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An Interesting Barograph Trace at Hurn.

The recent stormy weather over Southern England has provided us with an interesting barograph trace. The outstanding features are sudden peaks of pressure with a maximum height of about 2½ mbs. lasting half an hour to one hour. These occurred during violent showers mostly with hail passing over the station at 50-60 m.p.h. but not with thunder or lightning.

The tallest peak occurred at the passage of the second cold front on Saturday morning Jan.30th at 1000 G.M.T. and immediately drew our attention as something unusual. The rise and fall of pressure took place during the storm without any noticeable fluctuations, the pressure then rising in the usual way. At the next violent hail storm there was another peak of about 1 mb. and of shorter duration than the previous one.

On the following Monday afternoon at 1345 GMT a very large cumulonimbus appeared with its cirrus overhead and nimbostratus forming a dark belt round the horizon from the S thro' W to the NW with its centre not far to the WSW and moving NE. The barometer was rising quickly before the cirrus had reached overhead. The summit of a peak on the trace had been reached and the pen arm had fallen slightly when rain commenced. The wind remained south-westerly (30-35 m.p.h) and gusty as the storm approached and then gusts up to 50 m.p.h. occurred and near the centre of the storm with a very strong gust the pen arm rose and fell through about ¾ mb. and returned to a point near where it had started to rise, the motion taking altogether about ½ sec. This occurred two or three times during the strongest gusts. The fall of pressure continued after the storm had passed and levelled out about 20 minutes later.

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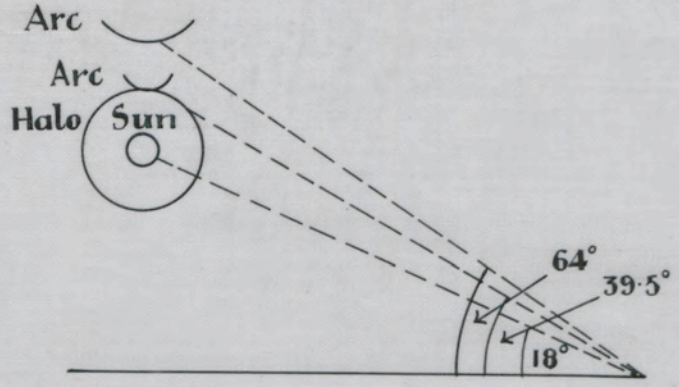
These fluctuations during gusts are similar to those made by an explosion and are probably due to sudden compression and expansion caused by the momentum of the gust. Since the pressure is higher in the storm than outside it this bears out the theory that a thunderstorm or hail storm cannot have cyclonic motion like the tornado. As the storm described above was travelling at 20-30 m.p.h. through the atmosphere the peak of pressure ahead of it may have been due to a piling up of air analogous to a bow wave ahead of a blunt nosed boat moving in calm water. Micro-barographs must have illustrated many such cases in the past; the traces on such occasions should provide interesting study.

One interesting result of this is that station pressures at M.S.L. will not all conform to the general circulation on such a day as this. The horizontal and vertical parts of the trace where the cold fronts went through are strikingly similar and the almost vertical rise of pressure shows that the line of separation of the cold and warm air must have been almost vertical near the ground. This illustrates the "blunt nose" of the cold front.

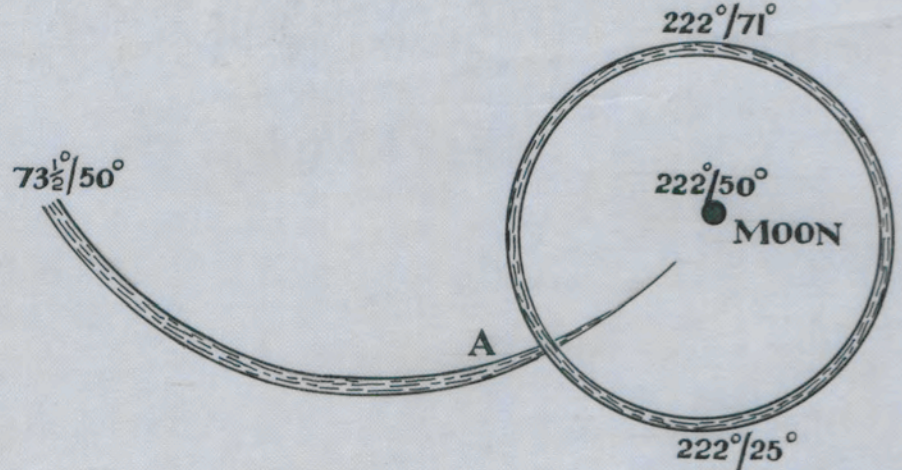
It is also interesting to note that during this stormy period gusts up to 85 m.p.h. were recorded on Sunday Jan. 31st on one or two occasions and the same night several gusts up to 90 m.p.h. were recorded as the second secondary depression passed to the north of them. On the morning of Monday Feb. 1st a hail stone ¾" in diameter was found about three miles away.

D. TEDMAN.

~~P.S. The pours P.S.10 were not issued with storms over the station but passed not far from us.~~



Optical Phenomenon observed at Hullavington, Jan. 21st. 1943



Lunar Halo Phenomena March 13th, 1943

Optical Phenomenon observed at Hullavington,
January 21st 1943.

At approximately 12h25m. G.M.T. an arc of light was first observed in the sky, appearing first as a patch of light and increasing to an arc, convex downwards, and at its maximum extent subtending an angle of roughly 50 degrees to its centre of curvature and distant 46° above the sun at its nearest point. Its position was the usual one for the upper arc of contact of a halo, i.e. with the line from zenith to sun normal to the curve. The arc was quite as bright as the average rainbow, and the spectrum colours from red to blue (blue uppermost) were clearly visible in a narrow band.

The feature which is unusual, perhaps, is that at this time no halo was visible, but within about ten minutes the 22 degree halo and its upper arc of contact became visible, as rather more dense cirrostratus cloud drifted over. But these were faint and almost entirely white, in sharp contrast to the arc first seen. By the time these latter became visible the coloured arc was becoming faint, but measurements were taken, rather hurriedly, with a theodolite as shown in the sketch.

R.A.Bradshaw.

Note From Rudloe I noted and commented on the sudden appearance of the 22° halo but although watching fairly closely I did not observe the upper arc. The distance is about 10 miles.

R.A.B.

A brilliant 22° halo was observed at Stonehouse on January 21st 1943 at 1h.40m. G.M.T. The colours were well defined and the display lasted twenty minutes.

Report on Halo Phenomena seen at Oakington on March 13th 1943.

The lunar halo and accompanying arc, as illustrated in the adjoining sketch, were observed at Oakington and Cambridge from about 1830 G.M.T. onwards on the night of March 13th 1943.

Complete and accurate measurements were impossible owing to searchlight activity on and around the station but the following measurements were taken:-

Elevation and bearing of the moon, 50 degs. 222 degs. from N.
Elevation of the bottom of the halo 25 degs.
Elevation of the top of the halo 71 degs.
Elevation and bearing of the end of the arc 50 degs. and 73½ degs.

It will be seen that, according to these measurements, the moon was not precisely in the centre of the circle; it also seemed to the naked eye to be displaced slightly to the right of the centre. Both halo (a complete one) and arc were exceptionally luminous, and persisted for a long time, the arc till about 1930 G.M.T and the halo until well after 2000 G.M.T., when it was obscured by cloud. The large arc at one time extended through the halo, nearly to the moon. About 1930 G.M.T there was a brightness at about the point marked A similar to the effect of a mock moon.

The main interest of the phenomenon lies in the accompanying large arc, which is not illustrated in any of the articles on halos in either the "Observer's Handbook" or Sir Napier Shaws "Manual of Meteorology". The phenomenon was seen by two independent observers, who agree as to the details outlined above.

L.S. Birch.

Note. The arc passing through the moon appears to be very unusual. The ordinary mock-moon ring passes through the moon (or would do so if produced) and extends horizontally with the zenith as centre. This is due to simple reflection from vertical faces of ice crystals. In most cases hexagonal prisms of ice float with their principal axes either vertical (giving reflection from the prism faces) or horizontal (giving reflection from their ends) or irregularly, in which case only the haloes are present without the mock moon ring. It seems possible that in this phenomenon a majority of crystals were floating with their reflecting faces parallel but not vertical, which would give a mock moon ring excentric from the zenith.

A long rainfall record.

From a notice which appeared in the issue of the Somerset County Herald for February 13th 1943, we are reminded of the long series of rainfall observations which have been made at The Down, Winscombe, Somerset, by Mr.John Grubb.

The first return of rainfall which Mr.Grubb made to the British Rainfall Organization was for 1901 and returns have been regularly received for each subsequent year. A series of unbroken observations for a period of 42 years by one observer is a rare occurrence and the records form a noteworthy contribution to British meteorology.

Mr.Grubb, who is now in his ninety-second year, is arranging for a younger man to take over the work of recording the rainfall. A letter has been sent congratulating him on his splendid record, both as a rainfall observer and as a nonagenarian.

C.F.M.

Sky Phenomena on October 28th, 1948.

In Wrexham this day was one of a spell of fine, quiet autumn weather, with frost at night and large diurnal variation of temperature. Early in the morning the range of visibility was 70 yards; the fog cleared and the sun broke through at 12h.30m. G.M.T. revealing cirro-stratus moving from SE. In this was observed at 12h.45m. the halo of 46°, much of it prismatic. Inside it was the halo of 22° with a very bright prismatic superior arc of contact. It is worthy of note that the circumzenithal arc, the appearance of which is usual in such circumstances, was quite absent.

What follows is recorded, not because the individual phenomena are in any way unusual, but because of the extreme beauty of the combination, which the reader is invited to visualise for himself.

Mr.Richardson and I were at Trefnant, investigating the roosting habits of certain birds. The evening was calm and cloudless, and the Aurora Borealis became visible shortly after 18h. G.M.T. The area was centred in the N, and at its highest point it reached Ursa Major. It was almost entirely of the diffuse kind, although a few streamers were seen; the colour was faintly green. At 18h.20m. lightning began to flash in the NNW, and for a considerable time we were treated to a magnificent spectacle of lightning apparently flashing out of the Aurora. At 19h.15m. it was still light enough for me to read my wrist watch without difficulty. The rising of the moon eventually put an end to the display; meanwhile, the lightning, which was distant, moved round to a westerly direction.

S.E. Ashmore.

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Aurora observed from Oxlynch, near Stonehouse.

There was a good display of Aurora around 22h. and 23h. G.M.T. on Thursday February 25th 1943; a steady glow along the horizon from about W.N.W. round to N.E., without streamers. The illumination was much stronger than zodiacal light or brightest part of the Milky Way.

I doubt whether it was visible from Stroud, Cainscross, or most of Stonehouse.

E.V. Newnham.

NOTE. Captain Parkin made no reference to this auroral display on the February return from Stonehouse.

FOUNDATION FOR THE STUDY OF CYCLES.

The Foundation for the Study of Cycles - a non-profit organization created to foster, promote, and conduct scientific research in respect to rhythmic and periodic fluctuations in any branch of science announces the offering of a medal to the person who, during 1943, published the book or paper that in the opinion of the judges is the most outstanding in this field.

The person who receives the medal and the persons who receive the awards will also be elected Fellows of the Foundation for the Study of Cycles.

Communications should be addressed to Professor Ellsworth Huntington, Chairman of the Committee on Awards, Hendrie Hall, Yale University, New Haven, Connecticut.

THE HARD SPELL OF FEBRUARY 1929.

I happened to be looking through newspaper cuttings on the weather recently, and discovered the following amusing reference in the Daily Mail for February 13th, 1929. The severe frost reached its climax on February 12th, and it happened that this also was the date on which Professional Notes, No.51, was issued, the title being "Changes of zero in Spirit Thermometers." The "Daily Mail" published a large amount of details, including a column of short "weather items," including such things as racing stopped, football impossible, firemen's hosepipes frozen, and temperatures near zero; sandwiched among several such small paragraphs was one stating that "The Stationery Office last night issued a memorandum on "Changes in zero in Spirit Thermometers" - some layman's notion that it was something to do with zero!

S.E. Ashmore.

OBITUARY.

H.B. Belding who was responsible for the meteorological observations at Hunstanton since the station was set up in 1923 died suddenly on February 1943. His sister Mrs. Dye, who has acted as deputy observer for many years, is continuing the observations.

Miss Morey of Newport, Isle of Wight died at the beginning of the year in her 88th year. The climatological station there was founded by Mr.Frank Morey in 1922 and continued by Miss Morey after his death in 1926. Miss Morey had taken no active part in the work of the station for some years, her secretary, Mr. J.F.Jackson being responsible for the observations. The equipment at the station was bequeathed by Miss Morey to the Borough Council and the continuity of the record will thus be maintained.

G.R. Davidson., Borough Engineer and Surveyor at Berwick-on-Tweed died in March 1943. He was responsible for the meteorological station from 1930 onwards.

W.T.Ward., Water Engineer and Surveyor at Llandudno since 1919 died in April 1943. He was, throughout this period, connected with the work of the meteorological station and in addition was responsible for the various rainfall stations of the Llandudno Waterworks.

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Obituary contd.

H.E. Stilgoe, C.B.E. M.Inst. C.E., Chief Engineer of the Metropolitan Water Board 1919-1943 died on March 12th 1943.

D.R.Pack-Beresford. O.B.E.

In the Annual Report of the Irish Rainfall Association for 1941 the death is announced of D.R.Pack-Beresford, Esq., O.B.E. who maintained a rainfall station at Fenagh House, Bagnalstown, Co.Carlow during the period 1890 to 1941.

Rainfall readings were first commenced at Fenagh House in 1866 by D.W. Pack-Beresford, Esq., M.P. and an almost unbroken series of observations has been received by the British Rainfall Organization from the commencement of the record. Observations of rainfall are being continued at Fenagh House by Col. Pack-Beresford.
