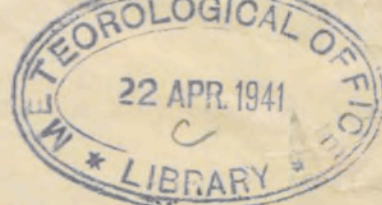


April, 1941.



Remarkable vivid halo phenomena were observed at this station on 6th March 1941. They were first reported at 0930 GMT and at that time were well developed. Cirro-stratus covered the southern half of the sky and was gradually spreading. The two mock suns at 22° and the upper half of the halo with the arc of upper contact were plainly visible and were white. The colours of the halo of 46° and its arc of upper contact were well defined and gradually increased in brilliance till about 1015 GMT. At the same time the mock sun ring extended outwards with the spreading cirro-stratus and inwards from the mock suns till it was continuous through the sun. At 0950 GMT. the westerly mock sun at 120° definitely appeared, and rather later the other was seen. By 1010 GMT the mock sun ring was complete and showed a white mock sun at 180° . Converging to and touching at this mock sun were two faint white arcs which persisted for only a short time. A further arc of contact to the 22° halo was observed at about 1030 GMT. and was elliptical in shape. This gradually extended until the whole ellipse was just visible. Fading of the phenomena was then general but as it proceeded a sun pillar appeared below the sun and having reached its peak at about 1130 GMT. persisted for a short time. By 1145 GMT only the mock suns at 22° and 120° remained with a small part of the 22° arc. These also had vanished by 1200 GMT. The cirro-stratus had grown denser and lowered to alto-stratus. Visibility during the display was extremely good.

Measurements of the various angles were attempted and gave 24° as the angle to the centre of the nearer mock suns, 122° to the centre of the farther mock suns, and 47° for the coloured halo. The ellipse was estimated to have a semi-major axis of 29° . The sun was originally in the South-east with 22° elevation.

The observation of the whole of the ellipse circumscribing the 22° halo was also made on November 13th 1940 when a layer of cirro-stratus obscured the moon. The phenomenon was first observed at 2345 GMT. on the 13th November. At this time there was only the very bright ellipse and comparatively faint inscribed circle visible. There was unfortunately no means of measuring accurately the angles but the radius of the circle was estimated to be 22° and the semi-major axis of the ellipse subtended an angle of about 28° . The lower part of the ellipse was flattened considerably suggesting an external arc of contact. The inner portion of the ellipse was brownish red becoming green and

FG 5

57 27

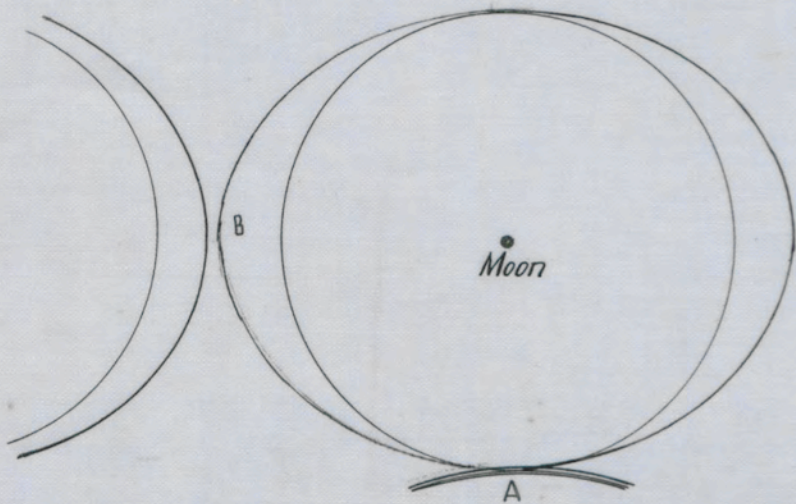
blue to white on the outside. The circle was very faint and white. The phenomenon was then unobscured by low cloud, but subsequently large masses of cumulo-nimbus and low ragged clouds covered up part of it. The external arc of contact (A) appeared on the lower part of the ellipse and a pale a rather small arc of contact at B. On the right a white line, part of the mock moon line, appeared. Cloud then covered the whole phenomenon but later a gap on the left revealed at B a pale elliptical arc of contact and a much brighter circle inside the ellipse, almost as bright as the first ellipse. This latter circle and ellipse were of the same dimensions as the first circle and ellipse. Another gap on the right showed a small arc of the circle of 46° . At 0100 GMT on the 14th a very large mass of cumulo-nimbus completely obscured the phenomenon.

Meteorological Office,
Aberporth.
Cardigan.

NOTE: This record of the halo of March 6th 1941 adds a number of interesting phenomena to the description given in the last issue. The upper and lower tangent arcs to the halo of 22° are here united to form the complete ellipse. The circumzenithal tangent arcs to both the 22° and 46° haloes are present and in addition there is a good sun pillar.

Still more remarkable is the lunar halo system of November 13th-14th. Elliptical lunar haloes are themselves rare, but the curious arcs to the left of the main system must be almost unique. The obvious cause is a secondary source of illumination, i.e. a mock moon, 60° , to the left of the real moon, but no mock moon is mentioned and it is extremely unlikely that such a source of illumination at night would be strong enough to form visible haloes. More probably the partial haloes are due to reflection from some peculiar form of ice crystal, but the precise cause is obscure.

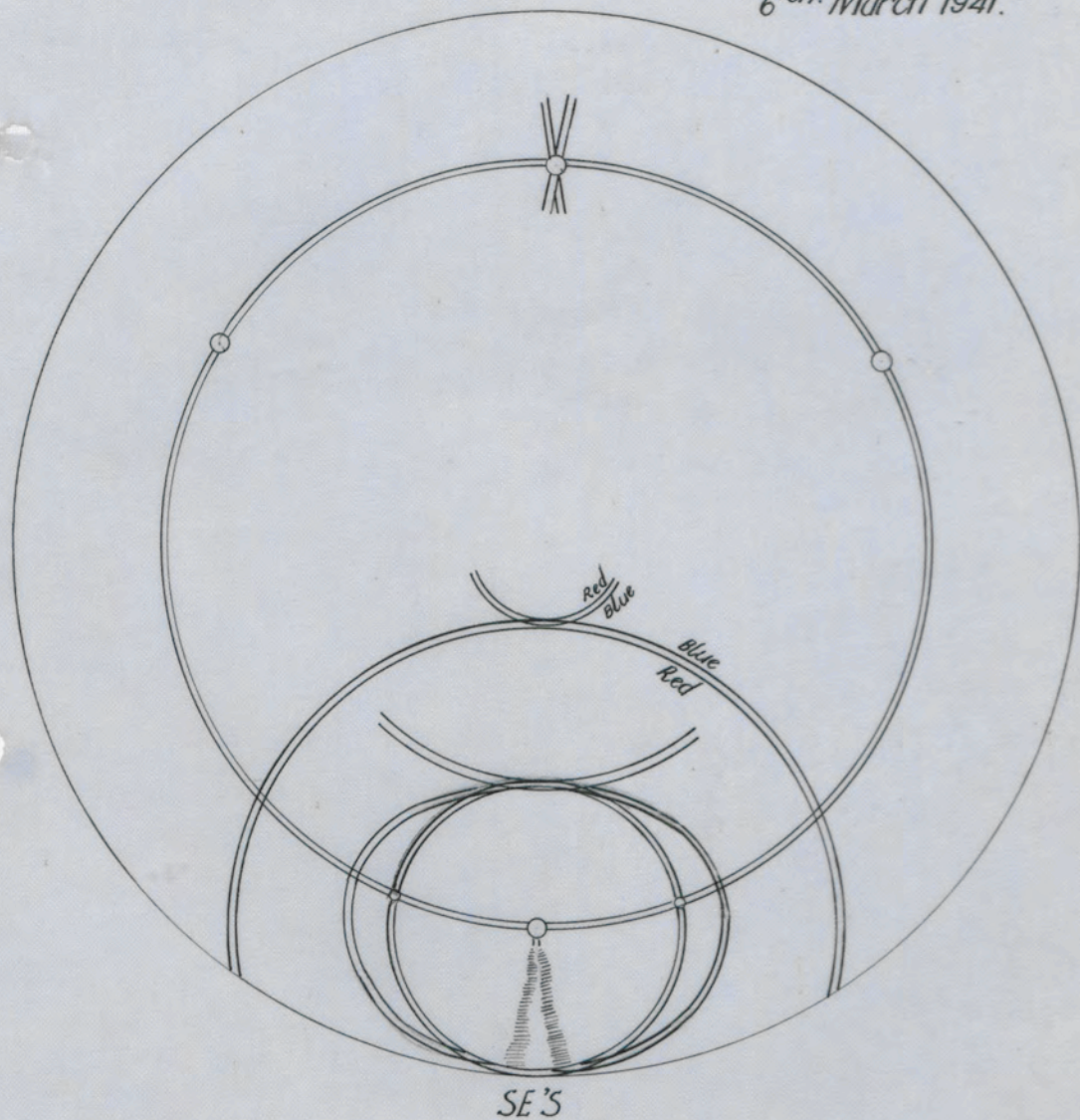
Lunar Halo Phenomena observed at Aberporth.
November 13th - 14th. 1940.



46° Circle.

Solar Halo Phenomena observed at Aberporth.

6th. March 1941.



Auroral Notes, November 1940 - March, 1941.

Aurora was observed on 14 nights in November 1940 viz. 1st-7th, 13th, 20th-23rd, 27th and 29th. With very few exceptions these observations were confined to the extreme north of Scotland. The most widely observed occurrence in November was a display of moderate intensity on the 4th. This was reported from Lerwick, Kirkwall, Wick, Duntuiln (Skye), Fortrose, Nairn, Gordon Castle, Aberdeen and St. Abbs Head. An auroral glow was seen from Dublin at 20h.30m on November 5th.

There were no outstanding displays in December but the phenomenon was seen at Lerwick on 1st-3rd, 12th, 22nd-28th and 30th, and at Wick on 12th, 20th, 25th and 30th. Other stations each reporting aurora on two nights in December were Kirkwall, Duntuiln and Aberdeen. A single report of its appearance on the 31st came from Abbotsinch.

Wick and Abbotsinch both noted aurora on January 1st and 2nd, and it was seen at Fort Augustus on the 14th. Lerwick also observed it on these dates as well as on January 6th, 7th, 16th, 17th, 18th-21st, and 23rd-27th.

The display on January 17th was observed at many places from Shetland to Eskdalemuir and St. Abbs Head. At Lerwick it was seen for about four hours commencing 18h.20m. It was brightest about 21h.20m. when, with the sky less than three-quarters covered with cloud, active bundles of rays, red and green in colour, were moving between NNE and NE. Some isolated rays extended to 60 degrees from North but were partially obscured by cloud.

In February aurora was noted on 10 nights, viz. 2nd-4th, 8th, 17th, 18th, 21st, 22nd, 24th and 25th at stations in the extreme north of Scotland. Elsewhere there was little auroral activity. The only widely observed occurrence was on the 3rd. On that day, at 18h.40m., Lerwick reported double homogeneous arcs of moderate intensity at altitude 5 degrees and 7 degrees in NW-NE; other reports were received from Wick, Aberdeen, Skye and Eskdalemuir.

During March aurora was seen on 21 nights - the greatest frequency in any month in recent years. The display on the 1st was probably the finest of the winter and was seen in all parts of Scotland. At Lerwick, where the cloud amount varied from 1/10 to 8/10th, observations were made continuously from 19h. to 23h. At first faint red diffuse

luminous surfaces appeared in ESE. followed by bundles of rays, milky white and green, up to 40 degrees altitude and then by milky white and red rays with a moderately bright corona 10 degrees S. of the zenith. There was considerable variation, both in form and intensity; at 21h.59m. bright to very bright curtains, green in colour, were seen to the SW at altitude 15 degrees. Mr. Seton Gordon, who saw the display from Skye describes it as "A very unusual display of dark red aurora - the redness in the sky extending from the zenith to near the eastern horizon." In Edinburgh Captain C.E.N. Frankcom observed "A very beautiful display, rose-shaped, pink, high in the sky and about 5 degrees in diameter. Radiating to the south from the 'rose' were bright bands of purple, crimson, violet, yellow and white, very clear and intense and remarkably steady in brightness." A fine aurora was seen at 04h.30m. on March 5th off the west coast of Scotland. In appearance it was brilliant white and was centred about 20 degrees altitude in the NW. An outstanding feature was the parallel waves of white light which chased each other rapidly in endless procession from the centre towards the SE. Good displays were seen at Lerwick on the 14th, and 31st March but these were not reported south of Shetland. On the 28th Lerwick had an auroral display embodying all the usual features from 20h. 13m. until after midnight. On the same evening Mr. J. McLean of Carbost (Skye) saw a bright display consisting of arches and streamers moving to and fro from NE to West and reaching to the pole star. On 30th March, with the sky only 1/10 to 2/10 covered with cloud, observations of more than usually fine aurora were made at Lerwick. There was much variation in form, a feature being the sudden appearance of a corona at 21h.36m. which became intensely white, fringed with red and green. Very bright red and green draperies extended over the whole of the northern sky, and a little later appeared in many places in the southern sky. The observers at Lerwick heard three distinct swishes at 3 seconds interval at 21h.57m. but could not point to any obvious explanation of the swishes. In Skye also the display on the 30th was a fine one, the lights "pulsing" rapidly across the sky.

H.E.C.

Meteorological Office, Pembrey (near Llanelly) reports aurora (Glow and few faint rays) seen between 2300 and 2330 hours on March 30th.

Meteorological Office, Middleton, Lancs (6 miles to N. of Manchester) reports fine aurora display on 29th March between 2230 and 2330 B.S.T.

15.4.41.

G.A.Bull.

Halo of March 6th.

Mr. H. Forster states in reply to a query that the arc DE in the illustration included in the March issue was actually a complete arc as shown.

OBITUARY.

George Baxter, C.E. who died in March 1941, had been connected with the Local Authority departments of Dundee, his native city, for sixty years. After serving an apprenticeship as a draughtsman, he was appointed Assistant Engineer to the ^{was} Water Commissioners of Dundee. At the early age of 23 he ^{was} promoted Water Engineer, a position he held for 40 years, during which time valuable additions were made to the town's water system. Since his retirement in 1930 he had acted for Dundee Corporation in a consultative capacity. Mr. Baxter was succeeded in the post of Water Engineer by his son George, who in 1938, became Depute Water Engineer to the Edinburgh Corporation. Largely owing to the interest of the late Mr. Baxter, and afterwards of his son, the numerous rainfall records maintained by the Dundee Corporation Water Department are among the best kept records in the country.

H.E.C.

NEW FELLOWS OF THE ROYAL SOCIETY.

R.A. WATSON WATT, scientific advisor on telecommunications, Ministry of Aircraft Production, formerly superintendent, radio department, National Physical Laboratory.

Male of March 5th.

Mr. H. W. W. states in reply to a query that the two DE in the illustration included in the March issue was actually a complete one as shown.

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George Baxter, C.E., who died in March 1941, had been connected with the local authority departments of Dundee, his native city, for sixty years. After serving an apprenticeship as a draughtsman, he was appointed Assistant Engineer to the Water Commissioners of Dundee. At the early age of 22 he promoted Water Engineer, a position he held for 40 years, during which time valuable additions were made to the town's water system. Since his retirement in 1930 he had acted for Dundee Corporation in a consultative capacity. Mr. Baxter was succeeded in the post of Water Engineer by his son George, who in 1935 became Deputy Water Engineer to the Edinburgh Corporation. Largely owing to the interest of the late Mr. Baxter, and afterwards of his son, the numerous rainfall records maintained by the Dundee Corporation Water Department are among the best kept records in the country.