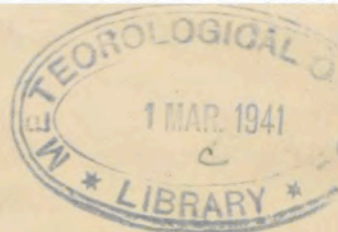


FEBRUARY, 1941.



The time of sunset in the tropics.

In its apparent motion around the celestial sphere, the sun does not move uniformly in right ascension. To provide a uniform system of time, in which the days are of the same length at all seasons of the year, astronomers have invented a mean sun, an imaginary body which moves uniformly along the celestial equator at the same speed as the average change in right ascension of the real sun. It is local mean noon when this mean sun transits the meridian, and the interval of time between the transits of the mean and real suns is known as the equation of time. The equation of time is therefore the interval before or after twelve o'clock, mean local time (uncorrected to a standard longitude), when the real sun crosses the meridian. When the mean times of sunrise and sunset are later than if apparent time (as shown by the real sun) were used, the equation of time is regarded as positive.

In Great Britain, as in other countries in comparatively high latitudes, the times of sunrise and sunset follow a comparatively simple law. Except, of course, for the artificial complication introduced by summer time, the daylight available in both the evenings and the mornings decreases till December, and then increases again till June. Changes due to the equation of time are too small, compared with the changes due to the varying declination of the sun, to make much appreciable difference. The equation of time is, however, responsible for the fact that the latest sunrise and the earliest sunset are not quite at the winter solstice, December 22nd, but about December 31st and December 13th, respectively, as tables of black-out times will show, and also for the fact that just now (January) the duration of daylight is increasing more rapidly in the evenings than in the mornings.

In the tropics, variations in the times of sunrise and sunset are more complicated. In the course of a whole year, these variations are small, compared with those experienced in this country, but as the long summer evenings of more temperate latitudes are unknown in these regions, variations in the short time available, after working hours, to play games are a matter of importance to the more athletic members of the community.

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.INT. VALUE

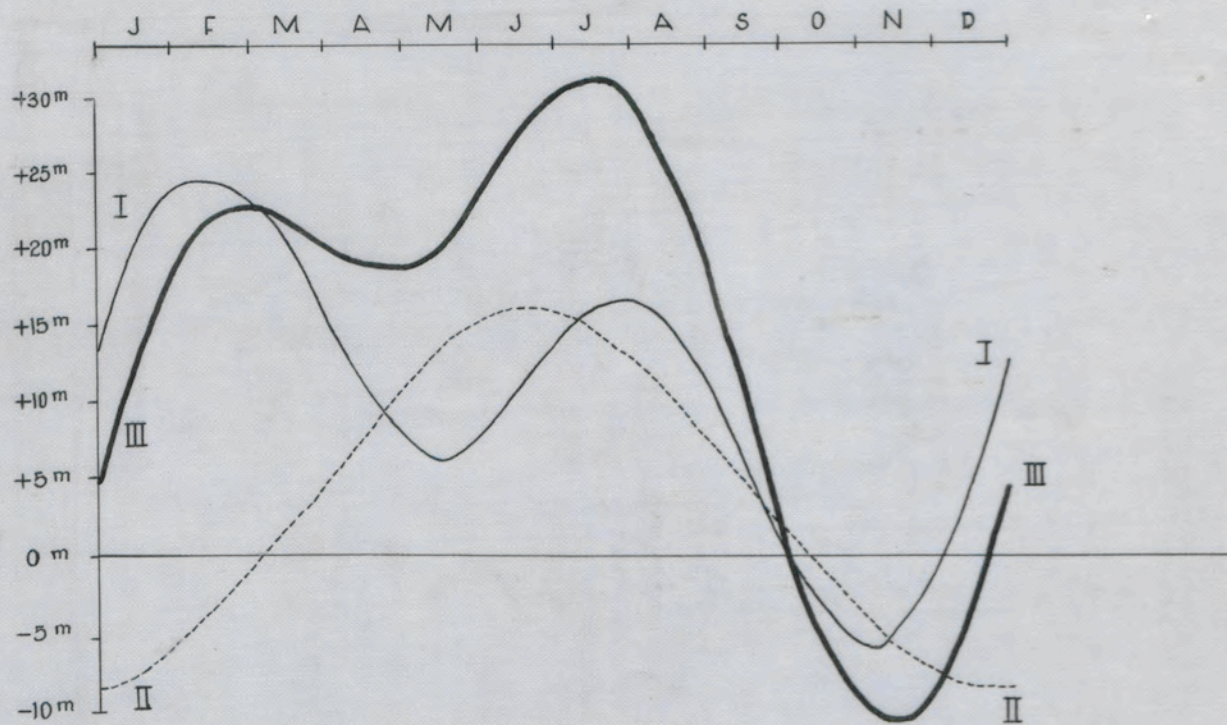
At Colombo, sunset is latest in July, about 6.31 p.m. The evening daylight then falls off rapidly, and by November the sun is setting at 5.50 p.m. The evenings now lengthen, and by February sunset occurs at 6.22 p.m. Between February and July there is but little change in the time of sunset, the extreme values being 6.19 p.m, about the end of April, and 6.31 p.m. in July.

The greater complexity in the variations in the time of sunset in the tropics is because the equation of time is of the same order of magnitude as variations in the interval between the meridian transit of the sun and its setting. The time of sunset, in mean local time, is obviously that interval, with the algebraic addition of the equation of time (plus 12 hours, if 24 hour clock-time is used). If zone time is used, the difference between mean local time and zone time must also be added, or subtracted, as the case may be.

In the attached figure, curve I shows the equation of time, plus the correction between Colombo local time and zone time (10½ minutes). Curve II shows the interval between the sun's meridian transit and its setting, expressed as a difference from 6 hours. Owing to the corrections to the time of sunset for the sun's semi-diameter and atmospheric refraction, this is not quite symmetrical about the base-line. The algebraic sum of the ordinates of the two curves, curve III, will give the interval between sunset and 6 p.m; for example, on January 1st, sunset is at 6.5 p.m. on November 15th, at 5.49 p.m.

The steep downward slope, in curve III, between July and November, can be seen to be due to the simultaneous decrease in both component curves about that season. Between November and February, curve II shows little change, and the increase in curve III is mainly due to the sharp increase in curve I. Between February and July, the changes in curves I and II tend to balance one another, hence the small amount of variation in the time of sunset between these months.

H. JAMESON.



SOLAR HALO, BRIMSCOMBE NEAR STROUD.

On Sunday afternoon, February 2nd, between 3.50 and 4.10 p.m. S.T. a solar halo of 22° radius was observed from a point above Brimscombe, near Lower Lypiatt (about 600 ft. above sea level). About one third of the complete circle and the mock sun ring were distinct and luminous, while there were brilliant colours at the point of contact on the left.

J. GLASSPOOLE.

3.2.41.

IRIDESCENCE ON CIRRUS CLOUDS OBSERVED AT FINNINGLEY
November 7th, 1940.

At 15.55 B.S.T. a Cirrus mass, somewhat Lenticular in shape, with associated Cirro-Cumulus was observed above the sun, then almost hidden by Strato-Cumulus cloud and thick smoke haze. A few seconds later one of the flatter portions of the cloud commenced to show colouring very similar to that exhibited by oil on water. * Violet and a soft shade of red appeared as the main colours.

At 16.00 the edges of the cloud were becoming coloured with blue at the edges then shading through the usual Rainbow into a broader red band after which the colour sequence reversed giving a faint blue tint to the more central portion of the cloud. The "oil-like" patch originally observed had by this time taken on all colours but in no definite scheme, and appeared to be more like the "Colour mixing" seen on Cinema curtains. In those places where bands of colour were observed they followed the edge of the cloud in general outline but showed small irregularities conforming to the ripple structure of the cloud.

At 16.07 some Wispy Cirrus associated with the original cloud was observed to be fairly coloured although no definite Colour structure could be discerned.

By 16.20 a thin "neck" of cloud had drifted close enough to the sun to be influenced and in this position a very faint blue tint could be seen both at the top and bottom of the cloud although no cloud was visible beneath. The centre of this "neck" was a stronger red than was seen at any

other time, as also were the green bands on either side of it.

At 16.25 the observation was abandoned owing to other work but the phenomenon had however completely gone by 16.40.

Throughout the entire performance Yellow was observed only once when a narrow band between green and red appeared for about 10 seconds, during which time it was very bright.

J. Ayres.

T.F.II.

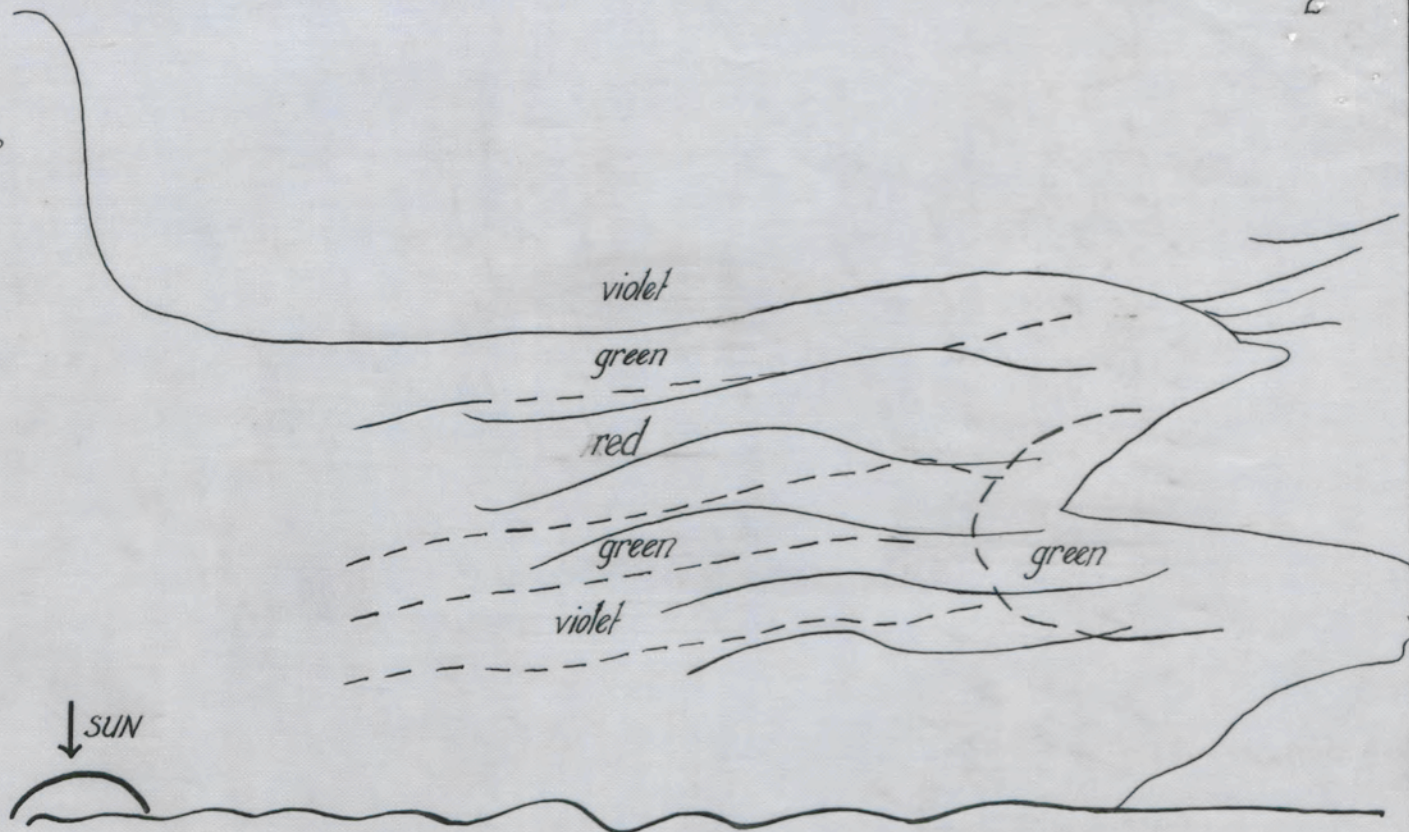
Mr. G.H. Brown of Parkstone Avenue, Horfield, Bristol.7, offers the following instruments for £5.10.0 to be collected from the site:

Stevenson screen on iron tubular legs, with
Maximum and Minimum thermometers (N & Z);
Wet and dry bulb (Cossor) Grass minimum
(N. and Z). Earth thermometers 1 ft. and
4 ft. (Short and Mason) Besson Comb
and nephoscope.

16.07

2

"Oil-like"
patch
fading.



ST.CU.

Elevation of sun 8.2°
Bottom of colour 12.2°
Top of colour 21.0°

O B I T U A R Y.

We regret to learn that Commandant J. Jaumotte, Director of the Royal Meteorological Institute of Belgium, died on July 6th, 1940 of wounds received in battle at La Panne on June 1st. Commandant Jaumotte had been a member of the International Meteorological Committee since 1919, and also of several Commissions (Aerological Commission, Commission for the Study of Clouds, Solar Radiation Commission, Synoptic Commission) on which his services were of great value. His work in aerology was especially famous.

We regret to learn of the death on December 19th 1940 at the age of 63, of Dr. Garnt van Dijk, Director of the Netherlands Meteorological Institute of De Bilt. Dr. Van Dijk was mainly interested in terrestrial magnetism, and was co-secretary with Dr. La Cour of the International Commission for Terrestrial Magnetism and Atmospheric Electricity. He contributed a number of papers on magnetic activity to "Terrestrial Magnetism" and other publications and on observations of aurora to Hemel en Dampkring. He also represented Holland on the Committee of the Second International Polar Year.

REPORT ON AURORAL DISPLAY - NORTHERN IRELAND.

On the night of 17th: January, 1941 an auroral display was observed in Northern Ireland. Although the phenomena was not intense it persisted for quite a considerable period.

It was first observed at 1930 hrs. (G.M.T.) and was last seen at 2200 hrs. (G.M.T.), and for the whole period took the form of an homogeneous arc extending from N'W to N'E horizon up to an altitude of 3° . At times the arc appeared to be superimposed on a fairly bright pulsating surface (intensity 1-2). No ray structure was visible.

State of sky was variable, very thin cirrus stratus predominating (6/10-7/10) through which the stars were visible, and 3/10 to 4/10 of altocumulus in the NE.