The Low Barometer of January 13th, 1843.

We have found several notes on the remarkable depression of the barometer upon the above date, and as we are not aware that it has ever been fully discussed we have extracted them all, added a few others, and worked them all up. We prefix a verbatim reprint of a summary given at the time by Mr. Ick, the meteorological observer at the Philosophical Institution, Birmingham, because of its general interest, and as showing the then existing knowledge of the subject. Unfortunately there had then been no general levelling throughout the country, and the values given in Mr. Ick's table are not reduced to sea level. Hence the difference between his values and those we shall give further on.

Extract from Report by Mr. Ick.

The fluctuations of the mercury appear to have been general throughout Great Britain, although some places escaped the storm. I learn from Mr. Atkinson, of Harraby, near Carlisle, that at that place the barometer, at twelve at noon on the 13th, had fallen to 947.6 mb 27·983 in., while the only result of the fall was a few gusts of wind between midnight of the 13th and sunrise on the 14th.

The following comparative table will be interesting :—

Lowest depression of the Barometer at twelve different places on Friday, January 13th, 1843.

Name of the Place.	Name of Observer.	Height of the mercury in inches.	Time of Observation	
Birmingham Philosophical Inst	Mr. William Ick..	27·638	11½ a.m.	935.9 mbar
Manchester	Dr. Dalton	28·020*	2 p.m.	948.9
	Mr. Peter Clare...	27·950	noon.	946.5
Liverpool Lit. and Phil. Inst.....	—	27·830	noon.	942.4
Preston.....	Mr. M. Holden ...	27·93	11½ a.m.	945.8
Bolton-le-Moors	Mr. H. H. Watson	27·720	11 a.m. / 2 mer.†	938.7
Ackworth School, Pontefract, Yorkshire	—	27·920‡	noon.	945.5
Harraby, near Carlisle	Mr. Atkinson.....	27·983	noon.	947.6
London, Royal Society's Rooms.....	Mr. Robertson ...	28·196	0¾ p.m.	954.8
Bruce Grove, Tottenham, Middlesex...	Mr. Luke Howard	28·270	4 p.m.	957.3
Reading, Berkshire	Mr. Bromley	27·500	11 a.m.	931.2
Sligo, Markree Observatory.....	Mr. A. Graham...	27·877	6½ a.m.	944.0
Edinburgh, from the *Scotsman*	—	27·400	—	927.9

5.4 mb

* Lower by ·16 of-an-inch than Dr. Dalton ever observed it at Manchester. The only depression which he has found in his journal of observations, made at that place for upwards of 49 years, that approaches nearest to the present, occurred on the 23rd of November, 1824, when the mercury stood at 28·18 inches. 954.3 mb

† Probably 2 p.m. ; the bar. remained nearly steady for about two hours.—G.J.S.

‡ By the kindness of Mr. Luke Howard, I learn that the lowest observation recorded by that gentleman occurred on Christmas day, December 25th, 1821, when the clock barometer at Ackworth fell 941.4 to 27·80 in. ; which allowing twelve hundredths-of-an-inch for the 4 mbar difference between the scale and that of a standard upright barometer, makes the depression as near as possible that of the 13th January. At 5 a.m. on the 25th of December, 1821, a portable barometer observed by Mr. Howard at Tottenham fell to 27·83 in. 942.4 mbar "No storm of wind followed this depression near London, but a similar state of the barometer was extensively observed on the continent, and very tempestuous weather attended it far to the south of our island."

William Ick.

Birmingham Philosophical Institution, Cannon Street, February 6th, 1843.

1843-01-13
(ii)

Very fortunately Mr. J. Glaisher, F.R.S., was, in January, 1843, at the Observatory at Cambridge, and noticing how low the barometer was when he took the reading at 9 a.m. on the 13th he at once began a series of readings which he continued until the minimum had passed. These readings corrected for temperature and reduced, give the absolute minimum as 28·212 in. at 1.35 p.m, Moreover in the village of Swaffham Bulbeck, about six miles N.E. of Cambridge another veteran observer (who also we still have with us), the Rev. L. Blomefield, was making equally careful observations of his barometer; and his reading corrected for temperature and reduced to sea level agrees marvellously with Mr. Glaisher's, for it gives 28·208 in. at 2 p.m. Looking at the whole of the readings by the two observers it is absolutely certain that the min. at Cambridge was 28·21 in. at 1.50 p.m,

955.4 mbar

955.2

For London (including Greeenwich) we obtain for sea level pressures :—

Royal Observatory, Greenwich	28·266 at 0.53 p.m.	957.2
Melina Place, St. John's Wood	28·255 at 1. 0 p.m.	956.8
Royal Society, Somerset House	28·251 at 0·45 p.m.	956.7

Hence for London we cannot be wrong in taking 28·26 at 0·45 p.m. (Greenwich being E. of London would be a few minutes later).

957.0

Another value which we believe to be true within ·01 in. is that for Birmingham, viz., 28·09 in. at 11.30 a.m. 951.2 mbar

The value for Epping 28·19 in. at 1.30 p.m. seems to be about ·03 in. too low—but the time is doubtless correct.

954.6

1mb

At Makerstown Observatory, Roxburghshire, the minimum sea level pressure recorded is 28·067 in. at 1.15 p.m.

(Borders)
950.5

As regards the values in Mr. Ick's table with which we have not dealt, the reason is that we cannot ascertain the index errors of the barometers; nor whether the values quoted are reduced to 32°; nor what was the altitude of the barometers. Apparently Luke Howard did not catch the absolute minimum, the reading is a trifle too high, and the time too late by two hours.

At Reading the barometer must have been half-an-inch wrong, but the time is nearly right.

17mb

At Manchester, Dr. Dalton like Luke Howard was about two hours too late.

The following values are not to be relied upon, but may be correct :—Plymouth, 28·41 in. at 9 a.m.; Kelso, 28·09 in.; Harraby, Carlisle, 28·05 in. at noon; Bolton, 28·02 in. at 11 a.m.

962.1 ; 951.2 resp.
949.9 ; 948.9 "

Plotting the whole of the values (but paying slight attention to the doubtful ones) we arrive at the following facts :—

1.—The depression was travelling towards E.N.E. at the rate of about 35 miles an hour.

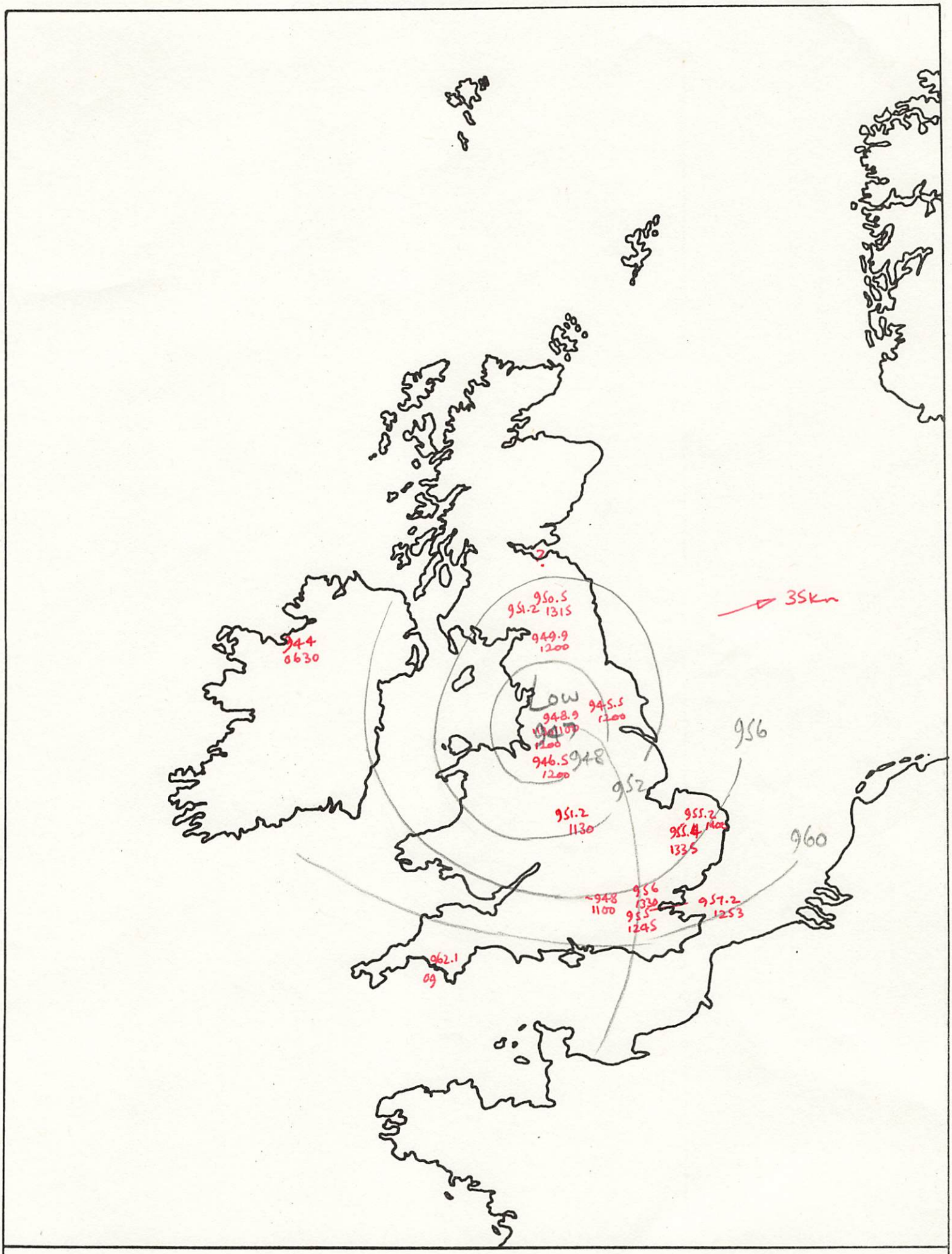
2.—The lowest indisputable sea level pressure was 28·07 in. at Makerstown in Scotland; in London it fell to 28·25 in., and at Plymouth probably to 28·40 in.

3.—As regards Scotland this depression had been exceeded on several occasions.

4.—As regards the Metropolis the pressure had not been so low since 1821. In London the only sea level pressures below 28·30 in. since 1811 have been :—

1814.	January 29th, 5 p.m.	28·233 in.	956.1 mb
1821.	December 25th, 5 a.m.	28·016 in.	948.7
1843.	January 13th, 0.53 p.m.	28·266 in.	957.2
1886.	December 9th, 4.45 a.m.	28·295 in.	958.2

Met. Mag. 27 (1892) pp 164-167



Friday
13 JANUARY 1843 at about 1200