

SNOW AT CHRISTMAS in the UNITED KINGDOM

A. INTRODUCTION

Every year, around the second week in December, eager, yet anxious faces peer out of windows up and down the land, scanning the heavens for a change in the wind to a northerly or easterly point, which might bring the promise of leaden skies and snow. No, not the children: (modern youngsters are far too busy calculating the monetary value of the presents they think they can wheedle out of parents), but a curious breed of men and women known as ‘the bookies’, wondering if they have calculated the odds relating to a "White Christmas" correctly, and thinking that perhaps this year the payouts are going to be bigger than normal.

These practitioners of the black art of taking your hard earned cash didn't of course dream up the seemingly annual interest in whether or not snow would occur on Christmas Day; they undoubtedly responded to an interest that was already there. Yet common sense, and certainly the statistics, as I shall show, would tell us that a true ‘Christmas card’ scene on the morning of the 25th of December, is most unlikely over a vast area of the most populated areas of the United Kingdom. Their interest though has skewed the record, and the expectations of large sections of the general public, such that we have to be very careful whenever anyone insists that such-and-such a year had a ‘White Christmas’.

This note attempts to chart the course of this obsession, at least insofar as it affects the **United Kingdom**, and will set out a table giving the recent history of ‘snowy’ (or otherwise), weather on Christmas Day.

B. WHAT IS A WHITE CHRISTMAS?

We ought to start by trying to sort out what a ‘White Christmas’ is! It's not a simple task. For myself, if I open my curtain on Christmas Day morning, and see a complete covering of snow, that's a White Christmas. Doesn't matter *when* the snow fell, for that ‘traditional’ look to the day, there must be snow covering the ground. This definition must therefore include those occasions when snow actually falls (and lies) on Christmas Day, but in this latter case of course, snow means snow, not sleet, soft hail or any other combination that might be dreamed up. And when should it fall? Does a fall at 2355 hrs in the evening count? Ah, that's a tricky one and I don't pretend to lay down hard and fast rules, but for myself, the climatological observation at 0900 hrs must show the state of ground as having some element of snow cover. [An aside relating to the United States: according to NOAA tech. reports, a ‘White Christmas’ there is one where snow is actually *lying* on the ground on Christmas Day, which is eminently sensible to my mind.]

Now, I've waffled on about this because if you are the aforesaid bookie, you have a different measure. For a start, if there were three feet of snow on the ground on Christmas morning, but that resulted from a blizzard some 10 days ago, and none had fallen on the 25th, then that is not a ‘White Christmas’ event, and no payout is made. However, if only a single flake is recorded on the 2300 hrs observation amongst a shower of rain and snow mixed, and the ground is as a result damp and ‘orrible, that would be a ‘White Christmas’ event! Money would change hands. I suppose you can understand the requirement here, but it does lead to notable anomalies, as we shall see, and does distort the historical record.

When we get to the log of Christmas weather (below), I shall try to pick out the 'proper' (in my view) events from the 'false' events.

C. *THE ORIGIN OF CHRISTMAS AND ITS TRADITIONS*

Before we proceed, I think we ought to remind ourselves why Christmas is celebrated at all - often forgotten these days, though that in itself is not unprecedented in history. It is the annual festival of Christ's birth, and has by tradition come to be celebrated, at least by most 'western' churches, on December 25th. It is by no means certain that He was born on this date, indeed it is most unlikely to have been so. The day, as a holy church festival, did not become a 'fixed' event until Pope Gregory declared it to be so in 354AD, in the process following the well established church practice of the time in absorbing the 'pagan' rituals connected with the shortest day / winter solstice. This was a pragmatic approach of course: don't suppress the rites etc., simply combine them with church ritual and sanctify them by association with Christian beliefs.

There were several non-Christian festivals around this time ripe for absorption: the Roman feast period of Saturnalia, dedicated to the god associated with the harvest, and which was marked by several days of riotous merrymaking - sounds familiar! Across the Germanic / Scandinavian part of northern Europe, of which England in particular would have been regarded as a part at this time, there was also the feast of Yule, celebrated to honour the gods and to encourage the sun to shine with more strength.

Over the centuries, the church added more elements, such as the crib, carols, and lavish feasting that seem for the most part to have been traditionally associated with the celebrations. Whether this is because of its older, pagan, 'bacchanalian' links, or just as a celebration that light was returning to the sky and giving hope to folk for whom the waxing and waning of the strength of the sun was vital, is not clearly known. (SAD is not new!) However, it is worth noting in passing that this riotous excess came to an abrupt end in Britain during the puritan inter-regnum presided over by the Lord Protector, Oliver Cromwell, when the observance of Christmas in these ways was actually banned!

Christmas returned as a church festival with the restoration (the return of Charles II in 1660), but curiously the rituals did not, at least not in great extent; Christmas for some time after the restoration was fairly 'low-key' and it was left to the Victorians to bring us what we now think of as the 'traditional' Christmas.

Incidentally, the calendar change in 1752 from the Julian to Gregorian style, effectively brought Christmas Day back by 12 days, i.e. away from the deepening cold of early January. Prior to the change, Christmas Day (the 25th of December), occurred on what is now January 6th, and in many eastern areas of Europe, adopting the Orthodox branch of the Roman religion, this is still Christmas Day. The point is important of course, because climatological records show a tendency to 'wintry weather' after the turn of the year: However, it is also worth emphasising that just because we are into early January, does not mean cold / snowy weather -- some notable westerly / mild types are just as likely.

For myself, I consider that Albert, the Prince Consort was largely responsible for our current 'mainstream' traditions, particularly that of the Christmas tree. This had been traditional in Germanic lands for centuries, though curiously it took this prince from Saxe-Coburg to introduce it to these islands, rather than the Hanoverian clan of earlier years. This is probably because Victoria and Albert were 'closer' to the mainstream of the British public, often being described as 'provincial' by contemporary critics, and would have had the 'common touch' so beloved of our modern tabloids.

The tradition of the Christmas tree, an evergreen symbol, is thought to be based on the story of St. Boniface (actually born in Crediton, Devon), who was sent to what is now a more central region of Germany, by Pope Gregory II as a missionary in about AD718. After a few years, he was called to Rome, consecrated as a bishop, then sent back to Germany, whereupon he systematically destroyed objects of heathen worship, and founded churches and convents. The actual legend that couples his name with the Christmas tree goes like this

.... He and his monks were walking through some woods, when they happened upon a group of people about to sacrifice a young boy to the god, Odin. The boy was tied to an oak, a tree sacred to Nordic beliefs. Boniface freed the boy and cut down the oak. He then put lighted torches into a nearby fir tree, an evergreen, and preached the Christian gospel. The fir then was taken as the new emblem of the Christian religion in the lands that Boniface ruled as bishop. Boniface eventually, after another trip to Rome, was named archbishop and primate of all Germany, but he was killed by a band of non-Christians in an area now within the Netherlands. The Christmas tree --- a decorated evergreen tree, with lights, has remained as the emblem of eternal life and renewal in the dark days of mid-winter, ever since.

Christmas cards only became popular in the 1870s, though the first card is thought to have been issued in London in 1846. Christmas cards are important, and are largely responsible for our perception of the snow theme: the robin in the snow; snow covered cottages in picturesque villages; Father Christmas driving his reindeer through swirling snow etc. (This latter side of the Christmas theme, that of Santa Claus, is an American invention, dating probably back to an illustration in a US magazine in 1868.)

C2. CHRISTMAS CAROLS

Christmas carols, in the sense we know them, are a relatively recent phenomenon. The second half of the 1700s and early 1800s saw the great explosion in composition of tunes / words that could be sung by an entire congregation, rather than a gathering being sung to by a choir. Charles Wesley, a co-founder of Methodism, with his brother John, is credited with the authorship of some 7000 hymns, and several Christmas carols, of which "Hark! The Herald Angels Sing" is perhaps the best known. There was an earlier tradition of the wassail ('all - hail '), a celebration in song to the saviour and the season, a mix of secular and sacred - perhaps 'The Holly and the Ivy', being the best known in this tradition, although the 'Boar's head carol', is older. Other carols were imported, and what we think of as a most traditional carol, "Silent Night", is of course an old Austrian (German language) carol ... once again establishing the link between 'German' and British views on celebrating Christmas.

There is, of course, no snow in the Christmas story as told by the gospels, St. Matthew and St. Luke; scholars think that the events were more likely to have taken place in the early autumn-tide. However, it is worth noting here in passing that snow is not unknown in the 'Bible lands' of the Middle East. Most people who only think of Israel, the Lebanon, Palestine and Jordan in the summer, under an apparently baking hot, rainless sky (another myth propagated by Hollywood in the great epics - see later), would be surprised to learn that sharp frost and occasional snow do indeed visit the lands of Christ's birth, which is not unusual when you look at the topography of the region.

Bethlehem and Jerusalem sit atop the Judean / Samarian heights, a range of hills stretching north-to-south between the Mediterranean and the Jordan valley. The plateaux straddles elevations between 500 m (1600 ft) and 1000 m (3200 ft) ... comparable to the English Pennines or Scottish southern Uplands. Jerusalem & Bethlehem in particular are around 800 m (~2500 ft) amsl, and 65 km from the warming influence of the Mediterranean. And the hills of Palestine are subject to fairly frequent cold, continental outbreaks from

November through to April. As Mediterranean troughs engage this cold air, snowfall, sometimes in dramatic amounts can occur.

So, if your favourite Christmas carol mentions snow, although the biblical story may not support the type, it would not have been unusual for the holy family to have experienced it at some stage in their lives, if not necessarily at the birth of Christ.

The important point though is that many carols infer (if not explicitly mention), that the weather was 'cold', and of course such as..."Good King Wenceslas", although written for the Bohemian winter of snow and ice, become irrevocably fixed in our mind as the 'true' image of the story of Christ's birth. Years of singing"deep and crisp and even", at Christmas time implant the thought in a young brain, that Christmas = snow! And not just the odd dusting either.

D. *A PERSONAL ASIDE*

When considering this question of why we seem to 'expect' a **White Christmas**, against all the odds, I tried to examine my own childhood expectations.

I was born in 1949, in February, and so my earliest 'winter' experience would be that of the winter 1949/50, and more realistically 1950/51. I lived for the first 4 years of my life in Bude, north Cornwall, hard by the Atlantic Ocean. This is a mild location, not noted for snow! Yet, by the time I was 9 or 10 years old, and now living in east Berkshire, not far from Windsor, I 'anticipated' snow, in the sense that if the evening of the 25th arrived with no flakes falling, I was disappointed. And this feeling was shared by my contemporaries. This was not due to a surfeit of snow on previous occasions, as the records (below) will show. Why should this be so? We did not have television until I was nearly into my 'teens', and visits to the cinema were rare treats for a family of 5! So my perceptions of what to expect must have been gained from other sources.

Christmas cards and books would have been important influences, as would the radio, and here we come, in my view, to the key ingredient to this saga ... a gentleman by the name of Bing Crosby. Before addressing that subject though, some more on childhood memories of the 1950's.

At this time (the early / mid fifties) in Britain, there was only one broadcasting organisation for the U.K., and that was the BBC. And for children (dare I say 'upper working and middle class' children), the staple diet would have been Children's Hour on the Home Service (now Radio 4), and Children's Favourites on Saturday morning on the Light Programme (now Radio 2). The former programme and Christmas meant the 'Box of Delights'(John Masefield/1935) or 'The Lion, the Witch and the Wardrobe'(CS Lewis/1950); highly 'moral' and pseudo-Christian based tales, with snow figuring prominently in each saga. As to Children's Favourites, then Christmas meant Bing Crosby singing 'White Christmas', along of course with a host of other 'snowy' records, often taken from popular Broadway, then MGM/ Hollywood musicals.

E. *BING CROSBY, AND 'THAT' SONG*

There may be some reading this, younger than a 'certain' age, who do not know of 'Bing', or have only a hazy idea of his worth at the time. For someone of my age though, and certainly to those of my parents' generation, Bing Crosby was 'Mr.Christmas'. Indeed, simply to say the word: "Bing", would conjure up a certain train of thought, which inevitably lead to Christmas. To understand why, a little history on the subject of Crosby is required.

He was born in 1904, and named Harry Lillis Crosby. Whilst studying law, he started singing professionally, and by 1930, was part of the Paul Whiteman band, a very famous

outfit of that time. He quickly progressed to radio and films, and his voice and smooth acting style had turned him (by the mid-thirties), into one of the stalwarts of the Paramount studio. People of my age and older will recall his co-starring roles in the 'Road' series of films, made with Bob Hope and Dorothy Lamour, and it was the comedy roles in these films, plus the film "Going My Way" (1944), in which he played a priest in a 'difficult' neighbourhood, that endeared him to audiences, though it is worth pointing out for historical accuracy that his private life did not always match the public persona.

However, Crosby was a fine, all-round actor, and in 1942, he starred in the film "Holiday Inn", with settings amongst the naturally wintry countryside of Vermont(*), in the north-east of the United States, in late December. Crosby opens a club that only opens on holidays, when he falls out with his partner, played by Fred Astaire. For the 'Christmas' holiday section of the film, Irving Berlin composed the song "White Christmas", which took only 18 minutes to record, and at one point was going to be left out.

The film wasn't overtly a 'war' film. Indeed the United States, although heavily committed through the Lend-lease programme, wasn't an active combatant in the Second World War until Pearl Harbor in December of 1941 – probably about the time that the film was being planned. However, by the time the film was released the U.S. had entered the war, and mobilisation, with families split asunder, meant that the song took on a significance that Berlin certainly never intended, much as the song 'White Cliffs of Dover' meant so much to British people. All over the world, from tropical islands in the Pacific, to bleak and windswept airfields in East Anglia and Yorkshire, the American forces can't have failed to react to the sight of a screen legend (Crosby), singing a song so obviously coupled to more peaceful times 'back home'... and of course British audiences would have been equally affected.

Figures of over 100 million for the single version (by all artists) are bandied about, and it is certain that the Crosby version accounts for at least 30 million of these, many of course to radio stations around the world. Until very recently, (1997), Crosby's recording of "White Christmas" was the top selling single. It is worth noting that the variety of weather types in the US is of course even greater than that in the UK, and to residents of the southern States, or on the Pacific coast of California, the feeling about this song is perhaps equally mystifying.

No, for me, Bing is the key: Mr Christmas, the clean man of the cinema, putting into song the feelings of so many at that time ... when victory in the war against an undeniably miserable bunch of thugs in Tokyo, Berlin and Rome was not assured .. men (and it was mostly men) were going off to fight and probably die thousands of miles away, and "I'm dreaming of a White Christmas" said ... we want you back safe and sound to a happier time. The film of course quickly made the trip across the Atlantic, and no doubt to forces stationed around the world, and although probably not many of the men in the field would have admitted it at the time, I have no doubt that quite a few were fighting back tears when Bing Crosby crooned 'White Christmas' against the backdrop of a roaring log fire, Christmas tree and the promise of snow.

(*): according to NOAA technical report 95-03, the probability of 1 inch (2.5 cm) or more of snow lying on the ground on December 25th across Vermont is >75%, and of 5 inches (12.5 cm) or more is generally >50%.

The song was so successful that a later film was built around it, bringing in the military connection; this was: "White Christmas", with Danny Kaye co-starring alongside Crosby, in 1954 - Astaire not being available. The film begins with a rendition of 'White Christmas' at a makeshift camp concert, against the war-torn landscape of 1944 (in Italy?), with soldiers obviously affected by the song, coupled to the fact that next day they are to go into action. The film ends (10 years later) with Crosby, Kaye, Rosemary Clooney and Vera-

Ellen all dressed in fiery red, against a backdrop of falling snow (at last ... the entire film was built around the problem that Vermont did not, unusually, have any snow), a Christmas tree, singing children and helpings of nostalgia for war-time camaraderie, singing 'White Christmas'.

This merely emphasised the hold the song had on the cinema-going public around the world, and of course is reinforced each festive season by being shown somewhere or other on television. Bing Crosby continued his association with Christmas by recording a large number of carols, and his recording of 'Silent Night' was for a long time the only other record to come anywhere near 'White Christmas' in the numbers of recordings by a single artist sold.

Perhaps we are giving Mr. Crosby undue influence? Hollywood as a whole of course was pumping out misty-eyed films that re-inforced the idea of snow at Christmas. Judy Garland singing "Have yourself a merry little Christmas" in *Meet me in St. Louis*; and of course, the early adaptations of "A Christmas Carol", by Charles Dickens, by both British and American film makers. And so we come to the generally accepted second strand of the saga of why we Brits expect snow at Christmas .. the aforesaid Mr. Dickens.

F. CHARLES DICKENS AND THE WINTERS OF HIS TIME

Charles Dickens published "A Christmas Carol", in 1843, when, as we shall see, the climate was just at the start of the warming towards the higher values of today. From the text of the story, it is clear that Dickens regarded snow / cold weather as endemic to the Christmas season. He did not elaborate with flowery adjectival usage but stated in a matter of fact way ... some examples:

[Christmas at the start of the book]

" It was cold, bleak, biting weather; foggy withal: and he could hear the people in the court outside go wheezing up and down, beating their hands upon their breasts, and stamping their feet upon the pavement stones to warm them.

" The fog came pouring in at every chink and keyhole...." (with other references to fog/frost)

[and the next/Christmas Day:]

" No fog, no mist, clear bright, jovial stirring cold..."

[and Christmas past]

" The darkness and the mist had vanished with it, for it was a clear, cold winter day, with snow upon the ground"

" ... the quick wheels dashing the hoar-frost and snow from off the dark leaves of the evergreens like spray".

[and Christmas present]

" The people made a rough, but brisk and not unpleasant kind of music, in scraping the snow from the pavement in front of their dwellings..."

... and several casual references e.g. "... and snowing pretty heavily".

Charles Dickens was born in February, 1812, in Portsea (part of Portsmouth, Hampshire). His second winter, and presumably the one that he could/would recall with some clarity, was that of 1813/14, which was the 4th coldest in the CET series since 1659, only just outdone in our own memory by the winter of 1962/63, which gives you some sort of

reference to work to ... for the oldies who remember! 1813-14 was the last winter that a 'Frost Fair' was held on the Thames, which is a good indication of the severity and persistence of the cold. However, Dickens would also have experienced one of the mildest winters in the CET series, that of 1833-34, when he was 21 years old, but before he started writing. He would therefore appreciate (as some in our own day fail to appreciate), that winters were markedly variable.

When Dickens had started writing, in the 1830s, the CET series was exhibiting the long upward pull to the values of today, after the low points of what has become known as the 'Little Ice Age' (LIA), during the 16th and 17th centuries. During the 18th century, winter average temperatures were higher than during the depths of the LIA, but still much colder than those of today, and the record shows a marked reversal of the post-LIA upward trend over the last decades of the 1800's, so that older people (including presumably his parents and grand-parents), would be recalling a succession of 'severe winters', particularly cold Decembers such as 1784, 1788, 1791, 1796, 1798, 1799 and 1801. All these Decembers were colder (by CET mean monthly value), than the first December of Dickens' life in 1812.

December, in Dickens' mind, both by personal experience, and anecdotal tale, could be expected to be cold, with frost and snow. His later books, such as "The Pickwick Papers", also showed the influence of snowy Decembers, with the "Christmas at Dingley Dell" a famous chapter long-held to be responsible for our perception of cold, snowy Christmases.

HH Lamb, (in 'Climate, History and the Modern World), says: "Indeed, the descriptions of 'old-fashioned' winters for which Charles Dickens became famous in his books may owe something to the fact - exceptional for London - that of the first nine Christmases of his life, between 1812 and 1820, six were white with either frost or snow." Lamb also points out that the decade from 1810 to 1819 was the coldest in England since the 1690's.

The following table is of interest, and was originally published in 'London Weather', and updated by me.

FREQUENCY OF SNOW IN LONDON DURING THE 'CHRISTMAS' HOLIDAY (DEC 24-26): nb: SNOW **FALLING** NOT LYING!!

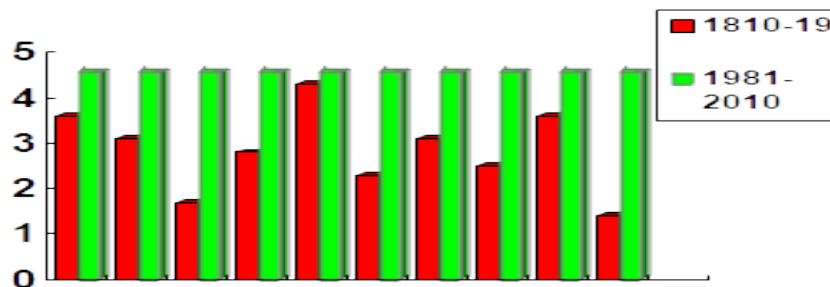
30YR PD	ALL 3 D	2(OF 3) D	1 D ONLY	CUM TOTAL (i.e. number of years snow fell any time.) (and % of the 30 years)	TOTAL NUMBER OF DAYS (i.e. number of days, out of the total possible in the 30 years) that snow fell.) (and % of the 90 days)
1752-1781	0	0	2	2 (7%)	2 (2%)
1782-1811	3	4	5	12 (40%)	22 (24%)
1812-1841	2	2	2	6 (20%)	12 (13%)
1842-1871	0	1	3	4 (13%)	5 (5%)
1872-1901	0	0	8	8 (27%)	8 (9%)
1902-1931	0	1	2	3 (10%)	4 (4%)
1932-1961	0	2	0	2 (7%)	4 (4%)
<i>1935-1964</i>	0	3	1	4	
<i>1965-1994</i>	1	1	1	3	
1962-1991	1	2	2	5 (17%)	9 (10%)
[1992-2020 (29 yr)]	(0)	(0)	(1)	(1)	

(The series up to 1964 is taken from “London Weather” unchecked; I then, at LWC updated the series for the following 30 years .. to 1994 with the figures given. Since then, I have managed to reformulate the figures for the 30 year period dropping off the end of the old series .. to 1991. And for completeness, I have added the recent years, up to 2019 inclusive at this date. I have assumed, rightly or wrongly, that earlier researchers would have used ‘proper’ snow, not rain/snow mixed or snow grains ... I may be wrong!)

The probability of a white Christmas was greatest during the 30 years 1782-1811, when snow falling on two or three days during Christmas (24th to 26th December) occurred on an average of about one year in four, and includes the cold December’s mentioned above. It is also noteworthy, in the context of this note, that the 30 yr period that includes Dickens’ early life (1812-1841), although not the most ‘snowy’, does show a high incidence of 2 or 3 days with snow falling over the Christmas period: 4 out of 30 occasions being the second highest such total in the series, after that of 1782-1811.

So a picture emerges that for Dickens, his early life would have been provided with a fair sprinkling of examples of ‘cold’, potentially snowy Christmas periods, and certainly his ‘elders’ would have imparted tales of such ‘white’ Christmases to him in such a way that it would have been an expectation. We are all marked for good or ill by experiences gained in our childhood. We also absorb the tales and experiences of parents and other elders, and in Dickens’ time, the ‘family’, or as we would say, the extended family, would have been most important. Family get-togethers would have been common, especially at Christmas, with much interchange of experiences, and no distractions such as television or electronic toys!

The histogram below shows a comparison of the December Central England Temperature (CET, source & © Met Office web site) values for each year of the decade: 1810-1819 with that of 30-year mean values for Decembers 1981-2010. It is clear that every December of Dickens' formative years were notably colder (red histogram) than those of modern times (green histogram), some by over 2 degrees C.



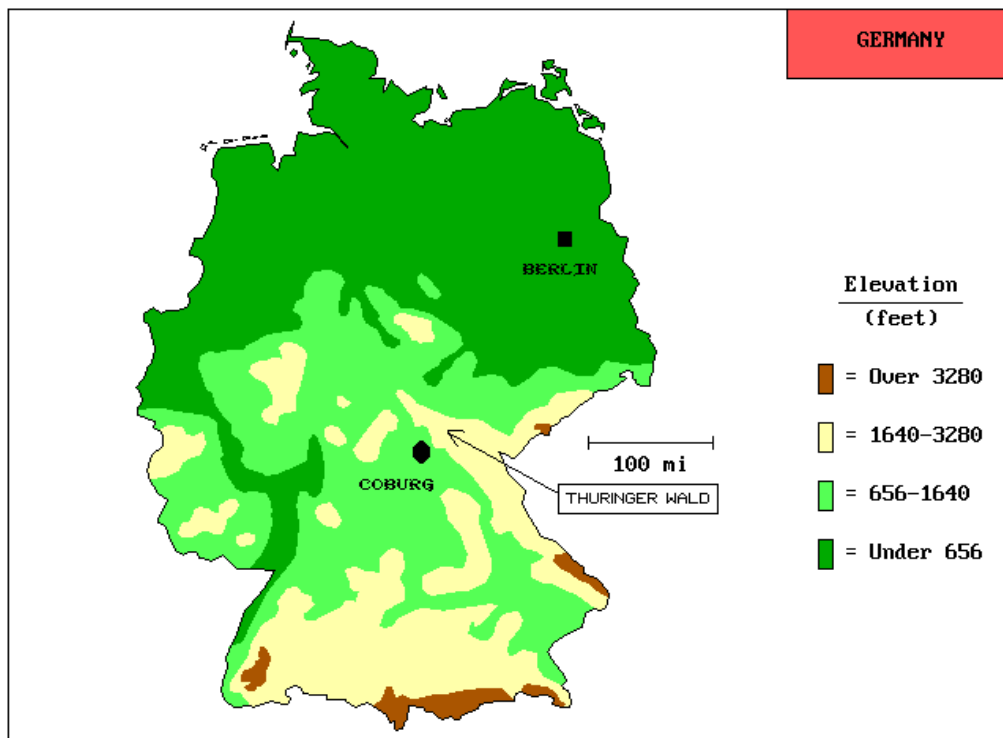
(values on Y-axis are degrees C)

G. *THE VICTORIAN CHRISTMAS*

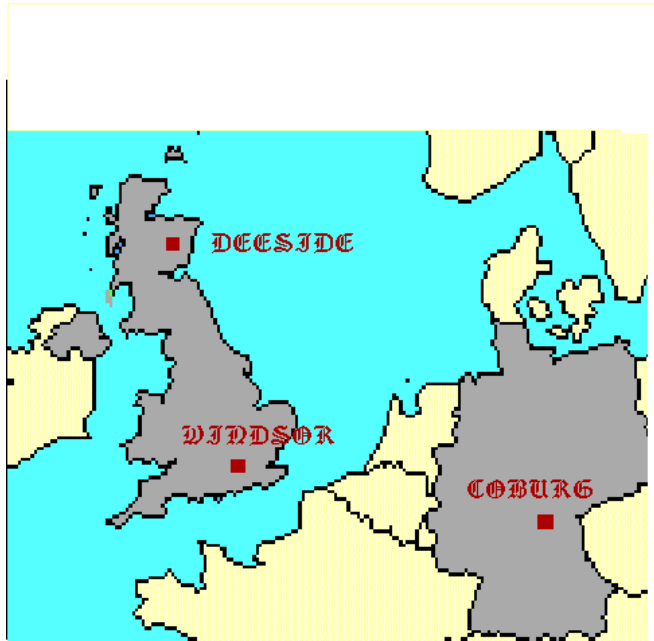
It is often said that our idea about the tradition of Christmas comes from the Victorians ... that is, the period during which Queen Victoria was on the throne of the United Kingdom during the greater part of the 19th century (1837-1901). Is this too great a claim? Well, probably not if we restrict consideration to the period up to about 1970; after that date, the all-embracing television culture, with its multiple and increasingly commercially-funded channels, has promoted the rather more materialistic view of Christmas over the pseudo-religious.

True, religion is there, but the cult of personal gratification above all else has now achieved supreme importance. Very few organisations make any pretence at acknowledging the roots of the festival, and it could be said that we have gone full circle, whereby the celebration is now an excess dedicated to forgetting the dark days of mid-winter and looking forward to the brighter, warmer days of spring and summer. It is no accident that travel companies pitch their wares most strongly just after Christmas (and increasingly before!)

But, back to the Victorians, or more especially to a non-Victorian, at least by birth. Albert Francis Charles Augustus Emmanuel of Saxe-Coburg und Gotha was born in 1819, and was probably destined to be husband, and consort of the future Queen of England from an early age. His birthplace was Coburg, deep in the heartland of Germany, in a decidedly ‘continental’ location climatologically, as we shall see later. The map shows the location with reference to modern-day German frontiers.



In 1840, he married the young Victoria, who had been queen for three years, and he soon became her most trusted adviser. In this role he exerted enormous influence on policies and events, in international as well as national matters. It was also Albert’s austere and rigid code of behaviour that was above all responsible for the high moral tone that came to be associated with ‘Victorian England’, though of course, amongst many outside the court, and some inside it, a good deal of hypocrisy abounded ... much as now, about morals and public behaviour. He died, of typhoid fever, at the early age of 42.



This map shows how Albert's birthplace of Coburg, relates to Windsor, where the court spent many Christmases, and Royal Deeside, where Albert and Victoria bought the Balmoral estate to recreate the sort of country that Albert in particular would have felt at home in.

Albert is important to our saga, because it is widely believed that he was responsible for some of the traditions we now associate with Christmas. Certainly it was he, in 1841, who caused a Christmas tree to be set up in Windsor Castle, which was an elaborately decorated evergreen tree, and followed the long established tradition in the German lands along the same lines (see elsewhere). The custom caught on widely within the UK, and from there travelled to the North American continent. But perhaps Albert brought with him an idea of the 'ambience', or natural weather type of Christmas? A comparison of the climate of Coburg and Windsor is instructive:

If we compare average temperatures, etc., between the eastern Thames Valley (as represented by Kew Observatory) and Coburg, we get the following: (over the same period)

COBURG: Period used 1931-1960: Elevation: 336 metres (1103 ft)

month	av.daily max	av.daily min
Nov	6.3	1.0
Dec	2.1	-2.2
Jan	1.4	-3.6
Feb	2.6	-3.9
Dec/Jan mean:->>>>	1.7	-2.9
average daily: - 0.6 (i.e. 0.5* [Tx+Tn])		

KEW: Period used 1931-1960: Elevation: 5 metres (16 ft)

month	av.daily max	av.daily min
Nov	10.1	5.3
Dec	7.3	3.5
Jan	6.3	2.2
Feb	6.9	2.2

Dec/Jan mean:->>>

6.8

2.9

average daily: 4.9 (i.e. $0.5 * [T_x + T_n]$)

all of which clearly shows that Windsor is, on average, warmer than Coburg at this time of year by some 5.5 degC, a quite significant amount. [NB: although these are 'old' climate averages, the important point is the **difference** between the two, rather than the absolute values. If we used more 'up-to-date' figures, the relative difference would be similar.]

At the 'average' lower tropospheric lapse rate of 2 degC per 1000 ft, 5.5 degC represents an *apparent* altitude difference of $5.5/2=2.75$, or about 2750 feet, more than the straight altitude difference between the two locations, and confirming the markedly continental nature of the climate at Coburg, as opposed to the pseudo-maritime, and markedly milder one for Windsor.

Now, looking at snow cover days: Meiningen, in the same climatological region as Coburg, and at a similar altitude, has on average some 50-60 days of lying snow per annum, as compared with the lower Thames Valley average (based on Kew/Heathrow figures) of 10-15 days away from the major conurbation's. Also, using just Heathrow airport figures for snow-lying at the 09UTC climatological hour for the period 1985 to 1996 (all winter), then the figure is just 3 for this time.

Therefore, Coburg is about 5 times more likely to have snow lying at any time in the winter than east Berkshire, and for a semi-urban site (i.e. containing the royal palaces in London), some 15 times more likely. To put it in 'local' terms, 50-60 days of snow cover per winter might be representative of land adjacent to the upland areas alongside the trans-Pennine routes, or across the western Grampians. No wonder that he and the queen decided to put so much effort into the house at Balmoral ... a spot much more like his home in Coburg.

Hubert Lamb, in "The English Climate", probably sums up the situation well as follows:.... " Christmas comes near the beginning of the season for snow in this country (England)(except on the mountains), and snowy Christmases have never been the rule here. They were doubtless somewhat commoner than now in the rather colder climate of the period 1550-1850 (now referred to as the Little Ice Age), and, perhaps the Old Style calendar before 1752 which put Christmas Day on what is now the 6th January increased the liability slightly."

Albert though would have been marked by his childhood experiences, much as our friend Charles Dickens, and it is easy to visualise him relating tales of Coburg, and the Rosenau (the lodge in the Thuringer Wald where he would have spent much of his childhood winters), especially as we are told that Albert was an expert skater ... with no artificial ice, Albert was no doubt disappointed with the poor chance of natural ice surfaces offered in his adopted country.

H. *THE TRADITION TAKES HOLD*

Christmas cards have been with us for over 100 years, and although in recent years, there has been a trend away from 'snow-scenes', the dominant feature of such would be robins/Santa/churches/cottages etc., in snow, sometimes with glitter. Some of the earliest Christmas cards were very "un-Christmas-like". The custom of sending cards had its origin in England around the middle of the 19th century, though they did not become commonplace until the 1870's. Santa Claus (or Father Christmas) was a popular theme for cards, complete with sled, reindeer and a sack of toys, and this tradition appears to date back to a drawing in an American magazine around 1868. If there are reindeer, and a sledge, then snow must be a feature, and so this image grafted on to the Christmas tradition from a semi-pagan/pseudo-

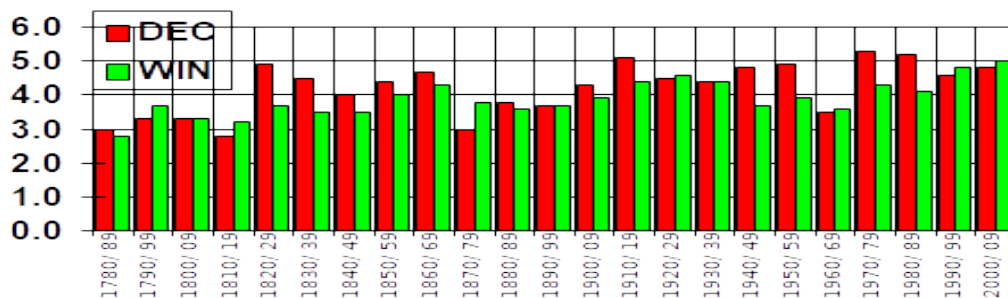
religious source, became entwined with earlier ideas of the ‘typical’ weather associated with Christmas.

During the winter of 1914/15, men from countries across Europe found themselves staring at each other across fixed positions in a war that was supposed to be over by the Christmas of that season. It was not to be. Christmas cards from home - perhaps the first occasion when large numbers of cards were sent in a war situation - many no doubt with snow scenes prominent, would have been a poignant reminder that a peaceful land lay not too many miles to west and east from the mire, mud and frost the troops found themselves in.

German (especially those from the southern and central lands) and Austrian troops indeed would regard snow as more of a feature of Christmas, than perhaps those from Britain, and many of the populated areas of France. On the eastern and Italian fronts, snow would have been plentiful. As we shall see in the later World war of the twentieth-century, the idea of snow and Christmas would firmly become welded together as epitomising ‘peace’ and ‘home’: Something the majority of the troops in the muddy trenches of the ‘Great’ War would have dearly loved.

And, by the outbreak of the *Second* World War, film studios on both sides of the Atlantic would be re-inforcing the idea that Christmas = snow. The “traditional” view of snow at Christmas was being re-inforced to cinema-goers. War comes .. total and relentless war, with some pretty cold and relentless weather in the early stages in the British Isles (with which we are primarily interested), and the northwest of Europe, along with many parts of the northern hemisphere undergo a reversal of the general warming trend that can be seen in the long term climate records since the end of the Little Ice Age.

(graph of CET values / mean 10 years / from 1779/1780 to current)



red = December CET values; green = winter CET values [in slices from winter 1779/1780 to 1788/1789 onwards]. The change from the late 1700’s/early 1800’s to latter decades, in December figures is particularly marked: at the start of the series, the value was around 3 degC; by the end of the twentieth century, the value was 4.5 degC or higher. There were, however, even warmer decades (for this particular month) in the 1970s and 1980s.

The first winter of the (British and Commonwealth) war (1939-40) was notably bitter (CET=1.5 degC for December, January and February), and the January (CET= - 1.4), was only beaten in the 20th century by the January of 1963 (CET= -2.1). The winter of 1941/42 was also cold - only relieved by a notably mild December. Although none of these periods yield a ‘White Christmas’ at least for the general populace, cold, bleak winters plus reduced supplies of some food, heating fuel etc., would seem to ‘chime in’ with our tale.

Another very popular, and overtly nostalgic film later in the war, that would have helped re-inforce the view that Christmas = snow was ‘Meet me in St.Louis’ (1944), starring Judy Garland, with Judy singing ...’have yourself a merry little Christmas’, to ‘Tootie’ (Margaret O’Brien) out of a window overlooking a snow-scape, complete with snowmen. (Did they really have so much snow in St. Louis in 1903?)

It is perhaps hard for us now to appreciate the influence that such scenes have on the minds of men and women, but with no television, privation due to rationing, and the grey days of a wartime winter seeming to extend for ever, the sight (and sound) of this 'super-star' of the 1940's cinema, singing this very emotional song would further emphasise the link between snow and Christmas. It is worth emphasising as well that in 1944, although an end to war in Europe was in sight, the war in the Pacific/Asia could well have dragged on for several years more.

A few years only after the end of the second war to end war, British cinema produced what was, in my opinion, the definitive version of 'A Christmas Carol' (actually the film was entitled 'Scrooge') starring Alistair Sim in 1951. Plenty of snow in that - influenced perhaps by the experiences of the British nation from late January 1947 onwards, when we experienced some of the heaviest and longest-lasting snowfall of this century. And of course, the advent of mass access to television, initially black-and-white, then from 1967 (in the UK) in colour, and the making, or re-making (and, horror of horror's, the 'colourising') of the 'classic' stories already mentioned, then the idea of Christmas snow is etched into most people's minds.

... and so we come full circle to where we began. The post-war years of the second half of the 20th century, and the re-inforcement of the idea of a "White Christmas" by the visual media, helped out by popular song, totally without foundation in climatological fact.

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I.AND SHOULD WE WORRY?

Of course not. Dreams and unfulfilled expectations are the stuff of life. Just remember though, before putting some money on a 'White Christmas', that you rarely see a poor bookie!

The following analysis gives a rough idea of the frequency of the two 'forms' of a "White Christmas": the traditional 'deep and crisp & even', and the rather obscure 'bookies' definition (a flake of snow or sleet or other 'solid' precipitation): ... combining the events in the Greater Southeast and Midlands areas (GSE+MID) for one series, and the Scottish and Northern Ireland area populated areas for the other (NIR+SCO)

Analysis based on 1940 – 2020 (81 years)

To summarise: the chances of getting the 'bookies' White Christmas:....

GSE+MID = 12 events in 81 years (14.8%) or roughly **1 year in 7**

NIR+SCO = 23 events in 81 years (28.4%) or roughly **1 year in 3**

[NB: the event in this first category need only be observed at one location within the appropriate area(s), which further 'skews' this record away from my idea of a 'true' White Christmas; however, that's how the bookmakers classification works out in practice.]

and the chances of getting a 'proper' White Christmas:....

GSE+MID = 6 events in 81 years (7.4%) or roughly **1 year in 13**

NIR+SCO = 16 events in 81 years (19.7%) or roughly **1 year in 5**

[NB: the event in this second category must be 'widespread' across the appropriate area to qualify for any category – therefore these 'odds' will differ from records listed elsewhere.]

The recent change to identifying White Christmas events by including sleet, soft hail and some pretty dodgy snow events, has approximately doubled the chances of a 'positive' outcome, certainly in the 'south-eastern' lowland / populated areas of Britain. (Please remember that there is some element of subjectivity to this analysis, though I am confident that the figures are broadly correct taking such a long period.)

J. the LOG of 'White Christmas' events, as gleaned from various sources, such as Daily Weather Reports, Daily Weather Summary, Weather logs etc., along with the records held in the National Meteorological Library, Bracknell (now in Exeter).

1900-1939:

1901: Snow lying on 25th at Manchester.

1906: ? Manchester ?; Southampton, snow from around 10pm. A widespread 'White Christmas', but snow did not reach the London area until early on the 26th, though across parts of Hampshire [see above for Southampton], the snow arrived late Christmas Day (HWxB).

1913: ? Manchester ?

1916: Sleet reported from central London/no snow cover.

1923: Glasgow snow falling and lying (20cm). Manchester snow lying. Snow occurred across many parts of Scotland and northern England. The snow at Glasgow was reported to be the heaviest in the Glasgow area for 33 years (?). At Aberdeen, snow depths of 60 to 90 cm were reported.

1925: Glasgow snow falling and lying. Manchester snow lying.

1927: Snow falling at Belfast on Christmas Day. Sleet at Glasgow on Christmas Day. Manchester (?); 'Classic blizzard' in London and Southampton. Snow reached the Midlands by the early hours, and the southeast of England by 6pm on the 25th. Another true 'White'. (The snowstorm lasted through the 26th and 27th, giving upwards of 6 inches in central London.)

1938: Very severe December of 1938 - see GPE etc. 12 inches of snow fell typically over eastern England and eastern Scotland. Over Northern Ireland and western parts it was nearer 24 inches. This was a true WC . . snow fell at various times from 18th (some publications have 16th) to 26th. Also reported variously that snow fell (somewhere?) on every one of the 12 days of Christmas.

KEY:

GSE = greater London/suburbs and the more populated SE/Home Counties of England.

MID = 'heart of England' Midlands as represented by places like Birmingham, Coventry and the Potteries.

WES = west of England for such places as Bristol, Salisbury, Exeter and Southampton.

NOR = the north country, including Merseyside/greater Manchester, industrial west and south Yorkshire and the northeast of England.

WAL = populated areas of south and SE Wales.

SCO = the central belt of Scotland, and the eastern coastal belt through Fife to Aberdeen.

NIR = populated areas of east and north Ulster.

[The 1990's]

YEAR	GSE	MID	WES	NOR	WAL	SCO	NIR	NOTES
1990	-	-	-	(1)	-	(1)	-	X

(1): some wintry showers about;

1991	-	-	-	-	-	-	-	X
1992	-	-	-	-	-	-	-	X

1993	(1)	(2)				(3)	(4)	(5)
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(1): mainly to s and e of London - none in capital; (2): poor - mainly to w of Birmingham; (3): mainly east and northeast; (4) a good example; (5): a reasonable event, but some major conurbations missed out.

YEAR	GSE	MID	WES	NOR	WAL	SCO	NIR	NOTES
1994	-	-	-	-	-	-	-	X

1995	-	-	-	(1)	-	(2)	(3)	(4)
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(1): mainly ne and yorkshire; (2): plenty of snow lying and falling; (3): patchy snow lying with some new snow; (4): a reasonable event for the north .. the south missing out.

1996	(1)	-	-	(1)	-	-	-	X(2)
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(1): Various weather centres in these areas triggered payouts, with v.light snow or snow grains etc. (2): Noted by many as a 'White Christmas' but only because snow was observed - measurable snow was virtually nil in populated areas.

1997	-	-	-	-	-	-	-	X
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1998	-	-	-	-	-	-	-	X
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1999	(1)	(1)	(1)	(1)	-	(2)	(3)	X(4)
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YEAR	GSE	MID	WES	NOR	WAL	SCO	NIR	NOTES
(1):	Various weather centres in these areas triggered payouts, with a wintry mixture of soft hail or sleet showers. No real snow by my definition. (2): overnight snow some central & eastern areas turned showery after dawn but little or no snow cover lowland areas. (3): best of a bad bunch - hillier areas had snow cover, but not the main towns/cities. (4): another year when the bookies had to pay out (much to their chagrin), but apart from across Northern Ireland, it was a very poor event.							

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YEAR	GSE	MID	WES	NOR	WAL	SCO	NIR	NOTES
2000	-	(1)	(1)	(2)	-	(3)	-	X(4)

(1): By any sensible definition: NIL! Bristol & Birmingham managed to trigger the bookies definition due to sleet/v. light snow shower. (2): Many principal centres (e.g. Newcastle, Leeds & Manchester) saw some snow in some form. Best was in Pennine towns of Yorkshire (Leeds, Bradford, Sheffield etc.), and in the NE. 1cm lying snow in Durham. Manchester caught showers crossing the Pennines – no cover. (3): Plenty of snow showers overnight/morning 24th/25th – significant covering (though not deep- somewhere around 2 cm), but made the tv news bulletins!(4) Nationally, not worth noting, but for Scotland, a useful event.

2001	(1)	(1)	(1)	(2)	(1)	(3)	(4)	X(5)
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(1): Conflicting reports – mainly rasn/soft hail but certainly not worth the mention except for the punters – snow showers late afternoon/evening Cardiff but no cover; (2): useful snow showers etc., penetrating later in the day across Wirral/Lancs plain etc., also the Lancashire Pennine towns, also wintry showers English NE coast; (3): Mainly Aberdeenshire/NE Scotland (3cm by evening Dyce)– plenty of snow showers, snow cover etc – very hit & miss elsewhere; (4) the best and 'true' example this year, with snow Christmas Eve right through to Boxing Day: 5 to 10cm cover in places. (5): taking the UK as a whole, I would say 'no', but locally for NI & NE Scotland, then a good example.

2002	-	-	-	-	-	-	-	X
2003	-	-	-	-	-	-	-	X
2004	-	(1)	(2)	(3)	-	(4)	(5)	X(6)

YEAR	GSE	MID	WES	NOR	WAL	SCO	NIR	NOTES
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(1): Hillier areas of the N & W Midlands (e.g. Staffordshire) had SNSH & Birmingham 'triggered' a "bookies" event, but for most a 'NIL'; (2): Moors (Dartmoor, Exmoor, Blackdown hills), but for many NIL or patchy; (3): areas exposed to NW (away from coasts) good event also locally Northumbria – otherwise lge areas NIL for Yorks/Derbys etc; (4): highly localised depending upon flow – Clyde/Glasgow/Ayrshire & NE Yes, remainder, including Edinburgh, Lothians, Fife NO; (5): another 'good' event for many; (6): a tricky event to categorise nationally – for many upland N & W areas, plus lowlands where NW flow impinged, then 'YES'; for many in the populated central & SE Britain, plus Yorkshire towns, CS England – poor or NIL event.

2005	-	-	-	-	-	-	-	X
2006	-	-	-	-	-	-	-	X
2007	-	-	-	-	-	-	-	X
2008	-	-	-	-	-	-	-	X
2009	(1)	(2)	-(3)	(4)	-(5)	(6)	(7)	(8)

(1): for the greater part, nil, but in a narrow arc through the western & northern Home Counties, including the Chilterns, old snow cover persisted. (2): For most, a nil event, but Staffordshire hills kept some old snow, as did the Malvern Hills and some places in the NE Midlands: also, in the early hours, a little sleet fell in places (e.g. Birmingham airport). (3): generally nil, some old snow over higher West Country moors & hillier areas bordering the Severn Valley. (4): most of Yorkshire/NE England & upland areas generally had good cover from previous falls – lowland Cheshire / Lancashire Plain poor or clear & large clear areas lowland S. Yorkshire. (5): sliver of old snow left upper valleys, but for most a 'nil' event. (6): generally good with plenty of snow leftover from previous days falls, and some irregular 'new' snow in east/early in day, and southwest/evening. (7): Irregular/old snow, plus some evening temporary/light snow, before rain. (8): A 'good' event NOR, SCO & much NIR, mainly due to snow from previous days lying (though thawing/sublimating this day), but all these areas also had some 'new' snow, albeit not particularly plentiful. All other areas either nil, or patchy/irregular/thawing with no 'new' snow.

YEAR	GSE	MID	WES	NOR	WAL	SCO	NIR	NOTES
2010	(1)	(1)	(1)	(2)	(1)	(3)	(4)	(5)

(1): broadly, a 'good' event when considering snow on the ground, however NO snow falling on Christmas Day, similar to 1981 (q.v.): by this date (25th) the snow cover was getting worn, having fallen the previous weekend (6-7 days ago). Amounts generally 2 to 8 cm, but large areas in/around major cities thin/clear (e.g. London, inner Birmingham); conversely, across Devon and upland Wales, Midlands & hills across the Home Counties, depths 10-15 cm reported, locally 20cm or more. (2): Again, snow had fallen previously – the cold/snowy weather having started in the last week of November. On Christmas Day itself, isolated snow showers (or soft hail/snow pellets) were reported running down NE England & Yorkshire. The Lancashire/Cheshire plain though (Greater Manchester / Merseyside included) had NO snow falling, and some large areas with no or poor cover. On the eastern side of the Pennines though, depths 3 to 8 cm within the defined area, more across the Moors/Wolds and lower slopes of the Pennines. (3): No problem with snow

lying – plenty about and depths 4 to 8 cm, with large areas away from major conurbations 15 cm or more; on Christmas Day morning, a scattering of snow showers drifted from the north or northwest, so 'yes' on both accounts. (4): the whole of Ireland had experienced considerable snowfall several days previously, but on the day itself, no snow falling. Amounts of snow across Ulster 5-12 cm, but considerably less major conurbations and close to the coast. (5): By my 'snow-lying' criterion, a 'good' event; by the 'bookies' snow-falling definition, SCO & NOR = yes, remainder = no.

YEAR	GSE	MID	WES	NOR	WAL	SCO	NIR	NOTES
2011	-	-	-	-	-	-	-	X
2012	-	-	-	-	-	-	-	X
2013	-	-	-	-	-	-	-	X
2014	-	-	-	-	-	-	-	X
2015	-	-	-	-	-	-(1)	-(2)	X

(1): Nil for populated areas, but upland districts to the south of the Forth & Clyde valleys had wet snow for a time in the afternoon/evening. (2): a report of rain/snow from Londonderry for a short time in the afternoon – but hardly worth the mention. No doubt upland/mountain areas would have had a period of wet snow in the afternoon but not affecting populated areas.

YEAR	GSE	MID	WES	NOR	WAL	SCO	NIR	NOTES
2016	-	-	-	-	-	-(1)	-(1)	X

(1): As colder air moved SE'wd across the northern half of Britain/Ireland after dark on the 25th, the showers did turn 'wintery' over upland/Highland Scotland & Ulster – but not contributing to this analysis. Also, in Scotland, some 'old' snow was lying at considerable altitude, also not forming part of this analysis.

YEAR	GSE	MID	WES	NOR	WAL	SCO	NIR	NOTES
2017	-	-	-	-(1)	-	-(1)	-	X

(1): Cold air advection behind a retreating frontal system allowed precipitation to reach the surface as snow across the higher ground of southern Scotland (within the envelope of my map above, hence included in 'bookies' category), northern England (especially Cumbria/Northumberland) and extreme elevations of north Wales and other parts of mountain Scotland (not within this analysis). However, no 'lowland/populated' areas reported snow, so for this analysis, NOT an event.

YEAR	GSE	MID	WES	NOR	WAL	SCO	NIR	NOTES
2018	-	-	-	-	-	-	-	X
2019	-	-	-	-	-	-	-	X
2020	-	-	-	(1,2)	-	-	-	X

For the greater part of the UK, a NIL event (despite the Met Office pandering to the Bookies and declaring it a 'White Christmas'; the poor exceptions below.

(1): a cold northerly flow set in during Christmas Eve: vast majority of UK had no PPN, but showers ran across east coastal counties of England – places like east Yorkshire, especially the Wolds/Moors; east Lincolnshire (again the Wolds but also across Fens), Norfolk, Suffolk & parts of Cambridgeshire had late night/ early morning snow/sleet showers on Christmas Day – some light covering reported.

(2): isolated snow reported high ground Peaks/Staffs hills.

Updated: 27/12/2020

[This summary will cease after the summary for 2021.]