

WHY DOES LEAP YEAR LEAP?

Written for "The Listener"
by A.M.

A Nuisance of the Calendar

For some ridiculous reason, to which, however, I've no desire to be disloyal, Some person in authority, I don't know who, very likely the Astronomer-Royal, Has decided that although for such a beastly month as February, twenty-eight days as a general rule are plenty, One year in every four his days shall be reckoned as nine-and-twenty. Through some singular coincidence—I shouldn't be surprised if it were owing to the agency of an ill-natured fairy— You are the victim of this clumsy arrangement, having been born in leap-year, on the twenty-ninth of February, And so, by a simple arithmetical process, you'll easily discover, That though you've lived twenty-one years, if we go by birthdays, you're only five and a little bit over!

Pirates of Penzance.

THIS is leap-year; how does it affect us? Not very seriously. Numbers of us will forget that there is a twenty-ninth of February and in consequence suffer some inconvenience or be the cause of it in others. A certain number of children will be born with a proper birthday not every year but every four years, and the funny man in the boarding-house will bore his companions a little further towards extinction by repeating the old joke about the right of women to propose. And February 29 will pass, as all days do, like a watch in the night or a tale that is told.

However, any peculiarity in the calendar has its interest, for we live always with an eye on days and months. We reckon our age by them; we pay our debts by them; they mark things so far apart as the saints, the qualifying age for scholarships, the time when rate payment penalties become due, and the turning on or off of heating systems. Like so many other things to which we are accustomed, the calendar is a bit of a mess. We still have to think whether a month has 31 or 30 days, and Easter is a movable feast, whose fixing we leave to experts.

The Seasons Strayed

We may thank our stars, however, that we live in an age when the resources of science are brought to bear on the calendar. In ancient Rome the calendar got into such a state that spring and summer festivals strayed into wrong seasons. Not only was Rome not strong in astronomical science, but the making of the calendar was left to the priests, who were not (in that corrupt period) above being pressed by vested interests. A tax-farmer might find it to his advantage to have the beginning or end of the year shifted, so he bribed the calendar-makers—a nice bit of graft indeed.

It was as if Mr. Nash were to say: "I'm pretty short this year, but I an-

ticipate windfalls of revenue in April, so we'll shift the end of the year to April 30."

Then Julius Caesar came along, and having conquered Gaul and Pompey and fought campaigns all round the Mediterranean perimeter to give peace to a distracted world, turned his attention to the calendar. Caesar had one of the most orderly minds in history and the chaotic state of the calendar must have disgusted him. So he reformed it, and gave us in essentials what we have to-day.

Comfort to Posterity

With expert advice, he fixed the mean length of the year at 365¼ days, and decreed that the year should have 365 days and every fourth year 366. It was found that his calculation of the length of the year was not quite correct and in the course of time his error added up to something substantial. Moreover astronomy became much more accurate. Pope Gregory reformed the Julian Calendar, and now the rule of leap-year is that every year the number of which is divisible by four is a leap-year, excepting the last year of each Century, which is so only when the number of the Century is divisible by four, but the years 4000 and its multiples are common years. That will be a comfort to posterity.

But why is it called leap-year? The *Britannica* explains that "after February 29 a date 'leaps over' a day of the week." I find this about as clear as the definition of an archdeacon—"a person who performs archidiaconal functions." Perhaps we can put it this way, that if your wife's birthday is August 4, it fell on Sunday in 1946, on Monday in 1947, but will come on Wednesday in 1948—a leap over a day. However, there seems to be a much deeper explanation.

Leap-year is said to be connected with mysterious things called Dominical Letters, or Sunday Letters, which appear in the Prayer Book tables for finding Easter and other movable feasts. These are used in the calendar to mark the Sundays throughout the year, and to find the relation between the days of the week and the days of the month in any given year. One of the first seven letters of the alphabet is assigned to

each day, January 1 being A. The Dominical Letter for any year is the letter attached to the day on which its first Sunday falls, and consequently all other Sundays. If January 1 is Sunday, the Sunday Letter for the year is A. If it is Monday, the Sunday Letter is G. In leap-year, since no letter is assigned to the day that is put in, the Sunday Letter changes after February 29. Hence the leap. I am a

child in these matters, like the infantry subaltern (old style) who was taken into the interior of a submarine. Looking around at the maze of machinery that crowds the chamber, he said to the officer in command: "I suppose there's some sergeant-major johnny who knows all about this."

Augustus Took a Hand

It is said that Caesar arranged the number of days in the months in a convenient sequence — 31, 30, 31, 30 — through the year, with 29 days for February, but that Augustus in his vanity not only had the name of the eighth month changed to commemorate himself, but gave it 31 days instead of 30 in keeping with his dignity. This upset Julius' orderly arrangement. Unfortunately, historians throw doubt in the story: it is a way they have. The fact remains that someone must have been responsible for an arrangement which compels millions of us to keep the old rhyme in our heads:

Thirty (or in parts of New Zealand "dirty") days hath September, April, June and November, February has twenty-eight alone, All the rest have thirty-one. . . .

There is a lot to be said for memory-aiding rhymes. Two middle-aged University graduates to whom I mentioned the point promptly reeled off:

Many neuters end in "er": Siler, acer, verber, ver, Tuber, uber, and cadaver, Piper, iter, and papaver

Since our modern curriculum doesn't like grammar it probably discourages the learning of such jingles. But no education system will drive out the rhyme about the number of days in the months.

The Missing Birthday

From time to time there are paragraphs in the papers about prominent

citizens who by reason of having been born on February 29, have a birthday only once in four years. As a matter of fact the chances of being born on that day are not negligible. Like death, birth takes all times for its own. If you are going to be born within a four-year period, there is one chance in 1461 that you will be born on February 29. The law of averages shows that quite a number of babies will be born on that day. Taking our New Zealand births for the three years 1944, '45, and '46 (last year's are not available yet), the daily average is about 115, so it is highly likely that in this country this year there will be over a hundred "leap-year" babies. The number of births in Britain last year was 886,000. On this basis there may be some 2,400 born on February's extra day.

Such unfortunates, however, may rest assured that the trick played on Frederic by the Pirate King has no basis in law.

Frederic was indentured till his 21st birthday, not his 21st year, and the King claimed that his birthday would fall only every four years, which meant that Frederic was bound for life. But legally the day on which a person is born counts as a whole day, and he attains a specified age on the day next before the anniversary of his birthday. That is to say, one born on February 29 attains his first year on February 28. The birthday anniversary is March 1, though this may not satisfy the sentimental urge of the person concerned.

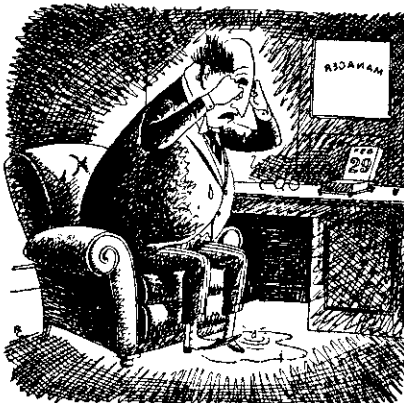
No one seems to know when the right of women to propose in leap-year arose, but in the 13th Century a Scottish law gave women such a right, and a man refusing could be fined unless he could show he was already betrothed. Similar laws appeared on the Continent later. But why worry about this now? If a woman wants to propose to a man she will do so in any place and at any time.

BBC "PAMIR" PROGRAMME

WHEN the "Pamir" left Wellington on October 3 for London via Cape Horn, the NZBS recorded the departure. Eighty days later when the "Pamir" safely reached the Thames with her cargo of wool and tallow, Colin Wills, well-known broadcaster, and William McDowell, a ship designer who has often spoken in the BBC's Pacific Service, went aboard the vessel as she lay in the Victoria Dock, London. They heard all about the voyage from Captain and Mrs. Collier, and some of the crew. The recordings made in Wellington and London will be used in a special programme to be broadcast in the BBC's overseas programmes during the week beginning February 15.



"The funny man will repeat the old joke"



"A birthday only once in four years"