

BRITISH SUMMERTIME: TIME TO DECIDE?

The UK's present summertime arrangements and the possibility of conforming to those adopted by the rest of Europe generate much strong feeling and public debate. The lobby for the adoption of European time appears to be growing ever stronger, while the Scots, parts of the industrial sector, and many individuals remain fiercely opposed. At the same time, there is so much confusion that many people do not really know what they are arguing for or against.

A draft seventh Council Directive on summertime has just been issued, which aims to harmonise summertime dates by 1997. In response to requests from the UK and Eire to carry on with their own summertime arrangements but also to have harmonisation of end dates throughout Europe, the Commission has proposed not that the UK and Eire should come into line with the rest of Europe, but that the rest of Europe should come into line with us. The proposals will affect only end dates of summertime, and will not affect the year-round one hour time difference between us and Europe.

If the present proposals come to fruition, the question left facing us boils down to whether or not we want to adopt an option known as SDST, which will essentially move us out of Greenwich Mean Time and into the Central European Time Zone.

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I. WHAT IS SUMMERTIME?

Summertime is the practice of moving clocks forward one hour in the summer months.

Days are longer in the summer. The aim of shifting the clocks is to use the long summer daylight hours to give more time in the summer evenings for work or for after-work leisure activities, rather than letting them be wasted in the mornings while we are all still asleep.

Exactly the same effect could be achieved by getting up, going to work, and therefore finishing work an hour earlier. This is common practice in Norway and Sweden [1], but changing the clocks is thought to be an easier way of organising things.

Time zones

It is crucial to distinguish between time zones and summertime arrangements. Time zones are determined by where the sun is at a given time of day. Britain is in the **Greenwich Mean Time** (GMT) time zone, along with other countries at the same longitude position, such as West Africa, Iceland, Portugal and Eire. When it is midday in the GMT time zone it is dawn in the USA to the west of us, dusk in India to the east of us and midnight in Fiji, on the other side of the Earth.

So the USA to the west is around six hours behind us, and India, to the east, around six hours ahead. In fact, for every 15 degrees of longitude, the international time zone system changes by one hour. Much of Europe is only slightly to the east of us, so it is only one hour ahead of us. This time zone, GMT+1 hour, is called the **Central European Time** zone (CET). Greece, slightly further to the east again, operates on GMT+2 hours.

Nothing we do to alter our clocks will ever change the fact that the daylight hours shorten in the winter. Regardless of the time zone within which the various European countries operate, they all adopt summertime to make use of the longer summer days, and shift back in the winter when days shorten again. This state of affairs comes about because the whole of Europe is quite high up in the Northern hemisphere, and because the Earth revolves on a tilted axis.

The diagram (not to scale) illustrates why days are shorter in the winter. The earth travels around the sun once a year. While it does this the earth also spins around its own axis once a day. However, the earth's axis is not vertical relative to the plane of the orbit, but is at a tilt. For some of the year the northern hemisphere is tilted away from the sun (in the UK's winter), whereas at other times of the year (the summer) it is tilted closer to the sun.

The diagram shows the position of the UK as it rotates around the earth's North-South axis. In the winter, when the axis is tilted away from the sun, the sun appears low in the sky. Also, as the UK rotates around the axis, it is in the shadow cast by the earth itself for longer than it is in the glare of the sun's rays. In other words, nights are long and days are short.

In the summer the axis is tilted towards the sun. The sun appears high in the sky. As the UK rotates around the axis, it is in the sun for longer than it is in shadow; days are long and nights are short. The rays from the sun in the summer that fall onto the UK are also more direct and pass through less atmosphere, which is why summers are hotter than winters.

II. THE CURRENT SITUATION IN THE UK

At the moment, Great Britain and Ireland are on Greenwich Mean Time (GMT) in the winter and, while the clocks have been put forward for summertime, GMT plus one hour in the summer.

The rest of Europe also adopts summertime, but because they are in the Central European Time zone (CET), they are one hour ahead of us for nearly all of the year.

The one hour time difference between us and the rest of Europe is not maintained in September. This is because most Member States put their clocks back on 28 September, whereas the UK and Eire wait a month until 26 October. So when the rest of Europe puts its clocks back at the end of September, the UK is synchronised with the rest of Europe for a brief period, but then one month later, when we put our clocks back, the one hour difference is restored.

How did the UK arrive at its present position?

History

The 1908 Daylight Saving Bill was the first, failed, attempt in the UK to move clocks forward one hour in summer. The idea was to provide more daylight hours after work for the training of the Territorial Army and for recreation, to reduce shunting accidents on the railway and to reduce expenditure on lighting. There were objections that the proposals would disrupt traffic between the UK and Europe, interfere with business transactions with the USA, keep children up late and cause difficulties for the agricultural community [1].

During the Great War the rest of Europe adopted summertime, so annulling some previous arguments against its adoption by the UK. To save electricity, gas and oil, and help the war

effort, the 1916 Summer Time Act advanced the clocks in Great Britain for one hour from 21 May until 1 October.

After a year of this, a consultation exercise indicated that the system was very popular. Since then, summertime has always been adopted in the UK, although there have been periods, notably during the Second World War, when the start and end dates have been altered, or more substantial clock shifts have been made.

Following pressure in the late 1950s for more summertime, the end date for summertime was moved from the start of October to the end of October from 1961-1967, in effect making the lighter evenings last through October. The only major objections had come from Scotland, where darker mornings were viewed with concern.

The BST experiment

In the 1960s, the Government decided to test the support for continuous summertime. A three year experiment was introduced from 1968-1971 when summertime (GMT+1) applied throughout the year. This was given the name **British Standard Time (BST)**.

The Government gave an undertaking that a comprehensive review would be carried out before any decision was taken at the end of the BST experiment. The White Paper which followed in 1970 (**Cmnd 4512, Review of British Standard Time**) pointed out that it was impossible to quantify advantages and disadvantages and that a final decision would need to rest largely on a qualitative decision.

The issue was debated in the Commons on 2 December 1970 and by a vote of 366 to 81 the British Standard Time experiment was discontinued. It has since been alleged by groups in favour of change that the outcome of this vote was affected by powerful lobbying by farmers, the building industry and the Scots, who had overwhelmed a "silent majority". It has also been alleged that this lobbying was helped by the Press, who had produced on their front pages "lurid photographs of a few children injured on the way to school in the dark" [2].

In the late 1980s, faced with an increase in leisure time and pursuits, with the advent of the European Single Market in 1992, and with frequent travel between countries becoming more feasible, the Government decide to once more review the summertime arrangements and performed surveys in 1987 and 1989.

The 1989 Green Paper and options for change

After one preliminary survey which offered perhaps too many (five) options for consideration, a second survey concentrated on three options for change. The eventual outcome was the

Green Paper **Summer Time: A Consultation Document** [1], an excellent attempt to assess the available data and present the arguments. Further comment was invited by the Green Paper on the three options;

a) Limited Harmonisation of alteration dates (loss of summertime in October)

Simply changing the clocks at the end of September rather than at the end of October, *i.e.* at the same time as the rest of Europe.

This has been described as the worst possible option available to us [3], since it would mean losing an hour's evening daylight during October, merely in order to come into line with Europe. In the 1988 survey, only 11% of respondents (out of a total of 410) were in favour.

b) Single/Double Summer Time, SDST (aka CET).

GMT plus one hour in winter, and GMT plus two hours from the end of March to the end of September. 55% of respondents to the 1988 survey were in favour of this. The consultation document coined the acronym SDST for this option, which has stuck. The SDST option is the one being championed by the present lobby groups, notably Daylight Extra.

The simplest way to perceive this option is to think of it as moving us into complete harmonisation with Europe, in effect, putting us in the Central European Time Zone. For all intents and purposes, CET and SDST can be read as one and the same.

c) Retaining the *Status quo*

As we are now: GMT in winter, and GMT plus one hour from the end of March to the end of October. 34% of respondents in 1988, including many Scottish bodies or associations, were in favour of this option.

In considering the responses received, the Government noted the swing in public preference which had occurred in favour of SDST, but also noted that, particularly in Scotland, there was much opposition to change. The Green Paper pointed out that there was very little support for changing the clocks in September rather than October, which helped to narrow the choice to options b) and c) above.

However, since there were few data, the 1989 paper concluded that

no doubt the issue will be decided largely on the basis of opinion and judgement rather than any balance-sheet of gains and losses.

The history of the adoption of summertime in the EC is rather complicated. During the Great War in 1916, Germany initiated the adoption of summertime when it introduced daylight saving in the summer, and France, Portugal, Italy, Holland, Denmark, Norway, Sweden and Austria followed suit.

By the mid 1970s, most of Europe had moved into the Central European Time zone. Various countries had also adopted summertime, with their own dates for starting and ending their summertimes.

The UK and Ireland had adopted summertime from 16 March to 26 October, Italy from 1 June to 22 September, and France from 20 March to 22 September. If other countries had opted for summertime and adopted yet other dates, the scope for confusion within the transport sector would have become enormous [1].

The EC therefore set up a Working Party, which proposed that the EC States should adopt a summertime system and that the dates of summertime should be harmonised in all Member States. No change was recommended on time zones; it was accepted that the UK and Ireland would remain one hour behind the other countries.

Agreement could not be reached on a common end date because the UK and Ireland were reluctant to shorten days in September. Because of their northern latitude, their difficulty was recognised.

In 1979 all Member States adopted summertime, but the UK and Ireland retained their old changing dates (16 March to 26 October) while the remaining Member States opted for 6 April to 28 September.

The European summertime arrangements have been laid down by a series of EC summertime Directives. The first EC Directive on summertime was adopted on 22 July 1980.

The current (sixth) Council Directive on summertime arrangements (EC Directive 92/20/EEC) sets common dates throughout the Community for summertime to start in the two years 1993 and 1994, but recognises, as in previous Directives, two different end dates; one (at the end of October) for Eire and the UK, and the end of September for the rest [4].

The draft version of the seventh council Directive (EC Draft 9047/93) has just been issued [5].

There have been many reports in newspapers over the past year that the Commission has been pressing for the UK and Eire to be harmonised with the rest of Europe. Much of this can be put down to over-reaction or scaremongering. A classic example is a Scotland on Sunday

report that France has been pressing for a unified time across Europe, based on French wintertime [6]. Further reports have said that the EC might force the UK and Ireland to come into line with the rest of the EC in 1995 [7].

However, in response to a flurry of such reports, the European Commissioner for Transport stated that

...the European Commission's intention is not to fix deadlines for British Summer Time, nor have I said that "Britain might have to come into line with the rest of the EC" in this respect...my only concern is to propose to the member states measures to ensure harmonisation of the period during which they change their time...it remains, as it always has been, the responsibility of the member states themselves to decide whether or not they apply summer time and to choose the time they wish [8].

The present EC proposals

The harmonisation of end dates alone, without altering time zone, has traditionally been seen as being the worst option of those open to the UK and Eire. This is because this is viewed as simply meaning the loss of an hour's evening daylight in October; the worst possible result [3].

However, the EC appears to have "come to the rescue" with its latest proposals, which were produced in response to requests from the UK and Ireland to carry on with their own summertime arrangements but also to have harmonisation of end dates throughout Europe [9].

The draft of the next EC summertime Directive says that its aim is *to introduce full harmonisation of the dates for the beginning and end of summer time as from 1997* [5]. The explanatory memorandum to the proposal states that

...the ending date differs since Ireland and the United Kingdom availed themselves of the opportunity afforded by the sixth Directive to opt for the end of October rather than the end of September like the other Member States.

The Commission recognizes that this situation gives rise to disadvantages, in particular in the field of transport and communications. So as to gather as much information as possible on the issue, it consulted the representatives of the economic sectors concerned by summer time. The vast majority favoured full harmonization of summer time, i.e. a common date for beginning summer time and a common date for ending it throughout the community.

...Contacts with experts from the Member States have enabled the Community to ascertain that the Member States intend to maintain summer time arrangements, as indeed do a large number of non-member countries in Europe...

...Furthermore, it appears from the Commission study of the impact of having different dates for returning to winter time that the end of October would be the most appropriate date: a Eurobarometer survey carried out this spring in all Member States revealed that public opinion is very much in favour of having summer time extended until the end of October.

The draft Directive therefore proposes that

...the most appropriate date for the end of the summer-time period is the end of October and not the end of September as in the past.

However, the Directive does not plan to alter the arrangements until 1996, for technical reasons to do with the reorganisation of transport sector adjustment. It is therefore proposed that summer time for 1995 and 1996 should finish at the end of September, but that end dates for 1997 onwards will be at the end of October.

However, the Commission is reported to be "*treading extremely carefully and moving almost regretfully*" with its new proposals, such is its fear of public reaction, so any complacency on the part of the UK and Eire would be premature. A final decision will be made by the Council of Ministers [9].

The 1989 Green Paper had already concluded that because limited harmonisation was so unpopular the options had effectively narrowed to a choice between SDST/CET and the *status quo*. If the draft Directive meets no opposition, it will indeed save us having to contemplate the "worst possible option".

So in effect, all we have to decide now is whether to stay in the GMT time zone or join the CET time zone.

IV. THE ARGUMENTS

The pro-SDST/CET lobby

Undoubtedly the lobby in favour of CET is being heard most loudly at the moment. The main pressure group active in this area is the Daylight Extra Action Group. This was formed

in 1989 and has the active support of a consortium of organisations including Age Concern, the Royal Society for the Prevention of Accidents (RoSPA), the Association of District Councils, the British Tourist Authority, the Sports Council, British Airways, British Rail, Eurotunnel and the Police Federation. In 1993 Daylight Extra ran an exhibition outside the Committee Corridor in the House and also organised a conference which several Members attended.

Dr Mayer Hillman of the Policy Studies Institute (PSI), an independent research organisation and educational charity run on a non-profit basis, has made detailed studies of the SDST option, and has produced the most recent major contribution to the summertime debate, offering a great deal of pro-CET evidence and argument [2].

The general argument on the pro-CET side is that winter evenings would be lighter, the number of road accidents would fall, tourism and leisure would be boosted, energy would be saved, and people would feel better [10,11,12].

The anti-change lobby

Several groups are strongly opposed to the idea of adopting CET. The most prominent of these are groups who need more light in the mornings rather than in the evenings. These include construction workers, farmers and, in particular, the Scots; all groups with considerable political clout, who have in the past opposed any changes to Britain's present arrangements.

The Building Employer's Federation produced the document **Keep Summertime British** in 1989 [13], stating a case strongly against CET. According to Daylight Extra, the NFU has said that its members are "pretty agnostic" these days on daylight saving, and unlikely to lobby against a change to CET [14]. Reports continue to say, however, that farmers and fishermen are opposed to change [15,16]. Some members of the Confederation of British Industry are opposed to CET, although the CBI as a whole has "indicated support for its introduction" [2].

Typical reports in the Scottish press talk of "changes plunging Scotland into a future of long dark winter mornings" [6], and many Scottish and Northern Ireland MPs are reported to be against CET [15].

The arguments against CET/SDST are, briefly, that it would bring only marginal benefits for some people, while creating danger and disruption for those who travel and work in the mornings and outdoors, and condemning Scotland to winter morning darkness.

Accidents

The DoT Transport and Road Research Laboratory (TRRL) produced the report **The Potential Effect on Road Casualties of [CET/SDST]**, in 1989 [17]. This considered data from the winters between 1968 and 1971 during the BST experiment. It also took into account the fact that overall casualty data had fallen between 1971 and 1989, and other factors such as traffic practices, lighting conditions and travel patterns which had changed, or which would change, under CET.

Analyses after the BST experiment indicated that it had been effective in reducing road traffic casualties.

More people were injured in the darker mornings, but fewer people were injured in the lighter afternoons. Throughout the year there are always more people injured in the late afternoon than in the morning, so the saving in the afternoons more than compensated for the increase in the mornings. This meant that there was a net reduction in casualties [17].

The 1989 TRRL report concluded that had CET been applied in 1987, it would have reduced fatalities by around 160, the number of killed or seriously injured (KSI) by around 810 and total casualties by about 2050.

The report considered that these estimates provided a reasonably reliable guide to the consequences of CET.

More recently, these TRRL results have been updated to take into account present trends. In response to a written PQ which asked what estimate had been made of the effect in terms of numbers of (a) lives saved and (b) serious injuries avoided between now and 1995, on present trends, of introducing [CET], the Secretary of State for the Home Department said that

The only such estimates available are those relating to road traffic casualties. Estimates for 1991 are that some 140 deaths and 520 serious injuries could be saved by adopting Central European Time. Savings in subsequent years are likely to be of a similar order.

HCDeb., 22 March 1993, c449w.

The Building Employer's Confederation (BEC) contend that factors such as the introduction of 70 mph speed limits and of the breathalyser test could have contributed to the fall in accident figures around the time of the BST experiment. The BEC also pointed out that at the time of the BST experiment, the then Home Secretary had commented on a *surprising and*

sad increase in the number of child casualties between 6 pm and 7 pm, which is not explained and which rather bedevils the figures at this point [13].

The BEC allege that children travelling to school on dark mornings would face greater risk from road traffic accidents, and that children delivering newspapers would also be more at risk, since postmen had shown an increase in accidents from 2% to 5.3% of the total workforce during the experiment [ibid].

The safety of children travelling to and from school is a real concern to many of those considering CET. The further north children live, the more likely they are to have to go to school in the dark in the winter. CET would mean that even more children would go to school in the dark for part of the year.

Crucially, in this case CET would provide no compensation in the afternoons as happens with road traffic accidents in general, because with most schools going home at 3 or 4 pm, children are travelling home in daylight in any case [1].

There are no data on the safety of school children during the BST experiment, and the 1989 Green Paper concluded that *the possibility of a small net increase in child road casualties under SDST cannot be ruled out.*

This issue is discounted by Mayer Hillman of the PSI for several reasons. For instance, children go to school on only half the days of the year, Christmas holidays coincide with the darkest days, most (89%) childhood traffic accidents occur other than on the way to and from school, and children are often taken to school by car [2].

Hillman's report concludes that

the small increase in road accidents on the darker winter mornings, especially among children on their way to school, which occurred during the [BST experiment] seems to have been so imprinted on the public memory that the far more substantial decrease stemming from the lighter late afternoons in the winter and evenings in the summer has been overlooked. The number of deaths and serious injuries and of damage-only accidents on the roads would now be reduced by over 600 a year, with an estimated saving of over £200 million. All the main organisations concerned with safety have indicated their support for the adoption of [SDST/CET].

Energy savings

If waking hours were better coincided with daylight hours, lighting bills would be reduced. This, after all, was one of the major aims of the daylight saving measures introduced during the First and Second World Wars and during the fuel crisis of 1947.

However, in a nutshell, savings are very difficult to estimate and would not be large compared to the nation's total fuel budgets. The only significant effects would be in lighting, rather than heating, bills.

Heating

Generally, it is likely that offices might require slightly more heating, and homes slightly less, under CET. For instance, under CET, offices would need to be heated an hour earlier in the morning, when it would still be cold. Such effects would probably cancel out [1,2].

Lighting

In Birmingham, it has been estimated that the sun is low enough in the sky to necessitate artificial light for 1715 hours in the year. CET would reduce this total to 1563 hours, a reduction of 9% [2]. There would also be a shift in the pattern of usage; people would be more likely to have to put on the lights when they get up.

CET would therefore flatten the winter evening peak demand and raise the morning demand. The electricity boards considered after the BST experiment that any savings made were marginal and impossible to isolate from other variables, but the Central Electricity Generating Board (CEGB) estimated in 1989 that permanent BST, by shifting peak demand from the evening to the morning, might obviate the need for one power station [1]. This is because the evening peak demand determines the number of power stations that need to be on line.

In 1989 the CEGB also considered however that the pattern of electricity usage was altering in any case, and increasing the morning peak. With the added increase to the morning peak caused by CET, this, rather than the evening peak, could determine the number of power stations needed on stream to match consumer demand and could require substantial new investment [1].

Today, with new generating trends, the above arguments may no longer hold, although making any projections of this sort is very difficult. Off-peak low tariffs and automatic switching are likely to further alter patterns of electricity usage, so an accurate estimate of savings from CET/SDST is almost impossible to make.

The most recent estimates are that SDST/CET could save £60m per year in domestic lighting bills [2].

There is major disagreement about possible lighting savings in the commercial sector from CET. Hillman's recent report [2] estimated, "conservatively", electricity savings of 34% of lighting demand and thus £200m per year from offices and public buildings.

However, the 1989 Green Paper considered that commercial lighting savings would be much less than those in the domestic sector because as a general rule, people are at work during daylight hours and at home during morning and evenings. Also, many parts of office buildings are away from windows and so need artificial light in any case. In 1989 the Electricity Council estimated that savings would be in the order of only one quarter of those in the domestic sector (around £6m at 1989 prices and usage) [1].

An important point that was made in the 1989 Green Paper but omitted from Hillman's recent report is that any energy savings to be made from CET/SDST would be negligible compared to the nation's total energy bill: at the time of the Green Paper, savings would have been less than 1%.

Crime

The Police Federation is in favour of a switch to SDST/CET. It is very difficult however to establish a causal link between daylight hours and crime. British Crime Surveys conducted by the Home Office have given some indication of crime patterns and have suggested that darkness facilitates some types of crime. Other crimes, however, are more associated with daylight. Also, when daylight patterns change, crime patterns may change or evolve with these. The review after the BST experiment could draw no firm conclusions.

Crimes which take place more often in the dark, such as assault, criminal damage, vehicle theft and burglary and household theft, might fall with lighter evenings. Several studies have shown that artificial lighting reduces crime. Violent offences often take place in the dark (but so do drinking and socialising, and many violent offences take place near pubs and clubs) [1,2].

More daylight evenings would not necessarily be a good thing however. Crimes which are typically associated with daylight, such as robbery, threats, theft from the person, and non-contact theft, might be likely to rise. After a change to CET, burglary might increase in the evening if people left their homes more often [1].

It is often pointed out that if it were darker in the mornings, it is unlikely that crime would shift to that time, since few serious crimes are reported in the mornings. In the words of one observer, *criminals it seems, find it very hard to drag themselves out of bed in the morning* [18]. Conversely, if it were lighter in the evenings, offenders who could be out and about later in the evenings might just wait a little longer until night falls, before offending.

Overall, it is difficult to predict any systematic reduction in crime from the adoption of SDST/CET. However, as the Green Paper noted,

There is no doubt that fear of crime (as opposed to its incidence) is related to darkness.

One in three adults feels "very unsafe" or "fairly unsafe" walking alone after dark. Nearly half of younger women and two-thirds of elderly women feel unsafe. One in four secondary school children, and hardly any junior school children, are allowed out by their parents after dark [2].

Undoubtedly, for many pensioners nightfall comes as a curfew. Age Concern favour switching to CET. According to Mayer Hillman;

Many pensioners...and younger women, are effectively confined indoors after dark owing to fears of mugging, assault and molestation.

Leisure and tourism

Leisure time is increasing. The working week is reducing and working hours are falling, paid holidays are increasing, and flexi or shared working hours are increasing. Many schools and employers are generally switching working hours to earlier in the day, leaving time after work for leisure.

The outdoor activity of many groups in the population is limited by the onset of dusk. People spend around an hour longer watching television in the winter than in the summer. However, over 21 million adults and 7 million children partake in sport at least once a month; a substantial increase since the BST experiment [2].

A switch to SDST/CET would give an average daily gain of 55 minutes of accessible daylight hours in the evenings. Lighter evenings would give more time for gardening (the most common outdoor leisure activity) and for outdoor sports. Half of the ten most popular adult sports are daylight dependent. The Sports Council strongly supports the introduction of CET. Some indoor leisure organisations are concerned about lighter evenings, but Bingo operators and cinemas see advantages in pensioners and in children being able to travel to and from these establishments in daylight [2,1].

The British Tourist Board estimates that tourism has a turnover of £25 billion. In 1992 UK residents spent £10.5 billion on holidays in the UK, and 18 million overseas visitors spent £7.5 billion [2]. Both domestic trips and overseas visitors' trips are increasing. A change

to CET would probably extend the tourist season by making it start a month earlier and finish a month later. UK residents might well be encouraged to take more short day trips and weekend breaks [1].

The Scots

Being further north, Scotland shows greater extremes in the extent of its daylight hours than England and Wales (see section I). Brief summer nights mean long summer days in Scotland, but winter nights are long, and winter days short.

A recent PQ gave sunrise and sunset times in several Scottish towns and cities throughout the year, under SDST, aka CET, and under the present arrangements. A greatly abbreviated table is shown below, together with times for two British cities.

Shortest day, SDST/CET	dawn	dusk
Stornoway	10.12	16.36
Glasgow	09.46	16.44
London	08.59	16.51
Bristol	09.08	17.01

Under the current arrangements (GMT) all these times are presently one hour earlier.

[HCDeb., 1 November 1993, c16-18w, and reference 19].

So in Scotland under CET, in the main areas of population, it would not get light until almost ten o'clock in the morning in mid-winter, and later than this further north.

In his recent report [2], Mayer Hillman has admitted that *it needs to be acknowledged that no one likes to start the day before dawn. Yet, in the depths of winter, most Scots have no choice. With the current clock regime, it does not start getting light in December and January in Glasgow and Aberdeen until about 8.30 am, and in the Orkneys, until close on 9 am.*

This does not alter the fact that under CET, these times will all be one hour later. However, according to Mayer Hillman: *The undeniably gloomier start to the day in the winter months (for a few weeks in the north of Scotland it would not be light until up to 10 am) would be*

very substantially compensated for by the extra hour of daylight in the afternoons of these months and on every day for the rest of the year.

Unfortunately many Scots might feel that this was poor compensation and that they would be making a sacrifice for the rest of the UK, for businessmen travelling to Europe, or for bureaucrats in Brussels. The Scottish press (although clearly under a misapprehension that the matter would have been debated by now) has not been reluctant to make its views felt;

MPs are expected to be able to follow their individual consciences in a vote during this Parliament on abandoning GMT and adopting SDST...a number of Scottish MPs are expected to favour the status quo so that children do not leave for school in the dark [20].

A decision could be made this autumn with MPs probably allowed a free vote on the matter. Scottish MPs are expected to remain resolutely against any change [16].

A single unified time zone stretching from Caithness to Crete...is likely to provoke strong opposition from UK government ministers. Two years ago, they voted against a move to scrap GMT which would plunge Scotland into a future of long dark winter mornings [6].

The Scottish NFU president has said that farmers and crofters in the far north of Scotland would be the most badly hit, and that

Animal feeding times dictate start of work on many Scottish farms and gathering animals is difficult enough without having to do it in the dark. This planned move would bring even shorter daylight mornings than we already have [16].

Hillman dismisses this argument along with those from other farmers in the UK, by saying that most cattle are kept indoors these days in the winter and milked in artificially lit parlours.

The Scottish Tourist Board considers that any benefit from SDST would be marginal, and has noted that a change would be unpopular in Scotland [1]. Hillman counters by saying that the Board has overlooked the benefits from lighter afternoons on every day of the year, which would be as likely to lead to increased tourism in Scotland as in the rest of the UK [2].

During the BST experiment, there was an increase in accidents on dark mornings. Also, although the BST experiment reduced casualties in each region of England and in Scotland generally, more people were killed and seriously injured in the north of Scotland (north of

Lothian and Strathclyde) than would have been if the country had been on GMT with summertime [1].

Hillman admits that *to derive the full benefits of the reduction of road traffic accidents in the UK, it is clear that some modification of the timing of the school and work hours for the small population living in the north of Scotland in the winter months may be needed to avoid a possible harmful effect there as, for a few weeks, commuter journeys in both the morning and the late afternoon would otherwise have to be made in the dark* [2].

The morning and far north BST casualty figures have led to 51% of Scots believing that CET would increase accidents, with only 25% believing that it would reduce accidents [3]. However, the morning casualties were more than compensated for by savings in accidents in the afternoons (see section on accidents, above), and casualty savings in southern Scotland would in fact be even greater than those in England under CET.

Daylight Extra say that a Gallup poll in 1992 showed that the Scots are neutral on the issue of switching to SDST/CET, with 42% in favour and 42% against. However, they say that when the TRRL results concerning the true accident figures were explained, these figures switched to 62% in favour and 28% against [3]. Apparently 80% of the English are in favour of central European time [10].

The Secretary of State for Scotland has said that if Scotland were to adopt European Time, estimates [based on the TRRL work described above] indicated savings of 5 fatalities, 23 serious and 256 slight injuries per year. Pedestrians were considered to be the group with the greatest potential benefit. However, the Secretary of State also pointed out that injuries from other activities in lighter evenings might rise [**HC Deb., 5 March 1993, c362-3w**].

The Government is sensitive to the views of the Scots. The Secretary of State for Scotland has said that

Given Scotland's particular geographical position, we would wish to give the most careful consideration to the views of various sectors of the community and public generally on any proposals to change the present summer time arrangement.

HC Deb. 5 March 1993, c362-3w.

The Secretary of State added on another occasion;

The Government have no proposals at present for changing the existing arrangements for summertime. No changes will be made without fully taking into account the views of the public and sectoral opinion throughout Scotland.

HC Deb., 29 April 1993 c.542W.

It has been suggested that Scotland could adopt a time zone independent of the rest of the UK. This would be theoretically possible, and Scotland could stay in the current GMT if the rest of the UK were to move to CET, although it has been said that Scotland would not be acting in its own best interests if it did this [2].

Communications, trade, transport

SDST/CET would almost certainly increase communication with the rest of the Union, since more of the working day would coincide. The time overlap with the Middle and Far East would be increased, but the overlap of the working day with North America would decrease by an hour; the New York opening of the market would move to 3 pm London time.

In the 1989 survey, workers in the London foreign exchange and money markets thought that SDST/CET would mean London gaining business in Europe, the Middle East and Japan, and that this would outweigh any loss of business in New York.

British residents make 8-9 times more business trips to Europe than to North America [2]. Many continental offices open at 8 am their time, so with the time difference, this means they start work two hours earlier than UK. Thus a British businessman has to make a very early start to attend a morning meeting in Europe. Afternoon meetings usually mean they have to stay overnight. European businessmen have the advantage of going in the opposite direction, and since this means they do not have to stay overnight, they save their firms considerable expense.

Ferry operators and many airlines presently have to allow for local time differences in their scheduling, and favour a switch to CET, as do Eurotunnel and British Rail. Rescheduling would require a one-off cost, and would require considerable notice, but would then result in permanent savings. Several airlines expressed concern in the 1989 survey that landing slots might have to be renegotiated at airports, incurring considerable expense in the dislocation of schedules, but they also noted that flights to and from Europe in the same day would save the cost of air crews having to stay overnight, and extra air journeys would create considerable extra revenue [1,2].

Agriculture and construction industries

Both farmers and building workers work outdoors and start work earlier than the bulk of the population. SDST/CET would mean darker mornings. Suggestions that these groups should adjust their working day, to start work and finish work an hour later in the day and avoid the dark mornings under CET, have been rejected in the past.

Primary producers in the agricultural community, *i.e.* the farmers, are concerned that CET would make things difficult for livestock farmers, and for arable farmers, who would have to wait an hour later before starting work on crops in the growing season. The NFU assumed in 1989 (with some evidence) that arable farmers would not be willing to adjust their working hours to start and end their working day an hour later in the winter, as happens in some Scandinavian countries. Livestock farmers would have to begin work at the same time, being governed by their animals' body clocks, and would thus have to do an extra hour of work in darkness [1].

Mayer Hillman alleges that it is now only the one-third of dairy and livestock farmers who are opposed to change, and that arable farmers are far less worried, seeing the extra hour of daylight in the afternoon as a useful time for ploughing, sowing or harvesting. He also says that increasing modernisation of farming, such as the use of well-lit milking parlours, negates many of these arguments [2].

However, the distributors and processors of food are mostly in favour of CET. Also, in the 1989 survey, organisations such as Action in Communities in Rural England (ACRE) and the National Office of Animal Health (NOAH) supported CET and considered that the farming community had overstated their case, since much modern farming is carried out under cover. The NFU is reported as saying that its members are now "pretty agnostic" these days on daylight saving, and unlikely to lobby against a change to CET [14]. Reports continue to say, however, that farmers and fishermen are opposed to change [15, 16].

Builders also spend much time out of doors and start work early, most between 7.30 am and 8.00 am. Dark mornings might mean more probability of accidents associated with frost, artificial or low natural lighting, and lack of alertness. The use of floodlights is seen as expensive and unfeasible at many sites. The Building Employers' Confederation, the Federation of Civil Engineering Contractors and the Electrical Contractors' Association have all rejected the suggestion that their workers should start and end work an hour later under SDST, since this would move them into the main rush hours, so increasing congestion and lateness, and delaying the delivery of materials [1].

General well being and health

Some very general assertions are made concerning the general well being of people under SDST, and these may be viewed by some as wishful thinking or pure speculation. Nevertheless, the British Medical Association supports SDST/CET.

Much of the population do not take enough exercise. According to Mayer Hillman, putting the clock forward an hour would increase opportunities for exposure to daylight, encourage outdoor activity and *clearly help to promote the fitness of both adults and children, thereby*

leading to some improvement in health. Other putative health effects would range from increased vitamin D synthesis in the body to less physical and mental fatigue, and improvements for some skin diseases. Darkness on rising may lead to sluggishness and performance deficits, but this is discounted as a temporary phenomenon [2].

Seasonal Affective Disorder (SAD), said to affect about 1% of the population, and to be caused by lack of sunlight in the winter, leads to lethargy, irritation and withdrawal. According to Mayer Hillman, some specialists believe that more exposure to bright (natural or artificial) light would also benefit a much larger proportion of the population who suffer from sub-clinical depression [2].

V. PRESENT OPTIONS

If the UK did decide to move to Central European Time, on either an experimental basis (as in the BST experiment) or on a permanent basis, this would require fresh primary legislation. The Secretary of State for the Home Department has acknowledged that if CET were to be adopted, transport operators would be the sector requiring the longest period of notice, of between 12 to 18 months, in which to prepare for such a move [**HCDeb., 15 March 1993, c40-41w**].

In a written PQ in November 1992, the Secretary of State for the Home Department was asked what consultation had taken place since the publication of the Green Paper, and when the Government intended to bring forward proposals on the matter. In his reply, the Secretary of State said [**HCDeb., 30 November 1992, c7w**];

"The Green Paper consulted on certain options for future summer time arrangements, and revealed deep differences of opinion on them; national consultation on these options has not been repeated.....the European Commission is reviewing its position on summer time and that may affect the options. We shall bring forward our own proposals when the Commission's approach is clear."

In the most recent statements on the possibility of switching to SDST and on the future of British summer time, the Secretary of State has said that [**HCDeb., 4 November 1993, c363w, HCDeb., 25 November 1993, c.155**];

We expect to bring our consideration of policy on future summer time arrangements to a conclusion soon. We shall take into account the possible outcomes of negotiations on the recent draft 7th EC directive on the start and end dates of summer time, including its proposal that from 1997 all member states should adopt the October end date currently used in the United Kingdom and Ireland.

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