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Daylight Saving Time

Research Paper B34 (revised October 2002)

(formerly Backgrounder 34)

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The last Sunday of the month, October 27, 2002, marks the end of Daylight Saving Time (DST) in most of Canada, the United States and other countries of the northern hemisphere. At 2:00 a.m. local time we will reset our clocks back an hour thus reverting to "Standard Time" for the next six months.

This backgrounder examines basic questions, history and interesting facts related to both Daylight Saving Time and Standard Time.

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1. Introduction

The last Sunday of the month, October 27, 2002, marks the end of Daylight Saving Time (DST) in most of Canada, the United States and other countries of the northern hemisphere. At 2:00 a.m. local time we will reset our clocks back an hour thus reverting to "Standard Time" for the next six months.

In contrast, October 27, 2002 marks the arrival of [DST in Australia](#). Residents of New South

Wales, Victoria, the Australian Capital Territory and Tasmania will be "springing forward" at 2:00 a.m. local time just as we are "falling back."

This backgrounder will examine basic questions, history and interesting facts related to both Daylight Saving Time and Standard Time.



2. What is Daylight Saving Time?

The practice of advancing the clock one hour ahead of Standard Time for a period of approximately six months is known as Daylight Saving Time (DST). Daylight Saving Time, also known as "summer time" in some countries, is a deviation of [Standard Time](#). In Canada and the United States, DST begins at 2:00 a.m. on the first Sunday of April and ends at 2:00 a.m. on the last Sunday of October. DST is observed to provide a longer period of daylight to enjoy outdoor activities during summer evenings and to realize financial savings by conserving fuel and energy. The need to conserve fuel and energy has taken on a new urgency in several American states over the past couple of years. Last year, the experience of brownouts and rolling blackouts prompted legislators from California and several Western states to consider year-round DST or even Double Daylight Saving Time (DDST).¹



3. What is Standard Time?

[Sir Sandford Fleming](#), a Canadian railroad planner, engineer and citizen of Peterborough, Ontario created Standard Time. Prior to the establishment of Standard Time, local time was set by the position of the sun at midday ([solar time](#)). As a result, time varied from community to community. Prior to 1883, there were 100 or more local time zones in the United States based on solar time.² The development of the railways in the mid-19th century put local time in one community at odds with local time in another. This led to much confusion and annoyance in terms of scheduling.

Before Sandford Fleming invented Standard Time, 12 p.m. in Kingston was twelve minutes later than 12 p.m. in Montreal and thirteen minutes before 12 p.m. in Toronto. Noon was the time when the sun stood exactly overhead. This was the way clocks were set all over the world. In the old days, locally-based time made sense to everyone, but with the introduction of railways, it became highly inconvenient and inefficient. Imagine traveling across the country by train. At

every stop along the way, you would have to reset your timepiece by the local clocks. Travelers sometimes carried a number of watches, or one with six different faces, each labeled with the name of a different city. It was also a nightmare for railway stationmasters, who could not deal with train schedules based on local time. The result was chaos for a transcontinental railway.³

Sir Sandford Fleming (1827 – 1915)



Graphic reproduced by kind permission of National Research Council of Canada and the Canadian Science and Engineering Hall of Fame.

Resources

(bolded text links to a web document, a call number indicates the item is in the Legislative Library. Call 325-3901)

Sir Sandford Fleming

[Canadian Science and Engineering Hall of Fame](#)

[Sir Sandford Fleming](#)

Great Moments: Ontario 2000. Click on "FullStory" for a brief biography.

Clark Blaise, *Time Lord: The Remarkable Canadian who Missed His Train, and Changed the World*, Toronto: Random House, 2000.

Lawrence J. Burpee, *Sir Sandford Fleming Empire Builder*, [London]: Oxford University Press, 1915.

B F 629 B (old class)

Hugh Maclean, *Man of Steel The Story of Sir Sandford Fleming*, Toronto: the Ryerson Press, 1969

B F 629 M (old class)

Lorne Edmond Green, *Sandford Fleming, The Canadians* (Don Mills: Fitzhenry & Whiteside Limited, 1980).

625.1 G 82 1980

Doris J. Unitt, Andrew Osler, Edward McCoy, *Sir Sandford Fleming*, (Peterborough: Review Printing Co. Ltd., 1968).

B F 629 Un (old class)

The solution was to adopt a system by which the clocks would read consistently in one large region. In the late 1870s, Sandford Fleming advocated the adoption of a world-wide standard or mean time. He was instrumental in convening an [International Prime Meridian Conference](#) in Washington in 1884 at which the system of international Standard Time was adopted with 24 meridians, each 15 degrees (one hour) apart in longitude, starting from [Greenwich, England](#), the prime meridian. Each time zone would keep the local time of the meridian that bisected it.

Standard Time zones were first used by the railroads in the United States and Canada on November 18, 1883. Standard Time was not enshrined into U.S. law, however, until March 19, 1918 when the *Standard Time Act* came into force.⁴

Standard Time Resources

(bolded text links to a web document, a call number indicates the item is in the Legislative Library. Call 325-3901)

The New Encyclopaedia Britannica, Volume 11, 15th ed., Micropaedia (Chicago: Encyclopaedia Britannica, 1998), p. 208.
CORE 031 N 42 1998 v.1-32

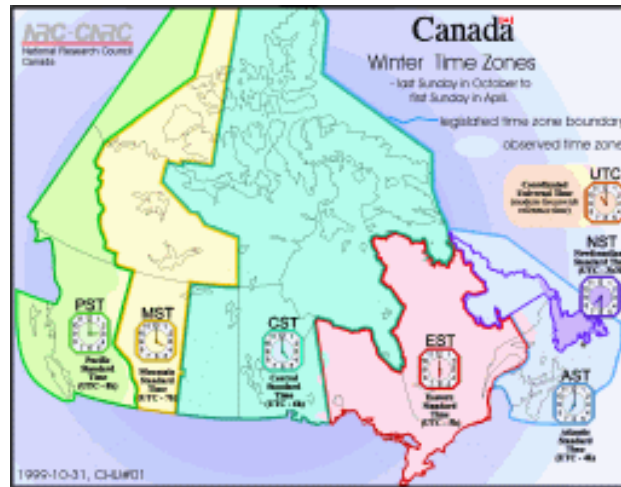
Ian R. Barkky and Elizabeth Harrison, "Standard and Daylight Saving Time," *Scientific American*, Vol. 240 No. 5 (May 1979), pp. 46-53.
Per

["Timed by the zone,"](#) Write to Know – Answers to Readers' Perplexing Questions, *Canadian Geographic*, 1998.
Per



The Time Zones of Canada

There are six time zones in Canada –Newfoundland Standard Time (NST), 3½ hours from the Greenwich meridian; Atlantic Standard Time (AST), 4 hours from Greenwich; Eastern Standard Time (EST), 5 hours from Greenwich; Central Standard Time (CST), 6 hours from Greenwich; Mountain Standard Time (MST), 7 hours from Greenwich; and Pacific Standard Time (PST), 8 hours from Greenwich.



Map reproduced with the kind permission of the Institute for National Measurement Standards, National Research Council of Canada. Click for a [better view](#) or [more information](#).



Newfoundland's Unique Time Zone

Many people wonder why the Province of Newfoundland has a time zone that varies by the half hour rather than the standard one hour. While the system of Standard Time employs 24 meridians, and each are theoretically the centres of 24 Standard Time zones, some adjustments have been made to the time zones for the convenience of inhabitants that lie within the zones. Newfoundland, (but not Labrador), lies squarely in the eastern half of its time zone, exactly three and a half hours from Greenwich. The Newfoundland government attempted to bring the province into conformity with the other Atlantic provinces in 1963, but withdrew in the face of stiff public opposition. Other countries that operate on the half hour time difference are: Suriname, Iran, India, Sri Lanka, and Central Australia.⁵



4. Brief History of Daylight Saving Time

Benjamin Franklin made one of the first references to saving daylight in 1784 in a humorous essay entitled *Turkey vs. Eagle, McCauley is my Beagle*. Next, in 1907, [William Willett](#), a London builder proposed setting clocks ahead by 80 minutes in four moves of 20 minutes each during the spring and summer. In his pamphlet called *The Waste of Daylight*, he wrote,

Everyone appreciates the long, light evenings. Everyone laments their shortage as Autumn approaches; and everyone has given utterance to regret that the clear, bright light of an early morning during Spring and Summer months is so seldom seen or used.⁶

In 1908, an initiative of the British Parliament to advance the clock by one hour in the spring and return to Greenwich mean time in the fall was rejected. In 1916, an act was introduced in the British Parliament entitled *British Summer Time*. Clocks were advanced one hour ahead of Greenwich Mean Time during the summer months. During the first World War, clocks in several countries, including Australia, Great Britain, Germany and the United States were advanced one hour in an effort to save energy used for artificial lighting. In the United States, the measure proved unpopular, so it was repealed after the war. During the Second World War, Congress reinstated DST from February 2, 1942 until September 30, 1945. England used "double summer time," advancing the clocks two hours from Standard Time in the summer and one hour in the winter. In Canada, federal legislation established DST during a limited portion of the Second World War.

Between 1945 and 1966, there was no federal law regulating DST, and the U.S. allowed state and municipalities to observe DST or not. By 1966, 100 million Americans were observing DST through local laws. This brought confusion to industries in the transportation and communications sector. Trains and buses had to publish new schedules each time a state or town began or ended DST. A transportation industry committee began to organize in support of time uniformity. During their campaign the committee was horrified to learn that on the 32-mile stretch of highway (Route 2) between Moundsville, West Virginia and Steubenville, Ohio, the bus driver and passengers had to endure seven time changes.⁷ Congress decided to end the confusion and establish one pattern across the country with the [Uniform Time Act of 1966](#) (U.S. Code, Title 15, Section 260a). The legislation decreed that DST would begin on the last Sunday of April and end on the last Sunday of October. The U.S. Department of Transportation has jurisdiction over DST in the United States.⁸

In response to the OPEC oil embargo, in 1974 and 1975 Congress placed the country on year-round DST on a trial basis in an effort to conserve energy and to explore what advanced-time period would be most acceptable to the country.⁹ Congress discontinued the extended DST period in 1975 due to opposition from the farming states and reinstated the six month practice. At the conclusion of the two year trial period, the U.S. Department of Transportation concluded that DST saves energy, prevents traffic injuries (except for the months of November through February), and reduces peoples' exposure to crime. In 1986, President Reagan amended the legislation to commence DST three weeks earlier, to the first Sunday of

April. No change was made to the end date. This was done to conserve energy for the entire month of April. It is estimated that extending DST back from the last Sunday of April to the first Sunday yields savings of 300,000 barrels of oil nationwide.¹⁰ Today, the change to DST on the first Sunday in April and the last Sunday in October also marks the more recent, semi-annual ritual where households are encouraged to change the nine-volt batteries in their smoke alarms.¹¹

Daylight Saving Time Resources

(bolded text links to a web document, a call number indicates the item is in the Legislative Library. Call 325-3901)

The New Encyclopaedia Britannica, Volume 3, 15th ed.,
Micropaedia (Chicago: Encyclopaedia Britannica, 1998.), p.925.
CORE 031 N 42 1998 v.1-32

The Canadian Encyclopaedia, Volume 4, 2nd ed., (Edmonton:
Hurtig Publishers, 1988), pp. 2162-3.
971.00321 C 16 1988 v.1-4

Bob Aldrich, Information Officer, California Energy Commission,"
[Saving Time, Saving Energy: Daylight Saving Time, Its History and
Why We Use It.](#)" (September 27, 2001).

Dynamic Educational Advancement (IDEA), WebExhibits, "[Daylight
Saving Time – First there was Standard Time](#)"



5. Do All Canadian Provinces/Territories Observe DST?

All provinces but Saskatchewan observe DST. Saskatchewan's *Time Act* establishes that Central Standard Time shall be used and observed in the province throughout the year in eastern Saskatchewan and northeastern Saskatchewan. Central Standard Time is also observed and used throughout the year in northwestern Saskatchewan except for those areas where a majority of voting citizens elect to observe a time other than Central Standard Time. Saskatchewan's *Time Act* establishes "time option areas" in western Saskatchewan in which residents observe Central Standard Time during the summer period from the first Sunday in April until the last Sunday in October, and Mountain Standard Time in the winter from the last

Sunday in October to the first Sunday in April, (unless a majority of the electors in a time option area vote in favour of observing Central Standard Time in the winter period as well).^{[12](#)}

Some provincial officials have observed that, prior to 1966, Saskatchewan presented the most complicated time picture of any province in Canada. This was partly due to the fact that the Standard Time zone split the Province down the middle. The area east of the 105th Meridian is Central Standard Time, while the area west of it is in Mountain Standard Time. Urban voters favoured Central Standard Time while rural voters favoured Mountain Standard Time. Citizens were similarly split on the question of Daylight Saving Time. In 1966, *The Time Act* established the current system. Today, Daylight Saving Time is observed in Saskatchewan in only a small number of communities – the City of Lloydminster, and the Battle River Time Option Area.^{[13](#)}

During the annual meeting of the Saskatchewan Chamber of Commerce (SCC) in spring 2001, the Chamber passed a resolution calling for the Saskatchewan government to adopt DST. The SCC argued that adopting DST would “reduce energy consumption and increase tourism by using more of the available daylight for production and leisure activities.”^{[14](#)} The Saskatchewan Urban Municipalities Association (SUMA) approved a similar resolution at its 2001 convention. The Association president wrote Premier Lorne Calvert asking if the Premier would consider holding a referendum on the matter of DST in conjunction with the next provincial election [expected in 2003]. Premier Calvert responded to SUMA's request in mid-September, stating that the government will address the issue of DST in Saskatchewan, but he did not indicate when or how.^{[15](#)} To date, the government has hinted that it could hold a referendum on the matter in conjunction with the 2003 provincial election. ^{[16](#)}

Canada's newest territory Nunavut straddles three time zones – Eastern, Central and Mountain. When the Territory was first created, however, elected representatives wished to have all the people of Nunavut within a single time zone in an effort to create uniformity and ease of communication across the entire 2.1 million square kilometre area. Thus, on October 31, 1999, the new territory changed from three time zones to a single time zone (Central Standard Time). This immediately created concerns for people in the eastern region, where, during the winter, the sun was setting at 1 p.m. School children who set out in daylight were arriving home in complete darkness. Residents of Baffin Island in the eastern part of the Territory refused to adopt Central Standard Time. Hunters observed that the sun rose at 3:00 a.m. and unless they set out at that time, they would be short-changed by an hour of precious daylight.^{[17](#)}

In response to worries about the safety of school children and other concerns, the Nunavut government polled residents, business leaders and service organizations of every region within the territory seeking a compromise. In October 2000, the press reported the government's solution to the time zone conundrum. The Territory's time would conform to the Eastern Time zone for approximately six months (starting October 29, 2000), and to the Central Time Zone for the next six months. Thus, at 2:00 a.m. local time on the last Sunday of October, when most Canadians were 'falling back' from Daylight Saving Time to Standard

Time, residents of Nunavut were instructed *not* to set back their watches. This one hour "gain" would thus move Nunavut time into conformity with the Eastern Standard Time zone. It was further announced that at the end of six months when the first Sunday of April 2001 arrived and most Canadians were advancing their clocks forward an hour to Daylight Saving Time, that Nunavut clocks would, again, remain unchanged, thus moving the territory's time into conformity with the Central Standard Time zone for the next six months.^{[18](#)}

But the revised arrangement was not popular. On March 1, 2001, Nunavut's Minister of Justice, the Hon. Paul Okalik issued a statement explaining that effective Sunday, April 1, 2001, three time zones (Eastern, Central and Mountain) would be re-established for Nunavut. Mr. Okalik noted that the single time zone model had proved controversial since its inception. While refinements were made to the single time zone model, these too had their shortcomings. Consulting with mayors and MLAs across the Territory, the Justice Minister heard that residents were overwhelmingly in favour of returning to three time zones for Nunavut. The government responded by introducing legislation to amend the *Interpretation Act* accordingly.^{[19](#)}

Not all Ontario municipalities observe DST. Atikokan lies 190 km west of Thunder Bay and falls within the central time zone. It does not change to DST in April and chooses to remain on Central Standard Time year round. The matter has been put to a vote during past municipal elections, but so far, residents prefer the status quo.

In Northwestern Ontario, the municipalities of Pickle Lake and New Osnaburgh lie just west of the 90th meridian which separates the eastern and central time zones. Like Atikokan, Pickle Lake and New Osnaburgh do not observe DST and choose to remain on Central Standard Time year round. In the view of township officials, it is not practical to make the twice-yearly time shift. The towns are northerly and lie between 50° and 51° latitude. As such, during summertime, it remains light well into the evenings. While these three towns may not adjust their clocks in April and October as do other Ontario municipalities, they must nevertheless adjust to the fact that for the fall/winter months of the year their local time conforms to Thunder Bay in the eastern zone and for the spring/summer months their clocks match Kenora in the central zone.

In the U.S., all states observe DST except for the [Eastern Time Zone portion of the State of Indiana](#), most of Arizona (except the Navajo Indian Reservation in Arizona), Hawaii, American Samoa, Guam, Puerto Rico, and the Virgin Islands. The reason Arizona does not observe DST is partially based upon energy-conservation concerns. Residents want the summer sun to go down an hour earlier so that they can go outdoors after sunset when it's cooler. Observing DST would result in people staying indoors longer and using more air conditioning.^{[20](#)} In the southern hemisphere, Queensland, the Northern Territory and Western Australia do not participate in DST.



6. Who Regulates DST in Canada?

While the federal government regulated DST as national policy during the Second World War, and municipal governments had jurisdiction thereafter, provincial governments now regulate it through the statutes presented in the Table: Provincial Legislation and DST.

Table:
Provincial Legislation and DST

Province / Territory	Title of Act	Department / Ministry Administering the Act
British Columbia	<i>Interpretation Act</i>	Attorney General
Alberta	<i>Daylight Saving Time Act</i>	Justice
Saskatchewan	<i>The Time Act</i>	Government Relations and Aboriginal Affairs (formerly Municipal Affairs, Culture and Housing)
Manitoba	<i>The Official Time Act</i>	Intergovernmental Affairs
Ontario	<i>The Time Act</i>	Attorney General
Quebec	<i>The Official Time Act</i>	Justice & Municipal Affairs
New Brunswick	<i>The Time Definition Act</i>	Premier's Office
Nova Scotia	<i>The Time Definition Act</i>	Justice
Prince Edward Island	<i>Time Uniformity Act</i>	Attorney General
Newfoundland and Labrador	<i>Standard Time Act</i>	Municipal and Provincial Affairs

Northwest Territories	<i>Interpretation Act</i>	Justice
Nunavut	<i>Interpretation Act</i>	Justice
Yukon	<i>Interpretation Act</i>	Justice



7. Other Countries That Observe DST

Approximately 70 countries worldwide observe DST. (See [table](#)). But the dates that other countries observe DST vary. In 1996, the European Union (EU) standardized a EU wide "summer time period" which extends from the last Sunday in March through the last Sunday in October. In the UK, a Summer Time Order established the period of summer time. The start date for summer time commenced on the last Sunday in March extending to the last Sunday in October. As of 2002, the UK follows EU law on summer-time arrangements.^{[21](#)} In Israel, DST is determined on a yearly basis, because religious considerations dictate that DST must end before the New Year. This can fall any time between early September and early to mid October. During the summer, Russia advances its clocks two hours ahead of Standard Time. During the winter, all 11 of the Russian time zones are one hour ahead of Standard Time. In the southern hemisphere, where summer arrives in December, DST is observed from October to March. Australian states observe DST from the last Sunday of October until the last Sunday of March. Equatorial and tropical countries do not observe DST since day and night are equal throughout the seasons.^{[22](#)}



8. Why "Daylight Saving Time" Instead of "Daylight Savings Time"?

There is no "s" because the term refers to saving daylight, which is singular.



9. Why Not Observe DST Year Round?

While some people would like DST year-round, there are practical reasons for avoiding it during the late sunrise months of November through February. At the conclusion of the two-year trial period in the U.S. in 1974-75, data compiled showed a statistically significant increase in fatal traffic accidents between 5:30 and 9:30 a.m. during the late sunrise months of January and February 1974, compared with 1973. While the increase in accidents could not be definitively attributed to Daylight Saving Time, DST as a factor in these accidents could not be ruled out either.²³ The morning darkness was and remains a concern for parents whose children wait for school buses or walk to school in the morning during November through February. In the rural communities, there is concern when young children have to travel down lengthy laneways to catch the school bus.²⁴ Daylight Saving Time is most acceptable to the public when sunrises are not too late and sunsets are not too early.²⁵ Some experts believe that the best period for DST in terms of light symmetry, is the six month period starting on the first Sunday in April and ending on the last Sunday in September.²⁶

In light of recent electricity shortfall problems faced by the State of California, in May 2001, the California state legislature sent a Senate Joint Resolution to the White House and Congress asking that California be permitted to enact DST on a year-round basis. Initial reaction to the proposal by public officials indicated that while the idea had merit, it would require more study. By the end of September 2001, Congress and the White House, distracted by the events of September 11, had not yet acted on the request.²⁷

Similar initiatives have followed. A Representative from California introduced legislation proposing year round DST and Double DST for the summer in four western states: California, Nevada, Oregon and Washington). California estimates that the practice would yield average energy savings of 0.5 percent during April to October. Critics argue that the benefits would be offset by the confusion it could cause. A senior official with the U.S. Department of Transportation recommended more study: "Clear and consistent time observance is crucial for maintaining bus, train and airline schedules. In addition, consistent time schedules and observance are crucial in assuring railroad safety because the same tracks are often used for trains heading in both directions."²⁸ The President of the Utility Consumers Action Network in San Diego observed that: "It has the potential of creating a lot of confusion if it is not done with some manner of uniformity." Some argue that the proposal is too far-reaching. The President of an Electric Utility Benchmarking Association pointed out that a two-hour change would be a nightmare: "We do a lot of business with those in Australia who are springing forward in time every time we fall back. To make the shift double would be way too chaotic."²⁹



10. Opposition to Daylight Saving Time

Earlier this century, farmers were opposed to Daylight Saving Time as it was more convenient to do their chores in the morning light. Farmers have historically been opposed to Daylight Saving Time because their rising patterns had more to do with the rhythms of their agricultural vocation than the hour on the clock. DST is no longer a contentious issue among farmers, however, because the pervasive use of electricity and artificial light permits them to work in the absence of sunlight. Opposition to DST has been dropped from the U.S. Farm Bureau's policy book within the last few years.³⁰

Some people resent the twice a year inconvenience of adjusting their alarm clocks, and resetting the clocks on their various appliances.³¹ Others dislike adjusting their sleeping patterns and find the change disruptive and disorienting. They complain that adjusting to DST or back to Standard Time is "like getting jet lag without even leaving home."³²

A neuropsychologist in British Columbia published a study claiming that the time change in the spring and fall increases driver fatigue resulting in an increase in automobile collisions in the weeks following the start/end of DST.³³ Other experts dispute these claims.³⁴ However, a Hamilton sleep disorder specialist has observed that the loss of as little as one hour of sleep (as happens during the shift to DST) can have a significant impact on individuals already suffering from sleep deprivation.³⁵

Researchers at Stanford and Johns Hopkins universities claim that there may be a link between the spring change to DST and an increase in auto accidents. Reporting their findings in the journal *Sleep Medicine* the researchers observed a significant increase in the number of fatal auto accidents on the Monday following the spring change to DST. They reviewed records on fatalities kept by the U.S. National Highway Transportation Safety Administration from 1974 to 1995. The data showed an average of 78.2 fatalities had occurred during the weeks prior to the shift while an average of 83.5 fatalities occurred immediately following. According to the researchers: "As expected for this physiological change, the effect was significant for the first working day (Monday) after the change but not for the day of the change (Sunday) when people had a chance to sleep in."³⁶ Several economists from British Columbia have suggested that disrupted sleep routines lead to unusual declines on the stock market on the Monday following the start/end of DST.³⁷

Finally, Robertson Davies, who wrote under the pseudonym Samuel Marchbanks for the *Peterborough Examiner* in the 1940s, made these whimsical observations about Daylight Saving Time:

Went cheerfully through the whole day without realizing that the usual haphazard tinkering with the clocks was in progress, and that I should have been enjoying the benefits of Daylight Saving Time. I don't really care how time is reckoned so long as there is some agreement about it, but I object being told that I am saving daylight when my reason

tells me that I am doing nothing of the kind. I even object to the implication that I am wasting something valuable if I stay in bed after the sun has risen. As an admirer of moonlight I resent the bossy insistence of those who want to reduce my time for enjoying it. At the back of the Daylight Saving scheme I detect the bony, blue-fingered hand of Puritanism, eager to push people into bed earlier, and get them up earlier, to make them healthy, wealthy and wise in spite of themselves.³⁸



Notes

¹ Year-round DST occurs when countries advance their clocks ahead by one hour throughout the entire year. The U.S. Congress placed the United States on DST in 1974-75 for eight and ten months respectively as an energy conservation measure in response to the OPEC oil embargo. The effort worked, but Congress discontinued the practice in 1975 due to opposition from the farming states. Double Daylight Saving Time or DDST would advance the clocks by two hours in the summer months only, and is thought to yield energy savings. During WWII, Great Britain used DDST during summer months (known as "Double Summer Time") and experienced more energy savings than with DST. To date, the United States has not experimented with Double Daylight Saving Time. See: United States, U.S. House of Representatives, Committee on Science, Subcommittee on Energy, Hearing Charter for Hearing on "Energy Conservation Potential of Extended and Double Daylight Saving Time." (24 May 2001) n.p.

² United States, U.S. House of Representatives, Committee on Science, Subcommittee on Energy, Hearing Charter for Hearing on "Energy Conservation Potential of Extended and Double Daylight Saving Time." (24 May 2001) n.p.

³ The CRB Foundation Heritage Project, "Sandford Fleming makes trains run on time." Internet site at <http://heritageproject.ca/media/minutes/expanded/ssflem.htm> accessed on 4 October 1999.

⁴ Institute for Dynamic Educational Advancement (IDEA), WebExhibits, "Daylight Saving Time – First there was Standard Time." Internet site at <http://www.webexhibits.com/daylightsaving/d.html>, accessed on 4 October 1999.

⁵ "Timed by the zone," Write to Know – Answers to Readers' Perplexing Questions, *Canadian Geographic*, 1998. Internet site at <http://www.canadiangeographic.ca/JF98Write.htm>, accessed on 12 July 1999.

6 Dynamic Educational Advancement (IDEA), WebExhibits, "Daylight Saving Time – Rationale and Original Idea." Internet site at <http://www.webexhibits.com/daylightsaving/d.html>, accessed on 4 October 1999.

7 Institute for Dynamic Educational Advancement (IDEA), WebExhibits, "History and Information – Daylight Saving Time, Early Adoption, U.S. law." (2001) Internet site at <http://webexhibits.org/daylightsaving/e.html> accessed on 26 September 2001.

8 Bob Aldrich, Information Officer, California Energy Commission, "Saving Time, Saving Energy: Daylight Saving Time, Its History and Why We Use It," May 13, 1999. Internet site at <http://www.energy.ca.gov/daylightsaving.html>, accessed on 9 July 1999.

9 Ian R. Barkky and Elizabeth Harrison, "Standard and Daylight-saving Time," *Scientific American* (May 1979), p. 50.

10 Institute for Dynamic Educational Advancement (IDEA), Web Exhibits, (2001). Internet site at <http://webexhibits.org/daylightsaving/i.html> accessed on 26 February 2001.

11 Bob Aldrich, Information Officer, California Energy Commission, "Saving Time, Saving Energy: Daylight Saving Time, Its History and Why We Use It," May 13, 1999. Internet site at <http://www.energy.ca.gov/daylightsaving.html>, accessed on 9 July 1999.

12 Correspondence from Acting Chief Electoral Officer, Province of Saskatchewan (28 January 1998).

13 Ibid.

14 "Chamber backs DST," *The Leader Post* (Regina), 11 May 2001, p. A2.

15 Neil Scott, "Gov't will deal with DST someday," *The Leader-Post* (Regina) 19 September 2001, p. A1.

16 The matter of DST did not even arise at this year's SUMA Annual Convention because during last year's 2001 convention, the proposal to "move clocks ahead one hour in spring and back one hour in fall" passed with 63% support. Several earlier attempts to pass the resolution had failed to win a majority vote. Communication with Senior Policy Analyst, Saskatchewan Urban Municipalities Association (SUMA) (3 April 2002).

17 Adrian Humphreys, "Nunavut clocks in with solution for time zones: Territory will split year between Central and Eastern Time," *National Post*, 10 October 2000, p. A10.

[18](#) Ibid.

[19](#) Nunavut, Ministry of Justice, "Time Zone", Ministerial Statements, 1 March 2001.

[20](#) United States, U.S. House of Representatives, Committee on Science, Subcommittee on Energy, Hearing Charter for Hearing on "Energy Conservation Potential of Extended and Double Daylight Saving Time." (24 May 2001) n.p.

[21](#) A common date and time has been established in all member states for the beginning and end of summer-time. From 2002 onward, the summer-time period begins in every member state at 1:00 a.m. Greenwich Mean Time (GMT) on the last Sunday in March and ends at 1:00 a.m. GMT on the last Sunday in October. The EU Directive defines summer-time as "the period of the year during which the clocks are put forward by 60 minutes compared with the rest of the year." See: *European Union Law Directive 2000/84/EC of the European Parliament and of the Council of 19 January 2001 on Summer-time Arrangements* (March 2002). Internet site at http://webexhibits.org/daylight_saving/eu.html accessed on 4/4/2002.

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