

MORE CURIOUS QUESTIONS

MARTIN FONE

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A SMORGASBORD OF FACTS AND TRIVIA

**A SEQUEL TO
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FINALIST,
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QUESTIONS**

MARTIN FONE

Contents

What did we use before toilet rolls?	2
Was there a Granny Smith?	5
Where is Christopher Columbus buried?	8
Whose idea was the Advent Calendar?	9
What do we say with flowers?	12
What is a blue moon?	15
Who made the first long distance car journey?	18
About the author	21
More about the author	21

The mystery of life isn't a problem to solve, but a reality to experience – Frank Herbert, *Dune*

What did we use before toilet rolls?

If and when the Covid-19 pandemic dies down and a sort of normality returns to our diurnal existence, one thing we can be sure of is that there will be no end of lessons to be learned by the medical community and politicians and material aplenty to fuel academic doctorates for years to come. For me, though, the standout meme that encapsulates the extraordinary times we live in is the frantic search for toilet rolls. It prompted me to wonder what on earth we did before we used toilet paper and whether, in an emergency, there are alternatives we could adopt.

As relieving yourself is a natural bodily function, how to clean up afterwards is a problem that has exercised the mind of *Homo sapiens* since the dawn of time. The obvious solution was to use anything you could get your hands on. such as leaves, grass and moss. Alternatively, you could wash with water, the bidet, an invention of French cabinet makers in the late 17th century, is an extension of this idea or, depending where in the world you are, use ice or sand.

The Ancient Greeks deployed sherds of pot or clay whilst the Romans, in their public and communal latrines, used a *tersorium*, a stick with a sea sponge attached to the top. After use, it would be rinsed in running water and put into a bucket of vinegar, ready for the next person. Also known as a *xylospongium*, it was

occasionally used for other purposes, as Seneca the Younger reported in his letter to Lucilius, (*Epistulae morales* 8, 70, 20). A German gladiator rammed one down his throat, blocking his windpipe and choking himself to death. “That was truly to insult death”, Seneca wryly noted.

One of the strangest solutions was that proposed in the early 16th century by Rabelais, surely with his tongue firmly in his cheek, in his satirical novel, *Gargantua and Pantagruel* (Book 1: 13). A discussion on how best to wipe yourself clean ran through a range of objects from old hats, spare slippers to a lawyer’s bag. Rabelais’ characters settled on the use of “the neck of a goose, that is well downed, if you hold her neck betwixt your legs...you will feel in your nockhole a most wonderful pleasure, both in regard of the softness of the said down and of the temperate heat of the goose”. Absent a compliant goose, you could follow the lead of some rural communities of the United States who found that a dried corncob did the job.

The Chinese, though, were streets (or perhaps sheets) ahead of the Occidentals, having developed paper as early as the second century BC. At some point they realised the benefit of using this material for cleaning themselves, often reusing paper that had been written upon. A court official, Yan Zhitui, wrote in 589 AD that he “dare not use... for toilet purposes” paper which contained quotations from the seminal texts of Confucianism or the sages.

The first recorded instance of toilet paper being specifically made for the Chinese Emperor and his family dates to 1391. Each piece of paper was, according to the decree, to measure a whopping two feet by three and be perfumed with fragrance. Paper arrived in Europe in the 15th century but was too scarce and valuable to waste on such trivial purposes as cleaning yourself.

The emergence of a newspaper industry in the 1700s provided the populace with not only news and opinion but also a regular, cheap supply of paper. Once the contents of the journal had been inwardly digested, the pages could be used as a form of toilet paper. The *Old Farmer’s Almanac*, popular in rural America, even came with a hole punched in the left-hand corner, ostensibly so that it could be hung somewhere and always be available. Inevitably, it would find itself hanging in pride of place in the outhouse. The *Sears Roebuck* mail order catalogue, launched in 1887, was phenomenally popular, providing its customers with a supply of hundreds of

pages of absorbent, uncoated paper. Outrage and a fall in demand followed Sears' decision in the 1930s to print it on glossy, clay-coated paper. It was useless as toilet paper!

In 1857 the first commercially packaged toilet paper was made available, courtesy of a New York entrepreneur, Joseph Gayetty. The sheets were loose, infused with aloe, each stamped with Gayetty's name. Originally intended as a "Medicated Paper" for the treatment of haemorrhoids, it was marketed as "the greatest necessity of the age". Consumers, who had survived quite nicely without the need for single-purpose toilet paper, proved resistant to Gayetty's idea.

Whilst Zeth Wheeler patented rolled and perforated toilet paper in 1871, it took an English businessman, Walter Alcock, in 1879, to offer the paper on a perforated toilet roll on a commercial basis. One problem manufacturers encountered was that customers were embarrassed to ask for it and marketing efforts continued Gayetty's ploy of stressing its medical benefits. Improvements in housing, offering the luxury of an inside lavatory, revealed the shortcomings of using newsprint as an ersatz toilet paper. It bunged up the plumbing. Seizing their opportunity toilet paper manufacturers advertised their wares claiming that they were recommended by both doctors and plumbers. We have not looked back since.

The first toilet paper manufacturer in continental Europe, the German company, Hakle founded by Hans Klenk, did not start up operations until 1928. They too had to overcome the embarrassment of their customers. Their solution, in the 1930s, was a series of adverts recommending that their customers "ask for a roll of Hakle and you won't have to say toilet paper".

One unfortunate by-product of the way that the paper was manufactured was that splinters of wood were impregnated into the sheets, giving the unwary user an unwanted and painful surprise. This problem was solved in 1935 by Northern Tissue who launched the world's first splinter-free toilet paper. In 1942 the paper became softer, when St Andrew's Paper Mill introduced two-ply paper.

The global toilet tissue market is worth around \$85.538 billion and even the current inconvenience of shortages is unlikely to put a dent into that projection. But there will be other challenges ahead. The Washlet, a toilet complete with bidet and air-blower, is making waves and proving increasingly popular in Japan.

It is salutary to realise that what we consider to be one of life's essential products has had a relatively short shelf-life.

If more of us valued food and cheer and song above hoarded gold, it would be a merrier world – J.R.R.Tolkein, *The Hobbit*

Was there a Granny Smith?

My mother was a firm believer in the motto “an apple a day keeps the doctor away”. As well as an apple, as a child I was given a large spoonful of a glutinous malt extract syrup and a vitamin C supplement tablet. Whether this daily regimen made me any healthier than I would otherwise have been, I do not know, but it certainly kept the doctor away; I had to go and see him. Although, perhaps in a show of filial rebellion I rarely eat apples these days, my mother continued the habit until her final days.

Her apple of choice had a distinctive shiny light green hue with a hard skin and crisp, juicy flesh. Tart and acidic to the taste, the Granny Smith was extremely versatile. Not only delicious when eaten raw, its propensity to remain firm when cooked and with its acidity counterbalancing the sweetness of pastry, it was ideal for an apple crumble, which, with lashings of thick custard, was much my preferred method of ingesting the fruit. And it is the healthy option, studies showing that it has a higher level of beneficial antioxidants than other types of apple.

Fashions, though, have changed, not least because supermarkets prefer to have their shelves brightened up by more vibrant bi-coloured varieties of apple. Even my mother followed suit, transferring her affections to the Cripps Pink, an apple marketed as Pink Lady. A cultivar from the Lady Williams and Golden Delicious varieties, it is considerably sweeter and easier on the teeth, becoming the world's most popular variety of apple, pipping the Granny Smith into second place.

Nevertheless, around 60,000 tonnes of Granny Smiths are still harvested in Australia each year. To ripen successfully, its trade-mark apple-green skin requires warm days and nights and so cultivation is restricted to the apple-growing regions of the southern hemisphere, France, and the warmer zones of North America.

But who was Granny Smith?

Maria Ann Sherwood was born in Peasmarsh in Sussex in 1799, working on a farm from an early age. When she was nineteen, she married Thomas Smith, another

farm labourer, and settled down in Beckley, where they had eight children, five of whom survived. The area was famous for its fruit farms and records suggest that Smith's father held the tenancy of Cherry Gardens in Beckley, a farm on which pears and hops were grown.

In the decades which followed the end of the Napoleonic Wars, life was hard for workers seeking to make a living from the land. Demobbed soldiers and sailors flooded the labour market and those jobs that were available were insecure and poorly paid. The introduction of mechanisation, particularly threshing machines, restricted opportunities still further, leading to the wholesale destruction of the machines, the burning of hay ricks, and the maiming of cattle in riots that swept South East England in the autumn of 1830.

The so-called Swing Riots, named after the fictitious Captain Swing, whose name was appended to letters warning farmers to expect a visit from the rioters, were eventually suppressed. The justice meted on those arrested was harsh, 252 of whom were sentenced to death, although only nineteen were hanged, 644 were imprisoned, and 481 transported to Australia.

Australia, though, was not just a dumping ground for undesirables but also a potential solution to the problem of the agricultural poor. In the late 1830s the New South Wales government launched a "Bounty Scheme", offering anyone prepared to make a go of it down under the princely sum of £25. In 1838 the Smiths, with their five children, were one of fifty families who boarded the *Lady Nugent* for a new life, landing in Sydney on November 27th. Thomas worked in the fruit-growing district of Kissing Point and by 1856 had earned enough to buy 24 acres of land for £605 near Eastwood, now a suburb of Sydney, which he converted into an orchard.

How precisely Maria developed the apple that bears her name is not known for certain. As with many a discovery it was almost certainly due to happenstance. She was a good cook, famed for the quality of her apple pies, some of which she sold at the local market. One story goes that Maria was given a box of French Crab apples which had been grown in Tasmania. Finding that some of the contents had gone bad, as was her wont, she threw them out in a rubbish tip by the side of a creek which ran through the property. Another suggests that she was experimenting with crab apples

as a filling for her pies and discarded those that did not suit out of the kitchen window.

Either way, a seedling developed. Using her skills learned on the fruit farms, Maria was able to nurture the young plant to the fruiting stage. To her amazement, she realised that the fruit was no ordinary crab apple, having “all the appearances of a cooking apple” but also “sweet and crisp to eat”. The strain of crab apple had probably cross-germinated with a cultivated apple with the traits of the crab predominant. It has never been successfully replicated since.

Pleased with her apple, Maria sold them on her stall where they stored “exceptionally well and became popular”. In 1868, at her request, a local horticulturist, E H Small, inspected the fruit and declared it to be a new species of apple. Sadly, Maria died two years later, and when Thomas followed her in 1876, the land was bought by a local fruit farmer, Edward Galliard, who extended the planting of the trees that produced Maria’s unique apple. Sold locally they developed a growing reputation for their quality and Galliard exhibited them, under the name of “Smith’s Seedlings”, at the Castle Hill Agricultural and Horticultural Show in 1890. Renamed “Granny Smith’s Seedling”, it was awarded the prize for best cooking apple the following year.

Recognised as a cultivar by the New South Wales Department of Agriculture in 1895, it stood out from its competitors as a late-picking cooking apple which, given its long shelf life and hard skin, was ideal for storing as it did not bruise easily. More importantly, it was ideal for transporting long distances at any time of the year, a beneficiary of the boom in demand for Australian-produced food that developed after the First World War. By 1935 it had found a market here in Britain and in 1975 accounted for 40% of Australia’s apple crops.

The denizens of Eastwood are rightly proud that their suburb is the birthplace of the Granny Smith, holding an annual festival on the third Saturday of October to celebrate the start of the fruiting season, a custom that began in 1985. Maria may not have lived to see the fruits of her chance discovery, her genius being to spot the significance of the apple, but her legacy lives on. The mutation was unique, and every Granny Smith apple is grown on a tree that owes its origin to a cutting from Maria’s original.

Travel makes one modest, you see what a tiny place you occupy in the world –
Gustave Flaubert, *Flaubert in Egypt: A Sensibility on Tour*

Where is Christopher Columbus buried?

There is something to be said for a monopoly, if the beautiful Spanish city of Seville is anything to go by. In 1503 it was awarded the exclusive right to trade with the New World that Columbus had stumbled upon for the first time, at least from a Western European perspective, a decade or so earlier. All ships bound for the Americas had to set off from the city and all goods and treasures brought back had to be unloaded there. By 1595 the annual value of the precious metals reaching Seville rose to some 35 million pesos, despite the best efforts of British pirates.

Alas, all good things come to an end and after a plague epidemic in 1649 halved the population and with the Guadalquivir river becoming increasingly difficult to navigate, the monopolistic rights were transferred to Cadiz in 1680. Seville had to content itself with tobacco, over which it retained a monopoly, and built a large processing plant, which now houses the city's university.

If you want to get a sense of the fabulous wealth that came from the Americas into the city in its heyday, you could do worse than visit the ornate cathedral. The most ostentatious display of wealth is to be found in the Capilla Mayor, an altarpiece some 20 metres tall, containing the Virgen de la Sede surrounded by depictions of 45 scenes from the lives of Mary and Christ, all exquisitely carved in wood and gilded with gold from the Americas. It is an astonishing piece of Gothic craftsmanship and even took the breath away from this unreconstructed agnostic.

It seems appropriate, therefore, that the cathedral should be the site of the last resting place of the mortal remains of the author of the city's fortune, Christopher Columbus. And if you wander into the south transept, just inside the Puerta de San Cristobal, you will find his tomb, held aloft by four figures representing the kingdoms that made up Spain during his life, Castille, Aragon, Navara and Leon.

But all may not be as it seems.

A clue to the controversy may be gleaned from the fact that the monument, designed by the sculptor, Arturo Melida, was not installed in Seville cathedral until

1899, having been moved from Havana in Cuba. You see, having spent much of his life wandering the globe, Columbus' bones were peripatetic too.

He died in the Spanish city of Valladolid on 20th May 1506, where he was buried. But Columbus had asked to be buried in the Americas and in 1506 his remains were moved to an island near Seville, La Cartuja, until a suitably impressive pile was built to accommodate them across the Atlantic.

In 1537 Columbus' bones were on their travels once more, being laid to rest in the cathedral that had been built in Santa Domingo on the Spanish held island of Hispaniola in the Caribbean. There they remained untroubled until 1795, when, following the signing of the second Treaty of Basel, Spain ceded two thirds of the island, later to become the Dominican Republic, and shipped them to Havana.

In 1895 the Spanish-American war broke out and Columbus' remains were on the move again, this time coming to rest in Seville's cathedral in Melida's mausoleum, which accompanied him.

That is the official version but a Spanish fly landed in the ointment in 1877 when some workers, digging in the Santa Domingo cathedral, uncovered a lead box, bearing the inscription "Illustrious and distinguished male, don Cristobal Colon." This led the Dominicans to surmise that the Spanish, in their hurry to flee the island, had taken the wrong bones.

In 2006 the Spaniards carried out a DNA test on some bones interred in the cathedral in Seville and concluded that they belonged to Columbus, matching the DNA from his brother, Diego. The Dominicans dispute the claim but, to date, have refused to open up the sarcophagus in the cross-shaped building, known as the Columbus Lighthouse, to any form of rigorous scientific testing.

And so, there matters lie.

There is no definitive answer to our question, but my money is on Seville.

Tomorrow is only found in the calendar of fools – Og Mandino

Whose idea was the Advent Calendar?

The earliest I can even contemplate the season of enforced goodwill to all mankind, otherwise known as Christmas, is when it is time to start popping open the doors of

an Advent calendar. This form of calendar is now well entrenched in our Christmas traditions but what is the story behind it?

Advent is the season in the religious calendar devoted to preparation for the birth of Jesus but as the early Christians were a fissionary lot, they, naturally, quibbled over whether it should stretch over two or four Sundays. The argument was only settled for good at the turn of the 7th century by Pope Gregor the Great. Ever since, Advent has run over the four Sundays leading up to Christmas, starting with the first Sunday after November 26th and ending at sunset on December 24th, the official start of Christmas Eve. What might be termed the secular Advent, though, is of fixed duration, starting on December 1st and running for 24 days, irrespective of the actual length of religious season. It certainly makes life easier, although this year the two coincide.

The practice of counting down the days to Christmas in a formalised way was a tradition commonly practised in the Teutonic countries from the early 19th century. Early advent calendars in Lutheran Germany were simply chalk marks on a cupboard door or window frame while in Scandinavia candles marked into 24 segments were used, a segment burnt each day. In Austria, they used what were called “heaven ladders”, God descending one rung a day on his way down to Earth. They also used “Christmas clocks” with 24 segments on their face, the hands moved on one step as each day began. The more sophisticated clocks were adorned with the texts of songs or passages from the Bible.

Thomas Mann, in his novel *Buddenbrooks*, which, while published as late as 1901, describes the lives of a North German family in the middle of the 19th century, provides us with a charming picture of a child’s sense of anticipation as the big day inexorably approaches; “With the help of the tear-off calendar which Ida had made for him, and on whose last page a Christmas tree was drawn, little Johann followed the nearing of that incomparable time with a racing heart”. Homemade calendars were certainly an advance on the rather primitive chalk marks, and you can imagine the sense of excitement when the final leaf was torn off to reveal the tree.

Gerhard Lang’s mother went one better. In the 1880s she made him an Advent Calendar with twenty-four Wibeles stuck on a piece of cardboard. These were small sweets rather like a baked meringue with a distinctive figure of eight shape,

considered to be a delicacy in Swabia. He could mark the approach of Christmas by eating one of the sweets each day. Unsurprisingly, the memory stuck with Gerhard.

What characterised the story of advent calendars in the 19th century was that they were homemade, do-it-yourself affairs. It was not until the 20th century that calendars were commercialised but, as ever, there is some dispute as to who was the first. Some suggest Friedrich Tümler, a publisher and owner of an evangelical Protestant bookshop, who produced printed Christmas Clocks in 1902, selling for 50 Pfenning. Others suggest the *Neues Tablatt Stuttgart* which in 1904 inserted an advent calendar within its pages as a gift to its loyal readership. But it was Gerhard Lang who firmly established them as a commercial proposition.

Teaming up with a printer, Reichhold, in 1908 his initial effort consisted of twenty-four little pictures which could be stuck on to a piece of cardboard. A few years later he hit on the idea of putting small doors into the cardboard which you could open. By the 1930s commercially produced Advent calendars were a fixture in the run up to Christmas, Lang's designs getting ever more adventurous. Perhaps his finest was an Advent house, constructed from four pieces of coloured cardboard, complete with windows covered with transparent paper and a front door. The child would open a window each day and the front door on Christmas Eve. A candle inserted inside the house made for a colourful decoration, albeit a bit of a fire hazard.

The advent of the Second World War put a stop to a seemingly frivolous use of valuable resources, but once peace had returned, Gerhard Lang's baton was taken up with gusto by Richard Sellmer, whose Stuttgart-based company produced the most popular post-war calendars in Germany. It was still a Germanic tradition but what would now be termed a celebrity endorsement helped the calendar find a wider audience. A photograph of President Dwight D Eisenhower sitting with his grandchildren opening an Advent calendar in 1953 established it as a pre-Christmas ritual in the United States and the idea began to gain some traction here.

As a child growing up in the 1950s and from resolutely thrifty Northern stock, I recall the same calendar being trotted out each year and trying to remember which picture was behind each door. It was not until 1958 that the chocolate manufacturers got into the act, but they have pretty much monopolised the Advent calendar market ever since. In many ways they embody the original idea of Gerhard Lang's mother.

The largest ever Advent calendar was constructed at St Pancras station in December 2007 to celebrate the station's refurbishment and stood 71-metres high and 23 metres wide. And the most expensive? It was unveiled this year by Tiffany & Co and retails at £104,000. Standing four-feet tall and decorated in a tasteful duck-egg-blue, each door contains a piece of jewellery from Tiffany & Co. As well it should but it is as far from a set of chalk marks as you could possibly get.

In all things of nature there is something of the marvelous – Aristotle, *De partibus animalium*, circa 350 BCE

What do we say with flowers?

I may be a bit of an old romantic, I was a New Romantic, another matter from a different time, but I do tend to mark important occasions in my wife's life with a bouquet of flowers. I'm not alone. According to government statistics, the cut flower and ornamental plant market was worth £1.3 billion in the UK alone in 2018, with around 90% of the blooms being imported, mainly from the Netherlands.

My choice of flowers is made around colour, availability and price, with little thought given to the message that the blooms may be conveying. For the Victorians, though, a bunch of flowers was more than something decorative; it was a statement of mood and intention, almost the equivalent of the modern emoji. Fearful that I would make a dreadful faux pas with my next floral offering, I decided to investigate the world of floriography, the language of flowers, in more detail.

Our story begins with the colourful and intrepid wife of the English ambassador to Constantinople, Lady Mary Wortley Montagu. A prolific letter writer, Montagu wrote about her experiences in the Ottoman capital in 1717 and 1718, describing in great detail how the women incarcerated in the Sultan's harem communicated with the outside world through flowers as a form of code, *selam* as it was known in Turkish. Her accounts of the exotic world of the Ottoman court found a ready audience in England, when they were published, and the idea of using flowers as a form of clandestine billet-doux took root.

It was not until the 19th century, though, that the hidden messages conveyed by flowers were consolidated into encyclopaedic form, one of the earliest, *Le langage des Fleurs*, compiled by Louise Cortambert under her nom de plume of Madame Charlotte de la Tour, appearing in 1819. A best seller and highly influential both in

Europe and America, it spawned a cottage industry of its own. Between 1828 and 1923, there were more than 98 different flower dictionaries published in the United States and the pages of august journals such as *Harper's* and *The Atlantic* regularly included articles on the symbolism of certain flowers.

Not to be outdone, in Britain our particular home-grown favourites were *Flower Lore: The Teachings of Flowers, Historical, Legendary, Poetical and Symbolic*, penned by a Miss Carruthers from Inverness and seeing the light of day in 1879 and *The Language of Flowers*, a beautifully illustrated volume produced by Kate Greenaway in 1884 and still in print. So ingrained was the symbolism of flowers into the psyche of the 19th century mind that writers such as Jane Austen and Charlotte Bronte and artists like Dante Gabriel Rossetti took it as read that their audience would detect the subtle nuances of the messages conveyed by their choice of flowers in the scenes they were painting.

Coded messages were particularly important in courtship. Conventions at the time made it very difficult for a couple to find precious moments alone. Often the female would be chaperoned to a garden by a gooseberry, someone who would lurk in the background making sure that nothing untoward occurred, often spending their time picking fruit. It is fascinating how the meaning of the word in this context has undergone a 180 degree turn in modern parlance.

A chap would give his beloved a nosegay or posy assembled from a carefully chosen selection of flowers and herbs, usually to convey a specific message. This was also known as a tussie-mussie. Interestingly, it was also slang, if Francis Grose's *Dictionary of the Vulgar Tongue* is to be believed, for a part of the female anatomy that the beau hoped to unlock e'er long.

Naturally, it was important to get the combination just right. Bluebells were associated with kindness, peonies bashfulness, rosemary with remembrance, and tulips passion. Roses, poppies, and lilies could convey a wide range of emotions based on the colour selected. A mix of geraniums relayed an anxious enquiry as to whether the recipient was going to attend the next dance. If it prompted a spray of mixed carnations in response, it meant she wasn't.

To compliment someone on their wit and send good wishes, an arrangement of lupins, hollyhocks, white heather, and ragged robin was just the thing. Beware

delphiniums, though, they convey the sense of haughtiness, and hydrangea, heartlessness, and basil with its association with hate. When all had gone wrong, a mix of oleander and birdsfoot trefoil might be just the ticket – beware my revenge.

The undeniable conclusion from all this is that the arrival of a bunch of flowers provoked a different reaction in the 19th century from today. Instead of looking frantically for a vase to put the things in, the Victorian would calmly sit down and thumb their flower dictionary, looking for a coded message within the blooms. It also meant that they had to be razor-sharp at identifying the types of flowers. It was a good job that botany was a popular subject at the time.

Somewhat ironically, just when the mania for floriography had withered, technology produced a solution to the problem of long-distance flower delivery. In 1910, fifteen American florists agreed to exchange orders by telegraph, forming the Florists' Delivery Association (FDA). Flowers could be ordered in one town and be delivered on the other side of the country from local stock, thus ensuring that they were as fresh as a daisy. A note with the sender's message was attached to the bouquet.

The idea took off and other such ventures were formed, including here in Britain. Glaswegian Joe Dobson and Carl Englemann from Saffron Walden applied in 1920 to become foreign members of the FDA. A network of seventeen florists using telegraphs was established three years later, ultimately morphing into what we now know as Interflora.

And the slogan, say it with flowers? This is attributed to Major Patrick O'Keefe, an advertising man from Boston, who, with Henry Penn, were knocking ideas around for a strap line for the Society of American Florists. Penn is supposed to have observed, "there is nothing that you can't say with flowers – when you send flowers, it says everything". O'Keefe cried, "that's it", and the rest is history. The slogan was never copyrighted and was widely used, a nod to the lost world of floriography.

One thing is for certain, I will take more care in my choice of flowers next time.

Science advances through tentative answers to a series of more and more subtle questions which reach deeper into the essence of natural phenomena – Louis Pasteur

What is a blue moon?

The recent death of Michael Collins brought back memories of July 20, 1969. As a teenager, I had sat enthralled in front of the television, watching the grainy images of Neil Armstrong's giant leap for mankind, giving little thought to Collins whose role was relegated to that of a glorified chauffeur, waiting patiently in orbit while his charges had all the fun, an astronomical feat of stoicism.

The moon offers much to enjoy with its ever-changing shapes as it runs through its cycle of eight different phases. It waxes from invisibility as a new moon, its surface growing ever more visible as it moves through the crescent, quarter, and gibbous phases, until it becomes a full moon. It then wanes or shrinks back through the same phases in reverse before becoming a new moon again.

However, in 2021 the moon provided even more delights, beginning with the full moons in April, May, and June. These are supermoons, so called because its orbit is at its closest to the Earth, making the moon appear up to 14 percent larger and 30% brighter than usual.

There were also two lunar eclipses, one total and one partial. The total eclipse on May 26th could only be seen across parts of East Asia, Australia, the Pacific Ocean, and the Americas. The partial eclipse on November 19th was, subject to cloud cover, visible here in Britain in the hours leading up to dawn. Another total eclipse of the moon is scheduled to occur on May 16, 2022, this time visible from the United Kingdom for part of its five-hour duration. The best time to see it will be between 4.29am and 5.06am, a date for the diary and a time worth setting the alarm clock for.

You might think that what a total lunar eclipse is all about is not seeing it, but you would be wrong. In a total eclipse the Earth's orbit interposes itself between the Sun and the moon, covering the moon with its shadow. Nevertheless, the moon is still visible to the naked eye because the Earth's atmosphere bends sunlight and indirectly lights up the moon's surface.

Normally only those colours in sunlight with longer wavelengths, such as red or orange, penetrate the Earth's atmosphere and are refracted towards the surface of the fully eclipsed moon, the resultant reddish hue giving it the name of Blood Moon. Sometimes the refracted sunlight will pick up colours with shorter wavelengths from dust particles and clouds in the atmosphere and in those instances the totally

eclipsed moon may develop a yellow, brown, or orange tinge. However, it is unlikely to be blue.

Indeed, the instances of a blue moon can be counted on the fingers of one hand. The dust emitted by the eruption of Krakatoa in 1883 so upset the Earth's atmosphere that all around the world for two years the sunsets seemed green and the moon blue. An especially long drought in India in 1927 created so much dust that, seen from the region, the moon took on a bluish hue as it did in Western Canada in 1951 after extensive forest fires had emitted huge plumes of smoke into the atmosphere.

Blue moons have long been associated with an impossibility or an absurdity. In an anti-clerical pamphlet printed in 1528 by William Roy and Jerome Barlow, they summed up the hold that the priests had over the population by observing that "if they say the moon is blue, we must believe that it is true".

Over time its usage changed subtly to denote a long period of time, as in "haven't seen you in a blue moon", a piece of street slang that Pierce Egan recorded in *Real Life in London* (1821), although he professed an unfamiliarity with the phrase. Later that century, though, writers were confident enough to use it without an explanatory gloss, such as eating "a fruit pastry once in a blue moon".

It takes the Earth 365.256 days, a sidereal year, to orbit around the sun. Our calendar, for practical purposes, uses a four-year cycle, with three years consisting of 365 days and a leap year of 366, each divided into twelve months. The moon, though, takes 29.5 days to complete its orbit around our planet and so a cycle of twelve lunar orbits takes 354 days, eleven days fewer than the Earth's orbit around the sun.

What this means is that while there will usually be twelve full moons in a calendar year, with three neatly allocated to each of the four astronomical seasons, every 2.7 years there will be thirteen with one season having four. 2021 is one of those years.

The astronomical summer of 2021 contained four full moons, on June 24th, July 24th, August 22nd, and September 20th. Since the mid-19th century, the third full moon in a season of four has been known as a blue moon after the naming conventions used by *The Maine Farmers' Almanac* in tabulating full moons.

Reflecting its usage in common parlance, blue moon denotes its relatively infrequent occurrence.

Given that February only lasts twenty-eight or nine days and that the solstices and equinoxes which mark the start of the astronomical seasons do not fall at the beginning of a calendar month, it is possible, again every 2.7 years, for the same month to contain two full moons, although they may not necessarily be in the same astronomical season. The last time a month contained two full moons was in October 2020, the second full moon exciting particular attention as it fell on Halloween. We will have to wait until August 2023 for another instance.

The convention of calling the second full moon in a month a blue moon can be traced to an article written in 1946 by James Pruett in *Sky and Telescope* magazine in which he seemingly misinterpreted the earlier definition espoused by *The Maine Farmers' Almanac*. So widely accepted was Pruett's naming convention that by the 1980s it had received the imprimatur of *Trivial Pursuits*, appearing as the boardgame's designated answer to the question: what is a blue moon?

To avoid confusion, we now distinguish between seasonal and monthly blue moons. A seasonal and a monthly blue moon can occur in the same year. For this to happen there needs to be thirteen full moons between successive winter solstices and, usually, thirteen full moons in a calendar year, as was the case in 1934. These conditions will not recur until 2048, but then in relatively short order they will happen again, in 2067, even though there will only be twelve full moons that year, February missing out and March having two.

While two seasonal blue moons are an impossibility because there will never be fourteen full moons between successive winter solstices, 1961 had the distinction of having one seasonal and two monthly blue moons, something that will not recur until 2143.

A blue moon may occur infrequently, but at least it is more common than a month of Sundays.

The mind does not require filling like a bottle, but, rather like wood, it only requires kindling to create in it an impulse to think independently and an ardent desire for the truth – Plutarch, *Moralia, De auditu*, circa 100 CE

Who made the first long distance car journey?

I have long been fascinated by inventors. What came through in the stories of some of the male inventors featured in my last book, *The Fickle Finger*, was the role that their wives played. For every horrified Frau Röntgen, who, when shown the first x-ray, exclaimed “I have seen my death”, there was at least one Elma Farnsworth, who fought tooth and nail to establish Philo’s reputation as a father of television and secure the financial rewards his ingenuity merited. Some thought that the application of a well-aimed boot to the seat of their husband’s lederhosen was needed to spur them on. Bertha Benz was one such.

Her husband, Karl, an innovative engineer fascinated by locomotion, had by 1880 developed and patented a two-stroke engine and then a speed regulation system, together with a spark plug, carburettor, clutch, gear stick and radiator. Benz was not content to stop there. His ambition was to develop a horseless carriage, a vehicle designed to move using its own power.

What he created was the Benz Patent Motorwagen, boasting a four-stroke engine nestling between the rear wheels, power transmitted to the rear axle by two chains, and an evaporative cooling system. It too was patented, on January 29, 1886, described as an “automobile fuelled by gas”. Although difficult to control, it crashed into a wall during an early public demonstration, Benz did manage to tame his beast sufficiently to complete some road trials successfully later that year. Dissatisfied with the vehicle’s technical specification, Karl incorporated several modifications into a Model 2 and by 1888 the definitive Model 3 was being finalised.

Inventing something is one thing, making money out of it is another and although a brilliant, innovative mechanical engineer, Karl was not much of a businessman. Bertha was becoming increasingly frustrated by the slow progress he was making in marketing his revolutionary Motorwagen and decided to take matters into her own hands. What was needed to put the doubters in their place and demonstrate the machine’s worth was proof positive that it was reliable and capable of negotiating a long journey.

Bertha’s idea was to take the Model 3 on a lengthy test drive from their base in Mannheim, but where to? The town of her birth, Pforzheim, around 65 miles away as an inebriated crow flies, seemed the obvious choice, especially as Bertha had decided

to keep the proposed trip secret from her husband. A visit to her family would give her the perfect cover.

Waiting until the school holidays had begun and inveigling her two sons, Eugen and Richard, into the plot, Bertha sprang into action on August 5, 1888. Leaving Karl asleep in bed and a note on the kitchen table informing him that she had gone to Pforzheim, she and her sons crept out of the house. They pushed the Model 3 out of the workshop to a spot where it was safe enough to start the contraption without fear of waking the inventor. The first long-distance motor journey had begun.

Karl, on getting up and finding the note, went out to the workshop and discovered that his pride and joy had gone. Bertha did have the grace to set his mind at rest by sending him telegrams, the late 19th century equivalent of text messages, as their journey progressed. At best, her progress could be described as stately.

Even when motoring had become an established pursuit at the turn of the 20th century, it was not the comfortable experience that we enjoy today. As Arnold Bennett commented in *The Card* (1911), “this was in the days... when automobilists made their wills and took food supplies before setting forth”. For the very first motoring pioneer, the obstacles Bertha had to overcome would have defeated a less intrepid and determined person. How was she to find way to Pforzheim? As there were no autobahns and signage was, at best, rudimentary and localised, she played safe by eschewing the most direct route and passing through Weinheim, Wiesloch, Langenbrücken, and Bruchsal, all towns known to her, before reaching Pforzheim.

Fuel was another concern. The vehicle did not have a petrol tank, just a fuel reserve of just 4.5 litres in the carburettor. Obviously, there were no petrol stations. The place to purchase ligroin, as petrol was known then, was a chemist’s and Bertha’s first port of call, in Wiesloch and still there, can rightly claim to be the first fuelling station in motoring history. Two more visits, again to chemists’ shops, were required before the journey’s end.

The engine was cooled by water which absorbed heat and evaporated. The drawback, though, was that the water level had to be topped up regularly, necessitating frequent stops at public houses, streams and even ditches. And then there were the hills. An engine generating around 2.4 horsepower with just a two-

speed gear box simply did not have enough oomph to get up anything other than the gentlest of inclines under its own volition. The only option was to get out and push. By the time they got to a hill near Wolferdingen, Bertha and her sons were so exhausted that they had to call upon the assistance of a couple of young farm hands. What they thought is not recorded.

Descending hills was no breeze either. It took a considerable effort to pull the lever at the side of the vehicle to put on the brakes. Even more alarmingly, the brake shoes quickly wore out. Ever resourceful, Bertha even had time, on the return journey, to invent brake linings, persuading a cobbler in Bauschlott to cover the shoes with leather.

A blocked fuel line, cleaned using her hat pin, and a worn-out ignition wire, insulated with her garter, were but minor irritations to Bertha. At least flat tyres were not a problem, the rear wheels being made with iron rings and the front of solid rubber. By dusk, though, the intrepid trio had reached Pforzheim and, after a few days' recuperation, made the return journey, this time taking a more direct route.

Bertha's enterprise in attempting the 180-kilometre round trip proved to the sceptics that the motor car had a future. No doubt at his wife's insistence, Karl added an extra gear and more effective brakes to the Model 3 and in the late summer he began selling what was the first commercially available car. A Parisian bicycle manufacturer, Emile Roger, who manufactured Benz engines under licence, bought a Motorwagen, the second to be sold. Granted an exclusive agency, Roger proved a more effective salesman than Karl and of those that were sold, most had French owners.

The only Model 3 that remains today, alas, not the one driven by Bertha, is owned by our own Science Museum, who loan it out to the Benz Museum in Ladenburg. The Bertha Benz Memorial Route, her original route, was declared a European Route of Industrial Heritage in 2008.

Motoring has since moved out of the slow lane, but it owes a big debt of gratitude to Bertha.

About the author

After graduating from Trinity College, Cambridge with a degree in Classics, Martin Fone started his working career as an audit assistant. However, he soon found the world of bean-counting too racy for his taste and retreated to the calmer pastures of the insurance industry. He had a successful business career, during the course of which he co-authored two books on public sector risk management, which were adopted by the Institute of Risk Management as their standard textbooks.

Since retiring, Martin has had the opportunity to develop his interests, mainly reading, writing and thinking or, as his wife puts it, “locking himself away in his office for a few hours a day”. In particular, he has been blogging and writing in his tongue-in-cheek, irreverent style about the quirks, idiocies and idiosyncrasies of life, both modern and ancient.

This is the fifth book he has written since leaving the insurance industry behind, following on from *Fifty Clever Bastards*, *Fifty Curious Questions*, *Fifty Scams and Hoaxes* and *The Fickle Finger*, all of which, he says, are still available from all good book retailers and high-class charity shops. Martin also contributes to *Country Life Online*.

More about the author

If you enjoyed this book, check out Martin Fone’s other books

- *Fifty Clever Bastards* - a study of luck and success or a simply a feast of schadenfreude, featuring fifty inventors who came a cropper; either they were killed by their inventions, were ripped off or simply gave their inventions away for the good of mankind.
- *Fifty Curious Questions* – an attempt to answer some of those irritating questions that life throws up along the way. The selection is idiosyncratic and is designed to show the lengths scientists have gone to and the quantum leaps in logic they have deployed to push out the frontiers of human knowledge. The book was a Category Finalist in the prestigious 2018 Eric Hoffer Book Award.
- *Fifty Scams and Hoaxes* – a light-hearted investigation into the murky world of financial skulduggery, medical quackery and ingenious hoaxing.
- *The Fickle Finger* – a paean to fifty inventors who did not quite enjoy the success that their ingenuity otherwise merited.