

Adapted from

CALENDAR REFORM

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By John Rutherford

John Rutherford, a Canadian banker who knows full well the business handicap of an illogical calendar, has performed a service by his research into the subject of reform. As a Director of an Advertising and Sales Executives Club and a member of the Royal Economic Society and other business and technical associations, he realizes the difficulties inherent in the proposed change. But he tackles them head-on and draws a spirited picture, on the one hand, of the absurdity of rational beings continuing as they are and, on the other hand, the undoubted benefits of a change calendar-wise.

To suddenly blot our calendar from existence would result in a far worse confusion to our social organization than was the Babel of tongues to the builders of the tower. And yet it is only when February comes along with its annual question mark—28 days or 29?—that we pay any attention to the calendar's structure.

Herodotus wrote his history without a date, but modern business couldn't get far without a date line on its letters, checks and contracts. The precise measurement of the year is of paramount importance to all civilized peoples. Time enters into the intelligent procedure necessary to the orderly functioning of government, requirements of agriculture, obligations of commerce, and the observances of religion.

We are not concerned in this article with any abstract or philosophical "time." Even Einstein and Eddington have had to catch trains by ordinary clock time, and make appointments by the same calendar as has been used by common people. Newton was easier to understand than the theory of relativity: he described time as "measured duration," and that is the kind of time which exercises most people today.

Our contention is that when Hamlet mentioned "The time is out of joint," he might well have been talking about the modern calendar, though it may come as a surprise to many people that anyone should raise a question about its excellence or accuracy. Has it not come down to us hallowed by memories and associations since the beginnings of time? Are not our

birthdays and weddings and other anniversaries irretrievably involved in the present arrangement?

Of recent years an increasing pressure for improvement has come from business groups and social statisticians, who find the present irregularities of month intervals a serious obstacle to the achievement of comparability of records. In fact, practical economic and social conveniences are compelling motives toward reform. Of course, the only justification for changing is to secure something more satisfactory in its place. The question before the world is: What is offered in the way of reform, what will it achieve, and is it worth the bother and temporary confusion?

Calendar reform is no longer solely the business of astronomers. The changes with which they dealt in former reforms had to do with adjusting the calendar to the length of the sun year. That task was finally accomplished with the Gregorian revision of 1582. The reforms now exercising mankind have nothing to do with astronomical equations, but with the composition and arrangements of the calendar's months and weeks within the year. The main need is for a perpetual calendar, one that remains unchanged year after year.

It is really remarkable how long-suffering people are with the present arrangement. They are exasperated by railway time-table symbols such as asterisks, daggers and dots, showing that some trains do not run on Sundays, or on holidays, or in the winter. Yet the same people take for granted, or at least without outspoken resentment, similar contradictions in the calendar.

Let us admit that the venerable ancients deserve credit for knowing as much as they did about the march of the seasons, but then we must go on to say that there is something absurd in the fact that activities of the high-speed age are still regulated by a hodge-podge of months invented by the Romans over two thousand years ago, and only patched up since. It was Julius Caesar who gave us the basis of our present calendar, but it was for other reasons that Brutus and his friends stabbed him. As a result of Julius' work we have to recite a little nursery rhyme about "thirty days hath September" which reminds one of "Mairzy doats." ⁽¹⁾*

Pope Gregory's Calendar

The calendar in common use is the Gregorian calendar, a modification of the Julian calendar. The convenient $365 \frac{1}{4}$ -day mathematical division of the Julian year was 11 minutes and 14 seconds longer than the sun's period, and each Julian year gradually advanced beyond the course of the sun to that extent. One unearned day was gained by the calendar every 128 years. Toward the close of the 16th century there was a difference of 10 days, so

that the equinox fell on 11 March of the calendar instead of on 21 March. This was not nearly so serious an error as that corrected by Julius and his astronomer, but the world was progressing to the point where it demanded greater accuracy. Pope Gregory XIII stepped in, with his astronomers, Aloysius and Antonio Lilius, and his publicist, Christopher Clavius. By a Bull issued in 1582, Pope Gregory proclaimed that the 10 days between 5 and 14 October were to be omitted in the following year. He admonished creditors to take account of this time and add 10 days at the end of periods when loans would come due. At the same time, he decreed that century years not divisible by 400 were to be omitted as leap years. By the time England got around to making the change, in 1752, the lag was 11 days. The difference between the Old and New Styles was 11 days after 1700, 12 days after 1800, and it has been 13 days since 1900. It will remain 13 days until 2100.

New Year's Day has had its changes, too. In England as late as the thirteenth century the year was reckoned from Christmas Day. In the twelfth century the Anglican Church began the year with the Feast of the Annunciation of the Blessed Virgin (Lady Day) on 25 March, and this practice was adopted generally in the fourteenth century. Then, in 1752, the legal New Year's Day was changed to 1 January.

Still Far From Perfect

So there we are, with a calendar that has come through many adventures and is still far from perfect. As a matter of fact, a really perfect calendar is impossible. It has to be a compromise, for it attempts to reconcile natural fixed periods, which are not reconcilable. The things to be desired are the greatest accuracy combined with the greatest feasible convenience. We cannot scrap or change our days or our years without altering the motion of the sun or earth—those are immovable obstacles. We could, but do not desire to, change our week; the seven-day week is too deeply imbedded in tradition, religion and convenience. But we can change our month, which is an irrational division of time conforming to neither moon nor sun.

The irregularities of the Gregorian calendar have become increasingly evident in these days of swift communication, complicated business calculations, and statistical comparisons. The calendar, in short, is out of date. It has come down to us from a time when trade and economic life in general were organized upon a purely local basis. The month and week periods are a hodge-podge in both composition and arrangement. The months are not only unequal (31, 30, 29 or 28 days) but (excepting February) contain more than a whole number of weeks and in addition change their weekday composition, and the weeks overlap within the months. There is a variation of 11 per cent between the length of February

in ordinary years and the length of a 31-day month. There may be a variation of 19 per cent in the number of working days in a month, between 21 days and 25 days. A variation of this extent in a unit which is used as a base for the great majority of reports compiled in business is obviously a serious defect.

Where did the “week” come from? The name is from *Wikon*, German for change or succession. The fourth of The Ten Commandments requires observance of a seven-day week. The Saxons are said to have borrowed the week from some eastern nation, while other authorities say Constantine introduced it in 321 A.D. The Chinese get along with a week of five days. There are, in one sense, nearly 200 “weeks” in North America, due to the efforts of publicists to sell their ideas and wares: “Be Kind to Animals Week, Clean Up Week, Apple Week, Temperance Week,” and so on. Perhaps something may be done, coincidentally with calendar reform, to remove this affliction.

Business Suffers

Shifting of the days makes it difficult to fix with precision the dates of periodical events. The businessperson plotting the next year is at a disadvantage because calendars are not printed so far in advance. Even reciting the little nursery rhyme does not tell how many Sundays and Saturdays there will be in next May, or whether 24 May is a mid-week or weekend holiday. Try figuring out, without looking at the calendar (even if you have one) what day 1 July will be the year after next. Consider the time lost. We count the 30-day months on the knuckles of our left hand, and the 31-day months on the knuckles of our right hand, add the balance of the current month’s days and the first of July—and if the calculation is correct we learn what the day is. Using The World Calendar, the date would always fall on a Sunday.

Consider a corporation composed of several departments. There is one department that deals with temporary workers whose wages are computed on a day basis. There is another with permanent employees having pay envelopes based on the week, or on the half-monthly interval. Another, in charge of shipping or transportation, uses the month for its records. The major financing of the corporation, including dividends, bond interest, tax payments, and general reports, is computed on a quarterly and semi-annual basis. The departments of this business, for unavoidable reasons, have to work on the basis of unrelated units of time. Adjustments have to be made continually, because the day, the week, the month and the quarter never agree. Coordination is not impossible, but is much more difficult than it need be.

There are many other troubles caused by the Gregorian calendar. An annual meeting, fixed by the by-laws to take place on the second Thursday in January, may fall on any date from the 8th to the 14th. Christmas sometimes falls on a Friday, with the resulting headache for factories and stores in debating whether to open on Saturday or not. Some months have 24 working days, while others have 27. When holidays move through the week, workers find that certain recurring problems of wages, vacations and seasonal work have to be met according to a different formula every year. If they are paid on a daily basis, the interruption in their wages because of the holiday has to be taken into account. Under the present calendar they have to do this in a different way every year. When school terms start on the day after Labor Day, which is the first Monday in September, this can be any date from 1 September to 7 September. There may be 53 paydays in a year or only 52. A firm that pays its employees on Friday and has its biggest sales on Saturday would find December 1948 (1993, 1999, 2004, 2010) a slim month, because it has five Fridays and only four Saturdays and one Saturday is a holiday.

The variation of days in a month makes difficulty for business people. Since the various days of the week are not of the same value as regards the volume of trade, there can be no accurate monthly comparisons between one year and another. Saturday may be the “big day” in one line of business, and other days in other lines. An extra Saturday in a given month, as compared with the same month in another year, results in seriously distorted figures if two such months are compared without proper and elaborate adjustment. For example, May 1946 (2002) had 4 Sundays and 4 Saturdays, while May 1947 (2003) had 5 Saturdays and 4 Sundays, and May 1948 (2004) had 5 Sundays and 5 Saturdays. This disparity means that stores which do a big business on Saturday cannot compare intelligently May 1946 (2002) and May 1948 (2004): similar lack of comparability of corresponding month of consecutive years applies to all lines of endeavor—railway systems, banking, department stores sales, church attendance and income, etc. ⁽²⁾ **

What Has Been Achieved

Before discussing specific plans to amend the calendar, consider what has been accomplished in other fields of time measurement. Since 1883 the standard system of standard time by zones has been gradually accepted. There are six time zones in Canada: Atlantic, Eastern, Central, Mountain, Pacific and Yukon. They have been accepted so completely that when some communities endeavored to introduce daylight saving time before the war (WWII) the people revolted, declaring they would keep to “God’s time”—which was really the artificial standard time. Similar acceptability has been won in Europe for the 24-hour clock, and this is now in common use

everywhere among armed forces. The International Date Line is another triumph of modern thought over old ideas. It is drawn through the Pacific Ocean near longitude 180 degrees. When the line is crossed from west to east a second 24-hour period is given the same date and name as the 24-hour period just passed. On crossing the line in the opposite direction, a calendar day is omitted.

Plans for Improvement

But that is an aside, merely to show that there is nothing immutable about the measurement of time. We come now to a consideration of the plans for adjusting all the shortcomings we have found in the Gregorian calendar. There have been at various times as many as 300 schemes. When the question first came before the League of Nations in 1923 the delegates had 185 different proposals. By 1931 the League had reduced these to two.

Auguste Comte, the French philosopher, advocated a 13-month year more than 100 (circa 1849) years ago and many similar plans were considered and rejected on the occasion of a prize contest conducted by the French Astronomical Society in 1887. The 13-month plan, sponsored of late years by the International Fixed Calendar League, would retain the 365 $\frac{1}{4}$ -day year, but would rearrange the months, days and weeks. There would be 13 uniform months, each quartered into four whole weeks. Each week would begin with Sunday and end with Saturday; each day would fall uniformly upon the same monthly date. A new month, to be called "Sol" because it would contain the summer solstice, would be inserted between June and July. There would be a year-end day belonging to no month, and in leap years there would be another extra day inserted between June and Sol. An advantage claimed for this type calendar is that clocks could have an extra hand to show the day and date. There are already some firms that use the 13-month year for accounting purposes.

Objections to the radical changes necessitated by a changeover to 13 months are many. There would be 30 dates lost and 28 added, whereas the 12-month calendar to be described next would entail only 3 dates lost and 3 added. Under the 13-month calendar all dates now falling on the 29th, 30th or 31st of any month would be changed, because that calendar has only 28 days in its months. The June bride would lose two days from her month, and half the remaining days would have a new name. These effects on anniversaries are only sentimental, but are likely to have great influence, because there are more June brides and people with month-end anniversaries than there are statisticians. The 13-month calendar would necessitate new rules and tales for calculating interest and discounts, which would make difficulties for everybody from school children to bankers. It would make necessary an extra closing of all accounts and reports rendered

on a monthly basis, and would add 8 1/3 per cent to the clerical, postage and similar costs of doing business. In addition, where quarterly and semi-annual statements were required, three other closing dates would be necessary, since not one of the first three quarters of the year would end at the end of a month. To recompute the numerous indexes of prices, production and other phases of economic activity would be a costly procedure. In the case of many of the statistical series linking the present with the past, it would be impossible to convert the records of the past into a form comparable with the present. Then, too, the number 13 is unpopular, not only because it is difficult to divide by and impossible to divide into, but also because of the superstitions attaching to it. The 13-month calendar would have 13 months with Friday falling on the 13th every month, 13 times a year.

The 13-month enthusiasts argue that the advocates of the 12-month revision do not go far enough because they base their appeal on "moderate changes." "Can it be said," ask the 13-monthers, "that an argument like that reflects a motive to achieve a genuine reform?" Well, a realist may well answer "yes," and suggest to the 13-monthers that on their own argument they should abandon their own relatively mild reforms and sponsor the plan of Mr. B. Richmond, whose address when he circularized his scheme was Singapore. Mr. Richmond would shatter the entire system of time telling and build it anew—100 seconds to the minute; 100 minutes to the hour. He would have 60 weeks in a year; his months would consist of 6 weeks of 6 days each, and he would have 5 spare days (6 in leap years) to be used as holidays. Under Mr. Richmond's thorough-going revision, everyone could carry a watch which would show on one face: seconds, minutes, hours dates, months, fifths of a year and also whether it was day or night.

The World Calendar

More modest in its scope, and seemingly generally approved, is The World Calendar. This consists of an equal number of days and weeks in each quarter, the same number of weekdays (26) in each month, and every year alike. It attempts no violence with the Gregorian arrangement of time, but rearranges the days of the months so that the first month in each quarter has 31 days and each of the other two has 30.

It is claimed that equalization of the quarters with 91 days in each instead of the present 90 to 92 would be of substantial benefit. For instance, under The World Calendar plan a quarterly note can be made an exact quarter of the annual rate, and a 30-day not a third of the quarterly rate. This is true even in the 31-day months, because the extra day is always a Sunday. Quarterly payments., such as insurance, would fall due on the same weekday and date in every quarter, and could be arranged conveniently near pay

days. Shifting holidays would no longer break awkwardly into the week from year to year, but would have the same day and date. Any specific day, week, or month of one year would be comparable to the same day, week or month in any other year. If you were born on Wednesday, 11 April, your birthday would always fall on Wednesday, and all other anniversaries and holidays would be similarly fixed. Any date that is now set by the day of the week, such as “the first Tuesday after the first Monday in November” would always fall upon the same date. Easter, it has been suggested, could be on the second Sunday in April, the 8th of the month, but this is recognized as an ecclesiastical matter, and its decision is not necessary to acceptance of The World Calendar.

Supporters of this calendar emphasize the importance of preserving continuity as far as may be between the present calendar and whatever revision is made. The World Calendar would leave six of the twelve months comparable; there is no sharp unnatural break with habit. To put this calendar into effect with the least disturbance, the active business year should end with 31 December falling on a Saturday.

Help for Statisticians

One of the outstanding benefits of the calendar reform would be in the field of statistics. “As compared with the same period last year” is a phrase full of headaches for a statistician. The irregularity of the calendar means deductions for fewer business days, adjustment for more Saturdays, and something has to be done about the fact that one half-year consists of 181 days and the second half-year of 184 days. Since the beginning of the century, and especially during the twenty-year period between 1928 and 1948, there has been a remarkable growth in the recorded and published quantitative information regarding the operation of our economic institutions.

There are two ways in which statistical series and analyses would be affected by a reform of the calendar: first by reducing or increasing the time involved in tabulating statistics and analyzing them; and second, by increasing or decreasing the usefulness of the analyses to business people, scientists and government officials. How can monthly comparisons be made when two 30-day months can be so different in their working period, even ignoring holidays? It is claimed for The World Calendar that it would facilitate these comparisons, because the same months in succeeding years would have exactly the same makeup of working days, falling on the same days of the week. It is admitted that because of seasonal differences and differences in the distribution of holidays, consecutive months would not be comparable even if of absolutely equal length and composition. It is only the corresponding months that would be comparable—April with April—November with November, and so on. The value of statistics is measurable

in terms of the extent to which they permit accurate comparisons to be made between the figures for current production, sales, and other activities, and similar figures for corresponding periods of the past.

To achieve this with the 13-month calendar would entail an enormous amount of work, and in many businesses it would be an impossible task. For example, the period 1 June to 28 June would correspond with our 21 May to 17 June, 1 Sol to 28 Sol with our 18 June to 15 July, and 1 July to 28 July with our 16 July to 12 August. The World Calendar, on the other hand, would not necessitate discarding existing statistical information, the adjustment being so simple that the great mass of the previous data could still be used.

Objections Not Imposing

Aside from the material objections to changing the calendar, there may be others: affection for time-honored antiquities; convictions arising out of religion; a belief that change is against natural law, or just plain superstitious fear. The fact that the calendar is basically 2,000 years old is not a good reason for opposing change, though it may have a bearing upon the advisability of making any changes as moderate as possible. The argument of affection for time-honored antiquities does not hold water because our calendar in its present form has been in use in English-speaking countries for less than 200 years (less than 260 years by the year 2006), and in other countries for less than 20 years (less than 70 years by the year 2006). The plea that calendar change is “against nature” brings nothing but smiles from those who have read the history of calendar making. Calendars, like clocks, are nothing but man-made time-measurement standards, full of inconsistencies. The whole basis of our measurement of time is fictitious. The zero adopted for the day is the instant when a fictitious body known as the “mean sun” is on some chosen meridian, which in turn is an imaginary line running from pole to pole. Even in building up the calendar, we erred: we passed from 1 B.C. to A.D. 1, disregarding the zero year, so that (in 2005 there are only 2005 years since 1 B.C. rather than 2006.) The practice of dating our years from the birth of Christ grew out of the suggestion of a Scythian Abbot, who brought forward the suggestion years earlier, judging by an eclipse that occurred at the time of King Herod’s death. So we are probably wrong by four or five years, astronomically speaking, and the new calendar enthusiasts argue that a few more changes would not offend either morals or tradition.

The fear of Friday is quite as old as the fear of the number 13, and it will take some generations to educate people out of it, though the world has progressed somewhat from the time when natives of Madagascar killed any baby born on an unlucky day. The World Calendar would have four Fridays

falling on the 13th, compared with the 13 Fridays on the 13th in the 13-month calendar.

Why Be Hidebound?

However, people who fuss so much as the democracies over an hour's change to daylight saving time are going to approach a whole calendar change gingerly. Resistance to corrections in the calendar has frequently produced mass riots. In England, the people blamed the crop failure on the calendar reform. Believing that they had been cheated of 11 days' wages, they swarmed through the streets crying: "Give us back our fortnight." Even as late as 1936, when Romania finally gave in to the need of reform, the peasants became so violent that police had to shoot down quite a number. After the change from the Julian to the Gregorian calendar in England, over one-third of all the litigation for the following 70 years was caused by the change. Certain dividends are still paid by the Bank of England on dates based on Old Style, and the British Income Tax year begins on 6 April, the New Style equivalent of 25 March Old Style. The 25th of March is Lady Day and Quarter Day, but Whittaker's Almanac still prints: April 6: Old Lady Day." When Caesar added the 90 days in 46 B.C., making the year of 445 days called the Year of Confusion, one governor in Gaul tried to collect taxes for the period.

Needs Combined Operation

Reform of the calendar would be of little value unless adopted by all countries having business dealing of any magnitude. No country single-handed could bring about the change. Several large sections of the world have worked with different calendars in the past, but the world is drawn so close by interests and communications today that the situation would cause endless trouble. To attempt this universal agreement, a special committee of the League of Nations, consisting of delegates from 44 nations, including Canada, was appointed after the first World War. The matter was under consideration by various League bodies since 1923, and 185 different proposals were boiled down to two. In 1937, the League explored international opinion. Of 45 replies, 14 governments indicated their willingness to adopt The World Calendar, and only 6 governments took a definite stand against reform. The World Almanac of New York says: "The World Calendar is the only plan now receiving serious international consideration."

Dr. W.A. Riddle, accompanied by Moses B. Cotsworth as technical adviser, represented Canada at the 1931 conference. The latter, who died in 1943, had been associated with George Eastman, great United States supporter of the 13-month calendar. At this conference Canada's vote was unofficial, but

the Canadian Government had sent an official opinion to the Secretary General of the League of Nations in 1924 saying in the canny way of diplomacy: "They regard with favor the idea of making such arrangements as may turn out to be practicable relative to the fixation of the date of Easter to some particular week, and to the correlation of the days of the week and the month." At the Fourth General Conference of the League, Canada was among the 26 states that voted in favor of an act concerning the fixing of Easter.

Religious Opposition Slight

There is no religious opposition in sight to day as there was when Pope Gregory XIII instituted his reforms. The three main religious groups of the world are agreed that "no dogmatic obstacle" stands in the way of calendar revision. The Archbishop of Canterbury supported calendar reform in an address to the House of Lords in 1936. He declared that he found it "impossible to resist the plea for reform" which comes "with practical unanimity from . . . trade, industry, and commerce throughout the civilized world." The opinion of the Catholic Church was given during the pontificate of Pope Pius X: "The Holy See declared that it made no objection but invited the civil powers to enter into an accord on the reform of the civil calendar, after which it would willingly grant its collaboration in so far as the matter affected religious feasts."

As far back as 1928 the British Trades Union Congress passes a resolution to the effect that the time was then ripe for calendar reform. The Labor Conference of the American States, held in Chile in 1936, recommended approval of The World Calendar. The International Labor Organization in the same year recognized the fact "that the present calendar is very unsatisfactory from economic, social and religious standpoints," and called attention to the marked trend in favor of revision.

It is essential that economists and business men should have, during the next few years particularly, all the aid possible from past business records, and at the same time whatever easing of present and future pressures there may be due to inefficient time measuring tools. Though the nations may be too busy just now with other affairs to engage in calendar reform, many people hope that another expectation for the period "After Peace" will be that of a sane calendar.

⁽¹⁾ * [Page 2: A 1940's song with lyrics that begin, "I know a ditty, nutty as a fruitcake / Goofy as a goon and silly as a loon / Some call it pretty, others call it crazy / But they all sing this tune: // Mairzy doats And dozy doats / And liddle lamzy divey / A kiddley divey too, wouldn't you? ..." -Ed.]

⁽²⁾ ** [Page 5: Computers currently allow easier access to calendars so long as a computer is available. Computer programs can now readily analyze much that was calculated manually in 1948. Computers, nonetheless, do not cause all of the difficulties noted in this article to go away. The point remains that more technology does not eliminate the root cause of calendar deficiencies. In other words, contrast a) using a calculator to apply knowledge of mathematics and b) using a calculator without understanding mathematics. Then take away the calculator. -Ed.]

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