

CALENDAR CURIOSA

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What do Hallowe'en (OCT 31) and Christmas (DEC 25) have in common beside both being festivals, one commemorating death and the other birth? I'll give you the answer at the end of this article, but the way the dates are expressed inside the parentheses is a hint.

As the millennium rapidly approaches, there is an increased focus on our calendar, officially the Gregorian calendar, now being used through most of the Western world and in parts of Asia. The Gregorian calendar, adopted in 1752, is a revised form of the Julian calendar (after Julius Caesar) introduced in 45 BC, which in turn was a revision of the original Roman calendar introduced about the 7th century BC.

Have you ever wondered why the 9th through 12th months, (Sep)tember, (Oct)ober, (Nov)ember and (Dec)ember, have names suggesting the numbers 7 through 10? Therein lies another clue to the riddle posed above. If you investigate the ancient Roman calendar you will find that the months we currently know as July and August were once known as Quintilis and Sextilis, taking us back two more steps to 5 and 6. They were changed by Julius Caesar, naming July after himself and August after the emperor who succeeded him, Caesar Augustus.

Continuing backward further (June=4, May=3, April=2), we arrive at 1 for March. Yes, March was once the first month of the year, and perhaps it still should be:

- * The spring equinox occurs in March. On this date we celebrate the awakening of Nature from its long winter sleep just as our ancestors for many centuries have done. In a similar spirit, perhaps we should view the month containing this first day of spring as the birth month of the year.
- * If we start the year with the month of March, then we end it with February. That's the month that's been given the responsibility of dealing with that extra day we need to insert at appropriate times to insure that the calendar stays in tune with the earth's trips around the sun. Isn't there some appeal in having that day occur at the end of the year instead of at some point in the middle of it? Fittingly, this last month, which would then herald the end of the year, is the only month whose name contains the word YEAR-- fEbRuArY.
- * The reference point for the celestial circle (Zodiacal wheel) is the spring equinox, traditionally the time when the sun enters the first sign of the Zodiac, Aries.
- * What does March 14 suggest? I find it natural to transform it to 3.14,

appropriately the familiar approximation to the "circle constant". (In case you need a reminder π is what you obtain if you divide the circumference of a circle by its diameter.)

- * mARCh contains the word "arc" which is the mathematical term for a portion of a circle, while aPrIl, the month that follows, contains "pi" neatly balanced within.
- * Albert Einstein, the famed physicist whom we associate with relativity and the concept of space-time, was born March 14 (in 1879).
- * Aries quite fittingly begins with the initial letter of the alphabet, and is an anagram of "arise". The ancients assigned the ram and the fiery planet Mars to this sign, calling the latter the ruler of Aries. Note the ram is in MARS and MARCh.
- * Given that St. Patrick's Day occurs in March, it is hard to resist one final bit of wordplay: "March" and "charm" are anagrams.

Thirty days hath September, April, June and November...

We humans, housed in these bilaterally-symmetric bodies, seem to have a strong inherent urge to seek symmetry and attempt to uncover it where it appears absent or hidden. For many of us such discoveries evoke pleasant feelings of beauty and rightness. If you have ever searched for symmetry in the months of the year, you may well have been disappointed. However, with an eye finely tuned to mirror symmetry, take a look below:

Mar 31, Apr 30, May 31, Jun 30, Jul 31 | Aug 31, Sep 30, Oct 31, Nov 30, Dec 31

It also induces a natural separation between the "last" and "first" months of the year, February and March. Curiously, the number of letters in the full names of the ten months in the symmetry pattern, and the number of days in the "left over" months are both the same: 59. The number of days in the five months on either side of the mirror is 153, itself a celebrated number with number enthusiasts. Many readers will recognize it as the Biblical number of fishes caught by the disciples (John 21:11). Others may have read of its numerous mathematical properties in the writings of the incomparable Martin Gardner; see the chapter entitled "The King James Bible" in his book *The Incredible Dr. Matrix*.

Speaking of Gardner who is also a word game buff, his cryptic numerologist associate Dr. Matrix tells us of a certain anonymous disc jokey, J. Jason, who circulates a business card reading J. JASON, DJ, FM-AM. Can you see anything special about this card?

Take the number of months in a year, the two numbers that precede it, and the two numbers that succeed it. Not only is it true that the sum of the squares of 10, 11 and 12 equals the sum of the squares of 13 and 14, but that common sum is 365.

Were you the lucky subject of the song *The Twelve Days of Christmas* which begins "On the first day of Christmas my true love gave to

me...", you would have been the recipient of 365 gifts...well, almost. Surely you would feel quite loved after receiving a partridge in a pear tree every day for 12 days, two turtle doves every day for 11 days, and so on, culminating with twelve drummers drumming on the last day. Total it up if you wish--you'll find this means 364 gifts. Mathematicians call numbers obtained in this way tetrahedral numbers.

Since we use the birth of Christ as a dividing line in measuring time (BC to AD), I find it particularly pleasing that the date we celebrate his birth has a special mathematical property. We call 1225 a triangular-square number since it is both the sum of the numbers from 1 to 49 inclusive, and also is the square of 35. There are only two other such numbers below one million (see "Square and Triangular Number-Names" in the November 1995 Word Ways).

The riddle posed at the start of this article can be solved by realizing that October, although the 10th month, comes from the Latin word *decem* meaning "ten". If we write these dates as OCT 31 and DEC 25, then we can view these dates as the numbers "octal 31" and "decimal 25". Decimal 25 is merely 25, since on planet earth most of us use a base 10 positional number system in representing numbers. Thus when we write 25 we mean "2 tens + 5 ones". In an octal system, akin to the binary system used by computers, 31 would represent the same number since it would signify "3 eights + 1 one".