

History of Meteorology and Physical Oceanography Special Interest Group



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Newsletter 3, 2011

SPOT THE DIFFERENCE

Can you spot the differences between the two pictures below? For more on this story, see page 2.

DIVISION X.—NORTHERN COUNTIES.				
DURHAM—Durham Observatory	A. Marth, Esq.	1.0	338	30.33
Washington	J. Watson, Esq.	20.0	120	27.61
Sunderland	The Times	...	...	29.39
Shotley Hall, Gateshead	Mr. G. Routledge	0.8	110	35.35
NORTHUMBERLAND—Bywell	Mr. J. Dawson	1.0?	87	38.13
Allenheads (8 in. gauge)	T. J. Bewick, Esq.	0.5	1360	59.15
" (12 in. gauge)	"	6.9	1360	59.91
North Shields	R. Spence, Esq.	1.0	124	32.19
High House, Alnwick	Mr. J. Scott	0.6	400	36.6
CUMBERLAND—Broughton	Registrar General's Returns	...	...	49.7
Keswick	J. F. Crosthwaite, Esq.	6.0	245	54.17
Mire House, Bassenthwaite	Rev. F. Redford	4.0	210?	50.41
Silloth	"	6.0	16	37.81
Carlisle (Ordnance Survey Office)	Capt. E. James, R.E.	50.0	123	31.62
WESTMORELAND—Kirkby Lonsdale	S. Marshall, Esq.	...	...	41.6
Kendal	"	4.0	149	57.00
The How, Windermere	Admiral Wilson	1.8	436	102.58
Wray Castle	Dr. Dawson	4.6	220	69.45
Lesketh House, Ambleside	Dr. J. Davy	2.0	130	79.97
Lowther Castle, Penrith	S. Marshall, Esq.	4.0?	...	45.33
Brougham Hall, Penrith	"	4.0?	...	36.68
DIVISION XI.—WALES.				
GLAMORGAN—Ystalyfera, Swansea	The Cambrian	...	...	73.21
CARDIGAN—Lampeter	Registrar General's Returns	...	...	55.3
FLINT—Hawarden	Dr. Moffat	0.0	260	27.80
GUERNSEY	Registrar General's Returns	...	...	48.0
ISLE OF MAN—Ballasalla	J. Burman, Esq.	0.0	100	37.17

Camden Road Villas, N.W. G. J. SYMONS.

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WHAT IS THIS INSTRUMENT?

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WHAT IS A DROSOMETER?

See page 3

SPOT THE DIFFERENCE by Malcolm Walker

In the autumn of 2009 and early part of 2010, staff of the National Meteorological Archive and other people, myself included, searched high and low for an original copy of *English Rainfall, 1860*, a pamphlet published by George James Symons. We failed. All we could find was the facsimile reprint which appeared in *British Rainfall, 1884*, published in 1885. This was disappointing, not least because we hoped to show an original copy at the Royal Meteorological Society Saturday Meeting in April 2010 when we marked the 150th anniversary of the foundation of what came to be known as the British Rainfall Organization.

We always knew that original copies would be scarce, for Symons had written as follows in *British Rainfall, 1884*:

In the space which we can here devote to the subject it is impossible to do more than epitomize with great brevity the progress which rainfall work has made in the quarter of a century which closes with the issue of this volume. The best illustration of the growth of the work both in quantity and in quality is afforded by the comparison of the publication for 1884 with that for 1860. For that reason, and also because the table for 1860 has probably not been seen by even one fiftieth of our present readers, we have had it reprinted in facsimile and stitched into the present volume.

But surely an original copy existed somewhere.

Imagine my surprise when, on 9 August 2011, an email arrived from Lynne Chambers of the National Meteorological Archive in Edinburgh. A copy of a pamphlet which appeared to be what we were looking for had been found in the Forbes of Culloden Collection. She kindly included scans of the pamphlet's four pages.

Inspection of the newly-found copy showed there were small differences between that and the 1885 reprint. For example, as shown upper right, in the ellipse marked A, gauge has a capital G on one copy but not the other, and the alignment of 8 and 12 in. is different on the two copies. In ellipse B, the ditto marks are in different places on the two copies.

The newly-found copy is now in the National Meteorological Archive at Exeter, along with a set of *British Rainfall* and a host of Symons material.

The 1860 copy shows that Symons had recruited some leading members of the meteorological community. On page 1 (right), for example, we see the names Balfour

1885		DIVISION X.—NORTHERN COUNTIES.			
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GUERNSEY		Registrar General's Returns	...	48.0	
ISLE OF MAN—Ballasalla	J. Burman, Esq.	0.0	100	37.17	

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DIVISION I.—MIDDLESEX.		Height of Rain Gauge.		Depth of Rain.
STATIONS.	AUTHORITIES.	Above the Ground.	Above Sea Level.	
MIDDLESEX—Chiswick	Gardeners' Chronicle	ft. in.	feet.	30.03
Whitehall	Registrar General's Returns	...	...	27.5
Guildhall	W. Haywood, Esq.	2.0	48	28.91
St. John's Wood	Mr. J. Carter	0.6	161	34.60
Camden Town	G. J. Symons, Esq.	0.4	100	32.24
Tottenham	W. D. Howard, Esq.	0.3	60	34.37
Enfield	Rev. J. M. Heath	24.0	130	34.57
DIVISION II.—SOUTH EASTERN COUNTIES.				
SURREY—Womersley, Guildford	W. L. Woods, Esq.	1.0?	...	38.14
Deepdene, Dorking	Mr. J. B. Whiting	2.9	...	37.43
Cobham Lodge	Miss C. Molesworth	0.6	110?	31.57
Weybridge Heath	Gardeners' Chronicle	...	...	30.33
*Kew Observatory	Balfour Stewart, Esq.	0.0	18	28.72
Wandswoth	G. Dines, Esq.	...	...	32.86
Battersea	Rev. S. Clark	0.0	13	28.26
KENT—Tunbridge	G. H. Fielding, Esq.	0.0	...	31.43
Linton Park, Maidstone	J. Robson, Esq.	0.0	200?	33.66
Maidstone	J. H. Baverstock, Esq.	1.3	60	33.65
Greenwich Observatory	J. Glaisher, Esq.	...	...	32.0
SUSSEX—Aldwick, Bognor	W. L. Woods, Esq.	0.6	...	29.40
Worthing	W. G. Barker, Esq.	0.0	10	34.32
Chichester	C. L. Prince, Esq.	...	...	37.44
Hastings	"	...	...	34.25
Slindon	Rev. M. A. Smelt	1.0?	200?	44.06
Glynd, Lewes	C. L. Prince, Esq.	...	...	40.30

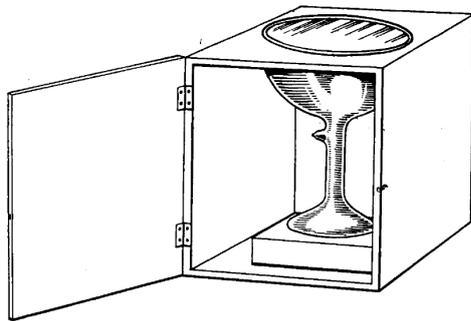
* Gauge out of order 3 days in October.

Stewart, James Glaisher, George Dines and C.L.Prince, and on other pages we find other well-known names, including Dr Lee, at whose home, Hartwell House, the British (later Royal) Meteorological Society was founded (in 1850). We also find S.C.Whitbread of Cardington, Bedfordshire, the first President of the Society, and Luke Howard of Ackworth, Yorkshire, the pioneer of cloud nomenclature.

WHAT IS A DROSOMETER?

This instrument was described by Sidney Skinner at a Royal Meteorological Society meeting held on 21 February 1912 (see the 1912 volume of the *Quarterly Journal of the Royal Meteorological Society*, Volume 38, pages 131 to 136).

He explained that he proposed to call the instrument a drosometer, from *δρόσος* dew and *μέτρον* a measure, and went on to say that *A hemispherical glass vacuum jacketed vessel, of the type designed by Sir James Dewar for holding liquid air, is placed in a box having a circular aperture in the top, through which the cup is exposed with its rim flush with the exterior surface of the box (see Fig.).*



When this is exposed to the sky, the glass radiates and cools until dew is deposited on the interior of the hemispherical cup. My cup has a diameter of 11.2 centimetres, and therefore exposes a virtual surface aperture of 98 square centimetres to the sky.

Since the vacuum at the back of the cup is an exceedingly good non-conductor, it follows that the heat which is lost by radiation from the inner surface of the cup must be drawn from the air in the cup, and as soon as this is reduced to the dew-point, moisture begins to form on the glass. As the dew separates, the latent heat of the water is removed by further radiation from the cup, and in this way the air in the cup gradually becomes colder and drier.

If now fresh air is brought in, that will go through the same process and will add to the quantity of water collected in the cup. In the morning, after an exposure during a clear

night, the small drops on the glass have run together and a circular pool is found at the bottom.

To measure the volume of water in this circular pool I have taken a pair of dividers and opened them until they just stretched across the diameter of the pool. With the aid of a curve which had been constructed, by plotting the diameters of the pool when measured quantities of water were run into the cup, it was possible to reduce the observations to cubic centimetres.

The cup was generally exposed at sunset and taken in in the morning before the rays of the rising sun had reached the place where it stood. This place was the middle of a lawn. It was selected so as to avoid interference from trees and high objects in the neighbourhood. A rain-gauge was placed by the side of the drosometer, and consequently the presence of rain in any appreciable quantity could be recognised at once.

Drosometer can be found in the *Meteorological Glossary* (Met.O.985, 1991), where it is stated that there is a basic uncertainty in all forms of the instrument in the relationship between the amount of dew deposited on the gauge and that deposited on natural surfaces.

The 1939 edition of the *Meteorological Glossary* (M.O.225ii) mentions a self-recording instrument called a drosograph used in Italy. It consisted of a light horizontal pan to receive the dew, the weight of which was made to actuate the recording pen through a system of levers.

According to the *Oxford English Dictionary*, the originator of the word drosometer was not Skinner but Sir William Hamilton (1788-1856), in his *Handbook of Terms in Arts and Science*, published in 1825.

According to <http://obsoleteword.blogspot.com/2006/05/drosometer.html>):

During the month of May, from the time of the druids to about the 1930s, women used to collect the dew from Arthur's Seat, an extinct volcano near Edinburgh. They used sponges, scraping tools, and various containers to collect the early morning dew from the plants and grasses. The dew was considered to have special ingredients for preserving the skin and whitening clothing.

And there's also a limerick:

*There's a gadget – I swear it is true –
That can actually measure the dew.
No, it's not a hygrometer,
It's called a drosometer.
How to use it? I haven't a clue!*

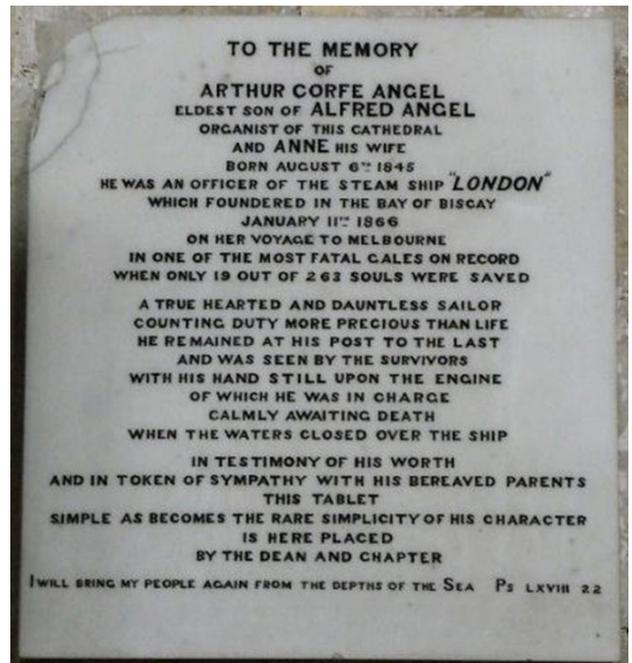
HISTORY OF ACRONYMS

Would anyone be willing to write a brief history of meteorological acronyms, please?

When did the practice of using acronyms begin? They were certainly around in the late 1960s, when we had, for example, GARP (Global Atmospheric Research Programme) and the double acronym GATE (GARP Atlantic Tropical Experiment). And in the 1970s, we had MOSS (Meteorological Office Observing System for Ships) and MOLARS (Meteorological Office Library Accessions and Retrieval System). As time went on, acronyms became more and more contrived, e.g. FRONTIERS (Forecasting Rain Optimized using New Techniques of Interactively Enhanced Radar and Satellites), and now we have PERSIANN, which stands for ~~P~~recipitation Estimation from Remote Sensing Information using Artificial Neural Network

Is there an international body which dreams up meteorological acronyms?! If so, how many people does it employ?!

Is anyone willing to write a brief history of such acronyms, including, perhaps, a graph showing the increase in the number of these words with time? If you feel moved to take on this project, please let Malcolm Walker know (contact information on the last page of this newsletter).



Memorial in the North Quire Aisle of Exeter Cathedral to Arthur Corfe Angel, "an officer of the steam ship London, which foundered in the Bay of Biscay on 11 January 1866 on her voyage to Melbourne in one of the most fatal gales on record when only 19 out of 263 souls were saved".

PLAQUE AT READING STATION

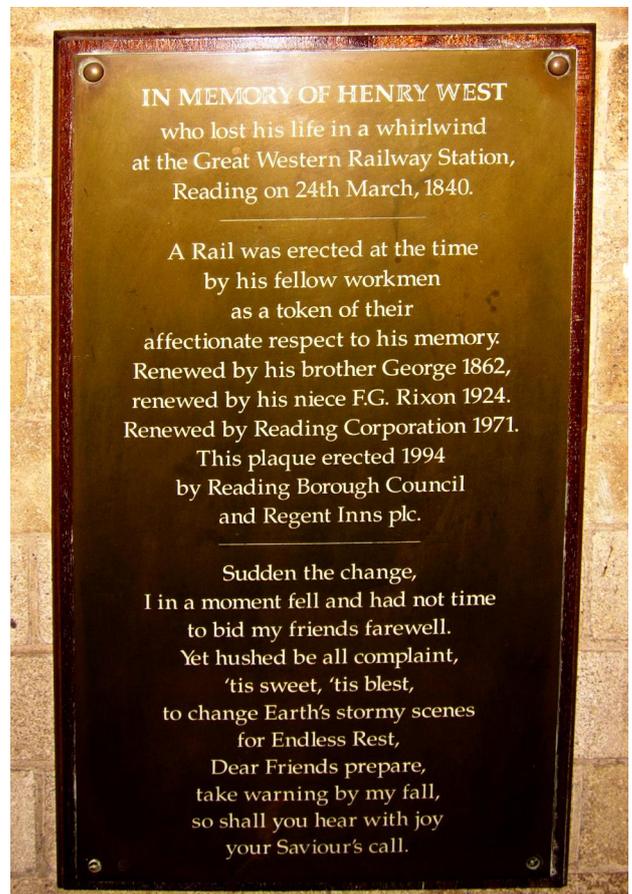
There is a plaque on Platform 4 of Reading railway station to Henry West, who died when struck by a tornado during construction of the station on 24 March 1840 (see adjacent recent photograph). History Group member Stephen Burt has written to Network Rail to ask what plans there are for the plaque during the current major redevelopment of the station.

He pointed out that the plaque is of historical significance, as there have been few known fatalities of tornadoes in the British Isles. He said he wanted to be sure the plaque would be preserved during the redevelopment, adding that it would be a great shame if it were lost or destroyed during the redevelopment.

Stephen has received a reply from Network Rail which assured him the plaque would not be affected by their work and would remain *in situ*.

+++++

If you come across a meteorological plaque of this sort, or a gravestone giving meteorological circumstances as cause of death, please tell us about it (and include a photograph).



FROM THE MINUTES OF THE SCOTTISH METEOROLOGICAL SOCIETY

History Group member Marjory Roy has been perusing the minutes of the Scottish Meteorological Society (SMS). Here are some extracts concerned with the Society's reaction to the death of Admiral FitzRoy, with particular reference to the suspension and subsequent resumption of storm warnings for shipping.

CONTEXT:

The Galton Committee which inquired into the work of FitzRoy's Department after his suicide [on 30 April 1865] paid nominal tribute to him but virtually destroyed everything he had accomplished. Weather forecasts for the public ceased on 28 May 1866, by order of the Board of Trade. Storm warnings were suspended by the Board on 7 December 1866. A storm of protest ensued, with complaints from MPs, peers, ship-owners, fishermen and many others. The Board of Trade defended their position but relented eventually and resumed storm warnings for shipping at the end of 1867.

Extract from the Minutes of the Council Meeting of 5 May 1865

A Resolution was moved by the Chairman [David Milne Home], having reference to the lamented decease of Rear Admiral Robert FitzRoy, in the following terms:

The Council resolve to record their deep regret at the untimely and deplorable death of Rear Admiral FitzRoy, who was for so many years Superintendent of the Meteorological Department of the Board of Trade. As the Council had frequent occasion to communicate with the deceased in his official position, they desire to bear testimony to the zeal and assiduity with which he discharged his important duties and to the courtesy and readiness with which he imparted information whenever applied to. They wish also to express their sense of the great services rendered by him to the Science of Meteorology and the advantages which resulted to the community generally and especially to the Maritime and Commercial interests by his System of Weather Forecasts and Storm Signals; and they sincerely trust that this system, followed as it is now by several other countries, will be continued by our Government alike, as a fitting tribute to the memory of the distinguished man who established it, and as a means of disseminating useful intelligence throughout Great Britain and other parts of Europe. The Council request the Honorary Secretary [Keith Johnston] to transmit a copy of the foregoing to the Secretary of the Board of Trade as also to the Widow of the deceased.

The resolution was passed unanimously and the Minutes of 21 June 1865 reported that it had been received by the Secretary of the Board of Trade and by FitzRoy's widow.

From the printed Report in the *Daily Review* Newspaper of the Half-Yearly General Meeting of the Scottish Meteorological Society on 24 January 1866

Comments were made by Mr Warrack (Chairman of Leith Chamber of Commerce), Mr R M Smith, the Marquis of Tweeddale (President of the SMS) and Mr Milne Home (Chairman of the Council of the SMS) on the value to the nation of the work that FitzRoy had done in the Meteorological Department. The Marquis of Tweeddale recommended that the Society should petition the Government, showing the absolute necessity there was for such an appointment (of a successor to FitzRoy) and its convenience to the maritime interest. Mr Milne Home pointed out that there was a large quantity of meteorological information in the archives of Somerset House which should be properly examined. It was resolved that the Council should be requested to prepare a Memorial to the Board of Trade carrying out the views above expressed.

From the Minutes of the Council Meeting of 13 July 1866

A Memorial to the Board of Trade with reference to the Report made to them by the Committee appointed by Her Majesty's Government as to the arrangements which should be made for carrying on the Meteorological Department presided over by the late Admiral FitzRoy was submitted, approved and directed to be laid before the General Meeting for their approval.

From the printed report in the *Edinburgh Courant* of the Half-Yearly General Meeting of the SMS on 13 July 1866

It was stated that the Government Committee had recommended

- (a) The establishment of stations (observatories) with self-recording instruments, with two in Scotland (Glasgow and Aberdeen)
- (b) Returns to be obtained from 60 or 70 ordinary stations
- (c) Daily forecasts relating to ordinary weather to be stopped, but storm signals to be continued, but without information as to direction from which storms would come - the SMS Council did not approve of this final point.

Unfortunately the printed report of the meeting does not give the text of the Memorial from the SMS in response to the proposals.

At the Council Meeting of 4 September 1866 the answer from the Board of Trade to the Memorial was read, but the Minutes contain no details.

From the Minutes of the Council Meeting of 15 January 1867

A private letter from Mr Babington (who was FitzRoy's assistant) to Mr Buchan; having reference to the suspension of the Storm Warnings; was read to the Meeting, as was also a letter from General Sabine to Mr Buchan relative to the desirableness of Daily Telegrams of the weather being supplied to Leith and other Seaports, and it was agreed that the subject merited the earnest interest and efforts of the Council and (word undecipherable) one having at heart the Commercial prosperity of our Country.

From the Minutes of the Council Meeting of 30 January 1867 (just before the Half-Yearly General Meeting on the same day, for which there is no printed report in the Minute Book)

At the General Meeting Mr Buchan advert to the importance of obtaining for Leith daily telegrams of the Weather and Winds at different parts of Europe for the information of ship-owners, shipmasters and Marine Insurance Companies connected with that port.

The Meeting, understanding that in Liverpool, Manchester and other Towns, there is a desire that the Storm Signals formerly issued by the Board of Trade should be resumed and hearing that the Leith and Edinburgh Chambers of Commerce are anxious that the Society should aid them in the same object, agreed, in the event of any application to that object being made to the Council, to support any Memorial from these Bodies to Her Majesty's Government.

From the Minutes of the Council Meeting on 28 February 1867

The Meeting had been called because Mr Buchan had received a letter from Colonel Sykes, MP, dated 26 February (letter's details not specified). Mr Milne Home submitted a draft Memorial to be sent to the Board of Trade, showing the representations made in the Memorial addressed by the Council to the Board of Trade in July last, in favour of the resumption of Storm Signals formerly issued by Admiral FitzRoy. After various of the gentlemen present had expressed their views on the subject, the Memorial was approved and adopted and directed to be sent forthwith to the Board of Trade . a copy of it to be sent to Colonel Sykes, with an extract from the Minute. The Meeting expressed a hope that the Chambers of

Commerce of Edinburgh and Leith would strengthen the hands of Col Sykes by resuming their representations on this important matter. Mr Warrack (Chairman of the Leith Chamber of Commerce) was requested and agreed to bring the subject before the Leith Chamber and the Treasurer reported his having this day seen Mr Harrison, Chairman of the Edinburgh Chamber, who had expressed his willingness to afford every aid on his part toward advancing this object.

From the Minutes of the Council Meeting of 19 April 1867

The Secretary read correspondence he had had with Mr R H Scott, Director of the new Meteorological Department and with General Sabine PRS, regarding Storm Signals. It was resolved by the Meeting that the Council should do no more than it had already done with regard to the signals.

From the Minutes of the Council Meeting of 31 May 1867

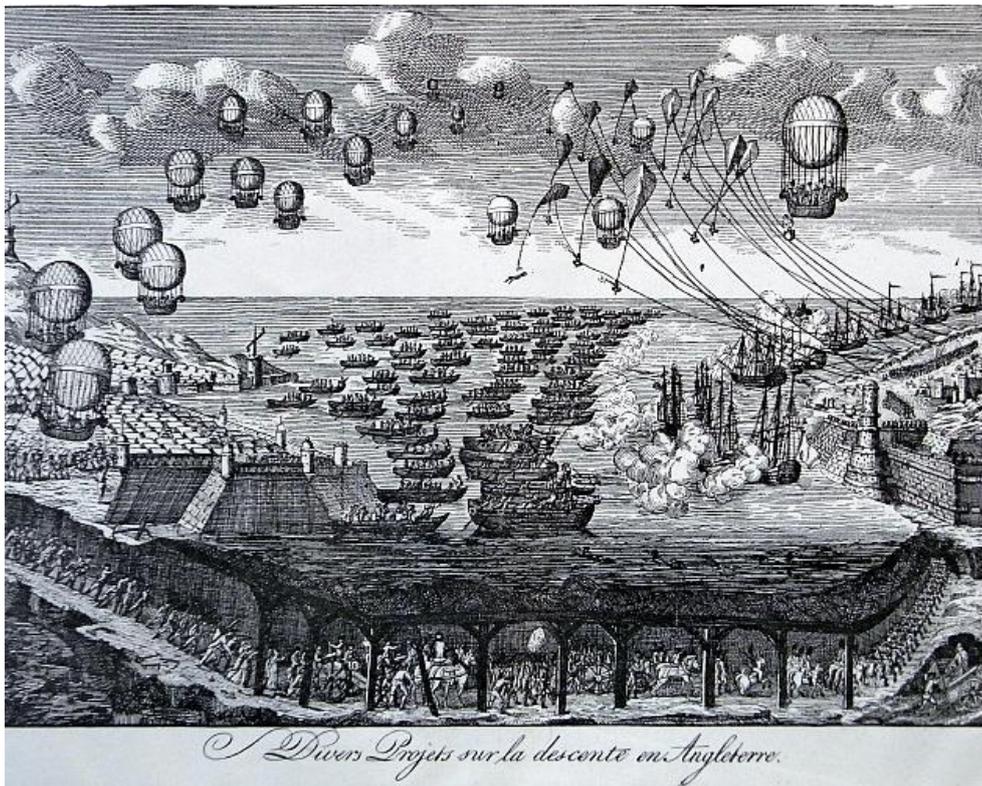
A letter from Col Sykes to the Secretary was read. It had reference to the Duke of Richmond regarding the resumption of Storm Signals, holding out the prospect of their possibly being resumed ere long.

From the Minutes of the Council Meeting of 25 June 1867 (just before the Half-Yearly General Meeting on the same day)

A letter from Col Sykes regarding resumption of Storm Warnings was read. The Chairman proposed that at the General Meeting, about to be held, a vote of thanks should be proposed to Col Sykes for the warm interest he has manifested in the subject.

From the Minutes of the Council Meeting of 14 November 1867

Mr Buchan read to the meeting a report which had been prepared by Mr Milne Home (not present because of illness), for being submitted to this meeting on the subject of Storm signals, with a view, should it meet the approbation of the Council of its being made the groundwork of a Memorial to be submitted, through His Grace the Duke of Buccleuch to the Deputation appointed by the British Association at the recent Meeting in Dundee to wait upon Her Majesty's Government and urge upon them the resumption of a system of Storm Warnings. After full consideration and discussion it was unanimously resolved to approve and adopt the Memorial and directions were given for its being forwarded to His Grace.

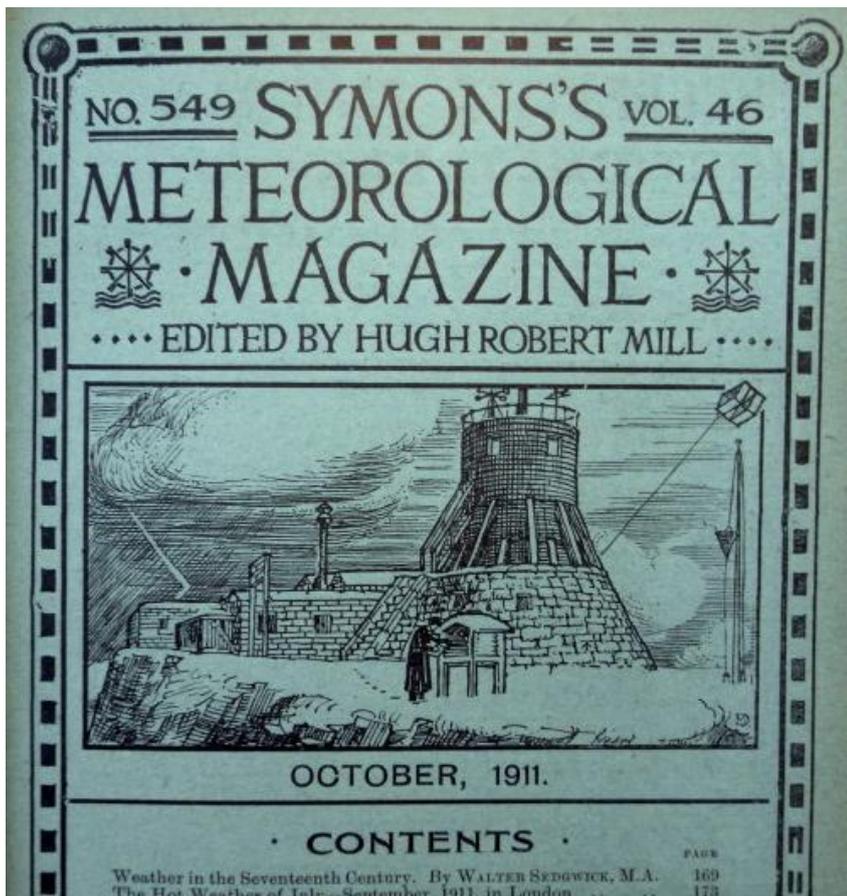


MASTERY OF THE AIR

Facsimile of a French print probably published in 1804 and intended to satirize suggestions for an invasion of England by means of unproved schemes for crossing the Strait of Dover through the air or underneath the bed of the Channel.

SOURCE

Frontispiece of *Symons's Meteorological Magazine*, January 1909, Volume 43



Part of the front cover of the October 1911 issue of Symons's Meteorological Magazine, showing a sketch of the Ben Nevis Observatory, including, on the right, a kite and a south cone.

HOW OUR HOTTEST SUMMER ON RECORD WOULD APPEAR IN THE SOUTH OF EUROPE

by L C W Bonacina

from *Symons's Meteorological Magazine*, October 1911, Volume 46, page 181.

Now that the hot weather has gone, and with it the great fuss made about it in the daily press, it may be well to compare the mean temperature of July and August 1911 in England with normal conditions for July and August in Italy or Spain. The mean temperature, day and night, for July and August 1911 in the south of England we may put at about 68°F, and the average mean temperature for July and August all over the lowlands of Italy as varying between 75° and 80°. It thus appears that our hottest summer on record would be one of the coldest on record in southern Europe. Even I am astonished at this result, who am perhaps more interested in climatic differences than most meteorologists. But, great as is the difference in air temperature between northern and southern Europe in summer, the difference in the power of the sun is still more striking.

In England, even on our hottest days, it is not dangerous for anyone in *good health* to take moderate exercise in the open . in fact, anything short of a game of *rugger* but in Italy, to cross an open court-yard in the full glare of the mid-day sun is like stepping into a fiery furnace and nothing but a pressing duty will induce anyone to do so. It is enough, during the hottest hours of the day, to sit in darkened rooms, with the sun shut out by thick double shutters, perspiring from head to foot.

I really think such a summer as we have had this year in England is, taking it all round, far more enjoyable and salubrious than that terribly Atlantic type of summer we so often experience. It is noteworthy that our hottest day, 9 August, with 100° in the shade at Greenwich, fell just one day outside what we may define, according to the altitude of the sun, as the three months constituting the midsummer period . 8 May to 8 August.

The very high temperatures which were continued till the 12th of September were, of course, favoured by the heat of the previous months, and it is hardly possible for the equinoctial sun of September in latitude 50° to raise the temperature to 90° in the shade, except after a universally hot summer such as occurred this year, and in 1906 and 1898.

WHEN THE BALLOON WENT UP by Jim Rothwell

Recalling the days of the 'balthum' balloon ascents made in the 1950s and 1960s. Balthum stands for Balloon Temperature and Humidity.

After being a weather observer for over four years at the Meteorological Office at Cranfield, on its closure at the end of 1955 I was transferred to the Meteorological Office at RAF Cardington, near Bedford.

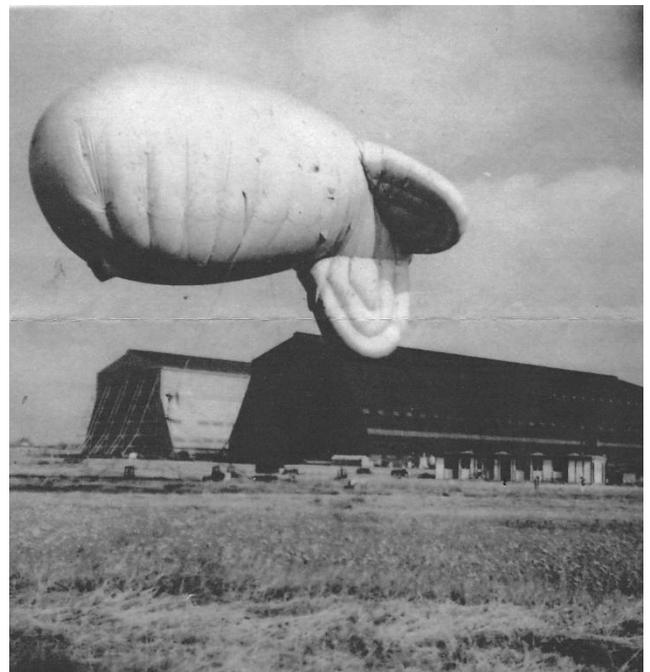
Hourly and climatological weather reports were carried on at Cardington, but the other work done there was of a very different nature, being based on a range of meteorological reports at the required hours but also on making low-level balloon ascents to a height of 4,000 feet every six hours, except when the surface winds were not too strong and gusty or when there was a high risk of lightning.

When I first went to Cardington, the Meteorological Office was located well away from the gigantic world-famous airship sheds built in the late 1920s for the huge airships R.100 and R.101. The Met Office was very small with only two rooms, one for operating the equipment required for the balthum and taking

the hourly weather observations, the other for the Senior Met Officer, general administration, etc. The Senior Met Officer was a Senior Scientific Officer and there were support staff numbering some six observers (Scientific Assistants), of whom I was one as from 1 January 1956 until my promotion to forecaster in October 1961. It is thought that the building may well have been a security office associated with the approach to the tower to which the airships were secured.

The main function of the meteorological office was to provide routine temperature, dew point and wind-speed details from the surface to a height of 4,000 feet, which could be plotted on a graph to give the various met offices in the UK a close estimate of such important meteorological features as the base and top of any temperature inversion in the lower atmosphere, and the detail required to be able to calculate the depth of any radiation fog with a good estimation of its formation and clearance temperatures, and hence its times of formation and clearance. With the same procedure for the formation and clearance of low stratus cloud, such information was vital for aviation.

The now historical feature of the Balthum was



This picture shows a 'barrage' balloon, as used during the Second World War. The dark hangar held other balloons, and in October 1930 had held the infamous R.101, which left Cardington that month to fly to India but crashed in northern France, killing most of those on board. The Met Office was in the black and white bungalow located in front of the R.101 hangar.

that the meteorological instruments were carried up to the designated maximum height of 4,000 feet using what would now be seen as very basic equipment.

A ~~b~~althumb involved a meteorological observer and an RAF balloon crew. A barrage balloon similar to those used during the Second World War was used and was tethered by a strong steel cable from a connection just below the balloon to the ground, where it was securely clamped. This method was normally used but a mobile winch was brought in when there were cable problems. These balloons not only had to be tethered well but also had to be earthed due to the gradual build-up of static electricity on the balloon winch.

On one Sunday afternoon a balloon had become stuck at about 3,500 feet on a fine sunny day with just a few small cumulus clouds around. An RAF sergeant came to see what the problem was and brought his little black and white terrier with him. Like all good dogs do, he set off to investigate the winch and put his own ~~trade mark~~ on it, but the winch ~~bit~~ him in a very tender place and the poor dog went off up the grass run-way at a speed approaching MACH 1. He soon recovered and went away with his owner an hour later.

The cable holding the balloon was as thick as a finger and made of plaited steel wires. The much thinner instrument cable which carried the quite small electrical impulses was then clamped onto the thicker flying cable as the balloon was stopped at a height of every 250 feet up to the maximum height of 4,000 feet. The required data were measured by using the very small electrical current sent from the sensors clamped on the balloon and down the ~~instrument~~ cable containing both copper and constantan circuits which were connected to a potentiometer and a tangent galvanometer which when balanced gave a reading which could be converted to the air temperature. The wind speed was measured by using a cup anemometer on the balloon whose revs were timed by using a stop watch.

On doing a midnight ~~b~~althumb one night I was about to get a reading when the round spot-light on the galvanometer showed a shadowy shape inside the wooden box in which it was held. With great curiosity and some trepidation I opened the lid and a small field mouse jumped up but then fell dead with fright.

We did not do a ~~b~~althumb when the lightning risk was high, and you would think that passing an observation by telephone would not offer any great hazards, but on passing the 15:00

observation on 30 June 1957 by RAF landline to the Met Office at RAF Wyton (Hunts.) with a severe thunderstorm directly overhead I felt a distinct tingle in my left hand as I picked up the receiver. For a few seconds the receiver was swinging just off the office floor while I composed myself and passed the most memorable observation of my career. The telephone cable from the Met Office to the huge airship hangars a few hundred yards away had picked up some of the electrical charge which I then felt. On one occasion the balloon was struck by a minor lightning strike which occurred during a sleet shower. The instruments in the office were put out of action but responded to re-calibration. On a lighter note, I had to get a flock of sheep out of the instrument enclosure one afternoon, very luckily without the loss of any of the many instruments.

I made a return visit to Cardington 46 years later on the occasion of the Royal Meteorological Society History Group's AGM in June 2007, when I was made most welcome by the Senior Meteorological Officer. Almost everything had changed significantly. I had a little ~~local~~ difficulty in finding the site of the old meteorological office, the new and very modern one being now located on the other side of what was a small stream. The new office was much extended when compared to the old cramped accommodation and now contained numerous items of modern high tech instrumentation, with an increase in staffing levels. The barrage balloon was no longer used but had been replaced by a small kite-balloon for use with present aspects of research.

In comparing my almost unique experience at Cardington in the 1950s with its basic instrumentation which was immensely interesting and often fun, whether '~~b~~althumbing', measuring slant visibilities for final approaches at airports, measuring the weight of dew at dawn on suitable summer nights using a delicate balance placed on a small table outside, or riding around the local countryside checking and maintaining some 22 self-recording 10-inch rain-gauges for research on the distribution of locally heavy rainfalls during the summer months using an RAF Land Rover and driver (plus the essential support of three cafés and two village pubs *en route*), which took up several hours each day. All this gave me a very sound meteorological base for the rest of my long career as a forecaster, mostly with the RAF, both in the UK and overseas.

I am a Bedford boy, and I was very lucky to have Professor Hubert Lamb as my mentor in historical climatology (of Greater Central

England). Lamb was also a Bedford boy and we corresponded, with him advising me on several relevant issues. As a result, I have during my retirement collated a monthly climatological record from the present back to 1170, with many years back into the Anglo-Saxon period.

Cardington was the village where Samuel Charles Whitbread FRS lived, and I had the privilege of visiting his former home and personally using his daily weather records back to 1848. It is most significant that he was the first President of the British (later Royal) Meteorological Society. Therefore, Cardington is very much in my memory for a variety of reasons, especially when the balloon went up and down.

THE BRITISH ANTARCTIC EXPEDITION 1910-1913: THE METEOROLOGICAL VIEW –PART V by Alan Heasman

Parts I to IV of this series (Newsletters 2 and 3 of 2010 and 1 and 2 of 2011) outlined the progress of the British Antarctic Expedition (BAE) from its departure from the UK in June 1910 to its arrival at the Cape Evans HQ in January 1911 and the preliminary explorations and depot laying journeys of the southern hemisphere autumn until the long dark winter began in May 1911. Apart from the famous mid-winter journey to Cape Crozier (see Part IV), all those at Cape Evans remained confined to camp until the days lengthened in late August 1911. Throughout this period weather and associated atmospheric electricity and magnetic observations continued under the guidance of George Sunny Jim Simpson, the BAE scientist responsible for meteorology. Of course we should not forget the small sub-group of the BAE . the Northern Party . isolated 500 miles away at Cape Adare who also maintained their observations throughout the winter in terrible weather conditions.

As early as 9 August, Simpson re-commenced his balloon observations, tracking with a theodolite and recovering the autographic temperature recording from the white wastes of the Antarctic by the novel method of connecting a thin black thread to the payload. By 9 September, the first of the spring depot laying parties set out to extend the chain of supply depots towards the South Pole in readiness for Captain Scott and the main Polar Party planned to set out in late October. However, it was still very early in the season. They had to work and rest (it was too cold to sleep) in temperatures of -60°C (-70°F)! A week or so later, Scott led a

small group named the Western Party to explore the Ferrar Glacier. They returned on 28 September with Scott, describing it as a remarkably pleasant ...little spring journey. This was the only exploration in which George Simpson took part. He recorded it in some detail in his personal diary. It was still about -25°C (-18°F) by day, so that using any instruments was a severe test of patience. At night it was -40°C (-40°F) but Simpson records that ...in spite of sleeping with my head outside the (sleeping) bag, I managed a good night's sleep. In common with all the sledging trips, the weather observations were recorded in the pocket register (in this case Ref BAE 20 in the National Meteorological Archive, Exeter).

Of course, the main spring effort went into extending the supply depots as far as possible across the Ross Ice Shelf towards the Beardmore Glacier, the main gateway to the polar plateau. On 1 November 1911, Captain Scott set out from Cape Evans with his main polar party of 16 men. Again, the party maintained at least daily (usually more frequent) weather observations. By late November they were at about 81°S and 150 miles from the Beardmore Glacier. Temperatures had warmed to above 0°F (-18°C) but this was associated with several blizzards, and the sticky quality of the snow surface made for hard going for the man and pony hauled sledges. By 5 December they were confined to camp for four days by blizzards and temperatures up to 32°F (0°C). This was to be a critical delay, using up valuable resources but making no progress. Scott could not believe that such weather could occur at that time of year. Scott's party was on the western side of the Ross Ice Shelf. By this time, but further to the east, Amundsen, having set out on his polar journey on 20 October, had not encountered such blizzards and was already up the glacier and starting across the polar plateau. In common with many areas of the Antarctic where the air is very dry, these blizzards are bursts of very cold air descending from the polar plateau, breaking the sharp but shallow surface inversion. This causes the temperature to rise by mixing. The winds lift pre-existing snow rather than depositing new snow. These blizzards are especially felt in the western part of the Ice Shelf, forced by the geography of the nearby mountains.

As Scott trudged slowly south, so various of his support teams, having established depots, turned north again. Eventually Scott reached the Beardmore. It was a hard ascent. They did not reach the plateau area until 20 December 1911. Amundsen had reached the South Pole area on 14 December, spent three days cross-checking

its position and begun his return journey. Scott still had another 300 miles and four weeks of marching ahead of him to be at the Pole.

Meanwhile his support parties retreated to Cape Evans. Some set out again with further supplies to supplement the depots for the returning Polar Party, hopefully in late February. In Scott's absence, another significant scientific expedition, the Second Western Party, took place between November 1911 and mid February 1912 to South Victoria Land. Whilst this expedition and Scott were absent, George Simpson was in charge at Cape Evans. As the BAE entered its second late summer in January 1912 and the sea ice was at its minimum, they awaited the return of the ship *Terra Nova* from New Zealand. En route, the ship collected the Northern Party from the clutches of Cape Adare (see Part IV). After such a terrible long year, one might have expected the team to return direct to the comfort of Cape Evans but no. They chose to be landed about 250 miles from Cape Evans to explore for another six weeks and planned to be picked up again by *Terra Nova*. As we shall see in Part VI, this was not to be. Also, because of bad pack ice, the ship did not reach Cape Evans until 4 February 1912. It brought unwelcome news for George Simpson.

SUNSHINE THIEF

How Ventnor's reputation was seriously imperilled by a seagull

This gem was sent in by History Group member Althea Howard. She found it, presumably cut from the Daily Mirror sometime in 1910, tucked into the 1910 list of Fellows of the Royal Meteorological Society.

A daring case of robbery, in which the thief was actually detected in the act, but before an arrest could be effected flew across the Channel and is now said to be residing on the coast of France, is reported from Ventnor.

The offender was not an airman, but a black-headed seagull, and he stole from Ventnor the most precious asset of a seaside resort . a reputation for sunshine.

The facts as related to the *Daily Mirror* by the meteorological recorder of the Ventnor District Council are briefly these:

"Our daily amount of sunshine," he said, "is registered by one of Negretti and Zambra's recorders, which is placed on Collins Point . a cliff at the east end of the esplanade.

"It is a round ball of glass, which receives the rays of the sun and concentrates them on a white card placed underneath it, on which it

burns a long brown line showing the exact number of hours the sun has been shining.

"For weeks past there have been complaints that the amount of sunshine registered has not been equal to the amount that Ventnor has actually enjoyed.

"As the sunshine recorder is surrounded by an iron fence the leakage of sunshine seemed unexplainable. So a watch was set, and it was found that an old black-headed gull was in the habit of roosting on the glass for an hour or two every morning.

"Naturally, whilst the gull roosted on it, the glass ball was in shadow, and no sunshine could be registered."

A member of Ventnor District Council, when acquainted with these facts, promptly built a scarecrow and erected it in the enclosure with the sun register. Whereat this black-headed gull grew frightened and flew away to France.

"We cannot allow our reputation for sunshine to be stolen from us," he said, "for we were the winners of the *Daily Mirror* competition for winter sunshine."

REMEMBER BRACKNELL?

Well, yes, of course most readers remember Bracknell, but how many remember that the move of the Meteorological Office to Bracknell took place fifty years ago this year?

The move began in February 1961, with the Marine Division the first on the new site. Appropriately, the part of the building which housed this branch was named the FitzRoy Wing, thus commemorating the Office's first director. This wing also contained the offices of the Director-General and other directors, plus the branches concerned with aviation services, climatological services, climatological research, special investigations and services to the public. The main entrance to the headquarters building was in the FitzRoy Wing, with the National Meteorological Library adjacent to this hall.

Occupation of the new headquarters was completed on 30 September 1961, when the forecasting sections arrived from Dunstable; and the new buildings were formally handed over to the Air Ministry by the Ministry of Works on 1 November 1961.

What now remains of the Met Office's Bracknell headquarters? Nothing! Apartments have been built on the site, but a nearby traffic island is still called the Met Office Roundabout.

SPIDERS AND ANTICYCLONIC WINDS

by F.A.Carpenter

From *Monthly Weather Review*, May 1910, Volume 38, page 794.

An article in the current number of *Century* magazine (MacMechen and Dienstbach, Bird flights and air navigation *Century*, Vol LXXX, page 297) states that it was found by a rigid comparison of birds' movements with the weather map that their flights were invariably started by winds emanating from cyclonic or anticyclonic winds. It has been observed in this locality that spiders also utilize the anticyclonic winds. Whenever the weather map shows a high area over the northwest, the spreading of this area over Washington and Oregon starts the northerly or northeasterly winds flowing down to the so-called permanent low area in southern California, where a close observer may see flying spider webs.

Certain species throw out their thin gossamer silk and, buoyed in the air, are wafted considerable distances. Almost the first indication of the northerly or northeasterly winds (which are popularly termed 'desert winds') is the quantity of tiny lengths of spider silk that float in the air. Until the advent of the glass screen to the automobile, these flying webs were annoying to the automobilists, causing irritation to the eyes. The spiders' silky streamers may be seen on the trolley and telephone wires in the early morning of a dry day.

THE NAME 'ANTICYCLONE'

The following appeared in Symonds' *Meteorological Magazine* in 1911 (Vol.46, p.79):

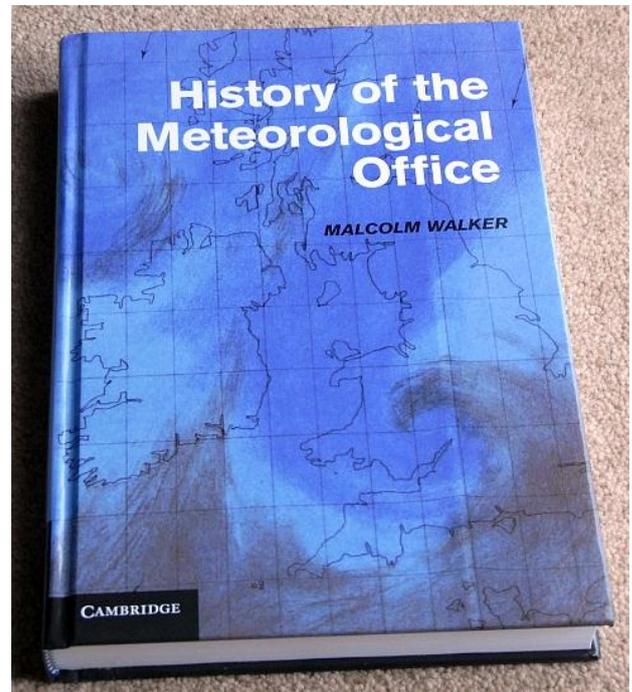
The term 'anticyclone' has been the subject of an interesting correspondence in *The Times*. The name was said to be ugly and in many ways inappropriate, and Mr Pearsall Smith suggested that an anticyclone should be called a 'halcyon' with reference to the fabled condition of weather at Christmas-tide, when the kingfisher or halcyon hatched out of its brood floating on the sea. Other writers, some of them with a somewhat vague knowledge of the conditions to which the word 'anticyclonic' applied, suggested as alternatives (they certainly could not be called definitions) *calm*, *air-calm*, *wind-wyr*, *plenum*, and it was pointed out that on meteorological maps in this country and in descriptive writing in America the word *high* was already in familiar use. The result of the correspondence leaves us thankful that Sir Francis Galton hit on such a good word as *anticyclone*, which indeed would not have come

into general use and survived for nearly half a century, had it not possessed merits counterbalancing its uncouthness, which is conspicuous only to those unfamiliar with the literature of meteorology.

Incidentally, Sir Francis Galton died in 1911.

HISTORY OF THE MET OFFICE

At long last, Malcolm Walker's *History of the Meteorological Office* has been published (Cambridge University Press, 2012, 468 pages, ISBN 978-0-521-85985-1), price £70. Though it bears the date 2012, it was actually published in the UK on 1 December 2011.



In the words of the blurb on the back cover:

Malcolm Walker tells the story of the UK's national meteorological service – now known simply as the Met Office – from its formation in 1854 with a staff of four and a budget of a few thousand pounds to its present position as a scientific and technological institution of national and international importance with a staff of nearly 2000 and a turnover of nearly 200 million pounds per year. The Met Office has long been at the forefront of research into atmospheric science and technology and is second to none in providing weather services to the general public and a wide range of customers around the world. The history of the Met Office is therefore largely a history of the development of international weather prediction research in general.

Formed as the Meteorological Department of the Board of Trade with a specifically maritime purpose, the Met Office is now an Executive Agency and Trading Fund responsible to the UK government's Department for Business, Innovation and Skills and serves not only the shipping industry but also many other groups of users. It is at the forefront of pure and applied research in meteorology and related sciences and, moreover, cooperates and interacts with the international meteorological community at administrative, operational and research levels. In addition to being a premier forecasting bureau, it is at the forefront of the modelling of climate change in the modern era.

This volume will be of great interest to meteorologists, atmospheric scientists and historians of science, as well as amateur meteorologists and anyone interested generally in weather prediction.

The book contains a Foreword by Lord Hunt of Chesterton FRS, a former Chief Executive of the Met Office (1992-1997), and an Additional Commentary by Dr David Axford, who worked for the Office from 1958 to 1989, rising to become Director of Services.

WANTED

Do you have a copy of the History Group's 1994 publication *Observatories and climatological research* that is no longer required? If so, Stephen Burt would be happy to purchase it from you. Please contact him first before sending anything, to avoid him getting duplicate copies! His contact details are as follows:

Email: Stephen.Burt01@gmail.com
Snail mail: Six Church Farm Barns,
Stratfield Mortimer, Berkshire, RG7 3LQ.

MET ON E-BOOKS

Alan Heasman reports that he has recently bought via eBay an 1866 edition of *Meteors, Aerolites, Storms and Atmospheric Phenomena*, an English translation of a French publication. He was intrigued because he has not so far found a copy listed in the online catalogue of the National Meteorological Library.

Alan went on to say that he found by chance whilst researching this publication prior to purchase that it was available free as an eBook via Google (but he preferred the real thing). However, that led him to notice at least two other old books concerning meteorology now available as free eBooks: *Elements of Meteorology* (meteorological essays) by John

Frederic Daniell (Third Edition, 1845) and the similar title *Elements of Meteorology* by the American author John Brocklesbury, originally published in 1848 (it's the Tenth Edition, 1869, as an eBook). Alan found the latter book especially interesting as it was published for use in schools and academies, with questions. He had no idea that anybody had published with a view to teaching meteorology at such an early date.

WHAT IS THIS INSTRUMENT?



The Royal Meteorological Society's National Wednesday Meeting on 16 November 2011 was organized jointly by the Society's Meetings Committee and our History Group. It was the latest in a series of Classic Papers meetings, which are held at the University of Reading in November and focus upon classic papers and developments stemming from them to the present day. This time, the subject was Clouds and precipitation. About a hundred attended the meeting, many of them students.

Malcolm Walker (History Group Chairman) spoke first, on Theoretical and experimental foundations: a condensed introduction. He opened with a statement made by Sir George Simpson in 1941 (*QJRMetS*, Vol.67, pp.99-133) and asked if it was still true: "It will come as a surprise to most laymen and to not a few meteorologists to be told that there are still unsolved problems regarding the formation of rain. Would the afternoon's talks show this to be true still, seventy years later?"

Malcolm then turned to a fundamental contribution to the creation of modern thermodynamics, the Clausius-Clapeyron

Equation, from which, by integration, saturation vapour pressure as a function of temperature can be obtained. He introduced both Benoît Émile Clapeyron (1799-1864) and Rudolf Julius Emmanuel Clausius (1822-1888) and then referred briefly to the advances made by William Thomson (Lord Kelvin), Willard Gibbs, Heinrich Hertz and Wilhelm von Bezold, before drawing attention to the work of Alfred Wegener (1880-1930), who published in 1911, one hundred years ago, a classic text titled *Thermodynamik der Atmosphäre*, from which the development of atmospheric thermodynamics as a branch of science began to take root.

Also one hundred years ago, Charles Thomson Rees Wilson (1869-1959) invented the cloud chamber, and for this shared the 1927 Nobel Prize for Physics with Arthur Holly Compton (of the Compton Effect). Lord Rutherford called the cloud chamber "the most original and wonderful instrument in scientific history". In his Nobel Lecture (on 12 December 1927), Wilson acknowledged that he had been influenced by John Aitken (1839-1919), who had confirmed the finding of Paul-Jean Coulier, made in Paris in 1875, that water vapour in the atmosphere will not condense to form clouds unless it has some solid or liquid nucleus to condense upon. Aitken had concluded this in the mid 1870s without knowing of Coulier's work. Wilson had shown that, given rapid enough expansion, condensation could occur on air that had been cleaned of airborne particles, with ions serving as condensation nuclei.

An instrument invented by Aitken, his "koniscope" or "dust counter" was in fact a prototype of Wilson's cloud chamber, and a portable form of this instrument, Aitken's "pocket dust counter" was constructed for use in the field. The instrument shown on pages 1 and 13 is one of these pocket devices. Its container, Aitken said, was "the size of a well-filled cigar case". A piston action drew air into the test chamber which was full of supersaturated air, and the dust in the test sample formed nuclei for the water in the chamber to coalesce around, forming drops that could then be counted.

By means of his dust counters, Aitken studied the meteorological and industrial conditions which governed the production of dust particles in the air, including the influence of locality and altitude, effect of prevailing winds and differences between cyclonic and anticyclonic situations.

Towards the end of his talk, Malcolm introduced the work of Tor Bergeron (1891-1977) and Walter Findeisen (1909-1945), who had built upon ideas put forward in Wegener's book.

Next to speak was Tom Choularton of the University of Manchester, who spoke about field investigations of cloud-aerosol interactions in ice and mixed phase cloud, with particular reference to APPRAISE (Aerosol Properties, Processes And InfluenceS), a NERC programme concerned with the science of aerosols and their effects on climate.

Anthony Illingworth of the University of Reading then spoke on looking inside clouds with radar and lidar, with an emphasis on glaciation processes within supercooled clouds. He was followed by Paul Connolly of the University of Manchester, who spoke on laboratory studies of cloud processes and interpretation with models, Paul Field of the Met Office, who spoke on the maintenance of mixed-phase clouds through turbulence, and Richard Forbes of ECMWF, whose topic was "Parametrizing cloud and precipitation in today's NWP and climate models".

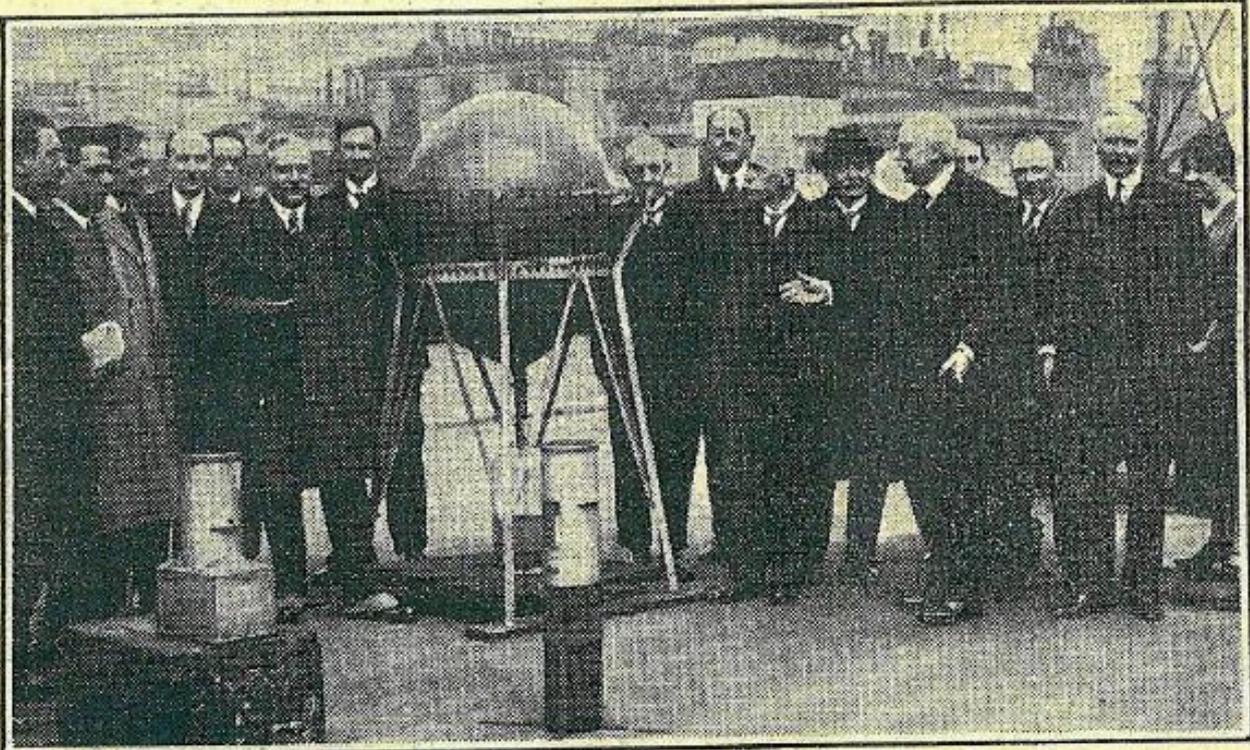
All of the speakers provided a historical perspective, with Anthony Illingworth providing the earliest reference, to a paper on radiative equilibrium published by Pierre Prévost in 1791. And Paul Connolly referred to papers on regelation published by James Thomson (Kevin's brother) in 1857 and Michael Faraday in 1860.

The meeting showed that there are still unsolved problems regarding the formation of clouds and rain, but it also showed that complex microphysical processes are now represented in NWP and climate models increasingly well. In the words of Richard Forbes, in the abstract for his talk, "The ability to predict cloud and precipitation is a vital component of weather forecasting and climate simulation". "In order to capture correctly their hydrological, radiative and dynamical impacts, an atmospheric model needs to represent the combined effect of complex (and uncertain!) micro-scale physical processes and their spatial/temporal variability in a computationally efficient way."

Clapeyron, Clausius, Aitken, Wilson, Wegener, Bergeron, Findeisen, Simpson and others among our meteorological forebears would probably be amazed at the progress made in the fields of cloud and precipitation physics and chemistry since their day. Their successors and today's meteorologists have indeed seen further by standing on the shoulders of giants.

Daily Graphic, 18. 4. 25.

METEOROLOGICAL LECTURE ON A KENSINGTON ROOF.



Sir Napier Shaw, president of the International Meteorological Committee now meeting in London, telling the members all about the balloon which goes up with recording instruments from the roof of the Meteorological Office in Exhibition-road, South Kensington.

Reading from left to right:- Meseguer, Matteuzzi, Hesselberg, Wehrlé, Dines, Gamba, Simpson, Walker, Richardson, van Everdingen, Hergesell, Shaw, Gold, Molchanoff, Cave E.E.

The above picture, published in the *Daily Graphic* on 18 April 1925, was found among the possessions of Miss Elen Elaine Austin, Sir Napier Shaw's assistant for many years and one of his executors. It had been passed to the late Dr Jim Burton after her death in 1987. The handwriting is that of Miss Austin. The people on the picture are (from left to right): E. Meseguer, L. Matteuzzi, T. Hesselberg, P. Wehrlé, J. S. Dines, P. Gamba, G. C. Simpson, Sir Gilbert Walker, L. F. Richardson, E. van Everdingen, H. Hergesell, Sir Napier Shaw, E. Gold, P. A. Molchanoff, C. J. P. Cave, Miss E. E. Austin.

WARTIME HUMOUR

These examples of wartime humour were sent in by History Group member Brian Booth.

The example above right (Fog Dispersal Apparatus) came from the Meteorological Section of the 1 Group Operational Summary for November 1943.

The example below right (Monthly meeting of senior met gremlins pass vote of confidence in themselves after worst November in years) came from the summary for November 1944.

The text above right reads as follows:

50. Even the first snow of the season, which occurred on the 14th, did not lift November out of the average class. There were many nights of fog or low cloud conditions which prevented operations being considered at all, and three occasions when operations were justifiably cancelled only after late conferences.

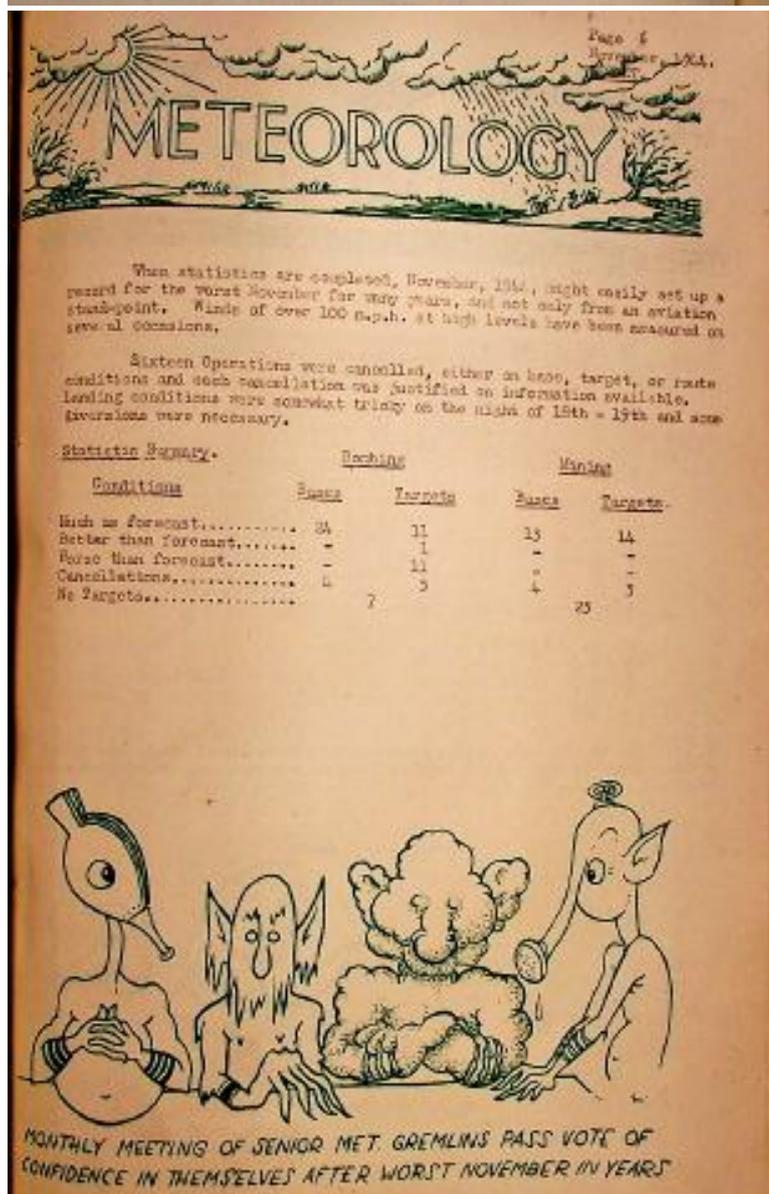
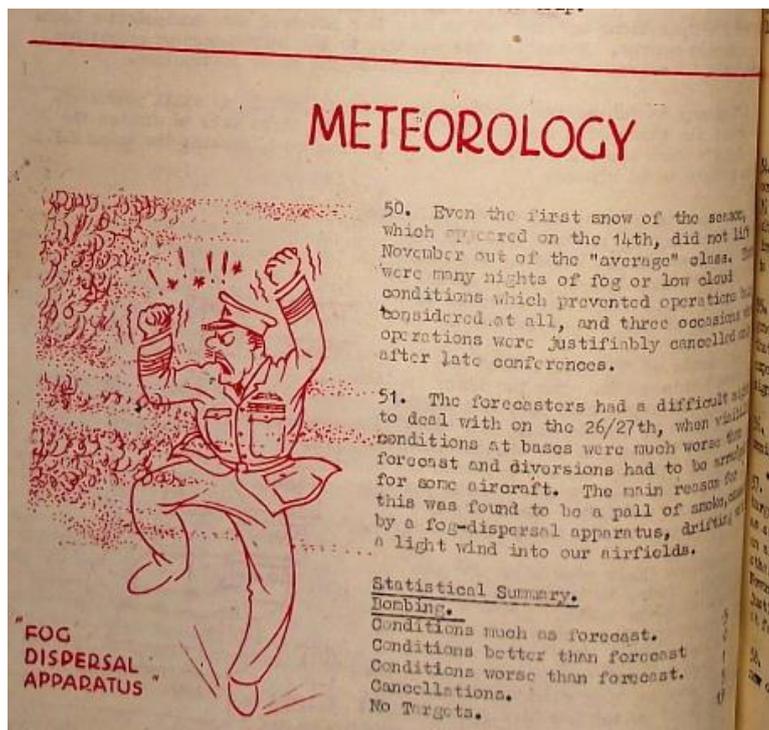
51. The forecasters had a difficult night to deal with on the 26/27th, when visibility conditions at bases were much worse than forecast and diversions had to be arranged for some aircraft. The main reason for this was found to be a pall of smoke, caused by a fog-dispersal apparatus, drifting with a light wind into our airfields.

+++++

The first two paragraphs of the text below right read as follows:

When statistics are completed, November 1944 might easily set up a record for the worst November for many years, and not only from an aviation stand-point. Winds of over 100 m.p.h. at high levels have been measured on several occasions.

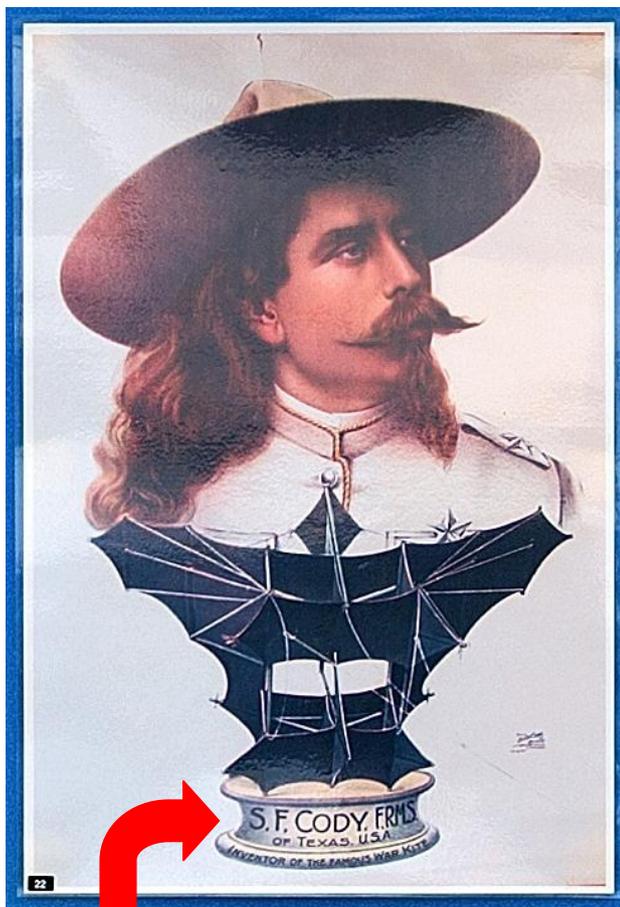
Sixteen operations were cancelled, either on base, target, or route conditions, and each cancellation was justified on information available. Landing conditions were somewhat tricky on the night of 18th-19th and some diversions were necessary.



MEETING REPORT

On Saturday 24 September 2011, seventeen members of the History Group assembled at the Farnborough Air Sciences Trust (FAST) to focus on the use of aircraft for meteorological purposes up to the 1930s, this being the first of three meetings on such uses of aircraft (the others to be held in 2012 and 2013). The meeting in 2012 will take the story through to the late 1960s and the meeting in 2013 will cover the period since the late 1960s.

The first speaker, David Wilson of FAST, introduced Samuel Franklin Cody (1867-1913), who was born in Texas and died near Farnborough while test-flying his latest design, his Cody Floatplane. Cody, whose real name was Cowdery, was a flamboyant character who was an early pioneer of manned flight. He was the first person to make a flight in a powered heavier-than-air machine in Britain, doing so at Farnborough on 16 October 1908 in a machine he himself had designed and built, British Army Aeroplane No.1. Cody also used kites for meteorological research and became a Fellow of the Royal Meteorological Society on 19 November 1902.



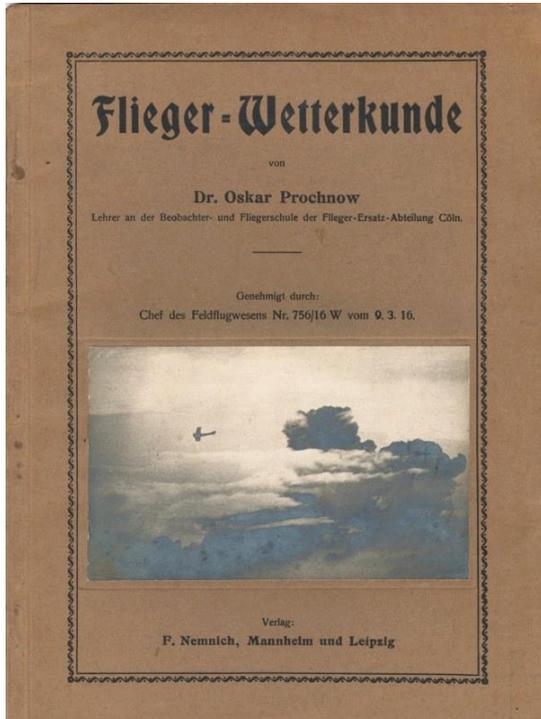
S.F.Cody, FRMS, of Texas, USA,
inventor of the famous war kite.

The next speaker was Malcolm Walker, History Group Chairman, whose talk was titled 'Those magnificent weather men in their flying machines'. After briefly mentioning a number of balloon enthusiasts who took with them meteorological instruments on their ascents (for example Welsh and Glaisher), he turned his attention to pioneers of powered flight, singling out for special mention the Wright Brothers and Blériot. He then spoke about meteorologists Richard Assmann (1845-1918) and Hugo Hergesell (1859-1938), who developed, respectively, the aspirated psychrometer and a meteorograph which measured pressure, temperature and humidity.

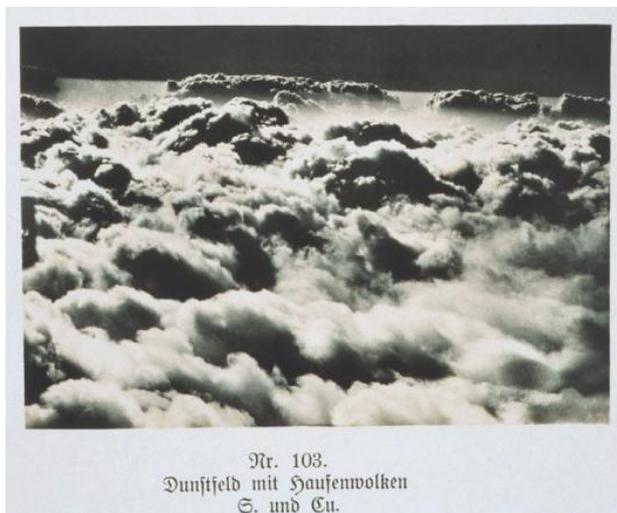
Malcolm mentioned that the first meteorological instrument to be taken aloft in an aeroplane, in 1910, was the barograph, which was used for ascertaining altitude. The following year, Assmann proposed that aircraft be used for obtaining upper-air observations, and he motivated aircraft designer August Euler to modify one of his machines for that purpose. In 1912, a Marvin kite meteorograph was attached to an Euler monoplane and a military pilot, Lieutenant von Hildessen, made a trial ascent from Frankfurt am Main, recording pressure and temperature to an altitude of 1100 metres. In the UK during the Great War, G M B Dobson (who later became world-famous for his ozone investigations) designed and constructed an aircraft meteorograph (his barothermograph). What appears to have been the first cloud photograph from an aeroplane over the UK was taken by C J P Cave near Farnborough on 15 September 1915, and many more cloud photographs were taken from aircraft later in the war by C K M Douglas.

Perhaps the most surprising meteorological applications of aircraft, Malcolm said, were the rain-making experiments conducted from aircraft in the USA around 1916-17, when scientists seeded existing clouds with sand, dust and dry ice and some local success was achieved. Several years later, he added, showing a cutting from *The Sunday Times* of 18 March 1923, experiments carried out in Ohio in which electrified sand was sprinkled on clouds were deemed 'successful'. In 1930, according to a newspaper report in the *Daily Herald* of 12 June 1930, a Mr Veraart claimed to have produced artificial rain by dropping ice on clouds from an aeroplane, but Sir Napier Shaw was sceptical, saying he could not be convinced that such a thing had really happened and stating that he did not think such a method of producing rain would ever be of any use on a large scale.

The next speaker, Howard Oliver, talked about *Die Wolken im Luftmeer: the German World War I cloud atlas* a 1917 publication which contains numerous superb cloud photographs taken from aircraft. He, too, mentioned Cave and Douglas before introducing a 1916 German weather guide for aviators (*Flieger-Wetterkunde* by Dr Oskar Prochnow), which contains cloud images taken from aircraft.



Howard then concentrated on the cloud atlas, pointing out that it was different from previous books as it showed clouds not only as seen from the surface but also the shapes the observer can see only from the air. The first part of the atlas contains images that convey knowledge of different cloud forms (see picture below) and the second part explains cloud formations and illustrates the processes of air movement. Many important facts for the aviator are presented in the atlas.



Brian Booth called his talk *Douglas's Law: the aeroplane and the birth of modern meteorology* focusing upon the remarkable C K M Douglas, who was, as Brian said, a very brave man who mixed meteorological work with being a military man. He was injured in combat and wrote papers whilst recuperating in Edinburgh! As an aviator, Douglas fully warranted the adjective *intrepid* and he not only observed and measured from aircraft, using instruments he fitted to struts, but also analysed his data, as a result of which he became one of the leading meteorologists in the UK. He had a prodigious memory for synoptic situations and developments from them, which contributed to him becoming recognized as the foremost synoptic weather forecaster of all time.

Towards the end of the Great War, Douglas was appointed commanding officer of the Meteorological Flight at Berck, near Le Touquet, the task of this Flight being to obtain upper-air temperatures to help the General Headquarters meteorologists provide forecasts for artillery units. After the war, he quickly accepted the polar front air-mass concepts proposed by Vilhelm and Jacob Bjerknes and others of the Bergen School of Meteorology, and he developed his own ideas on upper-air aspects of fronts, effectively introducing the concepts of contour and thickness. In so doing, he made the Bjerknes model truly three dimensional.

And what is Douglas's Law? It is, Brian said, quoting from Douglas's paper on *Observations of upper cloud drift as an aid to forecasting* (*QJRMetS*, 1922, Vol.48, pages 342-356): *'At any level in the free air the wind veers with increasing height, temperature at that level will rise; if it backs, temperature will fall.'*

The final speaker was Maurice Crewe, whose topic was *Aerological aircraft ascents: from the first to the most*. In his talk, he showed that a great deal happened in the 1920s and 1930s in respect of aircraft-based meteorology.

He reviewed meteorographs, psychrometers and other instruments which were attached to aircraft, and he introduced many of the aircraft that were used, including gliders, which were used for investigating thermals and soaring flight. By 1929, a glider had been equipped with a meteorograph for aerological research. By the late 1930s, a systematic approach to the use of aircraft for meteorological purposes had been developed. Maurice ranged far and wide in his talk, covering research uses of aircraft in the UK, Australia, France, Germany, Russia, the Netherlands and the United States, in the process providing a fascinating and comprehensive review of such uses.

During an extended lunch break, the meeting participants were able to enjoy a tour of the FAST Museum and inspect at close quarters a full-scale replica of Cody's British Army Aeroplane No.1q

The day was most informative and enjoyable, and all who participated were very grateful to

the hosts, for whom nothing was too much trouble. We were all made extremely welcome, and we now look forward to Part 2 of the story of aircraft being used for meteorological purposes, in September 2012, again in the FAST premises at Farnborough. We were particularly grateful to History Group committee member Graham Bartlett for arranging the meeting.



▲ Malcolm Walker (left), Graham Bartlett (right) and Samuel Franklin Cody



History Group meeting at Farnborough, 24 September 2011 – 'team photo'

FORTHCOMING EVENTS

The next meeting of the History Group is concerned with weather and health and is called UNDER THE WEATHER.

It will take place at the Civil Service Club, 13-15 Great Scotland Yard, London, SW1A 2HJ, on

SATURDAY 17 MARCH 2012

The registration fee is £10 per person, bookings to be received by Saturday 10 March. Cheques made payable to *RMetS History Group*, please.

A booking form will be sent to you in early January. Meanwhile, bookings with cheques can be sent to Malcolm Walker, 2 Eastwick Barton, Nomansland, Tiverton, EX16 8PP, as soon as you like.

The programme is as follows:

- 11:00-11:30 Registration, coffee and opportunity to set out any displays
- 11:30-11.40 Announcements, Welcome and Introduction . Howard Oliver
- 11:40-13:10 Morning Session . Chairman : Julian Mayes
- 11:40-12:10 *Historical Overview and studies relating to Influenza* . Howard Oliver
- 12:10-12:35 *Cholera Studies of William Clanny in Sunderland* . Dennis Wheeler
- 12:35-13:00 *Cholera Studies of Thomas Shapter in Exeter* . Malcolm Walker
- 13:00-14:00 DIY lunch and opportunity to view displays brought by those attending
- 14:00-1700 Afternoon Session . Chairman: Howard Oliver
- 14:00-14:30 *The Rise and Fall of the Health Resort* . Julian Mayes
- 14:30-15:00 *Climate and Health Issues in the Tropics* . Joan Kenworthy
- 15:00-15:30 *Pail Closets, Water Closets and Weather* . John Wilson
- 15:30-16:00 *Current Met Office Studies on Weather and Health* . Patrick Sachon
- 16:00-16:30 Break, and viewing of displays
- 16:30-17:00 Open Forum and General Discussion
- 17:00 Departure

The organizer of the meeting is Howard Oliver.

□ A Summer Meeting on either 23 or 30 June is planned, somewhere near London, on the subject of ~~£~~Storms and their impact on the landscape covering famous storms and their impact on gardens and the countryside. This is intended to be a fairly informal meeting that we hope will appeal to partners of History Group members. Information will be sent to Group members as soon as possible in the New Year.

□ An all-day meeting on ~~£~~The use of aircraft in meteorology: Part 2 will be held at Farnborough on Saturday 29 September. This will include *inter alia* THUM flights, the use of Canberra, Hastings and Varsity aircraft, and wartime meteorological reconnaissance flights. Details of the meeting will be available by March or April and will be sent to all members of the History Group.

□ In March 2013, we plan to hold an all-day meeting on the history of monthly and seasonal forecasting, to mark the 50th anniversary of the exceptionally cold winter of 1962-63. Details will become available in due course.

□ A meeting at Norwich is planned for September 2013 to mark the centenary of the birth of Professor Hubert Lamb. Provisionally, the title of this meeting is ~~£~~Climate: past, present and future

If anyone wishes to speak at any of the above meetings, please contact Malcolm Walker (postal address in left-hand column on this page or email MetSocHistoryGroup@gmail.com)

THE HISTORY GROUP COMMITTEE

Chairman: Malcolm Walker
Secretary: Martin Kidds
Treasurer: Mick Wood

Committee members:

Graham Bartlett
Brian Booth
Margaret Deacon
Alan Heasman
Joan Kenworthy
Julian Mayes
Howard Oliver
David Pedgley
Dennis Wheeler

and a representative of the National Meteorological Library and Archive (either Sarah Pankiewicz, Joan Self or Glyn Hughes).

Committee meetings take place three times a year at the Royal Meteorological Society headquarters, Reading.

PENALTIES IMPOSED ON CARELESS OBSERVERS

From the *Quarterly Journal of the Royal Meteorological Society*, 1913, Vol.39, p.42.
[P stands for *peso*, since 1967 *piso*]

We have sometimes heard of the difficulty of keeping observers in tropical countries up to the mark, and in one case at least, where the native observer did not go near the instruments at all, but merely copied into the register the readings of the previous year.

At the Manila Weather Bureau stringent measures are adopted for dealing with such cases, as will be seen from the following extract from the Annual Report of the Director for 1909:

Aside from dismissal on account of continued unsatisfactory service, which has been inflicted in two cases, the Bureau has seen itself obliged to resort to pecuniary penalties in order to make observers more careful in the performance of their duties.

Thus for isolated but serious blunders resulting from neglect, the following fines have been imposed: one third-class observer, one month's salary (P 30); one second-class observer, 50 per cent (P 25); another 40 per cent (P 20); and one third-class observer, 33 per cent (P 10) of their respective monthly stipends.

The facts, but not the names of the guilty parties, have been brought to the knowledge of all observers, and it is hoped that this will have a salutary effect on all those whose sense of duty is stimulated more efficaciously via their digestive organs than via their conscience.+

THE METEOROLOGICAL OFFICE AT SOUTH KENSINGTON

In the autumn of 1910, the Meteorological Office under Napier Shaw moved into new premises on Exhibition Road, South Kensington. The pictures below show the east face of the building as it looked in October 2011, with the Meteorological Office over the inner entrance. Pictures by Diane Walker.



The Meteorological Office building on Exhibition Road, South Kensington, opened 1910 and shared with the Post Office. East face of the building on the left.

RECENT PUBLICATIONS

This list of books and articles concerned with the history of meteorology and physical oceanography has been compiled by Malcolm Walker and Anita McConnell.

ADLER, A., 2011. From the Pacific to the Patent Office. The US Exploring Expedition and the origin of America's first national museum. *J. History of Collections*, 23/1, 49-74.

BENGTSSON, L. and HARDAKER, P., 2011. Obituary of Jean Labrousse, *Weather*, 66, 283.

BOWKER, D., 2011. Meteorology and the ancient Greeks. *Weather*, 66, 249-251.

BROWN, R., FOOT, J. and HARDAKER, P., 2011. Obituary of Dr William T Roach, *Weather*, 66, 227.

BULKELEY, R., 2011. To unbar the gates of the South: Maury's 1860. 1861 proposals for Antarctic cooperation. *Polar Record*, 47, 310-326.

CROWELL, J.C., 2011. *Surf forecasting for invasions during World War II*. Marty Magic Books, Santa Cruz, California, USA, 190pp. ISBN 978-0-9831860-0-7.

DELBURGO, J. 2011. Diverse things: collecting the world under water. *History of Science*, 49/2, 149-185.

HARDAKER, P., 2011. Obituary of Professor Richard Scorer, *Weather*, 66, 311.

HARRISON, G., 2011. The cloud chamber and C.T.R. Wilson's legacy to atmospheric science. *Weather*, 66, 276-279.

KLØVER, G.O. (Editor), 2010. *Roald Amundsen: The South Pole Expedition 1910-1912*. Oslo: The Fram Museum. 411pp. ISBN 9788-82-8235-010-5

POWELL, J.L., 2011. *The inquisition of climate science*. Columbia University Press, New York, 232pp. ISBN 978-0-231-15718-6.

RAIMONDI, A., 2010. Il contributo di Lamarck alla fondazione della meteorologia moderna. *Nuncius*, 25, 299-316.

ROBERTS, H., 2011. The 150th anniversary of the first public weather forecast. *Weather*, 66, 221-222.

SCHRIER, G VAN DER and GROENLAND, R., 2011. The Great Storm of 1697 revisited. *Weather*, 66, 266-269.

THERRELL, M.D. and TROTTER, M.J., 2011. Waniyetu Wówapi: Native American records of weather and climate. *Bulletin of the American Meteorological Society*, 92, 583-592.

WALKER, J.M., 2012. *History of the Meteorological Office*, Cambridge University Press, 468pp. ISBN 978-0-521-85985-1. Actually published in the UK 1 December 2011.

WHEELER, D., 2011. The Gibraltar climatic record. Part 3. Temperature. *Weather*, 66, 259-265.

WILSON, C., 2011. The blind philosopher: the contribution to meteorology of John Gough. *Weather*, 66, 309-310.

AND ALSO

An entire issue of *Osiris*, 26 (2011), 1-270, named *Klima*, containing the following.

Pages 1-15
Introduction, J.R.Fleming and V.Jankovic.

Pages 16-44
Humboldtian science, Creole meteorology and the discovery of human-caused climate change in South America. G.T.Cushman.

Pages 45-65
Imperial climatographies from Tyrol to Turkestan. D.R.Coen.

Pages 66-88
The anxieties of a science diplomat: field coproduction of climate knowledge and the rise and fall of Hans Ahlmann's Polar Warming. S.Sörlin.

Pages 89-108
Diagnosing the dry: historical case notes from Southwest Australia, 1945-2007. R.A.Morgan.

Pages 111-128
The letter from Dublin: climate change, colonialism and the Royal Society in the seventeenth century. B.Vogel.

Pages 129-141
Inventing Caribbean climates: how science, medicine and tourism changed tropical weather from deadly to healthy. M.Carey.

Pages 142-162
Reculturing and particularizing climate discourses: weather, identity and the work of Gordon Manley. G.Endfield.

Pages 165-179
Concentrating on CO₂: the Scandinavian and Arctic measurements. M.Bohn.

Pages 180-197
Melting empires? Climate change and politics in Antarctica since the International Geophysical Year. A.Howkins.

Other papers on the economics and politics of climate change.

2011 MEMBERS

Rob Allan (Exeter)
Alberto Ansaloni (Milano Italy)
Oliver Ashford (Didcot)
Graham Bartlett (Slough)
Rodney Blackall (Buckingham)
Brian Booth (Devizes)
Ron Bristow (Maidstone)
Stephen Burt (Stratfield Mortimer)
Anna Carlsson-Hyslop (Manchester)
Jacqueline Carpine-Lancre (Beausoleil, France)
M J Chapman (Royston)
Nick Chappell (Lancaster)
Alan Cobb (Gerrards Cross)
Mike Collins (Frinton on Sea)
Philip Collins (Merton, Devon)
Andrew Cook (Newport on Tay, Fife)
Stan Cornford (Bracknell)
Maurice Crewe (Watford)
B D Dagnall (Lymington)
Peter Davies (Reading)
Tony de Reuck (London)
Federico de Strobil (La Spezia, Italy)
Margaret Deacon (Callington)
Storm Dunlop (Chichester)
Philip Eden (Luton)
Michael Field (Arundel)
Tom Fitzpatrick (Glasgow)
Robert Gilbert (North Chili, NY, USA)
Brian Giles (Auckland, New Zealand)
John Goulding (Middlesbrough)
Valerie Green (London)
Richard Gregory (Woodbridge)
Richard Griffith (Horsham)
Eric Harris (Crowthorne)
Alan Heasman (Marlborough)
Althea Howard (Reading)
A M Hughes (Oxford)
Glyn Hughes (Exeter)
Lord Hunt of Chesterton FRS (London)
Jane Insley (London)
Arnold Johnson (Maidenhead)
Simon Keeling (Wombourne, Staffs)
Joan Kenworthy (Satley, County Durham)
Martin Kidds (London)
John Kington (Norwich)
Daudu Kuku (London)
Richard Link (Croydon)
Norman Lynagh (Chalfont St Giles)
Joyce MacAdam (Watford)
Ian MacGregor (Ivybridge)
Julian Mayes (West Molesey)
Anita McConnell (Stowmarket)
Eric Mills (Halifax, Nova Scotia)
Reg Milne (Farnborough)
Alison Morrison-Low (Edinburgh)
John Norris (Gerrards Cross)
Howard Oliver (Swanage)
Alan O'Neill (Twyford)

Sara Osman (London)
Andrew Overton (Doncaster)
David Pedgley (Wallingford)
Ernie Pepperdine (Scunthorpe)
Anders Persson (Lehmo, Finland)
R W Phillips (Lincoln)
Nick Ricketts (Exmouth)
P R Rogers (Sevenoaks)
James Rothwell (Southwell)
Peter Rowntree (Crowthorne)
Marjory Roy (Edinburgh)
Andrew Russ-Turner (London)
Joan Self (Exeter)
Ann Shirley (Canterbury)
David Simmons (Cambridge)
Hugh Thomas (Hassocks)
Derry Thorburn (London)
Keith Tinkler (Ontario, Canada)
Jack Underwood (Barham)
Bill Wade (Harrogate)
Diane Walker (Tiverton)
Malcolm Walker (Tiverton)
Catharine Ward (Bury St Edmunds)
Dennis Wheeler (Sunderland)
G D White (Truro)
Peter Wickham (Wokingham)
Clive Wilkinson (Diss)
John Wilson (Nottingham)
Christopher Wilson (Cullompton)
Sir Arnold Wolfendale FRS (Durham)
Mick Wood (Bracknell)

THIS IS YOUR NEWSLETTER

Please send comments and contributions to:
Malcolm Walker, 2 Eastwick Barton,
Nomansland, Tiverton, Devon, EX16 8PP.

✉ MetSocHistoryGroup@gmail.com

The Group's annual subscription is £5 (cheques payable to *Royal Meteorological Society History Group*). A reminder will be sent when your subscription is due.

THE NEXT NEWSLETTER

All being well, the next newsletter will be published in March 2012. Please send comments, articles etc to Malcolm Walker (address above) by 29 February.

Malcolm would particularly welcome reminiscences (humorous or otherwise) of life in the Met Office (at home or abroad) in the 1950s, 1960s and 1970s, also recollections of meteorological activities in universities, research institutes or the services (at home or abroad) in those decades