

October, 1940.



Mean Monthly Rainfall over the British Isles.

Values of the general monthly rainfall over the British Isles are now available for each month since 1870 i.e. for a period of seventy years. These statistics give an opportunity of considering the incidence of the monthly rainfall over a longer period than has been possible previously and of comparing the averages for 1881 to 1915 (adopted in British Rainfall) and 1901 to 1930 (adopted by the International Climatological Commission) with those for the long period. A comparison is set out below:-

Jan.	Feb.	Mar.	Apr.	May	June	Jly.	Aug.	Sept	Oct.	Nov.	Dec.	Year.
<u>1870 - 1939.</u>												
4.21	3.30	3.00	2.61	2.64	2.71	3.44	3.85	3.49	4.46	4.32	4.58	42.61
<u>1881 - 1915.</u>												
3.78	3.26	3.22	2.52	2.61	2.64	3.25	3.88	3.09	4.25	4.19	4.72	41.41
<u>1901 - 1930</u>												
4.27	3.43	3.28	2.72	2.77	2.54	3.27	4.10	3.21	4.39	4.24	4.97	43.19

The values for 1881 to 1915 and 1870 to 1939 are similar during the seven months February to August, but 1881 to 1915 gave 1.03 in. less during the five months September to January. In the case of the comparison of 1901 to 1930 with 1870 to 1939 the largest differences occurred in August and December when the shorter period gave the larger values.

J. Glasspoole.

FG 5

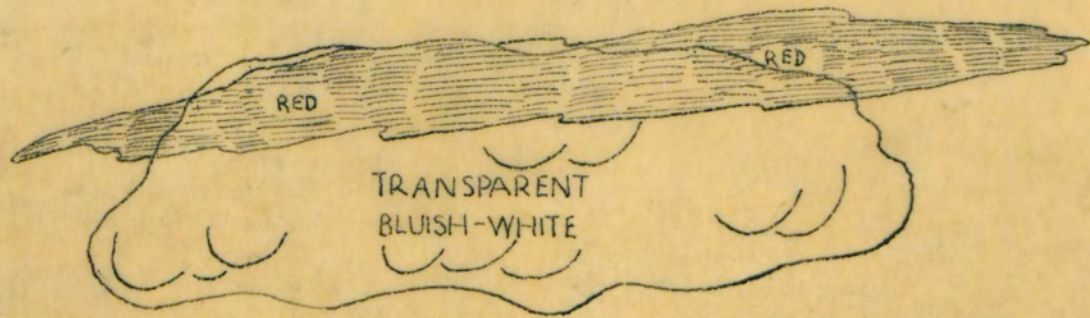
St 27

CLOUD BURST AT CROMARTY ON JULY 26TH 1940.

A downpour of unusual intensity occurred at Cromarty in the early morning on July 26th. So far as can be ascertained the storm broke on the plateau which lies to the south of Cromarty a little before 3 a.m. but the full force of the flood was not felt in the town until between 7 a.m. and 9 a.m. The rainfall measured at Cromarty Lighthouse for the 24 hours ending at 9 a.m. on the 26th was 2.53 inches, nearly the whole of which fell between 2.40 a.m. and 8 a.m. From the damage done it would appear that the heavy rain was confined to a small area within 3 miles of the town.

Mr. Thos. Gaskill, Town Clerk of Cromarty, writes: "The road leading from Cromarty to Fortrose resembled a raging river which overflowed the bank on the north side and flowed down farm roads, damaging same, and also through fields of standing crops. As the torrent neared the town it tore up the tar-macadam surface and washed away the bottoming and sides. On reaching the town it flooded several houses to a depth of about three feet, burst a wall and flooded a recreation park and an adjoining field, banking up behind High Street and Church Street. It flooded houses and shops in these streets to a similar depth. Continuing on its way to the sea it tore up the roadway and undermined four houses, three of which collapsed. Finally, flowing across Shore Street, it burst the sea-bulwark, making a breach in the road of about 470 c. yards. Further east the water came down through Cromarty House gardens, flooding the gardener's house to a depth of six or more feet, burst a wall and rushed across a road causing a gap of over 200 c. yards. On the west side of the town several hundred tons of earth and stones were deposited on the Cromarty - Dingwall road, completely blocking it at several points."

Unfortunately, owing to the sparcity of raingauges in this area, it is not possible to define precisely the limits of the storm. Several places to the north, south and southeast of Cromarty, and within a radius of 15 miles, recorded falls of about an inch. The Meteorological Officer at Invergordon, 5 miles west of Cromarty, reports that precipitation was intermittent till 03h. G.M.T. and thereafter continuous. In the absence of a raingauge at Invergordon it is not possible to give a measurement but no flooding or damage to property was caused by the rain which was not of abnormal intensity. Dingwall, 16 miles to the WSW, had only .04 inch of rain in the 24 hours ending at 9 a.m., and Wyvis Lodge, 20 miles W by N of Cromarty, had no rain at all.



AN UNUSUAL CLOUD FORMATION

AN UNUSUAL CLOUD FORMATION.

At 18h.30m. G.M.T. on Wednesday September 11th, 1940, a curious cloud formation was observed at Stroud. The sky at that time was six-tenths covered with cumulus and cirro-cumulus, and the setting sun was illuminating the higher cirro-cumulus clouds. At an elevation of roughly 70° from the observation point, there was a long patch of red-coloured cirro-cumulus; just below this cloud, at the same elevation, there was a transparent bluish-white cloud. This was roughly elliptical in shape and had mammilated understructures, resembling filmy cumulo-mammatus. The base and top of the cloud could be clearly seen, and the complete structure of the red-coloured cloud above was not obstructed from observation in anyway. The direction in which the cloud was moving was NNE, but the speed could not be estimated.

J. Johnston.

[The upper red cloud was in direct sunlight. The semi-transparent lower cloud was in shade and was probably illuminated by scattered ~~short~~ light of shorter wave-length, giving the bluish-white appearance. - Editor]

J. JOHNSON.

YELLOW RAIN IN AN OVERSHELTERED SITE.

Miss Pitman of Guildford, Surrey noted that the rain in the gauge was a greeny yellow tint during July 1940 and was able to account for this by the flower sprays of a buddleia shrub, which had grown to an unusual extent, being 8 ft. high and only 1 ft.6 in. from the gauge. The exposure of the gauge has been satisfactory in winter and is being made more open in the summer. The average rainfall computed for this station had been suspected of being 1 inch in excess of the probable amount.

THE SUNNY WEEK JUNE 2nd to 8th 1940.

At Oxford and Ross-on-Wye, the totals of bright sunshine for this week were 101.5 and 100.0 hours respectively, and the largest on record at these stations for a calendar week. The largest totals reported were 105.4, 104.9 and 104.2 hours at Colwyn Bay, Llety-evan-hen (near Aberystwyth) and Jersey. Other stations with over 100 hours were situated in the extreme south-east and south-west of England and along the west coast of England and Wales as far north as Morecambe and Ambleside. This amount also occurred at York and Douglas.

J. G.

SNOWFALL IN SOUTH-EAST ENGLAND, January 16th-31st 1940.

Much of the precipitation in south-east England during the period January 16th-31st was in the form of snow. The heaviest snowfall over east Kent and east Sussex was on the 16th when the equivalent of half an inch or more of rain was recorded in a belt extending from the north Kent coast, east of Sheppey, to Eastbourne. The heaviest falls on the 16th were not along the coast, but occurred usually some 10 to 20 miles inland. One inch or more was reported from Tenterden (1.27 in; 16 ins. of snow), Appledore (1.00 in) and Iden (1.10 in; 11 ins. of snow). Beyond this belt of high precipitation the totals were small, .08 and .07 in. being the totals at Tunbridge Wells and Edenbridge respectively. In south Essex the totals were small, usually in the region of .1 inch.

On the 26th, the precipitation, which was in the form of rain, hail, snow and sleet, was much more widespread and the whole of the area received more than .5 inch with the exception of the stations on Thanet. The general precipitation over the region on the 26th was about .75 inch and similar amounts were recorded in south Essex. Mr. J. H. Dyson has sent some interesting details from Preston, near Canterbury. The aggregate snowfall was 20½ in. during this period and drifts up to 16 feet were confirmed by the observer. Road traffic was stopped or restricted to single-lane working from January 17th onwards, and many of the drifts were level with the hedge tops for a mile or so.

W. HOGG.

R. C. Mossman.

OBITUARY.

We regret to learn of the death of Mr. R. C. Mossman at Buenos Aires on July 19th at the age of 69. Mr. Mossman was born in Edinburgh in 1870 and early became interested in climatology. He was one of the observers on Ben Nevis and in 1902 he sailed as meteorologist in the Antarctic expedition of the "Scotia." While wintering in 1903 at Laurie Island, South Orkneys, he established there the southernmost permanent observatory in the world, and afterwards remained in charge of it for some time, under the Argentine Meteorological Service. In 1913-14 he was at the British Rainfall Organisation, and since 1920 he has been in charge of the climatology section of the Argentine Meteorological Service. He has published numerous papers, mainly on climatology, including a well known work on the Climatology of Edinburgh, but he was also one of the first workers to apply the method of correlation to relations between different centres of action in the southern hemisphere.

*Note: This Obituary has inadvertently been selected for
the September Magazine.*

REVIEW.

Geomagnetism, by Sidney Chapman and Julius Bartels.
The International Series of Monographs on Physics.
Oxford, Clarendon Press, Vol. I and II pp. 1049 + XXVIII + X,
Price 63/- net.

For some 10 years Professor Chapman and Professor Bartels have had in hand the preparation of an important treatise on Geomagnetism. It appears in print when the countries they represent are at war, though it is noted that they initial the preface as from London and Washington respectively. In a note acknowledging many facilities received from institutions in Britain, Germany, America and other countries, the authors specially record their indebtedness to Dr. J. A. Fleming of the Carnegie Institution of Washington. It is fitting that a work of this sort should have a somewhat international flavour because there is perhaps no branch of science in which the world-wide aspect is more patent and the need for world wide co-operation more clearly recognised.

The book is in two volumes: Vol. I contains part I, an account of the observed facts of geomagnetism and the methods by which they are recorded; Vol. II contains Parts 2 and 3, Part 2 indicating how the data are analysed and synthesized and Part 3 being a discussion of the physical causes. This is broadly the plan, but the writers, in the interests of a logical exposition of facts and principles, have not attempted to confine each part strictly to the limits just described.

Brief accounts are given of related phenomena, the leading facts concerning the lunar and solar motions, the disturbances and other properties of the sun's atmosphere, earth currents, aurora and the ionosphere, magnetic prospecting and the relation of magnetism to geology. An indication is given of the many ways in which geomagnetism is now at last actually contributing powerfully to the problems to which its exponents of a generation ago rather vaguely hoped that it might one day contribute, providing avenues of research into the earth's interior, the earth's high atmosphere and the sun's atmosphere. For these reasons, and because of the links of geomagnetism with problems of radio and telegraphic communication and cosmic ray phenomena, there has in recent years been a growth of interest in the subject, so that a comprehensive treatise is particularly to be welcomed.

Some of the primary problems of the earth's magnetism, such as the origin of the main field and the cause of the secular change, have still to be solved; and though progress has been made in many directions, the writers remark that Part 3 (the physical interpretation) is the part with which they feel least satisfied and the part which, they hope, will be the first to need revision.

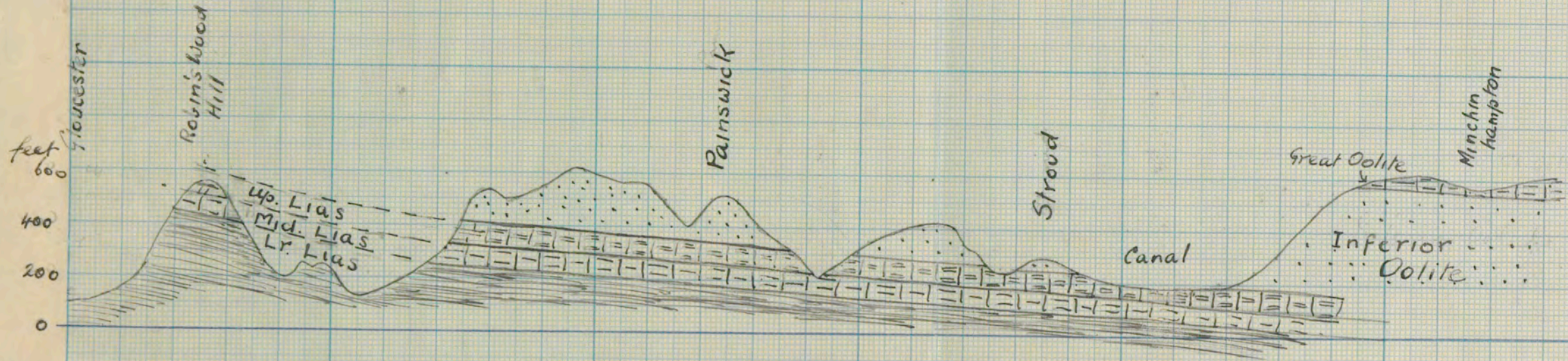
METEOROLOGICAL STATIONS.

The Health Resort Stations at Bexhill and the Climatological Stations at Belvoir Castle and Chelmsford (County Gardens) have been closed for the duration of the war.

The town authorities at Teignmouth and at Stonehaven have ceased payments to the meteorological observers but in each case the observations are continuing. Mr. Rossiter at Teignmouth owns the instruments and is continuing the work of the station voluntarily but a change of site may be necessary. Mr. Gait of Stonehaven is continuing voluntarily but the Council have agreed to assist by paying for the sunshine cards.

Many of the observers at coastal stations are continuing their observations in very difficult circumstances and letters of appreciation have been sent on several occasions. In reply to such a letter the Borough Engineer of Dover remarks:

"I thank you for your letter received today and I very much appreciate what you have to say regarding the meteorological records from Dover. I am passing your letter on to the observer who is carrying out his work under exceptional difficulties owing to the sunshine recorder being placed beside some of the harbour defences."



NOTES ON THE GEOLOGY OF STROUD DISTRICT.

The rocks around Stroud were all laid down when the country was covered by sea. They consist of two main formations, "Oolite" above and "Lias" below. "Oolite" or "Egg-stone" is made of lime and typically consists of an agglomeration of small spherical grains like the roe of a fish. This can be clearly seen on some weathered stones. There are two divisions, the Great Oolite above, composed of limestones and lime sandstones which split into thin slabs used for roofing, and the Inferior Oolite below. "Inferior" refers to its position; it is in fact a compact stone excellent for building, and has been used in many Cotswold cottages.

The Lias is composed of limestones and clays. There are three divisions: the Upper and Middle Lias are mostly limestone, while the thick Lower Lias is clay with some limestone bands. The general structure of the country can be seen in the section from Gloucester through Stroud and along the Canal to Minchinhampton.

Long after these rocks had been deposited in the sea (their marine origin is shown by the numerous fossil shells in them) the land rose to a considerable height. The rise was not quite uniform, being somewhat greater near Gloucester than at Minchinhampton, so that the layers of rock are tilted slightly. As the land rose, the primitive river Severn cut its bed down. Through the hard limestone it cut slowly but once it reached the soft Lias clay it rapidly formed a great valley, leaving a few steep-sided hills like Robins Wood Hill which is so prominent near Gloucester. These hills are protected by their caps of harder rock. The tributary streams cut back into the plateau of Inferior Oolite, but this rock being harder than the Lias below it, the Valleys which cut through the Oolite have very steep sides, almost like gorges. Stonehouse lies in the Severn plain on the soft Lower Lias clay but the quarry beyond the railway is in the harder limestone of the Middle and Upper Lias.

The slope of the rocks continues towards the south-east and east and brings in younger rocks - the Chalk plateau of Salisbury Plain and finally the still younger clays of the London area.