Dhu .....	G. Henshilwood, Esq., C.E...	8	0	6	325	79.8	79.35	.. 219
2.—FORTH, UPPER—Left Bank Tributaries. 84 sq. mi.								
w Ledard.....	G. Henshilwood, Esq., C.E..	8	0	6	1500	61.2	69.68	.. ..

## DIVISION XVI—EAST MIDLAND COUNTIES—(con.).

STATIONS.	AUTHORITIES.	Diam.	Rain-gauge			1931.		
			Height of		Average	Rain-fall.	Days with ·01 in. or more.	Days with ·04 in. or more.
			Rim above Ground.	Ground above Sea Level.	Rain- fall.			
		in.	ft.	in.	ft.	in.		
PERTH—(con.).								
<b>3.—FORTH—Teith. 221 sq. mi.</b>								
Ochtertyre (Stirling).....	Lt.-Col. J. C. Dundas, D.S.O.	5	0	9	14	..	36·69	..
w Loch Drunkie.....	G. Henshilwood, Esq., C.E.	8	0	6	420	62·1	64·25	..
d Inverrossachs.....	Sir James R. Wilson, Bt.	5	1	0	380	58·7	62·88	240
w Ben Venue (Glasahole).....	G. Henshilwood, Esq., C.E.	8	1	0	1150	80·4	78·90	..
d Loch Vennachar.....	G. Henshilwood, Esq., C.E.	8	0	6	275	55·3	59·20	..
d Bridge of Turk.....	G. Henshilwood, Esq., C.E.	8	0	6	275	63·5	65·45	..
w Loch Katrine (Tunnel Hill Top).....	G. Henshilwood, Esq., C.E.	8	0	6	830	81·4	80·70	..
w Ben Ledi.....	G. Henshilwood, Esq., C.E.	8	0	6	1400	66·6	76·15	..
d Achnahard.....	G. Henshilwood, Esq., C.E.	8	1	0	474	65·5	68·90	..
Callander (Leny House).....	Capt. M. Murray Buchanan.	5	1	0	340	56·3	55·10	..
w Strone Bridge.....	G. Henshilwood, Esq., C.E.	8	1	0	380	72·4	71·50	..
w Glen Meann.....	G. Henshilwood, Esq., C.E.	8	1	0	800	77·2	79·90	..
w Glen Finlas.....	G. Henshilwood, Esq., C.E.	8	1	0	1200	79·0	81·10	..
d Glengyle.....	G. Henshilwood, Esq., C.E.	8	0	6	380	89·9	84·70	..
w Upper Glengyle.....	G. Henshilwood, Esq., C.E.	8	1	0	750	95·6	93·75	..
w Allt a' Choin.....	G. Henshilwood, Esq., C.E.	8	1	0	1250	89·6	86·30	..
w Balquhiddie (Blaircreach).....	J. M. Fergusson, Esq.	5	1	0	460	94·7	97·97	..
d Balquhiddie (Stronvar).....	J. Gault, Esq.	5	1	0	422	74·2	62·56	..
<b>4.—FORTH, LOWER—Left Bank Tributaries. 107 sq. mi.</b>								
d Dunblane.....	W. L. Gibson, Esq., C.E.	5	1	0	250	37·3	39·47	(219)
d Glendevon (Glenquey Res.) No. 2.....	H. F. Hodge, Esq., C.E.	8	1	0	945	54·7	59·44	202
d Glendevon (Tormaukin).....	W. Phillips, Esq.	8	1	6	770	53·6	56·89	213
d Glendevon (Frandy).....	H. F. Hodge, Esq., C.E.	8	1	0	911	60·4	65·05	237
Glendevon (Glensherup).....	D. H. Shaw, Esq., M.C., C.E.	12	0	4	945	59·8	59·41	..
M Glendevon (Bald Hill).....	No. 1. H. F. Hodge, Esq., C.E.	8	1	0	1202	56·5	62·49	..
M Glendevon (Wether Hill).....	No. 10. H. F. Hodge, Esq., C.E.	8	1	0	1408	48·8	53·89	..
<b>5.—LEVEN. 1 sq. mi.</b>								
<b>6.—EDEN. 4 sq. mi.</b>								
<b>7.—TAY—Earn. 376 sq. mi.</b>								
d Gleneagles House.....	Mr. J. Scrimgeour.	8	1	0	447	45·3	43·29	209
Upper Farg (Plains).....	Messrs. Leslie & Reid, C.E.	8	1	0	900	35·9	39·84	..
Upper Farg (Main Bank).....	Messrs. Leslie & Reid, C.E.	5	1	0	642	31·3	35·00	..
d Dunning (Kippen House).....	Lady Wilson.	5	1	0	450	43·1	45·85	218
d Glenfarg (Fordel).....	Maj.-Gen. A. H. Marindin, C.B., D.S.O.	5	1	0	700	..	37·45	..
d Bridge of Earn (Ballendrick).....	Mrs. J. P. Taylor.	5	1	0	50	32·6	35·59	198
d Bridge of Earn (Kinmonth).....	J. Moncrieff Wright, Esq.	5	1	0	..	30·4	31·75	..
d Lochearnhead (Ardloch).....	S. Moir, Esq.	5	1	0	370	64·3	57·87	251
d Lochearnhead (Edinchip).....	Sir Malcolm MacGregor, Bt.	5	1	0	513	70·3	65·62	253
d Comrie (Dunira).....	W. Gilchrist Macbeth, Esq.	10	1	6	240	52·0	52·42	208
d Crieff (Strathearn Hydro).....	Dr. G. Meikle.	5	1	0	478	40·9	41·93	232
<b>8.—TAY—Almond &amp; c. 149 sq. mi.</b>								
d Perth (Wellshill Cemetery).....	J. Ritchie, Esq.	5	1	0	77	30·8	30·67	197
w Logiealmond Lodge.....	Earl of Mansfield.	8	1	3	1020	48·5	51·00	..
d Glen Almond (Auchnafree).....	Major J. A. C. Whitaker.	5	1	0	1015	62·0	67·92	198
<b>9.—TAY—Strathday below Dunkeld. 33 sq. mi.</b>								
Murthly (Douglasfield).....	W. A. Rae, Esq.	5	1	0	237	34·9	36·89	..
d Dunkeld (Snaigow).....	W. H. Cox, Esq.	5	1	0	370	35·0	41·02	190
d Dunkeld (Kincairney Lodge).....	John Doig, Esq.	8	1	0	400	..	39·96	228



## DIVISION XVI—EAST MIDLAND COUNTIES—(con.).

STATIONS.	AUTHORITIES.	Diam.	Rain-gauge			1931.		
			Height of		Average Rain- fall.	Rain- fall.	Days with ·01 in. or more.	Days with ·04 in. or more.
			Rim above Ground.	Ground above Sea Level.				
PERTH—(con.).			in.	ft.	in.	in.		
<b>10.—TAY—Bran. 81 sq. mi.</b>								
d Strath Bran (Glenquach Lodge)...	W. H. Cox, Esq.....	5	1	0	900	55·0	54·00	187 169
<b>11.—TAY—Strath Tay above Dunkeld. 95 sq. mi.</b>								
d Aberfeldy (Bolfracks Cottage)....	Mrs. Drummond-Fish.....	5	1	0	350	..	38·21	199 143
d Aberfeldy (Dall Avon).....	Dr. N. D. Mackay.....	5	1	0	320	38·7	37·69	215 152
d Grandtully.....	W. L. Macnaughton, Esq....	5	1	0	233	36·1	36·60	201 142
<b>12.—TAY—Loch Tay. 241 sq. mi.</b>								
d Killin (Auchmore Gardens).....	Mr. J. Easson.....	5	1	0	380	56·8	57·38	216 178
<b>13.—TAY—Lyon. 142 sq. mi.</b>								
d Glenlyon (Meggernie Castle).....	Sir E. S. Wills, Bt.....	5	1	0	700	61·0	59·82	.. 156
w Fortingall (Glenlyon House).....	Mr. J. W. Ford.....	5	1	0	425	45·5	45·46	.. ..
<b>14.—TAY—Tummel. 587 sq. mi.</b>								
d Loch Rannoch (Dall).....	Mr. D. Robertson, Jun....	5	1	0	722	43·4	43·31	217 176
d Pitlochry (Dunfallandy).....	D. Stewart-Fergusson, Esq..	5	1	0	405	32·9	35·55	.. 154
d Foss (The Manse).....	Rev. W. Walker, M.A., B.D.*	8	1	0	500	40·4	38·85	221 175
d Pitlochry (Bonskeid).....	Dr. G. F. Barbour.....	5	1	0	540	33·3	33·63	193 151
d Fincastle House.....	Dr. G. F. Barbour.....	5	1	0	980	34·7	34·38	208 144
d Struan (Auchleeks).....	Miss Robertson.....	5	1	0	710	..	46·84	183 171
d Blair Atholl (Blair Castle Grdns)...	Mr. J. Dickson.....	5	1	0	500	33·6	36·71	251 156
d Glen Bruar (Bruar Lodge).....	No. 1.. Mr. A. McLauchlan.....	5	1	0	1600	45·2	46·87	250 207
d Glen Bruar (Bruar Lodge).....	No. 2.. Mr. A. McLauchlan.....	5	1	0	1600	..	52·05	250 208
<b>15.—TAY—Isla. 282 sq. mi.</b>								
Blairgowrie (Kinloch Manse).....	Rev. T. Milne.....	5	1	0	280	29·6	33·27	.. ..
d Dunkeld (Cardney).....	A. R. Macgregor, Esq.....	5	1	0	350	36·7	41·24	185 150
d Kirkmichael (Ballintuim Ho.).....	Miss M. A. Macdonald.....	5	1	4	700	37·8	42·35	233 148
d Kirkmichael (School).....	W. Muckersie, Esq.....	5	1	0	700	..	40·11	(207) (154)
<b>16.—TAY—Left Bank Tributaries. 51 sq. mi.</b>								
Pitfour Castle.....	Miss D. Cairns.....	..	..	..	29·0	31·61	171 137	
d Kinfauns (Balthayock).....	R. Wylie Hill, Esq.....	5	4	6	323	32·0	31·73	187 136
d Perth (Ard Choille).....	Earl of Mansfield.....	5	0	11	90	31·8	31·60	200 139
<b>17.—FIRTH OF TAY. 45 sq. mi.</b>								
Errol (Annat Cottage).....	W. Kimm, Esq.....	5	5	0	200	27·5	28·22	.. ..
<b>18.—SPEY—Right Bank Tributaries. 1 sq. mi.</b>								
<b>19.—LOCH LINNHE.—Left Bank Tributaries. 2 sq. mi.</b>								
<b>20.—CLYDE—Leven. 86 sq. mi.</b>								

\* Per Royal Meteorological Society.

## DIVISION XVI—EAST MIDLAND COUNTIES—(con.).

STATIONS.	AUTHORITIES.	Diam.	Rain-gauge			1931.			
			Height of Rim above Ground.	Ground above Sea Level.	Aver- age Rain- fall.	Rain- fall.	Days with ·01 in. or more.	Days with ·04 in. or more.	
ANGUS (Area, 875 sq. mi.)			in.	ft. in.	ft.	in.	in.		
1.—TAY—Isle. 211 sq. mi.									
D Kettins School....	J. W. Sherriffs, Esq.....	5	1	0	218	32·0	32·01	195	136
D Glamis Castle.....	Mr. D. McInnes.....	5	0	9	250	30·9	36·56	194	132
D Kirriemuir (Lintrathen)....(+A)	G. Baxter, Esq., C.E.....	8	1	0	700	34·7	40·05	206	149
M Kirriemuir (Balmakelley).....	G. Baxter, Esq., C.E.....	5	1	0	700	34·1	39·95	..	..
M Kirriemuir (Dykends).....	G. Baxter, Esq., C.E.....	5	1	0	750	..	40·27	..	..
M Kirriemuir (Creich Hill, N.).....	G. Baxter, Esq., C.E.....	5	1	0	1491	..	(45·05)	..	..
M Kirriemuir (Backwater).....	G. Baxter, Esq., C.E.....	5	1	0	850	..	42·30	..	..
M Kirriemuir (Westerton).....	G. Baxter, Esq., C.E.....	5	1	0	900	..	43·40	..	..
M Kirriemuir (Macritch).....	G. Baxter, Esq., C.E.....	5	1	0	1300	..	(43·05)	..	..
M Kirriemuir (Newton).....	G. Baxter, Esq., C.E.....	5	1	0	735	..	41·21	..	..
M Kirriemuir (Longdrum).....	G. Baxter, Esq., C.E.....	5	1	0	1045	39·3	(45·60)	..	..
M Kirriemuir (Glendye).....	G. Baxter, Esq., C.E.....	6	1	0	1050	..	49·94	..	..
M Kirriemuir (Barney).....	G. Baxter, Esq., C.E.....	5	1	0	1130	40·2	45·30	..	..
M Kirriemuir (Glenhead).....	G. Baxter, Esq., C.E.....	5	1	0	1340	..	44·70	..	..
M Kirriemuir (Dalvanie).....	G. Baxter, Esq., C.E.....	..	..	..	..	..	44·00	..	..
M Kirriemuir (Glen Damff).....	G. Baxter, Esq., C.E.....	5	1	0	1360	..	(46·10)	..	..
2.—FIRTH OF TAY. 80 sq. mi.									
D Buddonness (Low Light).....	J. H. Thompson, Esq., C.E..	5	1	0	27	26·4	30·53	200	135
D Dundee Harbour.....	J. H. Thompson, Esq., C.E..	5	0	11	14	27·4	29·63	185	129
D Dundee (Eastern Necropolis).....	A. Macrae, Esq.....	5	1	0	198	27·4	31·62	188	133
D Dundee (Stobsmuir Res.).....	G. Baxter, Esq., C.E.....	5	1	0	278	..	(31·06)	(182)	(129)
D Dundee (Camperdown Works).....	Messrs. Cox Bros., Ltd....	5	1	0	300	26·8	31·64	..	..
D Balruddery.....	H. S. Sharp, Esq.....	5	1	0	266	..	29·53	..	139
D Dundee (College Garden).....	Director of Studies.....	8	1	0	147	27·6	32·47	191	141
3.—SOUTH ESK & C. 371 sq. mi.									
D Carnoustie.....	A. F. Anderson, Esq., C.E... 8	1	0	39	27·2	31·00	203	144	
D Monikie Reservoir.....	G. Baxter, Esq., C.E..... 5	1	0	494	34·7	35·28	195	143	
D Monikie (Crombie Reservoir).....	G. Baxter, Esq., C.E..... 5	1	0	522	35·2	35·38	224	149	
M Monikie (Fallaws).....	G. Baxter, Esq., C.E..... 8	3	0	585	33·2	35·90	..	..	
D Arbroath (W. Cemetery).....	J. W. Robertson, Esq..... 5	1	0	93	25·6	29·33	..	123	
W Arbroath (Muirheads Res.).....	T. A. Hogg, Esq., C.E..... 5	1	0	251	28·1	34·93	..	..	
Forfar (Pitscandly House).....	J. T. Ewen, Esq..... 5	1	8	300	..	35·32	..	..	
D Montrose.....	D. Maxwell, Esq., C.E..... 5	1	0	16	26·2	30·49	..	120	
D Montrose (West-End Park).....	D. Maxwell, Esq., C.E..... 5	1	0	19	26·0	34·36	177	139	
D Brechin (Argyll Street).....	J. Hutton, Esq..... 5	1	0	225	34·1	35·27	201	138	
D Forfar W. W. (Den of Ogil).....	Alex. C. Miller, Esq., C.E. 12x4	0	3	633	..	37·93	183	152	
D Glenogil Waterworks.....	T. A. Hogg, Esq., C.E..... 5	1	0	770	40·9	40·11	172	149	
D Glen Prosen (Pearsie House).....	G. M. Wedderburn, Esq.... 5	1	0	600	39·1	39·57	191	(143)	
M Glen Prosen (Cormuir).....	G. Baxter, Esq., C.E..... 5	1	0	870	..	47·90	..	..	
D Glen Prosen (Balmaboth Gdns.)...	J. F. Hardie, Esq..... 5	1	0	575	..	43·75	..	138	
4.—NORTH ESK & C. 213 sq. mi.									
Brechin (Trinity).....	Miss E. A. Stevenson..... 8	1	0	295	32·3	36·69	..	..	
D Montrose (Sunnyside Asylum).....	C. K. Alexander, Esq..... 5	1	0	200	27·0	31·74	189	131	
D Montrose (Kinnaber W.W.).....	D. Maxwell, Esq., C.E..... 4	1	0	40	26·9	31·06	202	134	
Brechin (Stracathro Gardens).....	Mr. A. Dunlop..... 5	1	0	200	30·5	35·00	..	..	

## DIVISION XVII—NORTH-EASTERN COUNTIES.

KINCARDINE. (Area, 382 sq. mi.)

1.—NORTH ESK & C. 99 sq. mi.								
d Marykirk (Balmakewan).....	W. Low, Esq.....	5	1 1	120	30·3	32·29	..	127
d Marykirk (Balmakewan), No. 2....	W. Low, Esq.....	5	1 0	80	30·2	32·28	200	130
d Laurencekirk (Johnston Lodge)...	R. B. Pearson, Esq.....	5	1 0	400	33·1	35·02	201	138
d Fettercairn (Fasque).....	Sir J. E. Gladstone, Bt....	5	0 10	320	36·0	40·05	229	149
d Fordown (Auchenblae).....	D. N. Collie, Esq.....	5	1 0	325	..	32·19	(208)	(139)
2.—BERVIE, COWIE & C. 139 sq. mi.								
Todhead Pt. Lighthouse.....	Com'rs. of N. Lighthouses..	5	1 9	114	..	23·59	..	115
d Stonehaven.....	The Town Council.....	5	1 0	190	..	29·05	187	128
d Stonehaven (Mains of Cowie).....	John Hart, Esq.....	5	1 0	100	..	26·16	186	128
Girdleness.....	Com'rs. of N. Lighthouses..	7	4 0	89	..	27·937	..	..

## DIVISION XVII—NORTH-EASTERN COUNTIES—(con.).

STATIONS.	AUTHORITIES.	Diam.	Rain-gauge				1931.		
			Height of		Aver-		Rain-fall.	Days with -01 in. or more.	Days with -04 in. or more.
			Rim	Ground	age	Rain-			
			above	above	above	fall.			
			Ground.	Sea Level.	fall.				
KINCARDINE—(con.).			in.	ft.	in.	ft.	in.		
<b>3.—DEE. 144 sq. mi.</b>									
d Strachan (Bridge of Dye).....	Sir J. E. Gladstone, Bt.....	5	1	0	513	43-9	41-43	225	149
d Banchory (Invery).....	Major Jas. Kerr.....	5	1	0	225	34-8	36-03	216	139
d Banchory (Woodlands Sch.).....	D. B. McKelvie, Esq., C.E..	5	1	0	300	..	33-31	194	138
d Banchory (Invercannie).....	T. F. Henderson, Esq., C.E..	5	1	0	205	31-9	27-82	218	132
<b>ABERDEEN. (Area, 1,974 sq. mi.)</b>									
<b>1.—DEE. 672 sq. mi.</b>									
d Glen Muick.....	T. F. Henderson, Esq., C.E..	5	1	0	1370	45-1	46-70	200	174
d Glen Tanner (Aitnach).....	T. F. Henderson, Esq., C.E..	5	1	0	1260	41-9	41-94	..	..
d Braemar (Bank).....	G. H. Sinclair, Esq.....	5	1	0	1111	35-4	37-13	243	166
d Braemar (Derry Lodge).....	T. F. Henderson, Esq., C.E..	5	1	0	1400	38-1	(33-81)	249	182
d Balmoral Castle Gardens.....	Mr. R. F. Chalmers.....	5	1	0	927	33-0	34-74	265	150
d Abergeldie Castle Gardens.....	Mr. J. Durran.....	5	1	0	800	32-4	34-57	224	144
d Ballater (Irrigation Farm).....	T. F. Henderson, Esq., C.E..	5	1	0	637	33-2	32-70	209	127
d Beinn Bhreac.....	T. F. Henderson, Esq., C.E..	5	1	0	2700	47-1	40-48	..	..
d Aboyne.....	T. F. Henderson, Esq., C.E..	5	1	0	412	31-0	29-54	..	127
d Dess House.....	W. R. Davidson, Esq.....	5	1	8	480	31-2	32-65	197	129
d Glen Gairn (Gairn Shiel Lodge)....	T. F. Henderson, Esq., C.E..	5	1	0	1100	34-4	33-52	213	165
d Glen Gairn (Corndavon).....	T. F. Henderson, Esq., C.E..	5	1	0	1500	37-3	(32-88)	197	164
d Torphins (School House).....	Dr. George Davidson.....	5	1	4	480	..	29-91	..	131
d Lumphanan.....	T. F. Henderson, Esq., C.E..	5	1	0	490	31-6	29-92	..	..
d Drumoak (Drum Castle).....	Mrs. Irvine.....	5	1	0	320	30-9	30-21	204	148
d Leigie Coldstone School.....	J. B. Anderson, Esq.....	5	1	0	608	32-0	30-01	250	140
d Aberdeen (Mannofield Res.).....	T. F. Henderson, Esq., C.E..	5	1	0	171	30-5	30-45	229	143
d Craigiebuckler.....	H. D. Welsh, Esq.....	5	1	0	220	..	31-40	216	145
<b>2.—DON. 512 sq. mi.</b>									
d Aberdeen (King's College).....	(+A) The Meteorological Office... 8		1	0	37	29-5	29-11	209	137
d Aberdeen (Woodside).....	Forestry Commission.....	5	1	0	100	..	33-29	226	147
d Strathdon (Estates Office).....	C. Christie, Esq.....	5	1	2	990	35-0	34-63	(201)	(159)
d Craibstone (Sth. Meethill Field)....	Prof. J. Hendrick.....	5	1	0	275	33-6	31-09	214	149
d Craibstone (Woodlands Field).....	College of Agriculture.....	8	1	0	300	31-5	29-26	215	144
d Dyce (Parkhill House).....	J. E. Crombie, Esq.....	8	0	11	170	31-4	31-24	218	149
d Inverurie (Westfield).....	J. Skinner Troup, Esq.....	5	1	0	207	28-3	28-89	208	150
<b>3.—YTHAN &amp; C. 285 sq. mi.</b>									
d Ellon (Esslemont House).....	Capt. R. Wolrige Gordon, M.C. 5		1	6	100	29-8	29-13	227	142
d Ellon (Auchmacoy).....	Earl of Caithness.....	5	1	0	150	..	25-22	221	143
d Haddo House.....	Earl of Haddo.....	5	1	0	186	31-5	29-02	247	153
d Fyvie Castle.....	Col. Sir C. R. Forbes-Leith, Bt. 5		1	0	200	33-9	31-70	212	166
<b>4.—UGIE &amp; C. 257 sq. mi.</b>									
d New Deer School House.....	J. A. Thomson, Esq.....	5	1	0	397	32-3	31-42	..	157
d Peterhead (Stockbridge).....	J. Robertson, Esq.....	5	1	0	150	28-5	27-93	212	159
d Peterhead (Mains of Buthlaw).....	W. Johnston, Esq.....	5	1	6	120	30-3	27-23	213	160
d Peterhead (Forehill Works).....	J. Dickie, Esq., C.E.....	5	0	8	133	30-3	29-92	232	167
d Brucklay Castle.....	A. Dingwall Fordyce, Esq..	5	1	3	300	..	30-78	211	159
d Brucklay Castle Gardens.....	A. Dingwall Fordyce, Esq..	5	1	1	300	..	33-01	234	180
d Kinnaird Head.....	Com'rs. of N. Lighthouses..	5	1	0	62	23-5	25-85	..	166
<b>5.—DEVERON &amp; C. 248 sq. mi.</b>									
d Huntly (Corsdean).....	R. Milne, Esq.....	5	1	0	390	33-2	30-08	..	..
d Huntly (Cruchie).....	Miss C. Joss.....	5	1	0	400	31-7	27-95	245	162

## DIVISION XVII—NORTH-EASTERN COUNTIES—(con.).

STATIONS.	AUTHORITIES.	Diam.	Rain-gauge			1931.			
			Height of		Average Rain-fall.	Rain-fall.	Days with ·01 in. or more.	Days with ·04 in. or more.	
			Rim above Ground.	Ground above Sea Level.					
BANFF. (Area, 680 sq. mi.)			<i>in.</i>	<i>ft. in.</i>	<i>ft. in.</i>	<i>in.</i>			
1.—YTHAN. 1 sq. mi.									
2.—DEVERON & C. 344 sq. mi.									
d Drummur Castle.....	G. Clinton Chessor, Esq.....	5	1	10	620	..	36·85	236	182
d Keith Station.....	A. Munro, Esq.....	5	1	0	356	33·8	35·39	..	..
d Turriff (Forglen Gardens).....	Mr. G. Stuart.....	5	1	0	220	31·9	29·41	240	158
d Gamrie (Clenterty P. School).....	T. H. Smith, Esq.....	5	1	0	420	40·1	32·33	213	155
d Banff.....	I. H. Gordon, Esq.....	5	0	9	130	26·8	24·87	222	144
Buckie (Rochonnie).....	W. Hendry, Esq.....	5	1	0	334	27·0	27·87	..	..
Buckie (West Church Street).....	W. Hendry, Esq.....	5	1	0	75	26·2	27·24	..	..
d Cullen House Gardens.....	Mr. G. Stuart.....	5	1	2	150	30·6	28·03	..	154
3.—SPEY—Right Bank Tributaries. 285 sq. mi.									
d Ballindalloch.....	C. Mackenzie, Esq.....	8	1	0	630	33·0	32·89	217	164
d Aberlour Orphanage.....	J. G. White, Esq.....	5	1	0	350	32·7	31·17	..	151
MORAY. (ELGIN.) (Area, 477 sq. mi.)									
1.—DEVERON & C. 7 sq. mi.									
2.—SPEY—Right Bank Tributaries. 35 sq. mi.									
d Gordon Castle.....	Mr. C. Webster.....	5	1	0	104	29·8	27·90	222	158
3.—SPEY—Left Bank Tributaries. 133 sq. mi.									
d Grantown-on-Spey.....	W. A. Watson, Esq.....	5	1	1	700	31·1	31·09	194	127
d Knockando (Windmill Cottage)...	Mr. L. Younie.....	5	1	0	606	33·3	36·88	232	176
d Aberlour (Wester Elchies).....	Mr. A. Ross.....	5	1	0	550	34·2	31·00	203	150
4.—LOSSIE & C. 154 sq. mi.									
d Lhanbryde (Blackhills House).....	T. N. Christie, Esq.....	5	3	6	310	29·2	32·26	222	169
d Elgin (Kirkhill).....	P. J. Macdonald, Esq.....	5	1	7	35	..	28·38	..	151
d Elgin (Rotha).....	W. C. Young, Esq.....	5	1	0	80	25·8	27·89	..	..
d Duffus (Hopeman Lodge).....	Mrs. Gordon Duff.....	8	0	6	65	..	21·00	..	..
Covesea (Skerries).....	Com'rs. of N. Lighthouses..	5	0	8	32	..	22·48	..	..
5.—FINDHORN & C. 148 sq. mi.									
d Forres (Drumduan).....	The MacKinnon of MacKinnon	5	0	9	120	..	30·01	204	148
NAIRN. (Area, 163 sq. mi.)									
1.—FINDHORN & C. 102 sq. mi.									
d Ardclach (Glenferness).....	Mr. A. McKenzie.....	8	1	6	700	..	39·23	..	173
d Lethen.....	Col. Hon. I. M. Campbell, D.S.O.	5	1	1	350	..	28·97	..	..
2.—NAIRN & C. 61 sq. mi.									
d Cawdor Castle.....	Mr. James Taylor.....	5	0	6	225	29·2	35·00	246	174
d Nairn (Balblair).....	Major H. C. H. Allanby....	5	1	0	94	24·5	27·80	215	147
d Nairn (Achareidh).....	Major K. S. Clarke.....	8	1	0	59	24·3	28·04	242	150
d Nairn (Golf Course).....	The Meteorological Office...	8	1	9	20	24·9	25·83	200	132

## DIVISION XVIII—NORTH-WESTERN COUNTIES.

STATIONS.	AUTHORITIES.	Diam.	Rain-gauge			1931.			
			Height of Rim above Ground.	Ground above Sea Level.	Average Rain- fall.	Rain- fall.	Days with ·01 in. or more.	Days with ·04 in. or more.	
INVERNESS. (Area, 4,146 sq. mi.)		in.	ft.	in.	ft.	in.	in.		
<b>1.—TAY—Tummel. 28 sq. mi.</b>									
D Loch Ericht (Ben Alder Lodge)...	Mr. F. Mackintosh.....	5	1	0	1175	..	50·81	282	207
<b>2.—SPEY—Right Bank Tributaries. 437 sq. mi.</b>									
D Dalwhinnie .....	Mr. Cochrane for M.O.....	8	1	0	1176	..	49·66	235	204
Glen Tromie (Gaick Lodge).....	Mr. W. MacPherson.....	5	1	0	1500	53·8	(42·90)	..	..
D Nethy Bridge (U.F. Manse).....	Rev. John Ross.....	5	1	0	750	27·5	27·20	204	139
<b>3.—SPEY—Left Bank Tributaries. 257 sq. mi.</b>									
D Cluny Castle.....	Mr. A. Macdonald.....	5	1	0	816	40·8	39·73	255	195
M Loch Spey.....	British Aluminium Co. Ltd..	5	1	0	1164	66·4	71·10	..	..
D§ Glen Spey (Mealgarve).....	British Aluminium Co. Ltd..	8	1	0	1135	50·7	(50·01)	(257)	(205)
D Laggan (Gergask).....	British Aluminium Co. Ltd..	8	1	0	870	38·4	39·69	250	190
D Kingussie (The Birches).....	British Aluminium Co. Ltd..	8	1	0	810	29·4	31·97	238	175
D Alvie Manse.....	Rev. Dugald Maclean.....	5	1	0	750	30·3	31·64	(230)	(166)
D Carr Bridge (Crannich).....	Mrs. J. A. Doak.....	5	1	0	900	28·6	33·06	216	150
<b>4.—FINDHORN. 184 sq. mi.</b>									
D Tomatin (Dalmigavie Lodge).....	Mr. A. Kennedy.....	5	1	0	1180	..	41·19	256	187
<b>5.—NAIRN &amp; C. 131 sq. mi.</b>									
<b>6.—NESS—Right Bank Tributaries. 252 sq. mi.</b>									
D Fort Augustus (St. Benedict's)...	The Procurator.....	5	1	0	68	44·2	(44·15)	..	..
D Loch Ness (Killin, Whitebridge)...	British Aluminium Co. Ltd..	8	1	0	1200	47·9	59·63	255	223
D Loch Ness (Garthbeg).....	British Aluminium Co. Ltd..	8	1	0	645	41·5	38·84	243	188
D Loch Ness (Foyers).....	British Aluminium Co. Ltd..	8	1	0	52	38·2	39·30	226	169
D Loch Ness (Aberchalder).....	British Aluminium Co. Ltd..	8	1	0	700	35·8	38·15	260	180
D Inverness (Culduthel Res.).....	A. Knowles, Esq.....	5	1	0	242	26·7	28·04	202	147
<b>7.—NESS—Garry &amp;c. 185 sq. mi.</b>									
M Loch Quoich (Loan).....	Col. D. W. Cameron of Lochiel	5	1	0	750	..	114·83	..	..
D Loch Quoich (Kinlochquoich)...	Col. D. W. Cameron of Lochiel	5	1	0	580	..	107·87	..	165
D Loch Quoich (Glenquoich).....	T. Mackenzie, Esq.....	5	1	2	569	110·7	109·40	266	242
Invergarry (The Schoolhouse).....	W. M. Aitken, Esq.....	5	1	0	180	..	61·12	..	..
D Loch Oich (Port McDonnell).....	A. R. Crawford, Esq.*.....	5	1	0	122	..	61·16	273	207
<b>8.—NESS—Moriston. 120 sq. mi.</b>									
D Glenmoriston (Ceannacroc).....	J. Grant, Esq.....	5	1	0	410	..	61·57	224	191
D Glenmoriston (Invermoriston Hotel)	P. J. Kydd, Esq.*.....	5	1	0	70	..	45·84	237	186
<b>9.—NESS—Enrick. 131 sq. mi.</b>									
D Glen Urquhart (Corrimony).....	P. H. Dolphin, Esq.* .....	5	1	0	520	..	41·06	214	177
D Inverness (Ruigh Ard Asylum) ....	Dr. T. C. Mackenzie.....	5	0	11	330	29·9	31·71	225	160
<b>10.—BEAULY. 341 sq. mi.</b>									
D Beauly (Culmill).....	W. L. McWilliam, Esq.....	5	1	0	190	..	35·79	..	170
<b>11.—CROMARTY FIRTH. 13 sq. mi.</b>									
<b>12.—SOUND OF SLEAT. 259 sq. mi.</b>									
D Mallaig Manse.....	Rev. D. M. Sinclair.....	5	1	0	150	55·0	52·99	288	273
D Loch Nevis (Inverie Gardens).....	Mr. J. Huggins.....	5	1	3	15	85·6	74·26	262	240
<b>13.—SOUND OF ARISAIG. 126 sq. mi.</b>									
D Moidart (Kinlochmoidart).....	J. C. Stewart, Esq.....	5	1	0	13	69·4	72·86	269	239
D Moidart (Roshven).....	P. Blackburn, Esq.....	5	1	0	40	67·6	62·53	254	247
D Arisaig (Faire-na-Sguir).....	Miss C. C. Astley.....	5	1	0	30	55·7	49·19?	262	207
D Arisaig House.....	Mr. W. Grant.....	5	1	0	40	62·0	62·12	253	216
<b>14.—LOCH LINNHE—Right Bank Tributaries. 48 sq. mi.</b>									
D Loch Eil (Achdaliu).....	Col. D. W. Cameron of Lochiel	5	1	0	100	61·8	64·67	..	202
<b>15.—LOCHY—Right Bank Tributaries. 143 sq. mi.</b>									
D Loch Arkaig (Achnacarry).....	Col. D. W. Cameron of Lochiel	5	1	0	128	82·0	76·28	268	219
D Loch Arkaig (Glendessary).....	Col. D. W. Cameron of Lochiel	5	1	0	300	106·6	106·58	..	228

§ Gauge over-exposed.

\* Per Capt. W. N. McClean.

## DIVISION XVIII—NORTH-WESTERN COUNTIES—(con.).

STATIONS.	AUTHORITIES.	Diam.	Rain-gauge			1931.		
			Height of		Average	Rain-fall.	Days with ·01 in. or more.	Days with ·04 in. or more.
			Rim above Ground.	Ground above Sea Level.	Rain-fall.			
INVERNESS—(con.).			in.	ft. in.	ft.	in.		
<b>16.—LOCHY—Left Bank Tributaries. 362 sq. mi.</b>								
Loch Treig (Creaguaineach).....	British Aluminium Co., Ltd..	5	1	0	800	74·0	77·51	.. ..
M Ben Alder (Loch a' Bhealich).....	Mr. F. Mackintosh.....	5	1	0	2360	109·0	107·20	.. ..
Loch Ossian (Strathossian Ho.)....	British Aluminium Co., Ltd..	8	1	0	1180	70·2	76·03	.. ..
Fort William (Allt'a Mhuilinn)....	British Aluminium Co., Ltd..	8	1	0	1000	85·1	73·08	.. ..
D Fort William (The Factory) .....	British Aluminium Co., Ltd..	8	1	0	75	69·6	67·90	264 213
Roybridge (Lairig Road).....	British Aluminium Co., Ltd..	8	1	0	1650	91·2	85·96	.. ..
M Ben Alder (Lochan Sgoir).....	Mr. F. Mackintosh.....	5	1	0	2300	111·1	94·00	.. ..
Spean Bridge (The Cour).....	British Aluminium Co., Ltd..	5	1	0	1050	92·5	92·76	.. ..
Spean Bridge (Sgurr Finisgaig)....	British Aluminium Co., Ltd..	8	1	0	2000	91·6	85·95	.. ..
D Loch Treig (Fersit).....	British Aluminium Co., Ltd..	8	1	0	850	62·9	64·29	251 213
Tulloch (Allt Laire).....	British Aluminium Co., Ltd..	5	1	0	1050	59·0	58·67	.. ..
D Roybridge (Allt Leachdach) .....	British Aluminium Co., Ltd..	8	1	0	650	58·2	59·99	270 226
Glen Spean (Craigbeg).....	British Aluminium Co., Ltd..	8	1	0	860	54·9	57·60	.. ..
w Loch Lochy (Invergloy).....	Mr. J. Strang.....	5	1	0	200	58·9	68·70	.. ..
<b>17.—LOCH LINNHE—Left Bank Tributaries. 120 sq. mi.</b>								
D North Ballachulish (Alltshellach)..	B. Chinnery-Haldane, Esq..	5	2	1	80	74·3	71·62	265 230
D Onich.....	Forestry Commission.....	5	1	3	48	..	72·03	270 222
D Glenleven (Blackwater Dam, N) 7..	British Aluminium Co., Ltd..	8	1	0	1072	85·5	91·34	(281) (240)
D Kinlochleven (Kinlochmore Lo.)...	Mr. Ian Currie.....	5	1	0	115	92·6	95·20	284 237
D Kinlochleven (Mamore Lodge).....	Mr. Ian Currie.....	5	1	8	700	95·1	99·96	.. ..
Glenleven (Invercam).....	No. 6. British Aluminium Co., Ltd..	8	1	6	1070	74·8	72·31	.. ..
Glenleven (Ciarin).....	No. 3. British Aluminium Co., Ltd..	8	1	6	1200	84·9	80·22	.. ..
Glenleven (Loch Eilde Mhor) 8.....	British Aluminium Co., Ltd..	8	1	6	1130	94·9	94·26	.. ..
Glenleven (Loch Eilde Beg) No. 9..	British Aluminium Co., Ltd..	8	1	6	1125	94·6	86·84	.. ..
Glenleven (Corrour).....	No. 5. British Aluminium Co., Ltd..	8	1	6	1260	70·1	71·16	.. ..
D Fort William (Glasdrum).....	British Aluminium Co., Ltd..	5	1	0	216	78·8	72·90	228 199
<b>18.—INSULAR, INNER HEBRIDES. 786 sq. mi.</b>								
d Isle of Eigg.....	Rt. Hon. Walter Runciman, P.C.	8	2	8	150	53·5	51·97	.. 230
Hyskier.....	Com'rs of N. Lighth's.....	5	0	5	31	40·0	55·61	.. 221
D Skye (Kyleakin, Dunringell)....	Maj. A. D. Mackinnon, C.M.G.	5	2	1	80	62·4	62·47	266 225
Oronsay Lighthouse.....	Com'rs. of N. Lighthouses..	5	0	6	10	52·7	50·22	223 204
D Skye (Scalpay Island).....	Mr. D. Gunn.....	5	1	0	4	75·1	79·26	262 228
D Skye (Portree).....	D. Dewar, Esq.....	5	1	0	65	61·7	67·52	273 229
Skye (N. Eist Point).....	Com'rs. of N. Lighthouses..	5	0	8	65	50·0	44·95	.. ..
D Skye (Dunvegan).....	Mrs. Mackenzie.....	5	3	0	47	65·8	58·92	268 229
D Skye (Duntulm).....	Seton Gordon, Esq.....	5	1	0	50	..	42·02	256 204
<b>19.—INSULAR, OUTER HEBRIDES. 243 sq. mi.</b>								
D Barra (Skallary).....	J. Smith, Esq.....	8	0	10	26	..	45·53	265 209
D Lochmaddy (Vallay).....	G. Beveridge, Esq.....	5	1	0	30	..	43·37	266 208
D N. Harris (Amhuinsuidh Castle)...	Norman Robertson, Esq....	5	1	3	12	57·5	57·64	251 237
ROSS & CROMARTY. (Area, 3,237 sq. mi.)								
<b>1.—NESS—Moriston. 35 sq. mi.</b>								
D Glenmoriston (Cluanie Inn).....	Mrs. Macdonald*.....	5	1	3	630	..	111·23	298 247
<b>2.—BEAULY. 109 sq. mi.</b>								
w Monar.....	Major J. S. Stirling.....	5	0	9	700	..	84·32	.. ..
<b>3.—MORAY FIRTH COAST STREAMS. 64 sq. mi</b>								
D Fortrose.....	A. Thom, Esq.....	5	1	0	69	23·4	24·10	194 134
d Fearn (Geanies).....	Mr. A. Munro.....	5	0	11	200	23·1	23·79	.. 130

\* Per Capt. W. N. McClean.

## DIVISION XVIII—NORTH-WESTERN COUNTIES—(con.).

STATIONS.	AUTHORITIES.	Diam.	Rain-gauge		Average Rain-fall.	1931.			
			Height of Rim above Ground.	Height of Ground above Sea Level.		Rain-fall.	Days with ·01 in. or more.	Days with ·04 in. or more.	
ROSS & CROMARTY—(con.).						<i>in.</i>			
4.—CROMARTY FIRTH. 714 sq. mi.									
d Muir of Ord (Fairburn)	Major J. S. Stirling	5	1	0	500	..	36·99	223	157
d Strathpeffer	W. P. Hutton, Esq.	8	1	0	125	30·5	34·67	241	167
d Dingwall (The Academy)	G. L. Turnbull, Esq.	5	1	0	18	29·0	28·26	224	136
d Cromarty House	Mr. A. Ross	5	1	3	80	25·1	24·50	..	..
Cromarty	Com'rs. of N. Lighthouses..	5	1	0	21	24·4	25·43	..	135
d Alness (Ardross Castle)	Mr. D. M. Sharpe	5	1	0	450	38·5	39·55	255	185
5.—DORNOCH FIRTH. 355 sq. mi.									
d Tain (Ardlarach)	Col. C. MacIver Ritchie....	5	1	0	400	29·4	32·72	284	169
Tarbetness	Com'rs. of N. Lighthouses..	5	1	10	62	23·0	22·83	..	..
6.—ENARD BAY. 78 sq. mi.									
7.—LOCH BROOM & C. 367 sq. mi.									
Loch a' Bhraoin (Vroain)	Rev. Sir Montague-Fowler, Bt. 8	8	0	9	822	62·2	66·76	..	..
Loch Drome	Rev. Sir Montague-Fowler, Bt. 8	8	0	9	922	63·4	64·31	..	..
Braemore House	Rev. Sir Montague-Fowler, Bt. 8	8	0	7	800	61·9	62·65	..	..
Inverbroom House	Rev. Sir Montague-Fowler, Bt. 8	8	0	7	50	54·7	56·87	..	..
d Ullapool	Dr. D. Wallace	5	1	6	75	48·0	44·29	232	195
8.—LOCH EWE, LOCH TORRIDON & C. 423 sq. mi.									
d Poolewe (Inverewe Gardens)	Mr. W. Hepburn	5	0	6	20	55·2	51·66	274	226
Rudh Ré Lighthouse.....	Com'rs. of N. Lighthouses..	5	3	6	53	39·0	35·11	210	167
9.—LOCH CARRON, LOCH ALSH & C. 401 sq. mi.									
d Glenshiel (Ratagan)	Forestry Commission	5	1	0	12	80·0	79·23	..	208
d Loch Duich (Inverinate)	J. Finlayson, Esq.....	5	1	0	28	..	72·41	260	228
Loch Carron (Strome Ferry)	Mr. D. D. Munro	5	1	0	50	64·7	66·19	..	..
d Loch Carron (Dunhulladale)	Mrs. G. J. Campbell	5	1	0	9	70·5	75·93	(277)	(232)
Applecross Gardens	Mr. J. McCowan	5	1	6	70	57·3	52·31	..	..
d Achnashellach	Forestry Commission	5	1	0	225	84·4	73·63	..	236
10.—INSULAR, OUTER HEBRIDES. 691 sq. mi.									
d Stornoway (Leurbost Sch.)	A Matheson, Esq.	5	0	6	100	..	46·38	237	195
Stornoway (Grimersta Lodge)....	Murdo Macrae, Esq.	5	1	0	9	..	57·87	..	..
d Stornoway	The Meteorological Office..	8	1	0	30	49·9	47·01	266	206
Butt of Lewis Lighthouse	Com'rs. of N. Lighthouses..	8	3	9	51	39·6	38·93	234	217

## DIVISION XIX—NORTHERN COUNTIES.

SUTHERLAND. (Area, 2,080 sq. mi.).

**1.—DORNOCH FIRTH. 413 sq. mi.**

d Skibo Castle Gardens .....	R. D. Cameron, Esq.....	5	1	0	62	..	30-61	(249)	(158)
d Lairg .....	A. Gunn, Esq.....	5	1	0	330	37-3	40-97	198	165

**2.—FLEET, BRORA & C. 309 sq. mi.**

d Golspie (Technical School) .....	E. W. Read, Esq. ....	6	1	2	100	32.2	31.15	..
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**3.—HELMSDALE & C. 226 sq. mi.**

## DIVISION XIX—NORTHERN COUNTIES—(con.).

STATIONS.	AUTHORITIES.	Diam.	Rain-gauge			1931.			
			Height of		Average Rain-fall.	Rain-fall.	Days with ·01 in. or more.	Days with ·04 in. or more.	
			Rim above Ground.	Ground above Sea Level.					
SUTHERLAND—(con.).									
4.—NORTH COAST STREAMS. 736 sq. mi.									
d Skerray (Borgie) .....	The Forestry Commission ..	5	1	0	110	37·5	45·30	249	214
d Tongue .....	Miss. W. J. Lundie .....	5	1	0	180	41·0	39·08	270	192
d Melvich .....	A. MacIntosh, Esq. ....	5	1	0	200	36·0	38·23	232	188
5.—LOCH LAXFORD & C. 256 sq. mi.									
d Loch More (Achfary) .....	Mr. J. Munro .....	5	1	0	137	75·8	86·15	279	242
6.—ENARD BAY. 138 sq. mi.									
7.—INSULAR. 2 sq. mi.									
CAITHNESS. (Area, 696 sq. mi.).									
1.—BERRIEDALE, DUNBEATH & C. 169 sq. mi.									
Berriedale (Langwell) .....	Duke of Portland .....	5	1	6	150	..	31·00	..	..
Clythness .....	Com'rs. of N. Lighthouses..	5	1	5	133	29·6	27·82	..	..
2.—WICK & C. 184 sq. mi.									
d Wick (South Head C. G. Stn.) .....	The Meteorological Office... 8	1	2	81	29·9	30·09	243	158	
Nosshead .....	Com'rs. of N. Lighthouses..	5	0	9	129	25·1	27·66	..	148
3.—THURSO & C. 238 sq. mi.									
d Thurso (Buckies) .....	J. H. M. Davidson, Esq. .... 5	0	1	240	39·0	38·72	207	192	
Dunnet Head .....	Com'rs. of N. Lighthouses..	5	1	0	331	30·2	34·42	228	201
Duncansby Head .....	Com'rs. of N. Lighthouses..	5	..	196	31·4	30·79	..	155	
4.—FORSS & C. 104 sq. mi.									
d Reay (The Manse) .....	Rev. Dugald Carmichael ... 9	1	0	49	36·2	37·42	267	190	
5.—INSULAR. 1 sq. mi.									
Stroma .....	Com'rs. of N. Lighthouses..	5	3	0	54	25·5	36·33	..	170
ORKNEY. (Area, 389 sq. mi.).									
Pentland, Skerries Lighthouse .....	Com'rs. of N. Lighthouses..	5	3	0	70	..	29·83	247	167
Hoy (Cantickhead) .....	Com'rs. of N. Lighthouses..	5	3	10	68	35·5	36·24	..	..
Hoy (Graemsay Sound, High) .....	Com'rs. of N. Lighthouses..	5	1	4	29	35·9	38·20	252	181
Hoy (Graemsay Sound, Low) .....	Com'rs. of N. Lighthouses..	8	4	4	40	36·7	41·18	224	188
d Pomona (Deerness) .....	W. J. Moar, Esq. ....	5	1	0	160	35·4	(36·53)	(256)	(187)
d Kirkwall (Bignold Park) .....	The Town Council .....	5	1	0	113	..	37·71	251	179
Hellyar Holm .....	Com'rs. of N. Lighthouses..	5	1	3	35	..	38·14	265	188
Auskerri .....	Com'rs. of N. Lighthouses..	5	1	0	22	..	29·86	204	160
Shapinsay (Balfour Castle) .....	Mr. W. Liddell .....	5	0	6	50	32·0	35·21	..	..
d Sandwick School .....	J. A. Fotheringham, Esq. ... 5	1	4	51	..	38·24	(251)	(184)	
Sanday (Start Point) .....	Com'rs. of N. Lighthouses..	5	1	0	27	32·3	32·86	231	178
North Ronaldshay .....	Com'rs. of N. Lighthouses..	5	0	9	22	..	39·74	231	181
SHETLAND. (Area, 558 sq. mi.).									
d Lerwick (Ft. Charlotte) .....	The Meteorological Office. ... 8	1	0	54	..	42·43	222	182	
d Lerwick Observatory .....	(+A) The Meteorological Office. ... 8	1	0	269	..	37·56	247	179	
Eshaness .....	Com'rs. of N. Lighthouses..	5	..	..	..	32·22	..	..	..
d Bixter (Vementry) .....	Andrew Tait, Esq. ....	5	1	1	25	..	36·00	226	170
Unst (Baltasound, Halligarth) .....	Dr. T. E. Saxby .....	5	1	0	31	..	41·89	299	201



## IRELAND.

## DIVISION XX.—MUNSTER.

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## DIVISION XX.—MUNSTER—(con.).

STATIONS.	AUTHORITIES.	Diam.	Rain-gauge			Aver- age Rain- fall.	1931.		
			Height of Rim above Ground.	Ground above Sea Level.			Rain- fall.	Days with ·01 in. or more.	Days with ·04 in. or more.
KERRY. (Area, 1851 sq. mi.)									
1.—SHANNON—Left Bank Tributaries. 372 sq. mi.									
2.—TRALEE BAY & C. 221 sq. mi.									
3.—DINGLE BAY. 789 sq. mi.									
d Cahirciveen (Valentia Obs.) (+A)...	The Meteorological Office..	8	1	0	30	55·7	56·06	257	196
m Gap of Dunloe (Gearhameen).....	J. Casey, Esq., for M.O.....	8	3	0	75	94·0	92·40	..	..
Killarney (Muckcross Garden).....	A. R. Vincent, Esq.....	..	..	..	100	56·6	55·60	..	..
Killarney (Muckcross Lawn) .....	A. R. Vincent, Esq.....	..	..	..	100	56·8	54·00	..	..
d Killarney (Flesk Mills).....	J. Lawlor, Esq.....	8	2	6	96	54·9	55·60	..	..
d Killarney (Mental Hospital).....	E. W. Griffin, Esq., M.D....	5	1	2	173	54·7	(53·28)	..	..
d Killarney (Lakeview).....	Capt. Sir M. O'Connell, Bt., M.C....	5	1	0	120	55·5	53·93	207	179
Killorglin (Callinafercy).....	Maj. M. R. Leeson-Marshall.	5	1	0	40	51·9	49·30	..	..
d Bally McElligott Rectory.....	Rev. G. Maxwell.....	5	0	11	20	..	41·43	(214)	(180)
4.—KENMARE & C. 426 sq. mi.									
d Darrynane Abbey.....	Miss M. O'Connell.....	5	1	0	13	51·0	50·80	243	207
d Kilgarvan (Inchimore).....	Prof. H. N. Walsh.....	5	1	0	470	105·0	109·27	..	..
d Kenmare (Dromore Castle) .....	Lt.-Col. E. Hood.....	5	0	9	90	65·1	66·86	261	219
d Kenmare (Sheen Falls).....	Marquess of Lansdowne....	5	0	5	25	65·6	64·30	260	212
5.—BLACKWATER. 30 sq. mi.									
6.—INSULAR. 13 sq. mi.									
WATERFORD. (Area, 715 sq. mi.)									
1.—BLACKWATER. 243 sq. mi.									
2.—COLLIGAN & C. 259 sq. mi.									
d Kilmacthomas (Comragh Ho.)....	Miss M. Fairholme.....	5	1	0	350	..	67·37	211	174
3.—SUIR. 213 sq. mi.									
d Knockaderry Reservoir (No. 2)....	D. Sheedy, Esq.....	5	1	0	248	41·3	49·71	196	137
d Waterford (Brook Lodge).....	The Late Miss Bolton.....	5	1	0	104	39·5	41·80	(202)	(153)
d Waterford (De La Salle College)...	Rev. Bro. Alexis, B.Sc....	8	0	11	17	..	40·55	184	147
d Waterford (Gortmore).....	Mrs. N. H. White.....	5	1	2	137	38·9	43·60	208	146
d Carrick-on-Suir (Seskin).....	Louis Grubb, Esq.....	8	1	0	542	45·0	54·10	222	158
TIPPERARY. (Area, 1660 sq. mi.)									
1.—SHANNON—Left Bank Tributaries. 582 sq. mi.									
d Birdhill (Parteen Weir).....	Electricity Supply Board...	5	..	..	50	..	(42·31)	220	168
d Nenagh (Traverston).....	Miss A. H. Norris.....	5	1	0	333	45·2	49·72	258	205
d Killaloe (Ballina).....	Office of Public Works.....	5	1	0	126	47·4	52·47	234	192
d Nenagh (Castle Lough).....	S. Parker-Hutchinson, Esq..	5	1	3	120	39·5	44·68	240	177
d Cloughjordan (Modreeny).....	Capt. G. W. Whitfield.....	5	3	0	275	..	37·22	207	169
d Roscrea .....	Electricity Supply Board...	..	..	..	..	..	39·79	235	169
d Borrisokane .....	Electricity Supply Board...	5	1	10	200	..	34·42	..	152
d Terryglass (Old Court).....	M. D. Hickie, Esq.....	5	1	0	150	34·5	36·47	267	170
Terryglass (Slevoyre) .....	B.-Gen. C. J. Hickie, C.M.G..	8	1	0	143	31·9	34·95	225	153

## DIVISION XX.—MUNSTER—(con.).

STATIONS.	AUTHORITIES.	Diam.	Rain-gauge			Average Rain- fall.	1931.		
			Height of Rim above Ground.	Height of Ground above Sea Level.	Average Rain- fall.		Rain- fall.	Days with ·01 in. or more.	Days with ·04 in. or more.
TIPPERARY—(con.).			<i>in.</i>	<i>ft.</i>	<i>in.</i>	<i>ft.</i>	<i>in.</i>		
2.—BLACKWATER. 21 sq. mi.									
3.—SUIR. 965 sq. mi.									
d Cahir (Abbey).....	Mrs. W. Rochfort.....	5	1	0	160	39·2	39·78	212	164
d Cashel (Ballinamona).....	E. W. M. Murphy, Esq.....	5	1	0	262	36·8	43·71	233	167
d Templemore (Barnane).....	Capt. A. Carden, R.A.....	5	1	0	650	46·0	49·94	..	194
d Clonoulty (Corbally).....	A. Moynihan, Esq.*.....	5	1	0	386	..	44·06	..	..
4.—BARROW—Nore. 92 sq. mi.									
d Roscrea (Timoney Park).....	S. Parker-Hutchinson, Esq..	5	1	0	475	36·2	40·13	189	152
LIMERICK. (Area, 1040 sq. mi.)									
1.—SHANNON—Right Bank Tributaries. 7 sq. mi.									
2.—SHANNON—Left Bank Tributaries. 944 sq. mi.									
d Abbeyfeale (Springmount Sch.)...	J. F. O'Kelly, Esq.....	5	1	0	360	41·1	41·78	..	155
d Knocklong (Kilfrush).....	Mrs. Gubbins.....	5	1	3	312	37·8	42·54	226	185
d Ballingarry Presbytery.....	Rev. Thomas Hogan.....	5	1	0	308	..	35·71	222	170
d Foynes (Coolnanes).....	Lord Monteagle.....	5	1	0	50	39·4	35·43	223	167
d Foynes (National School).....	W. Purtill, Esq.....	5	2	8	15	39·5	34·12	195	156
d Limerick (Mulgrave Street).....	Messrs. W. J. Shaw & Sons..	5	1	1	60	38·5	43·77	222	161
d Limerick (Boat Club).....	W. J. C. Horne, Esq.....	5	1	0	50	38·6	43·18	231	180
d Castleconnell Rectory.....	Rev. Canon L. G. Davis....	5	1	0	88	41·2	44·74	212	171
3.—BLACKWATER. 64 sq. mi.									
4.—SUIR. 25 sq. mi.									
CLARE. (Area, 1270 sq. mi.)									
1.—GALWAY BAY, SOUTH. 100 sq. mi.									
2.—MAL BAY & C. 294 sq. mi.									
Kilkee (Marine Parade).....	R. N. Griffin, Esq.....	5	1	2	50	41·8	42·37	..	..
d Inagh (Mount Callan).....	Capt. R. G. Tottenham....	5	1	0	479	67·2	62·42	213	206
3.—SHANNON—Right Bank Tributaries. 854 sq. mi.									
d Broomland Castle.....	Dowager Lady Inchiquin... 5	1	6	45	40·0	35·60	..	..	..
d Broadford (Hurdlestown).....	Lt.-Col. W. A. Bentley..... 5	1	0	167	39·7	42·67	243	174	..
d Tuamgraney (Raheen Ho.).....	E. MacLysaght, Esq..... 5	1	0	180	41·9	50·43	205	184	..
4.—INSULAR. 22 sq. mi.									

\* Per Irish Rainfall Association.

## DIVISION XXI.—LEINSTER.

STATIONS.	AUTHORITIES.	Diam.	Rain-gauge				1931.		
			Height of		Average		Rain-fall.	Days with ·01 in. or more.	Days with ·04 in. or more.
			Rim	Ground	above	Rain-fall.			
			above	above	Sea Level.				
			Ground.	Sea Level.					
WEXFORD. (Area, 902 sq. mi.)									
1.—BARROW. 43 sq. mi.									
2.—OWENDUFF & C. 240 sq. mi.									
D Foulks Mills (Longraigue).....	Miss J. Deane.....	5	1	1	220	39·3	46·23	203	163
3.—SLANEY & C. 467 sq. mi.									
D Johnstown Castle .....	Lady Maurice Fitzgerald...	5	1	0	201	37·0	40·25	192	165
D Enniscorthy (Monksgrange).....	Goddard H. Orpen, Esq....	5	1	0	565	49·0	57·07	238	174
Enniscorthy (Woodbrook).....	E. C. Blacker, Esq.....	5	1	0	370	48·8	58·60	233	200
4.—OWENAVORRAGH & C. 146 sq. mi.									
D Gorey (Courtown House).....	Earl of Courtown.....	5	1	0	60	34·7	42·67	204	141
D Gorey (Ram's Gate) .....	Lt.-Cmdr.A.C.L.Ellis,R.N.R.	5	4	2	170	..	42·59	198	161
5.—OVOCA & C. 6 sq. mi.									
KILKENNY. (Area, 798 sq. mi.)									
1.—SUIR. 162 sq. mi.									
D Piltown (Bessborough).....	The Earl of Bessborough...	8	3	7	60	..	44·95	195	142
2.—BARROW—Nore. 527 sq. mi.									
D Kilkenny Castle .....	Earl of Ossory.....	8	1	6	182	33·1	36·68	213	150
D Tullaroan.....	J. Molony, Esq.....	5	1	0	589	..	47·35	236	168
D Castlecomer House.....	Capt. R. H. Prior-Wandesforde..	5	1	0	380	39·6	43·76	193	154
3.—BARROW. 109 sq. mi.									
WICKLOW. (Area, 781 sq. mi.)									
1.—BARROW. 12 sq. mi.									
2.—SLANEY. 200 sq. mi.									
D Shillelagh (Coollattin Gardens)....	Mr. F. W. Cox .....	5	0	9	383	41·9	46·85	192	167
3.—OVOCA & C. 241 sq. mi.									
D Rathdrum (Avondale).....	Lands and Agriculture Dept.	5	1	0	400	41·5	51·73	196	162
4.—VARTRY & C. 193 sq. mi.									
D Rathnew (Clonmannon).....	R. H. S. Truell, Esq.....	5	1	6	27	33·1	42·91	212	146
D Roundwood (Vartry Lodge).....	Dublin Corporation.....	5	1	3	720	45·0	52·92	215	166
D Roundwood .....	Dublin Corporation*.....	5	1	8	750	44·6	51·17	..	..
D Newcastle (Killadreenan).....	Dr. C. Denys Hanan.....	8	1	2	256	36·0	46·83	202	141
D Delgany (Elsinore).....	Miss N. G. Moore.....	8	1	4	260	..	47·85	215	159
D Greystones (Burnaby Lodge).....	Capt. C. H. West.....	5	1	0	95	..	40·76	199	128
5.—LIFFEY & C. 135 sq. mi.									
D Blessington Rectory.....	Rev. W. Reeves Scully.....	5	0	8	670	38·0	44·85	251	190

\* Per Irish Rainfall Association.

## DIVISION XXI.—LEINSTER—(con.).

STATIONS.	AUTHORITIES.	Diam.	Rain-gauge		Average Rain-fall.	1931.			
			Height of Rim above Ground.	Height of Ground above Sea Level.		Rain-fall.	Days with .01 in. or more.	Days with .04 in. or more.	
CARLOW. (Area, 346 sq. mi.)		in.	ft.	in.	ft.	in.	in.		
1.—BARROW—Nore. 9 sq. mi.									
2.—BARROW. 216 sq. mi.									
D Bagnalstown (Fenagh House).....	D.R.P. Beresford, Esq. O.B.E.	5	1	0	340	34.9	40.84	215	158
D Carlow (Belmont) .....	Capt. E. M. Thomas.....	5	1	0	191	34.8	41.49	184	163
D Bella Vista.....	E. Shackleton, Esq.....	5	0	10	182	..	38.03	233	159
3.—SLANEY. 121 sq. mi.									
D Rathvilly (Lisnavagh Gardens)....	C. E. Faulkner, Esq.....	5	2	6	400	36.9	37.47	229	183
D Hacketstown Rectory .....	Rev. C. S. S. Ellison.....	5	1	6	590	39.5	45.54	251	179
LEIX (Area, 664 sq. mi.)									
1.—SHANNON—Left Bank Tributaries. 25 sq. mi.									
2.—BARROW—Nore. 339 sq. mi.									
D Abbey Leix (Blandsfort).....	Mrs. Hum Bland.....	5	1	0	532	36.5	43.47	240	176
D Mountrath (Baunreagh).....	Lands and Agriculture Dept.	5	1	0	810	64.2	58.82	219	194
3.—BARROW. 300 sq. mi.									
D Mountmellick (Summer Grove)....	W. A. Robinson, Esq.....	5	1	0	252	38.5	42.26	240	164
OFFALY (Area, 772 sq. mi.)									
1.—SHANNON—Left Bank Tributaries. 560 sq. mi.									
D Birr Castle .....	Earl of Rosse .....	8	1	0	173	32.6	35.51	214	154
D Meelick (Victoria Lock).....	Office of Public Works.....	5	1	0	121	29.9	34.02	215	156
D Banagher .....	Electricity Supply Board....	5	1	6	130	30.8	33.31	..	152
D Tullamore (St. Vincent's Hosp.)...	Dr. G. A. Moorhead.....	5	1	0	225	32.6	37.13	282	163
D Ferbane (Turraun Peat Works)....	Leinster Carbonizing Co....	8	1	2	165	32.5	34.19	189	154
D Ballycumber (Bellair Ho.).....	Mrs. F. B. Mulock.....	5	..	..	290	33.9	37.00	220	160
2.—BARROW—Nore. 5 sq. mi.									
3.—BARROW. 156 sq. mi.									
Edenderry (Tubberdaly Ho.).....	J. Murphy, Esq.....	5	1	6	330	33.5	40.55	..	..
4.—BOYNE. 51 sq. mi.									
D Edenderry (The Tunnel).....	C. T. Calwell, Esq.....	8	3	7	265	..	39.92	186	159
KILDARE. (Area, 654 sq. mi.)									
1.—BARROW. 332 sq. mi.									
D Athy (Cromaboo Bridge).....	Office of Public Works.....	5	0	11	185	..	32.59	188	134
D Monasterevin (Pass Bridge).....	Office of Public Works.....	5	0	8	208	..	35.00	228	162
2.—LIFFEY. 246 sq. mi.									
D Straffan House .....	F. B. Barton, Esq.....	5	1	0	256	31.4	36.12	201	153
D Clongowes Wood College .....	The Principal.....	8	1	4	246	30.2	35.11	208	143
3.—BOYNE. 76 sq. mi.									

## DIVISION XXI.—LEINSTER—(con.).

STATIONS.	AUTHORITIES.	Diam.	Rain-gauge			1931.			
			Height of Rim above Ground.	Ground above Sea Level.	Average Rain- fall.	Rain- fall.	Days with ·01 in. or more.	Days with ·04 in. or more.	
DUBLIN. (Area, 354 sq. mi.)			in.	ft. in.	ft.	in.	in.		
1.—VARTRY & C. 23 sq. mi.									
d Shankill (Sherrington).....	Lt.-Col. J. C. W. Erck.....	5	1 0	115	29·6	37·00	182	146	
d Carrickmines (Claremount).....	John O. B. Read, Esq.....	5	0 11	300	30·6	38·90	..	..	
d Killiney (Rathleigh).....	H. R. Maunsell, Esq.....	5	3 6	..	28·1	34·76	..	..	
2.—LIFFEY & C. 188 sq. mi.									
d Stillorgan (Vartry Ho.) †.....	Dublin Corporation.....	5	1 0	264	28·0	37·24	201	151	
d Stillorgan (Farmleigh).....	T. Jackson, Esq.....	5	1 1	220	32·8	36·75	195	141	
d Kingstown (Harbour Office).....	Office of Public Works.....	8	1 0	52	..	32·57	234	144	
d Kingstown (Harbour Yard).....	Office of Public Works.....	8	1 0	52	28·3	35·42	196	142	
d Kingstown (Tivoli Terr. S.).....	Capt. L. B. Merideth.....	5	1 0	131	..	32·53	..	145	
d Kingstown (People's Park).....	Dr. T. J. Lydon.....	8	1 6	25	..	32·62	200	141	
d Rathfarnham Castle.....	Rev. P. J. Howatson, S.J....	8	1 0	175	28·4	32·92	196	136	
d Belgard Castle.....	Capt. A. F. Maude.....	5	1 6	400	27·2	33·30	205	154	
d Rathmines (Neville Road).....	T. H. Mason, Esq.....	5	1 0	100	28·0	33·96	185	149	
d Donnybrook (Anglesea Road).....	F. C. D. Joynt, Esq.....	5	1 0	30	27·9	36·84	193	153	
d Dublin (FitzWilliam Square).....	Sir J. W. Moore, M.D.....	8	1 6	54	27·4	30·84	199	137	
d Dublin (Ringsend Pumpg. Stn.).....	G. S. Harty, Esq., C.E.....	10	0 9	5	26·3	33·80	232	165	
d Dublin (Trinity College).....	R. W. Ditchburn, Esq.....	8	1 0	12	26·1	31·17	192	130	
d Dublin (Wellington Road).....	Rev. Canon H. C. Lyster... 5	5	1 0	50	..	32·90	203	149	
d Dublin (Phoenix Park).....	Ordnance Survey Office... 8	8	1 0	155	27·6	30·63	193	143	
d Lucan (Peamount San.).....	Medical Officer.....	5	5 9	366	27·2	30·46	207	136	
d Clontarf (Pumping Station).....	G. S. Harty, Esq., C.E.....	5	1 0	5	24·4	34·59	209	142	
d Glasnevin (Botanic Gardens).....	The Director.....	8	1 0	55	27·9	33·93	215	141	
d Howth (Danesfort).....	Mrs. H. E. Guinness.....	5	0 6	460	..	(34·15)	..	..	
d Howth Castle.....	J. Gaisford St. Lawrence, Esq.. 5	5	1 9	35	28·7	34·20	205	151	
3.—NANNY, DELVIN & C. 142 sq. mi.									
d Malahide (Seamount).....	J. G. Jameson, Esq.....	5	1 0	150	28·0	36·69	204	159	
d Malahide (St. Andrews).....	Ven. Archd'con T. S. Lindsay. 5	5	1 3	100	27·7	37·18	190	161	
d Lusk (Nevitt).....	W. Monks, Esq.....	5	1 0	139	29·2	33·84	232	146	
d Skerries (Milverton Hall).....	Capt. E. G. Woods.....	5	1 0	190	28·0	37·07	202	151	
d Balbriggan (Ardgillan)....	No.1.... Capt. E. R. Taylor..... 5	5	1 0	210	29·0	35·91	223	152	
4.—INSULAR. 1 sq. mi.									
d Lambay Island .....	Lord Revelstoke.....	5	1 0	20	27·4	32·60	189	150	
MEATH. (Area, 909 sq. mi.)									
1.—SHANNON—Left Bank Tributaries. 32 sq. mi.									
2.—LIFFEY & C. 72 sq. mi.									
d Dunboyne (Stirling, Clonee) .....	Mr. J. Pilkington.....	8	1 0	231	33·3	34·76	215	158	
3.—NANNY, DELVIN & C. 150 sq. mi.									
4.—BOYNE. 560 sq. mi.									
d Summerhill House.....	Mr. W. Lauder.....	5	1 0	372	33·7	39·27	193	156	
d Dunsany Castle Gardens.....	Mr. J. B. Pow.....	5	1 0	323	33·8	38·66	223	160	
d Athboy (Frankville).....	Mrs. C. P. Coghill.....	8	1 3	227	35·5	50·00	227	198	
d Beauparc (St. Cloud).....	W. J. Hopkins, Esq.....	5	1 0	215	31·5	39·69	226	179	
d Slane Rectory.....	Rev. C. H. W. Hammick... 5	5	1 1	300	..	41·15	247	165	
d Kells (Headfort).....	The Marquis of Headfort... 8	8	1 0	227	37·0	43·61	227	172	
5.—DUNDALK BAY. 95 sq. mi.									

† Moved from Vartry Res.

## DIVISION XXI.—LEINSTER—(con.).

STATIONS.	AUTHORITIES.	Diam.	Rain-gauge			Average Rain-fall.	1931.			
			Height of Rim above Ground.	Height of Ground above Sea Level.			Rain-fall.	Days with .01 in. or more.	Days with .04 in. or more.	
WESTMEATH. (Area, 712 sq. mi.)			in.	ft.	in.	ft.	in.	in.		
1.—SHANNON—Left Bank Tributaries. 517 sq. mi.										
D Athlone	Office of Public Works	5	1	0	132	28.2	38.94	202	170	
Athlone (Twyford House)	J. P. Hodson, Esq.	5	1	0	187	37.0	42.65	221	..	
Streamstown (Windmill)	H. A. S. Upton, Esq.	5	1	6	..	34.5	36.65	..	..	
D Moate (Coolatore)	H. A. S. Upton, Esq.	5	1	6	369	36.0	35.02	241	168	
D Mullingar (Belvedere House)	Mr. G. W. Roberts	5	1	0	367	36.3	45.29	221	175	
D Mullingar (Ballynegall Gardens)	Major Hawkesworth Smyth	5	1	3	340	39.0	44.89	222	187	
D Rathowen (Cromlyn)	(R) Maj.-Gen. T. P. Battersby, C.B.	8	1	6	298	36.1	40.84	241	169	
D Castlepollard (Pakenham Hall)	The Earl of Longford	5	2	6	..	36.6	43.21	256	178	
2.—BOYNE. 195 sq. mi.										
LOUTH. (Area, 316 sq. mi.)										
1.—BOYNE. 32 sq. mi.										
2.—DUNDALK BAY & C. 264 sq. mi.										
D Dundalk Rectory	Rev. T. F. Campbell	5	1	0	10	30.8	36.09	241	162	
D Dundalk (Ballymacallet Mt.)	The Surveyor	5	2	3	670	41.5	47.64	..	..	
D Dundalk (Aughneskea Res.)	The Surveyor	5	1	3	207	38.3	41.98	217	176	
3.—CARLINGFORD LOUGH. 20 sq. mi.										
D Greenore	S. Wilson, Esq.	5	1	3	20	31.9	41.47	218	157	
LONGFORD. (Area, 424 sq. mi.)										
1.—ERNE. 61 sq. mi.										
2.—SHANNON—Left Bank Tributaries. 363 sq. mi.										
D Ballymahon (New Castle)	Col. W. A. King-Harman	5	1	0	200	36.7	43.59	225	179	
Longford (The Rectory)	Rev. H. Justice	5	1	0	185	37.8	42.28	221	181	
D Cloondrah	Office of Public Works	5	1	0	132	31.5	39.45	240	162	
D Castle Forbes Gardens	The Earl of Granard	8	1	0	161	37.6	41.23	197	177	
D Gaigue School	Electricity Supply Board	5	1	9	390	..	37.89	218	170	

## DIVISION XXII.—CONNAUGHT.

GALWAY. (Area, 2377 sq. mi.)

1.—ERIFF &amp; C. 141 sq. mi.

2.—GALWAY BAY NORTH. 277 sq. mi.

3.—CORRIB. 846 sq. mi.

D Galway (Grammar School)	The Headmaster	5	1 0	64	40.0	40.47	259	189
D Ballynahinch Castle	H. H. Maharaja of Nawanager	5	1 9	41	61.0	68.33	264	226
D Tuam Palace Gardens	G. H. Greenham, Esq.	5	1 0	140	..	49.68	229	201
Tuam (Gardenfield)	R. J. Kirwan, Esq., C.E.	5	1 0	155	44.1	48.15	..	..

4.—GALWAY BAY, SOUTH. 281 sq. mi.

## DIVISION XXII.—CONNAUGHT—(con.).

STATIONS.	AUTHORITIES.	Diam.	Rain-gauge			1931.		
			Rim	Height of Ground	Average Rain-fall.	Rain-fall.	Days with .01 in. or more.	Days with .04 in. or more.
			above Ground.	above Sea Level.				
GALWAY—(con.).			<i>in.</i>	<i>ft. in.</i>	<i>ft.</i>	<i>in.</i>	<i>in.</i>	
<b>5.—SHANNON—Right Bank Tributaries. 803 sq. mi.</b>								
d Portumna .....	Electricity Supply Board...	5	3 0	..	..	35.17	..	..
d Ballinasloe B.N.S. ....	Electricity Supply Board...	5	..	150	36.7	(40.55)	..	..
d Ahascragh (Clonbrock).. <i>(new g)</i> ...	The Hon. Miss Dillon.....	5	1 0	198	41.6	44.89	186	175
d Mt. Bellew B.N.S.....	Electricity Supply Board...	5	1 8	200	..	42.30	226	178
d Ballygar.....	Electricity Supply Board...	5	..	200	..	37.17	250	163
<b>6.—INSULAR. 29 sq. mi.</b>								
ROSCOMMON. (Area, 961 sq. mi.)								
<b>1.—SLIGO BAY. 6 sq. mi.</b>								
<b>2.—MOY. 11 sq. mi.</b>								
<b>3.—CORRIB. 16 sq. mi.</b>								
<b>4.—SHANNON—Right Bank Tributaries. 928 sq. mi.</b>								
d Lanesborough .....	Electricity Supply Board...	5	1 6	140	..	37.71	185	170
d Strokestown (Castlenode).....	W. J. Walpole, Esq.....	5	1 0	160	35.0	44.16	207	176
d Boyle.....	Electricity Supply Board...	5	1 0	200	..	41.28	214	178
MAYO. (Area, 2149 sq. mi.)								
<b>1.—SLIGO BAY. 10 sq. mi.</b>								
<b>2.—MOY &amp; C. 797 sq. mi.</b>								
d Castlebar Rectory.....	Rev. J. Jackson.....	5	1 0	145	50.0	62.54	273	239
<b>3.—BLACKSOD BAY &amp; C. 411 sq. mi.</b>								
d Blacksod Point.....	Meteorological Office.....	8	1 0	10	49.7	58.73	267	224
<b>4.—CLEW BAY. 254 sq. mi.</b>								
d Louisburgh (Old Head House)....	The Marquess of Sligo.....	5	1 6	120	..	51.99	255	208
d Westport House.....	The Marquess of Sligo.....	5	1 0	35	46.6	52.35	269	208
d Mallaranny.....	M. C. Forbes, Esq.....	5	1 0	120	59.8	69.32	261	233
<b>5.—ERIFF &amp; C. 121 sq. mi.</b>								
d Aasleagh House .....	The Marquess of Sligo.....	5	1 0	30	95.2	113.43	274	236
d Delphi Lodge.....	The Marquess of Sligo.....	5	1 0	110	99.0	109.46	274	242
<b>6.—CORRIB. 432 sq. mi.</b>								
Tourmakeady (Drimbawn Ho.)....	Capt. E. G. Woods.....	5	1 0	100	54.0	60.82	277	187
<b>7.—SHANNON—Right Bank Tributaries. 35 sq. mi.</b>								
<b>8.—INSULAR. 89 sq. mi.</b>								
SLIGO. (Area, 716 sq. mi.)								
<b>1.—DROWES &amp; C. 49 sq. mi.</b>								



## DIVISION XXII.—CONNAUGHT—(con.).

STATIONS.	AUTHORITIES.	Diam.	Rain-gauge			1931.			
			Height of		Average Rain- fall.	Rain- fall.	Days with ·01 in. or more.	Days with ·04 in. or more.	
			Rim above Ground.	Ground above Sea Level.					
SLIGO—(con.).		<i>in.</i>	<i>ft.</i>	<i>in.</i>	<i>ft.</i>	<i>in.</i>	<i>in.</i>		
2.—SLIGO BAY. 444 sq. mi.									
d Collooney (Markree Obsy.).....	The Meteorological Observer.	5	1	0	122	43·3	49·77	256	209
d Sligo (Ard-na-veagh).....	R. J. Kirwan, Esq., C.E....	5	1	0	90	41·5	46·93	252	215
3.—MOY & C. 166 sq. mi.									
4.—SHANNON—Right Bank Tributaries. 56 sq. mi.									
5.—INSULAR. 1 sq. mi.									
LEITRIM. (Area, 615 sq. mi.)									
1.—ERNE. 152 sq. mi.									
2.—DROWES & C. 85 sq. mi.									
3.—SLIGO BAY. 135 sq. mi.									
4.—SHANNON—Right Bank Tributaries. 47 sq. mi.									
d Drumkeeran (Leckawn).....	Electricity Supply Board...	5	1	5	350	52·0	(56·86)	..	..
5.—SHANNON—Left Bank Tributaries. 196 sq. mi.									
d Cloone .....	Electricity Supply Board...	5	1	10	210	..	44·72	253	190
d Drumshanbo (Lough Allen Sluice)...	Office of Public Works.....	5	1	0	169	36·6	41·44	253	172

## DIVISION XXIII.—ULSTER.

CAVAN. (Area, 753 sq. mi.)

<b>1.—ERNE. 489 sq. mi.</b>									
D Crossdoney (Kevit Castle).....	Dr. F. P. Smith.....	5	1	0	211	35·5	45·57	228	184
D Belturbet (Cloverhill).....	Miss M. L. Gee.....	5	1	0	202	34·6	36·19	239	163
<b>2.—SHANNON—Right Bank Tributaries. 34 sq. mi.</b>									
d Glangevlin .....	Electricity Supply Board...	5	1	10	600	60·0	58·17	..	..
<b>3.—SHANNON—Left Bank Tributaries. 91 sq. mi.</b>									
<b>4.—BOYNE. 122 sq. mi.</b>									
<b>5.—DUNDALK BAY. 17 sq. mi.</b>									
FERMANAGH. (Area, 713 sq. mi.)									
<b>1.—ERNE. 667 sq. mi.</b>									
D Newtownbutler (Crom Castle)....	G. R. J. Corbett, Esq.....	5	1	1	200	..	41·75	256	189
D Enniskillen (Castle Coole).....	Lady Dorothy Lowry-Corry.	5	1	0	240	41·0	43·13	278	175
D Enniskillen (Technical School)....	J. W. Mansfield, Esq.....	5	0	10	165	..	44·86	..	..
d Enniskillen (Portora School).....	W. McDonald Porter, Esq..	5	1	0	251	40·3	42·86	..	..
D Colebrooke .....	Sir Basil Brooke, Bt.....	5	1	6	250	..	50·07	..	..
D Belleek (Roscor).....	Mrs. Dick.....	5	1	0	500	..	57·38	294	229
D Belleek (Heronshaw) .....	T. Beacom, Esq.....	5	1	2	150	45·5	48·45	255	231
D Castle Archdale.....	Mrs. Archdale.....	5	1	0	247	..	40·91	236	193

**2.—DROWES & C. 46 sq. mi.**

MONAGHAN. (Area, 498 sq. mi.)

**1.—ERNE. 208 sq. mi.****2.—DUNDALK BAY. 132 sq. mi.**

## DIVISION XXIII.—ULSTER—(con.).

STATIONS.	AUTHORITIES.	Diam.	Rain-gauge			1931.		
			Height of Rim above Ground.	Ground above Sea Level.	Aver- age Rain- fall.	Rain- fall.	Days with ·01 in. or more.	Days with ·04 in. or more.
MONAGHAN—(con.).		<i>in.</i>	<i>ft. in.</i>	<i>ft.</i>	<i>in.</i>	<i>in.</i>		
3.—BANN—Lough Neagh, West. 158 sq. mi.								
ARMAGH. (Area, 514 sq. mi.)								
1.—DUNDALK BAY. 118 sq. mi.								
Crossmaglen (Anamar).....	P. Norris, Esq.....	5	1 1	384	36·2	45·76	221	183
2.—CARLINGFORD LOUGH. 23 sq. mi.								
Bessbrook (The Woodhouse).....	J. S. W. Richardson, Esq... 5		1 0	260	37·2	41·91	245	185
3.—BANN—Lough Neagh, East. 37 sq. mi.								
Lurgan (Belle Vue) <i>new g.</i> .....	S. A. Bell, Esq., J.P..... 5		1 0	200	29·7	30·26	230	168
4.—BANN, UPPER. 144 sq. mi.								
5.—BANN—Lough Neagh, West. 192 sq. mi.								
Armagh Observatory.....(+A)...	The Meteorological Office.. 8		1 0	204	31·7	37·84	239	173
Richhill (Sandymount) .....	Mrs. C. B. Lamb..... 5		1 6	200	29·3	35·81	223	176
DOWN. (Area, 961 sq. mi.)								
1.—CARLINGFORD LOUGH. 104 sq. mi.								
Newry (Bridge Street House) .....	C. Blaney, Esq..... 5		1 0	23	38·1	41·25	214	178
2.—DUNDRUM BAY & C. 173 sq. mi.								
Silent Valley (Belfast W.W.) <i>new g.</i> ...	C. F. Wheeler, Esq., C.E... 5		1 0	426	..	58·46	220	183
Annalong (Belfast W.W.).....	C. F. Wheeler, Esq., C.E... 5		2 9	435	47·5	65·90	260	194
Mourne Mount'ns (Fofanny Res.)...	J. E. Croasdaile, Esq., M.A.. 5		1 0	938	64·4	85·75	216	205
Seaforde .....	T. W. Forde, Esq..... 8		1 0	180	38·3	43·89	234	183
3.—STRANGFORD LOUGH. 260 sq. mi.								
Strangford .....	G. L. Hildebrand, Esq..... 5		0 8	30	..	36·55	186	153
Saintfield House.....	Rev. E. H. Blackwood-Price. 5		0 9	300	34·9	39·96	280	172
Newtownards (Grey Abbey).....	J. H. K. Worsley, Esq.*.....		..	10	..	34·80	199	..
4.—COAST STREAMS. 47 sq. mi.								
Donaghadee (Coastguard Stat.)...	The Meteorological Office.. 8		1 0	40	31·3	35·55	229	156
Donaghadee (Craigmore).....	Dr. S. B. Coates..... 5		1 0	60	30·6	33·91	227	151
5.—BELFAST LOUGH. 206 sq. mi.								
Annaghanoon.....	W. J. Gibson, Esq..... 5		1 0	200	..	34·46	..	..
Waringstown (The Forge).....	W. J. Gibson, Esq..... 5		1 0	187	32·2	34·37	239	171
Hillsborough (Research Stn.).....	The Secretary..... 5		1 0	388	..	40·10	249	177
Bangor (Chorlton).....	C. T. Ingold, Esq..... 7		1 6	60	33·2	33·06	..	..
6.—BANN—Lough Neagh, East. 7 sq. mi.								
7.—BANN, UPPER. 162 sq. mi.								
Banbridge (Observatory).....	H. D. Fleming, Esq..... 5		1 6	210	32·1	35·12	235	162
Banbridge (Milltown).....	J. E. Kennedy, Esq..... 5		1 0	200	31·0	32·13	242	160
Portadown (Moyallon House).....	Mr. J. Eccles..... 5		0 7	130	32·6	30·82	200	152
8.—INSULAR. 2 sq. mi.								

\* Per Irish Rainfall Association.

## DIVISION XXIII.—ULSTER—(con.).

STATIONS.	AUTHORITIES.	Diam.	Rain-gauge				1931.		
			Height of		Average	Rain-fall.	Rain-fall.	Days with or more.	Days with or more.
			Rim above Ground.	Ground above Sea Level.					
ANTRIM. (Area, 1193 sq. mi.)			in.	ft. in.	ft.	in.	in.		
<b>1.—BELFAST LOUGH. 107 sq. mi.</b>									
d Lisburn (Friend's School).....	The Headmaster.....	8	1	6	208	34·1	(37·28)	..	..
d Lambeg (Glenmore House).....	Linen Industry Res. Assn... 8	0	11	100	..	39·45	218	175	
d Dunmurry (Warren House).....	Col. H. R. Charley..... 5	0	10	110	..	40·75	245	174	
d Belfast (Queen's University).....	J. A. Badger, Esq..... 5	1	0	62	34·5	38·35	235	172	
d Belfast (Sewage Works).....	R. B. Donald, Esq., C.E... 8	1	0	26	35·8	36·73	..	..	
d Belfast (Cave Hill Road).....	Miss C. Firth..... 5	1	0	200	40·2	43·25	263	198	
d Belfast (Oldpark Filters) <i>new g.</i> ...	C. F. Wheeler, Esq., C.E... 5	1	0	203	..	42·80	225	185	
d Whiteabbey (Knockinagh).....	H. M. B. Chisholm, Esq... 5	1	0	200	36·5	41·94	228	179	
d Carrickfergus (Dorisland) <i>new g.</i> ...	C. F. Wheeler, Esq., C.E... 5	1	0	250	..	42·10	227	182	
d Carrickfergus (S. Woodburn) <i>new g.</i> ...	C. F. Wheeler, Esq., C.E... 5	1	0	640	..	47·34	233	195	
d Carrickfergus (N. Woodburn) <i>new g.</i> ...	C. F. Wheeler, Esq., C.E... 5	1	0	735	..	48·77	233	196	
d Carrickfergus (Copeland) <i>new g.</i> ...	C. F. Wheeler, Esq., C.E... 5	1	0	427	..	44·13	236	183	
d Carrickfergus (L. Mourne) <i>new g.</i> ...	C. F. Wheeler, Esq., C.E... 5	1	0	596	..	46·95	234	185	
<b>2.—GLENARM &amp; C. 186 sq. mi.</b>									
d Larne (Sallagh Springs).....	J. E. Croasdaile, Esq. M.A.. 5	1	0	566	50·0	54·50	224	198	
d Glenarm Castle .....	Mr. T. Daly..... 5	1	4	30	44·6	50·74	246	197	
<b>3.—BUSH &amp; C. 193 sq. mi.</b>									
d Ballycastle (Magherintemple).....	Capt. J. Casement, D.S.O... 5	1	0	230	42·6	37·97	238	181	
<b>4.—BANN, LOWER. 112 sq. mi.</b>									
<b>5.—BANN—Lough Neagh, East. 590 sq. mi.</b>									
d Stoneyford (Belfast W.W.) <i>new g.</i> ...	C. F. Wheeler, Esq., C.E... 5	1	0	453	..	41·04	221	184	
d Aldergrove Aerodrome....(+A)...	The Meteorological Office... 8	1	0	238	34·0	34·95	239	177	
d Randalstown (Hollybrook) .....	N. F. Webb, Esq..... 5	1	0	120	..	41·54	255	197	
d Ballymena (Harryville).....	J. R. Williams, Esq..... 5	1	5	150	41·5	45·99	257	220	
d Broughshane (Tullymore Sch.)....	E. W. Thomson, Esq..... 5	1	2	218	41·0	42·70	231	185	
d Broughshane (Quolie).....	H. O'Hara, Esq., C.E..... 5	1	3	864	47·3	47·88	255	205	
<b>6.—INSULAR. 5 sq. mi.</b>									
LONDONDERRY. (Area, 816 sq. mi.)									
<b>1.—LOUGH SWILLY. 6 sq. mi.</b>									
d Londonderry (Dunruadh).....	J. H. Welch, Esq..... 5	0	6	130	40·5	43·03	258	203	
<b>2.—BUSH &amp; C. 9 sq. mi.</b>									
<b>3.—BANN, LOWER. 240 sq. mi.</b>									
d Coleraine (Cutts House).....	Maxwell Given, Esq., C.E... 8	1	0	20	39·6	39·44	234	178	
d Coleraine (Ingledene).....	W. R. Johnston, Esq..... 5	6	0	55	..	35·05	235	165	
<b>4.—BANN—Lough Neagh West. 196 sq. mi.</b>									

§ Gauge over-exposed.

## DIVISION XXIII.—ULSTER—(con.).

STATIONS.	AUTHORITIES.	Diam.	Rain-gauge			Average Rain-fall.	1931.			
			Height of		Rain-fall.		Rain-fall.	Days with .01 in. or more.	Days with .04 in. or more.	
			Rim above Ground.	Ground above Sea Level.						
LONDONDERRY—(con.)										
5.—FOYLE & C. 365 sq. mi.		in.	ft.	in.	ft.	in.	in.			
M	Glenedra (Spelhoagh Mountain)...	W. Criswell, Esq., C.E.....	5	1	0	1333	60.0	71.04	..	..
M	Glenedra Hill.....	W. Criswell, Esq., C.E.....	5	1	0	1333	62.5	70.78	..	..
M	Glenedra Lodge .....	W. Criswell, Esq., C.E.....	5	1	0	950	55.6	62.69	..	..
M§	Glenedra (Altgarra Mountain)..	W. Criswell, Esq., C.E.....	5	1	0	1230	..	63.86	..	..
	Altnahelish (Glack Burn) .....	W. Criswell, Esq., C.E. ....	5	1	0	967	..	57.58	..	..
D	Dungiven (Banagher Filters).....	W. Criswell, Esq., C.E.....	5	1	0	373	..	51.60	267	209
D	Londonderry (Creggan Res.).....	Mr. W. Hutchinson.....	8	1	0	325	41.8	46.19	292	224
D	Limavady (Roevista Manse).....	Rev. W. Browne.....	5	1	0	70	37.0	34.83	224	183
	Limavady (Drenagh) .....	M. M. McCausland, Esq....	5	1	6	80	37.0	34.30	245	179
	Bellarena .....	Sir F. G. Heygate, Bt.....	5	4	0	12	38.4	34.42	..	..
TYRONE. (Area, 1257 sq. mi.)										
1.—ERNE. 46 sq. mi.										
2.—BANN—Lough Neagh, West. 442 sq. mi.										
D	Dungannon (Aloha).....	Major R. Stevenson.....	5	1	0	275	37.2	45.38	265	188
D	Castlecaulfield (Parkanaur).....	Capt. Y. A. Burges.....	8	4	6	250	..	45.43	253	190
3.—FOYLE. 769 sq. mi.										
D	Omagh (Edenfell) .....	Lt.-Col. J. B. Buchanan... 8	8	1	0	280	40.1	44.20	268	201
D	Newtown Stewart (Barons Ct.)....	Capt. E. W. Ross.....	5	1	0	250	43.0	44.30	266	198
D	Sion Mills (Sion House).....	Capt. J. C. Herdman.....	5	1	0	100	39.0	44.78	251	201
DONEGAL. (Area, 1875 sq. mi.)										
1.—DONAGH & C. 146 sq. mi.										
D	Malin Head <i>old g.</i> .....	The Meteorological Office.. 8	8	1	3	51	32.0	38.14	252	193
D	Malin Head <i>New Site</i> .....	The Meteorological Office... 8	8	1	0	208	..	38.23	252	188
2.—LOUGH SWILLY. 273 sq. mi.										
D	Rathmullen (Fort Royal).....	Col. J. H. Jellett.....	5	1	0	35	42.5	41.50	263	189
D	Buncrana Rectory.....	Rev. R. P. Meredith.....	5	1	0	50	..	42.52	246	203
3.—SHEEPHAVEN & C. 307 sq. mi.										
D	Milford (The Manse).....	The Late Rev. W. J. Young. 5	5	1	3	150	42.0	42.09	263	212
D	Dunfanaghy (St. Patrick's).....	W. T. Arnold, Esq.....	..	..	..	..	43.0	42.64	276	212
4.—GWEEBARRA & C. 341 sq. mi.										
5.—DONEGAL BAY. 322 sq. mi.										
D	Killybegs (Rockmount).....	Com. G. G. Philipps, R.N... 5	5	1	0	65	60.5	52.13	260	215
6.—ERNE. 68 sq. mi.										
7.—DROWES & C. 10 sq. mi.										
8.—FOYLE. 396 sq. mi.										
9.—INSULAR. 12 sq. mi.										

§ Gauge over-exposed on moor.



# BRITISH RAINFALL

## 1931

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PART IV

## ON MEASUREMENTS OF EVAPORATION AT VALENTIA OBSERVATORY.

BY E. G. BILHAM, B.Sc., D.I.C.

At the Valentia Observatory, Cahirciveen, Co. Kerry, an evaporation tank was set up in 1920 and it soon became evident that the observations of evaporation were unreliable owing to the wind-swept exposure of the tank. In *British Rainfall* 1923, page 122, reference was made to the opinion of Mr. C. D. Stewart, at that time Superintendent of the Observatory, that evaporation could not be determined on days with appreciable rainfall. In the volumes for 1923 and 1924 comparative values of the evaporation at Valentia and at Camden Square on days with not more than  $\cdot 04$  inch (1mm.) of rain are given. They show that in nearly all months the average evaporation on such days is greater at Valentia than at Camden Square, a result attributed to the excess of wind at the former station.

For the purpose of investigating the anomalous results obtained in wet weather a Piché evaporimeter was installed. It may be recalled that in a Piché evaporimeter the evaporation takes places from a small disc of blotting paper to which water is supplied from a graduated tube. The instrument is small and compact and can be installed in a Stevenson screen. On account of the obvious and radical differences in their modes of operation it is not to be supposed that the tank and the Piché evaporimeter are strictly comparable instruments. A Piché evaporimeter in a screen has the advantage, however, that its indications are not subject, as are those of the tank, to uncertainty on account of the direct effects of rain. This point is a very important one and may be amplified a little. When evaporation is measured by noting the variations of water level in an open tank, we must make allowance for the gain by the tank when rain has fallen. The usual practice is to set up a rain-gauge near the tank and to assume that the tank gains an amount of water represented by the depth of rainfall as measured in the rain-gauge. We must assume, in fact, that the tank, acting as a rain-gauge, is neither less nor more efficient than the ordinary gauge. When we consider that the tank is simply an open vessel 6 feet square, that it contains a free water surface and that its lip is usually only about 3 inches above ground, we realise that it is a bold assumption to suppose that its catch is always identical with that of a circular rain-gauge, 5 or 8 inches in diameter, with its lip 12 inches above ground. It is inevitable, therefore, that on occasions of appreciable rainfall some uncertainty must attach to the measurements of evaporation.

As the Piché evaporimeter is not exposed to rain we may reasonably assume that its indications are as reliable when rain is falling as when rain is not falling. If, then, we compare the indications of the two instruments under varying conditions in regard to wind, and we divide the results into two classes: (a) days of little or no rain; (b) days of appreciable rain; we may expect to obtain some information as to the effect of rainfall on the apparent evaporation from the tank. Whether the Piché or the tank gives the "correct" value of the evaporation need not concern us here; that, as Mr. Kipling would say, is another story.

The following table gives comparative data in regard to evaporation, as measured by the two instruments during the winter months (January, February, March, October, November, December) of 1929. "Days without rain" are those on which the rainfall did not exceed 0.2 mm.; "days with rain" are days in which the rainfall was 1 mm. or more; days of slight rain (more than 0.2 mm. but less than 1 mm.) were excluded from both categories.

#### EVAPORATION ON DAYS WITH AND WITHOUT RAIN.

Wind Force (Beaufort Scale).	DAYS WITH RAIN.			DAYS WITHOUT RAIN.		
	Tank.	Piché.	Number of Days.	Tank.	Piché.	Number of Days.
	mm.	mm.		mm.	mm.	
0	—	—	0	—	—	0
1	—	—	0	1.2	1.0	3
2	0.6	1.0	6	1.3	1.5	19
3	1.1	1.4	16	1.1	1.9	13
4	2.5	1.8	42	1.1	1.7	7
5	2.0	1.6	33	1.3	2.9	1
6	2.1	2.7	13	2.7	6.3	1
7	—	—	0	—	—	0
8	6.0	2.9	1	—	—	0

#### *Weighted Means.*

Light winds  
(1 — 3)

#### *Days with Rain.*

{ Tank 1.0 mm.  
Piché 1.3 „

#### *Days without Rain.*

Tank 1.2 mm.  
Piché 1.6 „

Moderate and strong  
winds (4 — 8)

{ Tank 2.2 „  
Piché 1.9 „

Tank 1.3 „  
Piché 2.2 „

We see that in light winds the Piché indicates more evaporation than the tank both on days with rain and days without rain. In the absence of rain the difference persists in the same direction for higher wind forces. On days with rain, however, the tank shows, on the whole, more evaporation than the Piché. The figures are rather irregular, but the difference shows up quite clearly in the weighted means.



If we may regard the weighted means for days without rain as the true basis for estimating the instrumental differences between the Piché and the tank we must conclude that the tank gives satisfactory results on days of rain so long as the wind does not exceed force 3, and that it gives excessive readings of evaporation in winds of force 4 or more. Our object must be, therefore, to ascertain the reason for a large apparent evaporation from the tank on wet windy days.

We have already remarked upon the fact that in computing the evaporation from the tank in rainy weather, identity of catch by the tank and by the rain-gauge must be assumed. At Valentia the rain-gauge used for this purpose was in a pit a few feet away from the tank. In discussing the results already quoted Mr. M. T. Spence, Superintendent of the Observatory, pointed out that they indicated "over-exposure" of the tank, regarded as a rain-gauge. If the catch in the tank, as compared with that in the gauge, was reduced by over-exposure, the deficiency would, of course, augment the apparent evaporation. He recommended, therefore, the construction of a turf wall round the tank, and this work was carried out during the summer of 1930. The crest of the wall was 6 inches above the level of the rim of the tank and the wall was about 5 feet distant from the sides of the tank in all directions. Unfortunately for the purpose of the present discussion observations of rainfall from the pit gauge were discontinued, the readings from the Observatory standard gauge being used from July 1st, 1930, in evaluating the evaporation from the tank. In the *Quarterly Journal of the Royal Meteorological Society*, 1926, (C. D. Stewart, "Experiments on the Shielding of Rain-gauges") it is shown that the catch of the pit gauge considerably exceeds that of the standard gauge. During the period under discussion the difference was about 12%, and a simple calculation will suffice to illustrate the magnitude of the effect of the change on the computed evaporation. Consider a day with rainfall 10·0 mm., as measured in the pit gauge, and let us assume that the water level in the evaporation tank showed a rise of 8·5 mm. The rainfall measured in the standard gauge would be 88 per cent of the 10 mm., *i.e.*, 8·8 mm. Using the pit gauge measurement of rainfall, we obtain :—

$$\text{evaporation} = 10\cdot0 - 8\cdot5 \text{ mm.} = 1\cdot5 \text{ mm.}$$

Using the standard gauge measurement of rainfall, we obtain :—

$$\text{evaporation} = 8\cdot8 - 8\cdot5 \text{ mm.} = 0\cdot3 \text{ mm.}$$

In other words, a change of 12% in the assumed value of the rainfall has altered the computed evaporation in the ratio of 5 to 1.

In general, if  $R$  is the true rainfall and  $E$  the true evaporation, an error  $\delta R$  in the determination of the rainfall will give rise to an error,  $\delta R$  in the determination of the evaporation. Put

$$\delta R = -\frac{n}{100} \times R, \text{ i.e., assume the rainfall to be under-estimated by } n \text{ per cent. The computed evaporation} = E - \frac{n R}{100} \quad (1)$$

If we are prepared to tolerate an error of  $m$  per cent in the evaporation we may write

$$\text{computed evaporation} = E - \frac{m E}{100} \quad (2)$$

Equating (1) and (2) we have

$$\begin{aligned} n R &= m E \\ \text{or} \quad n &= m \cdot \frac{E}{R} \end{aligned}$$

This relation enables us to fix a value for the permissible error in the rainfall on an occasion when the evaporation is  $E$  and the rainfall  $R$ . Let us put  $m = 10$  per cent,  $E = 1$  mm. and  $R = 5$  mm., then we obtain  $n = 2$ . In other words, if we are to obtain values of the evaporation correct to within 10 per cent when the rainfall is 5 mm., our measurement of rainfall must be correct to within 2 per cent.

Conversely, if we know the error in the measurement of rainfall to be 10 per cent, the measurement of evaporation will be in error by 50 per cent when the rainfall is 5 mm., by 100 per cent when the rainfall is 10 mm., and so on, the percentage error in the evaporation being directly proportional to the rainfall.

We cannot, therefore, say from the data available, what effect, if any, the erection of the wall has had upon the apparent evaporation from the tank on wet days. It is of interest, however, to note that on days without rain the wall appears to have had the effect of bringing the readings from the tank and Piché into closer agreement. This result is surprising because the wall was expected to reduce the rate of air movement over the tank, and, therefore, the evaporation. From the results already quoted it is obvious than any factor tending to reduce evaporation from the tank would increase the difference between the two instruments in windy weather, because the tank was already giving low readings as compared with the Piché. Mr. Spence considers that the comparison may have been complicated by sunshine, an element to which the tank probably responds more readily than the Piché.

It can hardly be claimed that the work which has been done since 1929 has resulted in much progress towards the solution of the problem as to why the evaporation from the tank is apparently excessive in wet windy weather. It often happens, however, in the pursuit of our science, that in studying one problem we obtain light on another problem, and it so happens that we have obtained what appears to me to be the true solution of the Valentia evaporation problem, from an unexpected quarter. Last year, in studying the results obtained in various investigations on the shielding of rain-gauges, we were led to look once more into the question of the height to which raindrops may splash from various surfaces. In an interesting article on "The Splashing of Rain," in the *Meteorological Magazine* for August, 1931, Lieut.-Col. E. Gold made some calculations of the height to which splashing might occur from a water surface. These calculations indicated that heights of the order of three or four feet might be reached, and in a note in the *Magazine* for September, 1931, Mr. J. S. Dines gave an actual observation of splashing up to 2ft. 8 ins. By means of a simple device described in the *Magazine* for April, 1932, I was able to make some determinations of the height of splashing from wet surfaces in actual rainfall. I found that even in rain of moderate intensity splashing up to 13 inches took place from a wet asphalt surface, and I got heights of 17 inches in heavy showers. These results make it quite certain that when rain falls upon a water surface an appreciable proportion of it rebounds to heights exceeding 12 inches.

Now let us consider the bearing of this fact on tank measurements of evaporation in wet, windy weather. It can be shown that a drop which starts from the surface and reaches a height of 12 inches is in the air for about half a second. The tank is 6 feet long, and we will assume that a wind of 12 feet per second is blowing along the tank. During the time the drop is in the air it will be carried forward by the wind. If we assume that it takes up the horizontal movement of the air in which it finds itself, its horizontal travel during the half-second of its flight will be 6 feet. This means that if the drop starts from the windward margin of the tank it will just strike the far edge of the tank. Any drop which starts from a point on the water surface further down wind will be blown clear of the tank, except in so far as it may be intercepted by the inner wall of the tank which projects above the water surface. The water surface is normally about three inches below the lip of the tank. Consequently, if we add three inches to the vertical movement of the drop (making it 15 inches instead of 12 inches) we arrive at the conclusion that in a wind of 12 feet per second all drops splashing to 15 inches above the water surface will be blown clear of the tank. Similarly, it can be shown that the loss will be 70 per cent for drops splashing to 9 inches and 50 per cent for drops splashing to 6 inches.

A wind of 12 feet per second near ground level in a situation like that of the tank at Valentia is equivalent to a wind of force 5 or 6 on the Beaufort Scale as ordinarily estimated. It seems clear that in such a situation there must be a very substantial loss from outsplashing in a strong wind. Unless this loss is balanced by insplashing (which is unlikely unless the tank is surrounded by some such surface as asphalt or concrete) the result would be an excessive figure for the evaporation on windy days with rain. This is exactly what has been observed at Valentia. Hitherto we have been in the habit of assuming that insplashing, rather than outsplashing, was a serious source of error in measuring evaporation from tanks, but it now seems clear that outsplashing is by far the more important of the two.

We now have to consider the practical bearing of these results on the problem of evaporation measurements. In the first place it is clear that tank measurements are likely to be of little value unless some means can be found for rendering the loss from outsplashing negligible. The most obvious way to do this is to set up the tank in such a situation that the wind velocity over the water surface never exceeds a few feet per second. In an article entitled "On some Measurements of Wind Velocity at the Level of a Rain-gauge" in Part IV of *British Rainfall*, 1930, 15 miles per hour (22 feet per second) was suggested as the upper limit of wind velocity to be tolerated in the case of a rain-gauge. This is clearly too high for an evaporation tank and we are forced to the conclusion that a really sheltered site is necessary. Too high a degree of shelter is, however, undesirable if we are to use the tank measurements for estimating the evaporation from large open water surfaces.

A possible solution is to instal the tank in the middle of an area of smooth concrete or asphalt extending for several feet round the tank on all sides. Such a surface, once it is wetted all over by rain, bears some similarity to a free water surface in regard to splashing and we should expect, therefore, that insplashing and outsplashing would tend to cancel one another. The rain-gauge might be installed in a pit close by with its rim level with the concrete surface. The pit should be six or seven feet in diameter and a foot deep. With such arrangements the catch of the tank and of the rain-gauge would probably be more nearly identical than they are when the tank is surrounded by grass and the gauge is normally exposed. Clearly, however, further experimental work is necessary before such a course could be definitely recommended.

There remains the question whether, if so much trouble is necessary to get satisfactory results, it would not be better to abandon the tank in favour of some such instrument as the Piché evaporimeter. The Piché evaporimeter admittedly gives purely a conventional

figure for the evaporation, since it registers merely the evaporation from a particular surface (blotting paper continuously wetted) in the artificial environment of a Stevenson Screen. Can we, however, make any better claim for the tank? It purports to give the evaporation from a free water surface, but the conditions in a small tank in regard to evaporation are manifestly very different from those in an open sheet of water like a reservoir. Moreover, the evaporation of which we must take account in assessing the difference between actual and effective rainfall, takes place, for the most part, from soil surfaces, vegetation, etc., rather than from open water surfaces. For practical purposes, then, tank evaporation is just as much a conventional quantity as Piché evaporation. The opinions of water engineers and others interested in evaporation data, on the general question, would be very valuable.

## REPORT ON EXPERIMENTS WITH RAIN-GAUGE SHIELDS IN EXPOSED POSITIONS DURING THE PERIOD 1st MAY, 1931, TO 30th APRIL, 1932, AT HUTTON JOHN, PENRITH.

By F. HUDLESTON, M.Inst.C.E.

The experiments with shielded rain-gauges in exposed positions of which detailed descriptions have appeared in *British Rainfall* for the five years 1926 to 1930 have been continued for another 12 months in the manner described below.

Contoured maps and cross-sections of the hill have appeared in various former numbers of *British Rainfall* and a plan of the gauges in the western enclosure—which is the most exposed site—and cross sections of the most of the gauges were given in *British Rainfall*, 1930 ; they are not repeated in this volume since the slight modifications to gauges E<sub>1</sub>, E<sub>2</sub> and M would be hardly perceptible on so small a scale.

For the five months May to September, 1931—the months which constitute our summer in the Lake District—the gauges and sheltering devices were kept exactly as they were during the period December, 1930 to April, 1931 (see *British Rainfall*, 1930, pp. 264–266), and their catches which are now given corroborate the evidence of former years to the effect that summer weather has comparatively little disturbing effect on the catches of rain-gauges whether they be of normal exposure or surrounded by those sheltering devices which we have found so effective in the rough weather of October to April, the 7 months which may be said to constitute our winter in Lake-land and generally supply us with the high winds we want for these experiments.

The top line of this table gives catches in inches, while the italics of the lower line gives them as percentages of A's catch.

Period.	No. of rain-days.	Check gauge A	WESTERN ENCLOSURE.						EASTERN ENCLOSURE.			Close to the Wood J
			E <sub>1</sub>	E <sub>2</sub>	F	L	M	N	B	C	D	
1st May to 30th Sept., 1931 (153 days in all.)	89	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.
		17·40	17·86	17·81	17·33	17·90	17·48	17·30	17·99	18·27	18·17	18·18
		<i>100</i>	<i>103</i>	<i>102</i>	<i>100</i>	<i>103</i>	<i>100</i>	<i>99</i>	<i>103</i>	<i>105</i>	<i>104</i>	<i>104</i>

If we compare these percentages with those of the top line (a) in the table appearing on p. 29 of *British Rainfall*, 1929 (which gives the totals for May to September, 1929), we find they bear much the

same proportions for the seven experimental gauges B to J which have had the same surroundings for those two summers, although the check gauge A (which is 150 yards north of the Kilnflatt Hill gauges) has not caught the same proportion of rain in the summer of 1931 as it did in the summer of 1929 and consequently the percentages are all from 2 to 5 per cent. higher in the present table.

In other words we find that in the western enclosure the bare gauge F is from 2 to 3 per cent. below its sheltered neighbours  $E_1$  and  $E_2$  in the summer months of 1929 and 1931, while in the eastern enclosure the bare gauge B is from 1 to 2 per cent. below C and D and also J, the gauge near the wood, while we also find that the top of the hill is less disturbed than its windward slope. But in winter these differences are very much increased as we can see on p. 267 of *British Rainfall, 1930*, when every shelter except  $E_1$  is the same as in those two summers, and it is only in lines (d) and (e) that the extra 2 inches of  $E_1$ 's wall has affected the catch of that gauge.

In October, 1931, we varied the turf walls of  $E_1$  and  $E_2$  and we converted the level bench round M into a pit similar to but much larger than that of gauge L, and it is advisable now to describe the exact surroundings during the last winter of the 10 gauges whose catches are set out in Table I of this article.

The installation from November, 1931, to April, 1932, has comprised ten 5 inch gauges with the deep Snowdon type of funnel and one old 5 inch British Association type with the inverted cone close up to the top of the gauge. In every case the rim of the gauge is 12 inches above the ground level. Each group of gauges is on the line of the hill Great Dodd, *i.e.*,  $33^\circ$  south of west (our gustiest exposure, see the photo on p. 286, *British Rainfall, 1926*), and the gauges in a group are in line from N.N.W. to S.S.E., so that they cannot interfere with their neighbours when we get the westerly winds we want for our purpose. Six gauges marked  $E_1$ ,  $E_2$ , F, L, M and BA, are in the western enclosure and 30 yards west of the actual summit of Kilnflatt Hill (725.6 ft. above sea level) just where the 1 in 8 slope up from the west is merging into the rounded summit of the hill. The ground levels at these 6 gauges varies from 718 ft. to 722 ft. above sea level.

Three more gauges marked B, C, and D are similarly arranged in a N.N.W. to S.S.E. line in the eastern enclosure and they lie 10 yards east of the summit where the ground level is one foot lower than the summit. One gauge J, 40 yards east of B, C and D, is close to the western side of Kilnflatt Wood and the ground level at J is  $10\frac{1}{2}$  ft. lower than the summit of the hill.

Gauge A, which lies 150 yards north of the line towards Great Dodd upon which the experimental gauges are placed and has always

been used as the check gauge on which percentages are calculated, is a standard Snowdon 5 inch gauge placed at the exact spot in the gardens where a 5 inch British Association gauge functioned from 1886 to 1926 when the 5 inch Snowdon replaced it. It is 5 yards west of the 7 ft. retaining wall that divides the gardens from the lower lying ground of the park and we now know that this wall upsets gauge A in all winds from the east and diminishes its catches by 2 or 3 per cent. in the annual total. B is a 5 inch M.O. standard gauge and has had normal exposure since these experiments were started in November, 1926. C, also a 5 inch M.O. gauge, has had various sheltering devices round it, but since 28th November, 1930, it has been surrounded by a turf wall whose crater edge is circular, of 10 ft. diameter, truly horizontal and in a plane exactly 2 inches above the gauge top. Its outer slope is 1 in 4. D, also a 5 inch M.O. gauge, has had the same turf wall round it since May, 1927. This wall is 15 inches high, *i.e.*, 3 inches above the top of the gauge, its outer slope is 1 in 3, but the edge of its crater is parallel to the ground surface so that the western edge is  $4\frac{1}{2}$  inches above the level of the gauge top, while the eastern edge is only  $1\frac{1}{2}$  inches above its rim. As Kilnflatt Wood is only some 45 yards further east, D is completely sheltered from a strong east wind and consequently this difference of level in the crater edge does not affect the catches of D like the difference in level of the sloping crater edge of gauge E<sub>2</sub>, where the lower edge of the crater is on the western side of the gauge, and, therefore, faces every gale from the west.

E<sub>1</sub>, a 5 inch M.O. gauge, is the northernmost of the gauges in the western enclosure and it has had various contrivances round it since November, 1926, but in October, 1931, its turf wall of 10 ft. diameter was restored to what it was in 1929–30 and its crater edge is now truly horizontal and in exactly the same plane as the top of the gauge. E<sub>2</sub>, a 5 inch M.O. gauge, was established in May, 1928, and had from that time to October, 1931, a turf wall of 10 ft. diameter, whose crater edge was parallel to the ground surface and in the plane of the gauge top. The ground here slopes to the west 9 inches in the 10 ft. so that the western edge of the crater was  $4\frac{1}{2}$  inches below the level of the gauge top and the eastern edge  $4\frac{1}{2}$  inches above the top. But in October, 1931, the wall was raised  $2\frac{1}{2}$  inches all round so that during last winter its western crater edge has been only 2 inches below the level of the gauge top while the eastern edge is 7 inches above that level. The outer slopes of the walls round E<sub>1</sub> and E<sub>2</sub> are at 1 in 3, *i.e.*, the same slope as D's wall.

F, also a 5 inch M.O. gauge, is a normally exposed gauge placed 14 feet west of E<sub>1</sub> and E<sub>2</sub> so as to obviate risk of shelter from the masses of their turf walls when a westerly wind is blowing. It has been the same since May, 1927.



L, also a 5 inch M.O. gauge, is in a pit made in October, 1930, the bottom of which is 4 ft. in diameter and the top edge averages 8 ft. in diameter; the slope of the sides of this pit are 1 in 3, while the top of the gauge is exactly in the plane of the hillside which here slopes about 1 in 10 towards the west, so that the western edge of the pit is about 6 inches below the level of the gauge top and the eastern edge about 6 inches above it. This gauge L would seem to be liable to the same curious turbulence that appears to affect  $E_2$ , but I have not up to now detected any such effect; probably the sloping sides of this pit do not induce turbulence similar to what I have observed inside  $E_2$ 's wall.

M, another 5 inch M.O. gauge, which during the winter 1930-31 was on a level bench excavated in the hillside, has, since October, 1931, been in a pit similar to, but larger than, that of L. Its outer diameter is about 11 ft. so that its western edge is 7 inches below the level of the top of the gauge while the eastern edge is 6 inches above. The top of M, like that of L, lies exactly in the plane of the hillside and its inside slopes are also at 1 in 3.

The Nipher shield round gauge N which was tested between December, 1930 and November, 1931 (the winter records appeared in *British Rainfall*, 1930), was discarded in December, 1931, and the actual rain-gauge, a 5 inch M.O. pattern, was taken to a new observing station in the eastern quarter of Skiddaw Forest where it is compiling information that will probably appear in *British Rainfall*, 1932. I then installed my old 5 inch British Association gauge in the exact spot that N had occupied between L and M, putting its top exactly 12 inches above the ground and, as will appear later, we have obtained some interesting comparisons between the old type and the new Snowdon type when exposed to a degree which has probably never been tested before.

This new installation on Kilnflatt Hill has been functioning for the six months November, 1931, to April, 1932, and the results are summarised in Tables I and II of this report. The top line of each double line gives the catches in inches which were originally read to three places of decimals, while the italics of the lower line gives that catch as a percentage of A's catch.

There has been very little snow here this winter for the Pennine Hills have, as is their custom, robbed every easterly wind of the snow it may have borne with it, so that the totals and details of the two tables are for rain with a comparatively small proportion of hail, *i.e.*, in other words, ordinary rough winter weather.

Out of the 112 rain-days which gave A a total catch of 32.65 inches, 24 "rough days" accounted for 19.16 inches and for 10 of the 24 days the wind kept to the southern side of Little Mell Fell and consequently blew along the ridge of Kilnflatt Hill with results

given in line (a) of Table I and these are much the same as those of line (a) in the Table on p. 267 of *British Rainfall*, 1930. J had lost the shelter of the hilltop and is a little below B, while C and D with their turf walls caught much the same as A. The sheltered gauges in the western enclosure,  $E_1$ ,  $E_2$ , L and M, being far more exposed to southerly winds than those in the eastern enclosure, are from 15 to 20 per cent. below A, *i.e.*, rather lower than on 28th December, 1930 (see p. 267 *British Rainfall*, 1930) while the percentages of C and D are a little higher. The two normally exposed gauges B and F are worse off than they were on 28th December, 1930, and these differences can be readily appreciated from Table II in which it will be seen that the winter of 1931–32 had stronger southerly winds than 28th December, 1930, when Force 6 only was reached.

For the 14 remaining "rough days," which are detailed in Table II and summarised in lines (b), (c) and (d) of Table I, the wind blew from the northern side of Little Mell Fell (I have pointed out in my earliest report at pp. 292–293, *British Rainfall*, 1926, that the mass of Little Mell Fell, although its altitude is only 5° above Kilnflatt Hill, always gives us a sudden and rapid shift of wind from S.S.W. to W.S.W.), and consequently straight up the 1 in 8 slope of my testing ground; the results are very much like those in lines (d) and (e) on p. 267, *British Rainfall*, 1930, but the modifications in the surroundings of  $E_1$ ,  $E_2$  and M have provided very different changes in lines (c) and (d) of Table I in this volume.

$E_1$ , now that its turf wall has lost the extra 2 inches of height that it had in 1930–31, is once more better than  $E_2$  and it increases its advantage as the wind rises. Gauge L (in the pit) still heads the lot in the western enclosure, but while its advantages over  $E_2$  (with the sloping crater edge) is practically the same in 1931–32 as in 1930–31 in *all* westerly winds between 20 and 40 m.p.h., it has failed to keep as much ahead of  $E_1$  in high winds since the wall round  $E_1$  has been lowered by two inches for we find the following changes in their percentages of A's catches:—

	No. of days.	$E_1$ %	$E_2$ %	L %
"Fresh to strong" westerly winds .. 1930–31	7	80	81	84
Ditto do. .. 1931–32	5½	79	79	85
"High" westerly winds .. .. 1930–31	7	70	74	80
Ditto do. .. .. 1931–32	7½	79	76	80

The extra two inches in the height of the crater top round  $E_1$  during the winter 1930–31 seems to have been responsible for the loss of one eighth of its proper catch when the wind was of "gale strength,"

for after the extra two inches are removed we find  $E_1$  is almost equal to L in its catching capacity for  $7\frac{3}{4}$  days, and we also see that it has resumed its old superiority over  $E_2$ , which was plainly shown in lines (c) and (k) of the table on p. 291 of *British Rainfall*, 1929, and also referred to at some length on pp. 267–268 of *British Rainfall*, 1928.

The relative catches of  $E_2$  and L are much the same although  $E_2$ 's wall is  $2\frac{1}{2}$  inches higher than in 1930–31 and it would seem that the interior of  $E_2$ 's crater in 1931–32 was just as much upset by turbulence as it was in 1930–31. I submit this is fairly good proof that when the plane of the crater edge of a turf wall has a definite slope towards a high wind it produces a peculiar type of turbulence inside the wall dependent upon the angle of that slope, *i.e.*, the altitude of the leeward edge above the windward edge which baffles the wind, while when the said plane is horizontal the effect upon the catch of the gauge is due mainly to the stream lines of the wind becoming deflected upwards in a smooth wave and consequently helping to lift rain drops over the gauge top.

Now this streamline lifting effect (always supposing that it does exist on turf walled enclosures) does not seem to be important in 10 ft. diameter enclosures with winds not exceeding 25 m.p.h., but to come rapidly into action when a wind approaches "gale force," for Table II gives curiously alternating percentages for  $E_1$  and L in the "high wind" part of that table although *not* in the 25 m.p.h. part. A really big gale might help us to form a judgment upon this suggestion, since a wind that varies between force 5 and force 7 (which are the limits I booked for the  $7\frac{3}{4}$  days of high winds), would be at times above and at times below the critical wind velocity that appears to puzzle us and, therefore, confuse our judgment which has after all to depend upon the catches found when I managed to get the lot measured together in a dry interval.

The catches of M are less than those of L on almost all the 14 rough days of westerly winds, which seems to show that the pit is too large, but a comparison with M's catches in *British Rainfall*, 1930, when it was on a horizontal ledge, now proves conclusively that a pit is a distinct improvement on a ledge.

The behaviour of the old 5 inch British Association gauge "B.A." deserves a little attention. I did not get it into action until 18th December, 1931, so that it does not find a place in many of the lines in Table I, but its catches are to be found in sundry parts of Tables I and II where they are, with one exception, always below F. The line (b) of Table I gives the very best example I have had hitherto. On that day, 28th December, 1931, the catch was but small,  $A = 0.08$  inch, and it consisted mainly of hail. F only caught 50 per cent. of A, which is consistent with many earlier records of the last five years, but the poor old "B.A." gauge was hopelessly upset by the

"Force 6" wind and it seems to have thrown out any hailstones that fell into its funnel. Of course, the exposure is one which would not have been approached by one gauge in a thousand in the last century, but it is definite proof, if such proof be still needed, that the old gauges on the Styne in Borrowdale and on many over-exposed gathering grounds furnished records that were quite incorrect and inconsistent with one another. Compare for example the catches of the old 4 inch Styne gauges B, C and D, which were close to each other and where D was on the top of a crag, and, therefore, particularly liable to turbulence. The funnels of these old gauges, illustrated in *British Rainfall*, 1895 and 1896, would not have retained a single hailstone in a stiff breeze and indeed would reject much of a heavy drop of rain. Still in 99 cases out of a 100 rain-gauges are in comparatively sheltered spots where turbulence is hardly existent so that the records of "pre Snowdon funnel" days may not be far wrong. The figures given below, which are the totals for the four months January to April, 1932, show that, even on the western slope of Kilnflatt Hill and during winter, the old "B.A." gauge was only 7 per cent. below the catch of F, which is the very latest pattern of a Standard 5 inch gauge.

Total catches of four months from 1st January, to 30th April, 1932

	A	E <sub>1</sub>	E <sub>2</sub>	F	L	M	"B.A."	B	C	D	J
Catch in inches ..	in. 19·87	in. 17·16	in. 16·81	in. 15·48	in. 17·47	in. 16·92	in. 14·60	in. 19·28	in. 20·11	in. 20·03	in. 20·04
Per cent. of A's catch	100	86	85	79	88	85	73	97	101	101	101

(These percentages are much like those of the 6 month's total in Table I.)

As a slight set-off in favour of "B.A.," I have occasionally found its catch to be larger than F and other of its neighbours, and I attribute this to the following causes :—

- (1) The inverted cone of "B.A." 's funnel is 3 inches deep, whereas that of a standard 5 inch M.O. gauge is 2 inches deep, so that rain-drops in "B.A." have a more rapid descent into the container.
- (2) The surface area of the cylinder and cone in the "Snowdon" is about four times that of the "B.A." cone and consequently evaporation before the catch reaches the container must be more in the Snowdon than in "B.A.", when a breeze or a hot sun encourages evaporation. The coming summer may furnish an answer to this little problem.

As four of my gauges here have completed their records under

identical conditions for five continuous years, I have collected their records together here in the hope that they may be of use to other students of rainfall if they bear in mind the following qualifying remarks :—

Period.	A	B	D	F
1st May, 1927 to 30th April, 1928 ..	62·10 100	61·33 99	62·88 101	54·79 88
1st May, 1928 to 30th April, 1929 ..	44·72 100	44·67 100	45·75 102	40·93* 92
1st May, 1929 to 30th April, 1930 .. (but not including the abnormal drifted snow of 20th March, 1930)	55·69 100	54·65 98	57·23 103	49·22 90
1st May, 1930 to 30th April, 1931 ..	54·21 100	53·51 99	55·32 102	48·63 90
1st May, 1931 to 30th April, 1932 ..	52·49 100	52·12 99	53·64 102	45·75 88
* Jan. and Feb. of 1929 only gave 1½ inches.      TOTALS ..	269·11 100	266·28 99	274·82 102	239·32 89

We *know* that the catches of A are a bit low whenever an easterly wind brings rain with it.

We *know* that D with its turf wall is capable of catching more than its fair share of precipitation whenever that precipitation consists of *snow* falling during a breeze of only moderate velocity.

We *know* that B and F fall behind A and D *only* when some wind is blowing and that they lose ground rapidly as the wind increases its velocity, and we have good reason to consider that this propensity is caused, in B's case, solely by turbulence round the body of the gauge, but in F's case by turbulence combined with some lifting and transporting capacity possessed by a stiff breeze blowing up the 1 in 8 slope upon which F is established, and that this disturbing capacity seems to be many times greater than any mere turbulence round the cylinder of a rain-gauge that is situated on a sloping hillside.

TABLE I.—Summary of Catches from 1st November, 1931, to 30th April, 1932 (183 days in all).

NOTE.—The italic figures are the percentages of A's catches.

Description of Catches.	No. of Days.	Check Gauge. A	WESTERN ENCLOSURE.						EASTERN ENCLOSURE.			Close to the Wood. J	Direction and Force of Wind.
			E <sub>1</sub>	E <sub>2</sub>	F	L	M	"B.A."	B	C	D		
(a) Rain with "strong to high" southerly winds .. ..	10	in. 11.92 100	in. 10.05 84	in. 9.82 82	in. 9.07 76	in. 10.09 85	in. 9.58 80	in. ..	in. 11.48 96	in. 12.01 101	in. 11.86 99	in. 11.37 95	South to S.S.W. winds of Forces between 4 and 8.
(b) A high westerly wind with a good deal of hail on 28th December, 1931 .. ..	1	0.08 100	0.06 75	0.07 87	0.04 50	0.08 100	0.06 75	0.01 13	0.07 87	0.10 125	0.09 112	0.08 100	W. Force 5—6.
(c) Rain with "fresh to strong" westerly winds .. ..	5½	3.58 100	2.84 79	2.83 79	2.56 72	3.05 85	2.97 83	2.28 64	3.43 96	3.54 99	3.53 99	3.70 103	Westerly winds of velocities not exceeding 25 m.p.h.
(d) Rain with "high" westerly winds .. ..	7½	3.58 100	2.82 79	2.72 76	2.38 66	2.88 80	2.81 79	..	3.47 97	3.60 101	3.57 100	3.78 106	Westerly winds of velocities up to 40 m.p.h.
(e) All other rain-days ..	88	13.49 100	13.04 97	12.93 96	12.07 90	13.04 97	12.83 95	..	13.26 98	13.87 103	13.91 103	13.58 101	Wind from all quarters but not exceeding 18 m.p.h. (Force 4.)
(f) Total precipitation for 6 months (183 days), 1st November, 1931, to 30th April, 1932 .. ..	112	32.65 100	28.81 88	28.37 86	26.12 80	29.14 90	28.25 86	..	31.71 97	33.12 101	32.96 101	32.51 100	..

TABLE II.—Details of "strong to high" winds in winter 1931-32.

	DATE.	No. of Days.	Check Gauge. A	WESTERN ENCLOSURE.							EASTERN ENCLOSURE.			Close to Wood. J	Wind.
				E <sub>1</sub>	E <sub>2</sub>	F	L	M	"B.A."	B	C	D			
Southernly Winds "strong to high."	1931 Nov. 2-3	2	in. 4.31 100	in. 3.74 87	in. 3.78 88	in. 3.42 79	in. 3.80 88	in. 3.65 85	in.	in. 4.26 99	in. (4.39) 102	in. 4.39 102	in. 4.21 98	Force, S.S.W. 6-7	
	Dec. 2	1	1.23 100	1.05 85	1.00 82	0.93 76	1.04 85	0.97 80		* 1.16 95	1.25 102	1.18 96	1.14 93	S.W. 4	
	1932 Jan. 9-16	7	6.38 100	5.26 82	5.04 79	4.72 74	5.25 82	4.96 78	4.57 72	6.06 95	6.37 100	6.29 99	6.02 94	S. to S.S.W. 4-8	
	Total ..	10	11.92 100	10.05 84	9.82 82	9.07 76	10.09 85	9.58 80		11.48 96	12.01 101	11.86 100	11.37 95		
"High" Westerly Winds and up to 40 m.p.h.	1931 Dec. 3-4	2	0.43 100	0.39 91	0.37 86	0.34 79	0.38 88	0.38 88		0.42 98	0.44 102	0.44 102	0.46 107	W.S.W. 6-7	
	1932 Jan. 3 (after 14h.)	3	0.48 100	0.29 61	0.29 60	0.25 52	0.27 56	0.30 62	0.19 40	0.39 80	0.40 83	0.39 81	0.41 92	W. 4-6	
	Jan. 5	1	0.60 100	0.48 79	0.46 77	0.40 67	0.49 81	0.46 76	0.39 64	0.60 100	0.62 103	0.62 103	0.66 109	W.S.W. 6-7	
	April 6-7	2	0.63 100	0.53 84	0.53 84	0.47 75	0.58 92	0.57 90	0.36 57	0.65 103	0.68 108	0.68 108	0.71 112	W. 5-7	
	April 9-10	2	1.44 100	1.13 78	1.07 75	0.92 64	1.16 80	1.10 76	0.72 50	1.41 98	1.46 101	1.44 100	1.54 107	W.S.W. 5-7 to W.N.	
Total ..	74	3.58 100	2.82 79	2.72 76	2.38 66	2.88 80	2.81 79			3.47 97	3.60 101	3.57 100	3.78 106		

"High" Westerly Winds  
and up to 40 m.p.h."Strong to high."  
Southerly Winds

TABLE II.—Details of "strong to high" winds in winter 1931-32—continued.

DATE.	No. of Days.	Check Gauge. A	WESTERN ENCLOSURE.						EASTERN ENCLOSURE.			Close to Wood. J	Wind.
			E <sub>1</sub>	E <sub>2</sub>	F	L	M	"B.A."	B	C	D		
1931 Dec. 27	1	in. 0.10 100	in. 0.07 72	in. 0.07 72	in. 0.07 72	in. 0.08 84	in. 0.09 87	in. 0.04 43	in. 0.09 94	in. 0.09 96	in. 0.09 96	in. 0.10 104	W. Force. 4
1932 Jan. 2-3 (up to 14h.)	1½	2.36 100	1.80 76	1.80 76	1.59 67	1.97 83	1.91 81	1.43 66	2.24 95	(2.33) 99	2.33 99	2.46 104	W.S.W. 3-4
Jan. 4	1	0.35 100	0.30 87	0.29 84	0.26 75	0.30 87	0.29 84	0.27 78	0.35 101	0.36 104	0.36 104	0.35 101	W.S.W. 4-5
March 7	1	0.63 100	0.57 90	0.57 90	0.54 86	0.59 94	0.58 92	0.45 71	0.63 100	0.63 100	0.63 100	0.65 104	W. 4-5
April 23	1	0.14 100	0.10 74	0.10 74	0.10 72	0.11 80	0.10 75	0.09 65	0.12 86	0.13 92	0.12 89	0.14 97	W. 4-5
Total ..	5½	3.58 100	2.84 79	2.83 79	2.56 72	3.05 85	2.97 83	2.28 64	3.43 96	3.54 99	3.53 99	3.70 103	

"Fresh to Strong" Westerly Winds  
and not exceeding 25 m.p.h.



## 30 YEARS' RAINFALL AT THE WEST OF SCOTLAND AGRICULTURAL COLLEGE, KILMARNOCK.

By W. DUNBAR

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### *Introduction.*

On 15th May, 1901, a meteorological station was set up in the grounds of the West of Scotland Agricultural College and an 8-inch rain-gauge was included in the equipment. This gauge had its rim one foot above the ground and was situated 90 feet above sea-level. The Agricultural College is about 1 mile to the south-west of Kilmarnock Station, and the rain-gauge was set up in a large open field with trees at considerable distances away in every direction. The gauge was read daily until the end of May, 1931, when the College was removed to Auchincruive. The statistics were made available by the late Principal Berry, and the examination of the other climatic elements may be undertaken subsequently.

The definitions used in *British Rainfall* are employed in these notes. When the word "normal" is employed it refers to the normals given for the gauge under discussion on page 269 in The Book of Normals, M.O. 236, Section V.

### *Calendar year as unit.*

Table I gives the rainfall in inches for each of the twenty-nine completed calendar years during which the gauge was in existence, together with the percentage of that fall to the normal, the number of dry days, rain-days, wet days, and a note of the greatest fall recorded in each year. At the foot of the table is given the mean of rainfall, percentage, dry-days, rain-days, wet days and the greatest fall in the period.

TABLE I.

Year	Rainfall Inches	Per cent of M.O. Normal*	Days			Greatest Fall	
			Dry	Rain	Wet	Inches	Date
1902.. ..	31.20	84	155	210	150	.88	July 12th
1903.. ..	57.49	154	131	234	198	1.58	Jan. 9th
1904.. ..	39.54	106	153	213	165	1.45	Nov. 8th
1905.. ..	38.50	103	153	212	155	1.12	Oct. 3rd
1906.. ..	39.01	105	147	218	163	.91	Oct. 11th
1907.. ..	40.46	109	141	224	171	1.49	Oct. 15th
1908.. ..	39.64	106	165	201	159	.97	Sept. 7th
1909.. ..	43.09	116	194	171	149	1.75	Feb. 2nd
1910.. ..	37.96	102	163	202	162	1.37	Aug. 28th
1911.. ..	36.01	97	169	196	151	1.36	Oct. 26th
1912.. ..	36.76	99	164	202	165	1.61	April 4th
1913.. ..	33.57	90	158	207	158	1.28	Dec. 2nd
1914.. ..	38.03	102	161	204	162	1.18	Nov. 29th
1915.. ..	32.53	87	176	189	143	1.30	Feb. 26th
1916.. ..	42.96	115	113	253	184	.80	Aug. 24th
1917.. ..	42.45	114	135	230	162	2.00	Nov. 5th
1918.. ..	42.91	115	151	214	178	1.33	Sept. 16th
1919.. ..	35.25	95	179	186	138	2.20	June 12th
1920.. ..	43.97	118	147	219	177	2.53	July 17th
1921.. ..	45.96	123	168	197	167	1.38	Aug. 1st
1922.. ..	37.22	100	166	199	174	1.37	May 15th
1923.. ..	47.26	127	126	239	198	1.39	Aug. 20th
1924.. ..	38.52	103	129	237	188	.95	Sept. 28th
1925.. ..	38.60	104	157	208	165	1.09	April 17th
1926.. ..	41.46	111	147	218	172	1.40	July 22nd
1927.. ..	46.21	124	152	213	172	1.26	Oct. 21st
1928.. ..	49.16	132	141	225	186	.92	Jan. 18th
1929.. ..	44.49	119	166	199	174	1.21	Dec. 20th
1930.. ..	39.45	106	168	197	161	1.24	Oct. 7th
Mean ..	40.68	109	154	211	167	2.53	July 17th, 1920

\* The computed normal for the standard period 1881 to 1915 is 37.29 inches.

The difference between the rainfall of the wettest and driest year (the first two years of the record) is 26.29 inches or 70 per cent.

*Driest and Wettest Consecutive Years.*—Table II gives the driest and wettest consecutive years from two to ten, the mean annual fall, and the percentage of the normal.

No. of Years	Driest			Wettest		
	Period	Average	Percent	Period	Average	Percent
2 .. ..	1912-13	35.16	94	1903- 4	48.52	130
3 .. ..	1913-15	34.71	93	1927-29	46.62	125
4 .. ..	1912-15	35.22	94	1926-29	45.33	122
5 .. ..	1911-15	35.38	95	1926-30	44.15	118
6 .. ..	1910-15	35.81	96	1923-28	43.53	117
7 .. ..	1910-16	36.83	99	1923-29	43.67	117
8 .. ..	1908-15	37.20	100	1923-30	43.14	116
9 .. ..	1907-15	37.56	101	1921-29	43.21	116
10 .. ..	1906-15	37.71	101	1920-29	43.28	116

*Dry and Wet Days.*—Table III gives the five years having the largest and smallest number of dry days, and the largest and smallest numbers of wet days, and the percentages of these to the days in the year.

Largest Numbers						Smallest Numbers					
Year	Dry Days	%	Year	Wet Days	%	Year	Dry Days	%	Year	Wet Days	%
1909 ..	194	53	1903..	198	54	1916..	113	31	1919..	138	38
1919 ..	179	49	1923..	198	54	1923..	126	35	1915..	143	39
1915 ..	176	48	1924..	188	51	1924..	129	35	1909..	149	41
1911 ..	169	46	1928..	186	51	1903..	131	36	1902..	150	41
1921 ..	168	46	1916..	184	50	1917..	135	37	1911..	151	41

It will be observed that the driest years are not necessarily the years with the smallest number of wet days or the largest number of dry days, and conversely the wettest years do not all appear on the list showing the smallest number of dry days and the largest number of wet days.

Table IV gives a detailed analysis of the rainfall of each day during the 29 years. At the foot is given the mean of these figures and the percentage of the total for the year. It gives the number of days each year with a rainfall of specified amounts and the total rainfall during days with a rainfall within specified limits.

From Table IV it will be seen that in the 30 years there were three days with falls of two inches or more and seven with 1.50 inches or more. There were fifty-three with one inch or more. Those above 1.50 inches are given on p. 290.

TABLE IV.  
Number of days with specified amounts and the total rainfall during days with a rainfall within specified limits (in inches).

YEAR	DAYS WITH FALLS OF												TOTAL RAINFALL ON DAYS WITH						
	.01- .03	.04- .09	.10- .19	.20- .29	.30- .39	.40- .49	.50- .59	.60- .79	.80- .99	1.00- 1.49	1.50- 1.99	2.00	.01- .49	.50 or more	.60 or more	.80 or more	1.00 or more	1.50 or more	2.00 or more
1902	60	49	48	17	16	8	7	3	2	—	—	—	in. 23.57	in. 7.63	in. 3.85	in. 1.73	in.	—	in.
3	36	42	42	37	30	18	9	12	4	3	1	—	36.27	21.22	16.32	8.27	4.84	1.58	—
4	48	44	59	23	11	8	7	6	4	3	—	—	24.60	14.94	11.21	6.28	3.59	—	—
5	57	35	45	32	14	15	3	7	2	2	—	—	28.08	10.42	8.74	3.79	2.12	—	—
6	56	48	39	29	19	5	12	8	2	—	—	—	25.13	13.88	7.46	1.74	—	—	—
7	53	52	55	21	17	8	5	7	4	2	—	—	26.66	13.80	11.02	6.23	2.89	—	—
8	42	45	47	22	15	9	5	10	6	—	—	—	24.76	14.88	12.15	5.37	—	—	—
9	22	40	32	17	22	10	13	7	4	3	1	—	22.76	20.33	13.61	9.08	5.63	1.75	—
1910	40	46	46	24	22	10	5	6	—	3	—	—	27.87	10.09	7.43	3.43	3.43	—	—
1	45	52	39	20	15	6	7	8	1	3	—	—	22.18	13.83	10.01	4.65	3.82	—	—
2	37	49	42	39	14	12	3	4	—	1	1	—	29.69	7.07	5.41	2.63	2.63	1.61	—
3	49	47	49	31	11	10	2	5	1	2	—	—	26.27	7.30	6.26	3.10	2.29	—	—
4	42	45	45	33	12	8	9	6	3	1	—	—	25.18	12.85	7.92	3.67	1.18	—	—
5	46	49	37	19	16	9	3	9	—	1	—	—	23.21	9.32	7.63	1.30	1.30	—	—
6	69	44	57	28	21	19	6	8	1	—	—	—	33.73	9.23	6.04	.80	—	—	—
7	68	54	32	27	16	11	4	14	—	3	—	1	25.18	17.27	15.10	5.28	5.28	2.00	2.00
8	36	49	43	35	21	11	8	9	—	2	—	—	31.29	11.62	7.17	2.39	2.39	—	—
9	48	41	34	19	14	13	7	7	2	—	—	1	23.06	12.19	8.57	3.93	2.20	2.20	2.20
1920	42	44	51	36	21	15	9	6	2	—	1	—	29.23	14.74	9.84	6.06	4.25	4.25	2.53
1	30	44	40	27	15	15	12	7	5	2	—	—	27.49	18.47	11.79	6.86	2.59	—	—
2	25	56	48	28	17	14	4	4	2	1	—	—	29.04	8.18	5.97	3.29	1.37	—	—
3	41	53	54	36	20	14	13	2	5	1	—	—	33.17	14.09	7.04	5.79	1.39	—	—
4	49	61	50	33	18	7	11	5	3	—	—	—	26.62	11.91	5.89	2.69	—	—	—
5	43	52	39	33	18	8	4	4	6	1	—	—	27.43	11.17	9.03	6.50	1.09	—	—
6	46	53	54	17	20	7	9	4	5	3	—	—	25.94	15.52	10.49	7.83	3.47	—	—
7	41	50	40	27	18	15	6	8	3	5	—	—	29.03	17.18	13.92	8.58	5.88	—	—
8	39	43	51	31	23	11	10	12	5	—	—	—	30.40	18.76	12.36	4.32	—	—	—
9	25	45	45	33	15	12	11	9	1	3	—	—	27.99	16.50	10.41	4.22	3.37	—	—
1930	36	40	51	19	19	15	9	5	2	1	—	—	28.12	11.33	6.52	3.03	1.24	—	—
Mean	43.8	47.6	45.3	27.4	17.6	10.8	7.4	7.0	2.6	1.6	.1	.1	27.38	13.30	9.28	4.58	2.35	.46	.23
Per cent...	12.0	13.2	12.4	7.5	4.8	2.9	2.0	1.9	.7	.4	—	—	67.8	32.4	22.5	11.0	5.6	1.1	.6

1920 .. July 17th .. 2.53 in.	1920 .. June 27th .. 1.72 in.
1919 .. June 12th .. 2.20 in.	1912 .. April 4th .. 1.61 in.
1917 .. Nov. 5th .. 2.00 in.	1903 .. Jan. 9th .. 1.58 in.
1909 .. Feb. 2nd .. 1.75 in.	

November, 1917, had three falls over an inch; August, 1901, August, 1904, August, 1910, February, 1911, each had two falls of an inch or over. The fall on February 17th, 1911 was 1.35 inches, and on February 18th was 1.11 inches, the only occasion on which one inch or more fell on two consecutive rain-days.

*Rain Spells.*—Table V.—During the thirty years there were 29 rain spells of which the seven longest are given below, together with the total rainfall :—

1915 .. .. Dec. 19th to Jan. 30th .. 42 days .. .. 6.30 inches
1929 .. .. Nov. 17th „ Dec. 21st .. 34 „ .. .. 7.65 inches
1903 .. .. Feb. 19th „ Mar. 13th .. 23 „ .. .. 4.01 inches
1920 .. .. Dec. 23rd „ Jan. 13th .. 22 „ .. .. 5.52 inches
1927 .. .. June 16th „ July 7th .. 22 „ .. .. 5.38 inches
1911 .. .. Feb. 12th „ Mar. 3rd .. 20 „ .. .. 6.82 inches
1916 .. .. Dec. 15th „ Jan. 3rd .. 20 „ .. .. 5.60 inches

*Wet Spells.*—Table VI.—There were only five wet spells during the 30 years :—

1911 .. .. Feb. 13th to Mar. 3rd .. 19 days .. .. 6.81 inches
1912 .. .. Dec. 6th „ Dec. 21st .. 16 „ .. .. 4.14 inches
1929 .. .. Nov. 29th „ Dec. 14th .. 16 „ .. .. 4.15 inches
1929 .. .. Dec. 28th „ Jan. 13th .. 16 „ .. .. 5.04 inches
1928 .. .. Jan. 1st „ Jan. 15th .. 15 „ .. .. 5.09 inches

*Absolute Droughts.*—Table VII.—In the 30 years there were ten spells of at least fifteen days on which no rain fell. Three of these occurred in 1911. The four longest spells are given below :—

1929 .. .. Feb. 25th to Mar. 19th .. 23 days
1922 .. .. Jan. 13th „ Jan. 30th .. 18 „
1913 .. .. July 22nd „ Aug. 7th .. 17 „
1924 .. .. Mar. 4th „ Mar. 20th .. 17 „

Table VIII gives the seven periods coming within the definition of *Partial Droughts* which were noted in the 30 years :—

1917 .. .. Jan. 14th to Feb. 17th .. 36 days .. .. .30 inch
1911 .. .. Mar. 12th „ April 14th .. 35 „ .. .. .28 inch
1912 .. .. Sept. 8th „ Oct. 12th .. 35 „ .. .. .27 inch
1925 .. .. June 3rd „ July 5th .. 33 „ .. .. .32 inch
1930 .. .. Jan. 29th „ Mar. 2nd .. 33 „ .. .. .31 inch
1920 .. .. Oct. 7th „ Nov. 6th .. 31 „ .. .. .23 inch
1919 .. .. May 5th „ June 2nd .. 29 „ .. .. .29 inch

Table IX.—In twenty-two instances *dry spells* were recorded during the 30 years and the six longest are given below :—

1920 .. .. Oct. 7th to Nov. 3rd .. 28 days .. .. .08 inch
1906 .. .. Mar. 23rd „ April 15th .. 24 „ .. .. .05 inch
1917 .. .. June 25th „ July 17th .. 23 „ .. .. .09 inch

1919 ..	..	May 12th to June 2nd ..	22 days ..	..	·09 inch
1912 ..	..	Sept. 9th „ Sept. 29th ..	21 „ ..	..	·06 inch
1924 ..	..	Feb. 29th „ Mar. 20th ..	21 „ ..	..	·04 inch

The period from December, 1915, to February, 1917, was remarkable. It will be noted that the longest rain spell began on December 19th, 1915, and this would have continued till February 18th, 1916, and would have given 62 consecutive days but for January 31st, on which day no rain was recorded. Following this there was a spell of 35 days with only four wet days : ·04, ·05, ·05 and ·08 inches. During 1916 there were seven spells coming within the definition of a rain spell. The last one would have been extended to 30 days but for a dry day on 4th January, 1917. This was then followed by a partial drought from 14th January to 17th February, 36 days during which ·30 inch of rain fell.

It is remarkable how many periods just fall short of coming within the definition of one or other of these spells. In one period—March 31st to May 2nd, 1918—there were 30 dry days and 3 wet days with ·25, ·32, and ·12 inch, respectively.

Table X gives an analysis of the rainfall of each month. The average is that for thirty years and is given to the nearest tenth of a day.

TABLE X.

The mean number of days in each month on which a given quantity of rain fell.

Month	Dry Days	Days with falls of										
		·01— ·03	·04— ·09	·10— ·19	·20— ·29	·30— ·39	·40— ·49	·50— ·59	·60— ·79	·80— ·99	1·00— 1·49	1·50 or more
Jan...	9·7	4·0	4·3	4·8	3·1	1·9	1·1	·9	·9	·3	—	—
Feb...	10·9	4·1	3·6	3·8	2·4	1·5	·6	·5	·5	·1	·1	—
Mar...	14·2	3·8	3·8	3·7	2·4	1·1	1·2	·4	·2	·1	—	—
April..	14·4	4·2	4·4	3·0	1·7	·9	·5	·4	·2	—	—	—
May..	14·8	3·2	4·0	4·3	2·0	1·3	·3	·6	·4	·1	—	—
June..	16·0	3·2	3·3	3·4	1·4	1·1	·5	·4	·3	·1	·2	—
July..	14·4	4·2	3·6	3·4	1·9	1·2	·8	·6	·4	·4	·1	—
Aug..	11·6	3·8	4·0	3·9	2·3	1·9	1·2	·7	·6	·5	·4	—
Sep...	14·2	3·1	3·8	3·1	1·9	1·1	1·0	·3	·8	·4	·1	—
Oct...	12·5	3·3	4·1	3·6	2·6	1·5	1·2	·6	1·1	·3	·3	—
Nov...	11·4	3·7	4·0	3·8	2·4	1·9	1·0	·7	·9	·1	·2	—
Dec...	9·9	3·5	4·4	4·4	3·4	2·2	1·3	1·0	·7	·1	·1	—

*Month as Unit.*

Table XI shows the average of each month's fall over the 30 years together with the normal and the percentage of that average to the normal.

TABLE XI.

Month					Average	Normal	Per cent.
January	..	..	..	..	4.33	3.41	127
February	..	..	..	..	2.10	2.87	73
March	..	..	..	..	2.92	2.80	104
April	..	..	..	..	2.32	2.06	113
May	..	..	..	..	2.73	2.31	118
June	..	..	..	..	2.44	2.20	111
July	..	..	..	..	3.07	3.11	99
August	..	..	..	..	4.35	3.92	111
September	..	..	..	..	3.21	3.06	105
October	..	..	..	..	4.16	3.51	119
November	..	..	..	..	3.43	3.77	91
December	..	..	..	..	4.33	4.27	101

Table XII gives the seven wettest months.

TABLE XII.

January, 1928	..	..	9.67 inches	..	..	%
November, 1917	..	..	8.79	..	..	284
October, 1903	..	..	8.50	..	..	234
December, 1929	..	..	8.40	..	..	239
October, 1917	..	..	7.81	..	..	197
January, 1903	..	..	7.76	..	..	222
December, 1919	..	..	7.75	..	..	228
						182

Of the 27 months with 6.00 inches or more there were eight Octobers, five Augusts, and three Januarys, Septembers and Decembers. Only six of the twenty-seven months occurred in the first half of the year. 1903 was responsible for four of the entries, while 1921 and 1923 each appear three times in the list.

Table XIII gives the six driest months :—

TABLE XIII.

February, 1930	..	..	.21 inches	..	..	%
June, 1925	..	..	.45	..	..	7.3
February, 1919	..	..	.62	..	..	20.5
April, 1918	..	..	.69	..	..	21.6
May, 1919	..	..	.70	..	..	33.5
December, 1927	..	..	.70	..	..	30.3
						16.4

Of the 22 months with 1·25 inches or less, four were Junes and three each Februarys, Marchs and Mays and only four occurred in the second half of the year.

Table XIV gives a list of the driest consecutive months from two to twelve, the rainfall during that period and its relation to the annual normal.

TABLE XIV.

Months	Period	Rainfall	Per cent. of annual normal
2 .. ..	February—March, 1924	1·75 inches	4·7
3 .. ..	February April, 1924	4·01 ..	10·7
4 .. ..	February—May, 1930	5·81 ..	15·6
5 .. ..	February—June, 1930	8·84 ..	24
6 .. ..	February—July, 1930	11·36 ..	31
7 .. ..	February—August, 1919	14·85 ..	40
8 .. ..	March—October, 1911	18·24 ..	49
9 .. ..	February—October, 1919	19·33 ..	52
10 .. ..	February—November, 1902	22·84 ..	61
11 .. ..	February—December, 1902	26·66 ..	72
12 .. ..	January—December, 1902	31·20 ..	84

Table XV gives a list of the wettest consecutive months from two to twelve, the rainfall during that period and its relation to the normal.

TABLE XV.

Months	Period	Rainfall	Per cent. of annual normal
2 .. ..	October—November, 1917	16·60 inches	44
3 .. ..	October—December, 1929	19·82 ..	53
4 .. ..	October, 1929—January, 1930	24·73 ..	66
5 .. ..	October, 1917—February, 1918	29·57 ..	79
6 .. ..	August, 1923—January, 1924	33·15 ..	89
7 .. ..	July, 1929—January, 1930	36·86 ..	99
8 .. ..	June, 1929—January, 1930	40·13 ..	108
9 .. ..	May, 1929—January, 1930	42·99 ..	115
10 .. ..	January, 1903—October, 1903	49·77 ..	133
11 .. ..	December, 1902—October, 1903	53·59 ..	144
12 .. ..	January, 1903—December, 1903	57·49 ..	154

Dealing with the individual months, the following notes give the outstanding features:—



## JANUARY.

Year	HIGHEST		Year	LOWEST	
	Inches	Per cent. of Normal		Inches	Per cent. of Normal
1928 ..	9.67	284	1929 ..	1.69	50
1902 ..	7.76	228	1907 ..	2.12	62
1921 ..	7.35	216	1912 ..	2.14	62

It will be observed that the two extremes occurred in consecutive years. There were three dry Januarys in succession, viz.: those of 1911, 1912, 1913. There was only one fall in the 30 years of one inch or more in a day—1.58 inches on 9th January, 1903. In the January of both 1916 and 1921 there was only one dry day and the wettest January of all had two dry days. In the driest January recorded, there were 21 dry days. January, 1917, had 17 dry days.

## FEBRUARY.

Year	HIGHEST		Year	LOWEST	
	Inches	Per cent. of Normal		Inches	Per cent. of Normal
1911 ..	6.18	215	1930 ..	.21	7
1918 ..	5.69	198	1919 ..	.62	22

February was remarkable for the number of small totals. The four lowest were under an inch. The largest fall recorded in any day during February was 1.75 inches on the 2nd February, 1909. There were four other falls of an inch or more. The smallest number of dry days recorded in any February was 1914, when only three were noted. In the years 1916, 1918 and 1925 only four were noted. On the other hand, in 1930, all but two of the days in the month were dry.

## MARCH.

Year	HIGHEST		Year	LOWEST	
	Inches	Per cent. of Normal		Inches	Per cent. of Normal
1903 ..	7.23	258	1924 ..	.79	28
1921 ..	5.69	203	1916 ..	1.19	43

In March of both 1924 and 1929 there were 26 dry days, while in March, 1902, only 3 dry days were recorded. There were no falls of an inch or more during March in any of the 30 years.

## APRIL.

Year	HIGHEST		Year	LOWEST	
	Inches	Per cent. of Normal		Inches	Per cent. of Normal
1904 ..	4.45	216	1918 ..	.69	34
1909 ..	4.05	197	1903 ..	1.03	50

In April, 1918, there were 27 dry days and in April, 1912, 23, while in April, 1904, there were only 5 dry days. During the period 1913 to 1916, each April had a fall above the average and subsequently there were six Aprils with a rainfall below the average. The greatest fall in any day in April during the 30 years under review was 1.61 inches on 4th April, 1912. Two other falls of an inch or more were noted, viz. : 1.40 inches on 6th April, 1907 and 1.07 inches on 17th April, 1925.

## MAY.

Year	HIGHEST		Year	LOWEST	
	Inches	Per cent. of Normal		Inches	Per cent. of Normal
1925 ..	6.29	272	1919 ..	.70	30
1920 ..	4.89	212	1915 ..	.80	35

In the five years 1908 to 1912 the rainfall of May was below the average. May, 1915, had the greatest number of dry days, namely, 26; in May, 1928, there were 24 dry days. On the other hand, in the years 1924 and 1925, May had only 6 dry days. There was one fall of an inch or more in the thirty months of May under review—1.37 inches on 15th May, 1922.

## JUNE.

Year	HIGHEST		Year	LOWEST	
	Inches	Per cent. of Normal		Inches	Per cent. of Normal
1919 ..	5.39	245	1925 ..	.45	20
1927 ..	4.84	220	1914 ..	.76	35

In the years 1905 and 1925, June had 23 dry days, and in June, 1915, there were 22 dry days. June, 1907, had only 5 dry days and June, 1928, seven. There was one fall of over 2 inches in June—2·20 inches on 12th June, 1919, and there were six days having 1 inch or more.

### JULY.

Year	HIGHEST		Year	LOWEST	
	Inches	Per cent. of Normal		Inches	Per cent. of Normal
1909 ..	4·76	153	1919 ..	·84	27
1927 ..	4·54	146	1913 ..	1·48	48

The greatest number of dry days in July of any year was 23, in 1919. July, 1914, had 21. July, 1923, had only 8 dry days. There were three days in the series with falls of 1 inch or more. These were 1·40 inches on 23rd July, 1926; 1·12 inches on 22nd July, 1927; and 1·04 inches on 20th July, 1901.

### AUGUST.

Year	HIGHEST		Year	LOWEST	
	Inches	Per cent. of Normal		Inches	Per cent. of Normal
1912 ..	7·19	184	1913 ..	1·52	39
1923 ..	7·07	180	1911 ..	2·53	65

Unlike the earlier months of the year, there have been alternately long runs of dry and wet Augusts. The six Augusts of 1903–08 were all above the average; the five Augusts of 1915–19 were below and were followed by a run of five Augusts (1920–24) above the average, while the last four Augusts (1927–30) were again above the average. The greatest number of dry days in any August was 18 in 1913 and 1920. In 1911 there were 17. August, 1907, had only 5 dry days and the Augusts of 1929 and 1930 only 6. On 17th August, 1920, the rainfall amounted to 2·53 inches. On eleven other occasions in August 1 inch or more has occurred and twice in each of the Augusts of 1901, 1904 and 1910.

## SEPTEMBER.

Year	HIGHEST		Year	LOWEST	
	Inches	Per cent. of Normal		Inches	Per cent. of Normal
1927 ..	7.12	233	1915 ..	1.12	37
1918 ..	6.53	213	1907 ..	1.26	41

In each of the nine Septembers of 1909–17 the rainfall was below the average, while in the six Septembers of 1923–8 the fall was above the average. Twenty dry days were noted in September of each of the years 1906, 1907 and 1913. In September of 1923 and 1924 only seven dry days were noted. In the Septembers of 1908, 1917, 1918 and 1925 only eight were recorded. On four occasions in September falls of over 1 inch were recorded, the greatest being 1.33 inches on 16th September, 1918.

## OCTOBER.

Year	HIGHEST		Year	LOWEST	
	Inches	Per cent. of Normal		Inches	Per cent. of Normal
1903 ..	8.50	242	1919 ..	.84	24
1917 ..	7.81	222	1908 ..	.97	28

In each of the years 1925–30 the October rainfall was above the average. In October, 1922, there were 24 dry days, while in October, 1903, there were only 2 dry days. In the thirty years there have been nine falls of over 1 inch on individual days during October. The largest of these were 1.49 inches on 15th October, 1907, and 1.40 inches on 23rd October, 1909.

## NOVEMBER.

Year	HIGHEST		Year	LOWEST	
	Inches	Per cent. of Normal		Inches	Per cent. of Normal
1917 ..	8.79	233	1915 ..	1.69	45
1929 ..	6.23	165	1902 ..	2.19	58

The Novembers of the four years 1911-14, the four years 1917-1920 and the five years 1926-30 received a rainfall in excess of the average. In November, 1909, there were 22 dry days, while in November, 1913 and November, 1929 there were only 3 dry days. On 5th November, 1917, the rainfall amounted to 2 inches and on seven other occasions more than 1 inch was recorded.

### DECEMBER.

Year	HIGHEST		Year	LOWEST	
	Inches	Per cent. of Normal		Inches	Per cent. of Normal
1929 ..	8.40	197	1927 ..	.70	16
1919 ..	7.75	182	1926 ..	2.26	53

There were 26 dry days in December, 1927. In December, 1911, there were only 2 dry days, and in December, 1929, 3. Falls of 1 inch or more occurred four times in the thirty years, the largest of these being 1.28 inches on 3rd December, 1913.

The foregoing figures have been analysed with a view to providing a standard for comparison with the figures now being obtained at Kay Park, which is situated in a north-easterly direction, about a mile-and-a-quarter away, and 44 feet higher.

## GENERAL MONTHLY RAINFALL OVER ENGLAND AND WALES, 1727 TO 1931.

BY FRIEDA J. NICHOLAS, M.A. and J. GLASSPOOLE, M.Sc., Ph.D.

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In connection with the study of the History of English Prices, under the auspices of the International Scientific Committee on Price History, Sir William Beveridge wished to obtain general values of rainfall over England and Wales for each month for as long a period as possible. Details were found to be available for 205 years. These statistics may be regarded as a history of the rainfall over England and Wales since 1727, and they are published in order to be generally available for statistical investigations.

It was found that the following information was already available :—

- (1) Serial values of Monthly Rainfall, England and Wales, 1881 to 1924 (published in *British Rainfall*, 1924, p. 258).
- (2) Similar values for subsequent years published in the annual volumes of *British Rainfall*, Part II, Section 8.
- (3) Similar values for the years 1870 to 1880 (unpublished).
- (4) Serial values of Annual Rainfall, England, 1727 to 1927, published in the *Meteorological Magazine*, 1928, p. 4. In each case the values are expressed as percentages of the rainfall for the standard period 1881 to 1915.

The values specified under (1), (2) and (3) are reproduced in Table I, given at the end of this article. Considerable difficulty was experienced in dealing with the records for earlier years because of the frequent changes in the stations and the absence of monthly or annual averages for each record. Finally the values 1727 to 1869 were computed according to the following scheme. It was found that in the earliest years all the stations were in England, and that the overlapping values for England under (4) and those for England and Wales under (1) were in close accord. Consequently the annual values under (4) were utilised, and the distribution of the rainfall amongst the months obtained by reference to the original records. The percentage distribution of the rainfall amongst the months was computed for each station for each year and the mean obtained for each year. In the case of 1870 the monthly percentage values January to December were obtained :—

8.5 8.2 7.4 3.2 5.4 4.3 5.1 8.4 7.0 21.3 9.3 11.9

These values were compared with the distribution over England for the standard period 1881-1915\* :—

8.2 7.1 7.6 6.1 6.7 7.1 8.4 9.5 7.3 11.3 9.8 10.9

to give the following values :—

104 116 97 52 85 61 61 88 96 188 95 109

The final values were adjusted so that the mean of the 12 months corresponded with the annual percentage value given under (4) and the following values were obtained :—

86 95 80 43 67 50 50 72 79 155 78 90

By this method it was possible to use more records than were employed in the preparation of the annual values, where continuity was of fundamental importance. During the period 1820 to 1869 it was possible to make a liberal selection, while retaining continuity through as many decades as possible and also homogeneity of geographical distribution. Prior to 1820 all records were used which covered at least five years and even shorter records in years of little data. The actual number of records used during the period 1727 to 1869 is given in Table I.

A comparison of the values prepared by this method and those under (3) for the years 1870 to 1876 is set out in Table II. The agreement is sufficiently close to justify the method employed.

Table I.—*England and Wales, Serial Values of Monthly Rainfall, 1727 to 1931, expressed as Percentages of Monthly Averages for 1881 to 1915.*

Year.	No. of Stations.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1727....	2	134	116	122	68	221	108	134	32	110	30	50	114
1728....	2	213	69	156	169	82	118	136	52	57	122	88	78
1729....	4	29	50	77	113	107	63	90	105	243	86	174	88
1730....	4	24	89	163	54	105	152	97	23	97	89	90	40
1731....	3	39	65	6	99	26	147	82	75	58	59	73	62
1732....	4	58	118	88	127	201	54	80	53	72	136	48	93
1733....	4	52	86	111	87	47	126	76	141	70	36	67	106
1734....	4	56	167	107	56	230	137	81	121	81	96	63	200
1735....	4	103	93	115	97	98	119	139	97	103	62	117	68
1736....	2	155	156	105	56	84	79	248	69	74	140	32	110
1737....	3	48	132	138	85	63	66	35	226	185	64	33	81
1738....	3	96	40	64	76	108	148	37	69	115	73	39	54
1739....	3	131	152	60	141	126	116	98	95	117	29	91	80

\* See British Rainfall 1924, p. 257. The general values for England and England and Wales in inches are set out below :—

2.69 2.34 2.47 1.98 2.19 2.33 2.75 3.11 2.37 3.69 3.19 3.56  
2.99 2.57 2.67 2.12 2.30 2.44 2.87 3.35 2.54 3.97 3.49 3.92

Table I.—(cont.) *Serial Values of Monthly Rainfall.*

Year.	No. of Stations.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1740....	2	15	14	48	56	49	65	113	131	136	50	101	148
1741....	2	68	53	18	21	37	70	37	75	208	79	112	26
1742....	2	105	54	2	101	108	89	124	11	86	116	139	22
1743....	2	42	49	99	92	51	32	194	38	7	114	60	51
1744....	2	52	66	94	182	68	165	45	55	191	136	108	43
1745....	2	75	38	171	162	80	176	43	156	52	106	104	73
1746....	2	111	112	116	75	56	160	102	24	113	77	91	64
1747....	2	163	101	69	115	139	122	77	11	110	34	141	165
1748....	2	57	24	142	126	90	129	171	52	36	69	24	121
1749....	2	216	89	139	79	65	149	50	42	77	42	47	80
1750....	3	74	79	60	132	64	87	68	38	51	65	100	80
1751....	3	125	68	157	172	129	100	216	62	133	69	97	66
1752....	3	121	104	71	99	141	152	155	88	40	20	58	94
1753....	2	86	141	53	109	66	58	126	151	40	103	122	149
1754....	2	66	58	88	93	93	140	151	97	8	58	74	91
1755....	2	54	47	99	137	78	84	126	124	146	64	153	55
1756....	2	94	44	96	265	74	164	116	176	104	44	54	36
1757....	3	85	51	122	159	110	36	133	215	44	70	85	70
1758....	3	68	143	78	71	56	92	256	98	144	47	57	87
1759....	3	59	20	107	137	87	178	66	121	120	80	70	42
1760....	3	66	157	37	31	73	139	56	132	173	122	120	88
1761....	3	23	117	44	48	129	155	69	118	158	120	97	68
1762....	4	121	91	84	68	50	35	81	133	157	152	70	30
1763....	2	22	137	57	91	135	166	239	141	169	71	81	172
1764....	2	221	114	67	84	89	92	197	90	83	77	96	71
1765....	3	84	55	161	165	32	73	23	120	81	152	70	40
1766....	3	9	96	30	118	179	163	93	53	112	72	69	50
1767....	6	96	179	105	57	117	45	201	82	100	85	92	29
1768....	6	132	199	27	137	61	208	169	107	212	109	170	95
1769....	6	73	107	48	64	92	178	63	108	164	37	87	75
1770....	3	63	80	103	115	91	166	79	58	126	97	199	108
1771....	3	86	48	63	53	79	49	68	114	95	137	59	95
1772....	3	88	135	125	61	81	174	80	87	217	96	143	40
1773....	3	100	77	32	93	249	80	51	94	232	110	111	111
1774....	5	126	134	91	92	113	114	124	104	215	35	51	64
1775....	6	103	147	92	51	37	83	200	157	198	119	99	42
1776....	6	75	175	67	41	64	126	119	152	166	49	93	50
1777....	8	51	82	85	110	122	147	142	90	52	140	87	43
1778....	8	98	50	83	57	125	99	174	42	89	141	140	124
1779....	7	20	24	23	107	119	105	200	44	166	105	85	132
1780....	6	38	73	60	169	74	60	66	29	177	102	73	13
1781....	5	65	128	13	99	72	131	70	105	148	12	127	60
1782....	7	130	47	124	200	213	70	151	154	174	96	54	38



Table I.—(cont.) *Serial Values of Monthly Rainfall.*

Year.	No. of Stations.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1783....	6	110	140	70	29	155	149	78	101	191	52	78	33
1784....	7	102	60	88	139	94	174	117	102	81	14	100	65
1785....	6	79	44	17	22	44	60	98	168	189	101	81	79
1786....	7	139	44	51	52	121	86	69	131	194	87	85	97
1787....	9	34	117	124	70	79	79	200	81	69	151	99	121
1788....	10	61	100	58	54	47	81	118	93	141	29	34	14
1789....	11	116	145	58	97	138	202	158	38	149	128	84	105
1790....	13	98	36	19	84	146	83	130	83	89	55	132	142
1791....	14	175	124	50	123	71	51	139	95	59	103	159	100
1792....	15	111	66	130	187	144	115	128	123	213	94	53	117
1793....	11	96	123	101	85	45	69	56	110	124	62	90	88
1794....	12	57	132	84	129	85	32	83	88	192	128	136	70
1795....	11	48	111	96	107	36	138	70	94	20	139	132	93
1796....	10	139	93	25	60	171	80	135	37	106	79	71	64
1797....	8	80	20	50	117	169	175	97	136	219	71	84	119
1798....	8	81	68	44	72	76	50	180	88	147	105	101	55
1799....	6	76	138	48	122	94	44	133	207	230	98	84	14
1800....	10	129	25	60	191	118	34	16	49	206	97	144	75
1801....	10	83	76	104	51	98	58	160	38	221	89	112	98
1802....	13	65	132	27	92	68	124	173	84	53	111	62	76
1803....	10	80	91	51	95	104	148	44	56	65	29	114	145
1804....	10	146	66	103	117	107	53	124	98	20	127	121	46
1805....	10	116	91	65	106	93	107	113	103	85	41	25	81
1806....	12	168	91	78	48	69	65	149	119	109	43	156	137
1807....	14	54	101	44	63	193	87	76	73	136	64	138	51
1808....	14	67	51	18	145	106	73	130	91	135	121	95	65
1809....	12	148	118	25	125	94	96	91	144	166	17	66	93
1810....	14	46	84	105	67	86	62	137	119	72	87	177	137
1811....	15	56	118	74	85	179	91	114	78	88	100	99	78
1812....	15	60	170	156	66	121	143	107	66	81	133	89	27
1813....	13	54	147	52	82	174	87	103	36	93	141	89	37
1814....	10	88	56	72	166	59	111	90	105	68	112	114	147
1815....	14	41	86	155	91	128	110	77	92	114	103	74	97
1816....	14	100	77	85	113	107	110	173	77	130	96	94	113
1817....	15	112	110	94	16	154	139	144	162	39	41	87	131
1818....	15	125	108	179	233	112	47	47	20	155	72	114	38
1819....	14	132	169	68	125	130	113	84	43	125	68	78	111
1820....	17	87	75	54	91	170	95	100	91	103	93	62	70
1821....	20	87	20	137	137	111	71	89	97	188	96	150	157
1822....	23	43	98	107	127	83	57	202	71	57	124	154	49
1823....	24	109	170	73	99	111	91	141	135	113	127	75	119
1824....	26	47	90	123	118	103	155	60	84	175	137	164	149

Table I.—(cont.) *Serial Values of Monthly Rainfall.*

Year.	No. of Stations.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1825....	23	67	67	68	110	162	85	12	109	118	100	141	108
1826....	23	41	160	75	66	67	23	69	70	201	72	83	77
1827....	23	82	55	162	70	134	71	68	90	147	139	76	143
1828....	23	171	82	53	182	101	103	243	112	126	60	76	102
1829....	23	38	61	35	219	32	142	177	183	186	66	63	26
1830....	19	65	93	35	163	153	181	104	113	187	37	131	64
1831....	20	76	138	122	114	80	97	127	96	148	141	111	112
1832....	20	59	51	97	95	119	163	62	145	45	119	126	99
1833....	20	34	234	71	136	37	168	63	85	97	82	99	156
1834....	20	210	62	62	52	56	98	214	99	92	33	64	37
1835....	20	68	152	119	77	128	106	49	51	183	135	105	20
1836....	20	98	104	177	148	30	124	114	65	154	113	167	74
1837....	19	113	146	44	85	54	77	91	108	89	80	81	85
1838....	20	33	93	70	78	101	164	93	79	112	81	125	60
1839....	20	81	91	112	68	46	163	179	101	204	84	156	94
1840....	27	140	102	10	31	140	81	110	74	148	51	156	23
1841....	27	106	86	89	88	133	133	125	129	208	158	138	98
1842....	27	92	81	132	28	105	90	106	73	146	53	178	54
1843....	27	99	116	49	166	215	121	108	119	32	151	107	21
1844....	28	100	140	125	33	15	81	97	95	106	100	114	22
1845....	28	98	56	72	82	115	116	103	134	115	72	96	102
1846....	28	144	59	89	208	85	71	126	124	85	161	71	46
1847....	28	82	74	68	94	162	108	47	64	100	120	96	131
1848....	28	72	204	158	147	46	205	111	144	154	140	63	104
1849....	28	112	76	41	147	142	58	117	61	159	89	72	96
1850....	43	75	89	26	163	111	73	155	80	96	66	102	66
1851....	44	154	53	155	92	60	110	128	81	54	85	47	37
1852....	45	209	102	25	44	107	219	97	167	182	131	233	133
1853....	45	131	68	65	127	69	155	161	93	103	118	76	32
1854....	43	116	55	32	30	149	95	95	65	52	79	78	75
1855....	45	26	75	90	36	108	125	183	78	60	163	52	48
1856....	45	112	86	39	136	149	91	64	113	139	71	49	83
1857....	45	123	53	98	134	80	115	89	115	146	113	66	35
1858....	45	40	52	53	135	113	66	106	83	111	83	49	80
1859....	45	72	87	97	150	62	105	91	108	175	98	98	86
1860....	58	158	69	118	71	150	243	87	159	123	85	96	101
1861....	58	45	126	127	52	57	119	153	52	126	46	154	57
1862....	58	106	40	168	121	158	135	96	90	115	128	45	75
1863....	58	147	40	52	66	72	167	38	96	161	104	92	61
1864....	58	63	79	122	68	91	80	29	42	130	70	102	62
1865....	58	140	125	69	51	157	76	119	151	18	191	114	67
1866....	57	153	157	87	94	66	122	100	113	242	54	94	86
1867....	58	143	102	113	153	117	65	145	75	97	87	32	67

Table I.—(cont.) *Serial Values of Monthly Rainfall.*

Year.	No. of Stations.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1868....	58	136	97	104	119	62	30	29	122	135	93	72	184
1869....	58	139	145	72	86	187	60	30	48	207	60	100	118
1870....	..	81	92	89	43	70	51	51	66	83	150	78	92
1871....	..	82	96	62	172	46	125	144	57	218	85	50	64
1872....	..	193	131	124	125	105	165	167	88	153	149	162	147
1873....	..	151	77	119	52	94	89	105	99	103	95	72	26
1874....	..	105	92	63	88	61	59	58	103	161	105	109	97
1875....	..	169	75	43	71	90	132	177	78	150	156	169	56
1876....	..	64	142	145	136	36	94	63	102	206	75	128	195
1877....	..	206	120	116	159	137	75	144	158	125	91	162	82
1878....	..	94	79	58	126	205	130	53	172	112	102	132	69
1879....	..	98	167	59	128	126	213	156	178	144	36	43	41
1880....	..	21	128	73	100	66	126	190	46	177	154	107	122
1881....	..	51	166	122	64	92	126	101	170	106	87	119	107
1882....	..	94	101	83	203	87	169	151	97	122	153	139	124
1883....	..	133	169	61	83	92	139	120	56	211	94	126	52
1884....	..	145	117	97	84	65	66	137	51	101	50	61	101
1885....	..	96	153	74	115	125	92	35	65	185	145	109	37
1886....	..	168	44	126	107	206	50	144	59	111	132	113	146
1887....	..	102	39	73	69	86	30	59	65	134	66	98	72
1888....	..	49	65	146	99	64	104	210	92	52	48	175	75
1889....	..	50	91	107	157	138	37	103	114	92	120	45	60
1890....	..	139	48	86	75	105	124	117	112	75	50	139	35
1891....	..	87	5	78	89	132	100	106	184	108	152	105	137
1892....	..	64	88	48	70	109	127	86	123	137	143	75	50
1893....	..	77	166	23	18	78	59	126	70	92	89	83	96
1894....	..	116	142	75	100	118	117	133	100	75	122	116	82
1895....	..	143	18	109	103	26	57	155	106	41	110	134	87
1896....	..	45	35	143	50	19	110	79	76	239	120	43	136
1897....	..	87	129	164	126	67	127	44	125	150	41	81	108
1898....	..	54	79	62	113	151	88	34	103	43	118	102	98
1899....	..	153	112	53	156	121	73	71	44	136	81	88	79
1900....	..	154	215	46	79	85	124	65	140	54	107	108	122
1901....	..	67	70	106	127	56	88	93	88	82	72	86	140
1902....	..	57	68	80	89	122	101	76	111	70	77	86	78
1903....	..	128	88	157	103	146	120	135	143	151	208	76	69
1904....	..	127	167	83	86	123	58	96	101	85	38	67	77
1905....	..	50	56	149	133	41	137	42	120	85	64	131	29
1906....	..	176	118	83	53	139	95	45	77	51	147	122	83
1907....	..	54	77	66	139	151	146	81	84	31	154	91	115
1908....	..	71	89	141	147	102	59	107	118	113	50	56	77
1909....	..	57	43	156	118	68	130	132	94	119	137	36	147

Table I.—(cont.) *Serial Values of Monthly Rainfall.*

Year.	No. of Stations.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1910....	..	120	159	48	128	112	114	115	126	25	92	144	144
1911....	..	58	95	88	88	67	124	23	66	96	93	136	174
1912....	..	152	104	180	15	92	195	131	216	73	100	91	113
1913....	..	169	54	163	184	114	70	49	51	117	103	103	55
1914....	..	62	130	170	57	85	86	133	77	70	67	129	205
1915....	..	145	200	54	73	116	58	166	76	68	70	87	190
1916....	..	71	202	158	88	119	105	69	112	83	135	126	98
1917....	..	84	51	102	106	100	108	92	210	85	129	67	45
1918....	..	122	96	55	112	100	53	160	72	286	67	80	124
1919....	..	161	119	185	120	45	59	83	96	87	70	85	149
1920....	..	148	74	135	221	131	103	187	60	108	71	52	94
1921....	..	144	15	73	63	81	18	44	116	60	53	78	80
1922....	..	150	148	101	147	57	68	165	118	130	34	55	120
1923....	..	83	235	77	126	119	34	102	113	130	136	108	105
1924....	..	123	42	57	139	217	102	153	113	172	129	83	125
1925....	..	103	192	50	134	173	7	102	109	152	103	88	104
1926....	..	151	124	35	126	119	128	105	83	80	87	182	26
1927....	..	120	129	130	109	61	165	136	160	224	74	121	89
1928....	..	213	119	116	79	72	155	77	107	49	141	133	91
1929....	..	72	48	14	61	102	78	87	84	40	121	220	188
1930....	..	170	44	99	134	103	59	145	132	180	92	148	102
1931....	..	108	128	33	175	153	149	148	143	120	34	150	47

The first known rainfall record in the British Isles was maintained by Mr. Richard Townley at Townley, near Burnley, from 1677 to 1703. The next earliest is that from Upminster, Essex (Dr. Derham) for the years 1697 to 1716. A record at Southwick, Northants. (Mr. G. Lynne),\* started in 1726 and at Plymouth (Dr. Huxham) in 1727. From 1727 at least two rainfall records have been maintained simultaneously in England and by 1788 the number reached 10.

The accuracy of the general monthly values prior to 1870 given in Table I is dependent on the accuracy of the annual values published in the *Meteorological Magazine*, 1928 (see (4) above). These values are the best estimates available. The earlier values replace those given initially by the late G. J. Symons, F.R.S. in the *Report of the British Association* for 1866. It should not be overlooked that while those for the last 110 years are well supported, those for the previous 50 years are less reliable and the probable error of any individual value is naturally greater in the case of the earliest records.

\* A monument to "Mr. George Lynn" by Roubiliac, dated 1758, appears in the Church.—*Cassell's Gazetteer*, 1900.

Table II.—*Comparison of Serial Values, 1870 to 1875, prepared by the Method Employed (a) for the years 1727 to 1869 and (b) for the Years 1870 to 1931.\**

	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1870.... { (a)	86	95	80	43	67	50	50	72	79	155	78	90
{ (b)	81	92	89	43	70	51	51	66	83	150	78	92
1871.... { (a)	81	96	61	173	50	131	156	47	220	78	44	65
{ (b)	82	96	62	172	46	125	144	57	218	85	50	64
1872.... { (a)	196	138	119	138	112	160	160	94	153	142	156	136
{ (b)	193	131	124	125	105	165	167	88	153	149	162	147
1873.... { (a)	140	75	108	40	101	90	113	114	104	93	80	26
{ (b)	151	77	119	52	94	89	105	99	103	95	72	26
1874.... { (a)	104	92	62	85	64	57	64	98	165	109	106	94
{ (b)	105	92	63	88	61	59	58	103	161	105	109	97
1875.... { (a)	168	71	41	71	93	139	185	77	151	151	162	53
{ (b)	169	75	43	71	90	132	177	78	150	156	169	56

\* It should be noted that in obtaining the values in (a) above for the period 1870 to 1875, some of the stations which had been used prior to 1870 were no longer available. In making the comparisons no replacements were made. An even closer accord would be anticipated had this been done.











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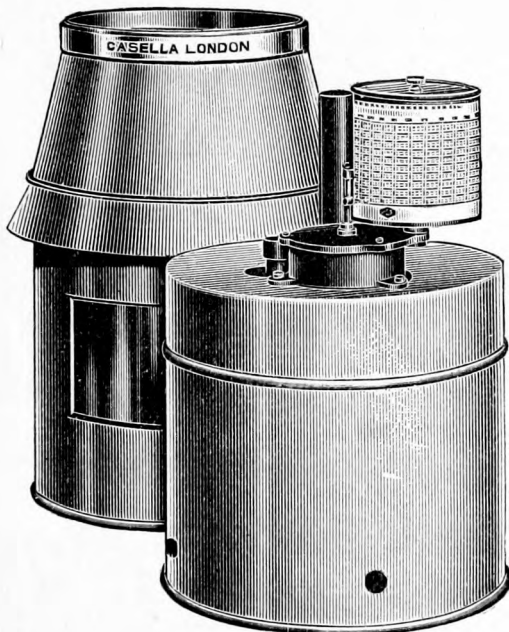
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