

# FASCINATING FACTS

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## THE CHURCH ON TOP OF THE WORLD'S LARGEST PYRAMID

Fascinating Facts is a free subscription monthly private circulation e- magazine of personal , historic and military interest.  
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Welcome to this issue of Fascinating Facts. Now retired, with a background of journalism, literature production, international public relations, and ex editor of a leading industry publications, I now have the time to combine my abilities and share my interests in historic facts, especially in connection with military matters. While I have written most of the articles in the Scarletman I am happy to accept ideas and contributions from readers; giving them credit for their work. The Scarletman is free issue e-magazine therefore if you would like to circulate copies further then I am happy for you to create a wider readership of those with a similar interest to mine.

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### FUN FACTS ABOUT AUGUST

August was once the 6th month of the year. In the Roman calendar, August was originally known as "Sextilis", the Latin word for 6. In 700 BC January and February were added making August the 8th month.

The number of days in August has changed many times. Initially it was 30 days, then 31. When January and February were introduced August was reduced to 29 days. But Julius Caesar changed it back to 31.

While "Sextilis" does have a somewhat naughty ring to it, in 8 BC it was dropped and Augustus became the official name in honour of Augustus Caesar, the Roman emperor and adopted son of Julius Caesar. Eventually, Augustus was shortened to simply, August.

The lion and the virgin. The two zodiac signs that represent the month of August are Leo and Virgo. Leos, represented by the lion, are people born from July 23rd to August 22nd. Virgos, represented by the virgin, are people born from August 23rd to September 22nd.

A birthstone of the highest beauty, peridot is a stunning green gem that is forged in lava. Perhaps not the most well known of the birthstones, its stunning range of colour from electric grass to subtle olive, will make anyone green with envy.

There are many strange days celebrated in the month of August. The 3rd is National Watermelon Day. The 10th is National Lazy Day. The 16th is National Roller Coaster Day. And the 28th it's National Bow Tie Day!

In August of 1762 the Earl of Sandwich requested two pieces of bread with meat inside.

In Anglo-Saxons times August was known as "Weod Monath" or Weed Month, because it was when weeds and plants grew the fastest.

August is represented by gladiolus. A bright and vivacious flower that is also known as the sword lily as it grows in long stalks. The second is the poppy, which represents remembrance, creativity and imagination.

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# Cholula The world's largest pyramid

Never heard of it! The great pyramid of Cholula is the largest pyramid, by volume, known to exist in the world today. The brick pyramid stands 25 metres (82 ft) above the surrounding plain, which is significantly shorter than the Great Pyramid of Giza's height of 146.6 metres (481 ft), but it is much wider, measuring 300 by 315 metres (984 by 1,033 ft). Compared to the Great Pyramid's base dimensions of 230.3 by 230.3 metres (756 by 756 ft). With a volume of 166 million cubic ft, it beats Egyptian's Great Pyramid's volume of 84 million cubic ft, by a significant margin.

## WORLD'S LARGEST

While a pyramid is also a temple it is traditionally dedicated to the god Quetzalcoatl. The architectural style of the building was linked closely to that of Teotihuacan in the Valley of Mexico, although influence from the Gulf Coast is evident.

Started in the third century BC the temple-pyramid complex was built in four stages, through to the 9th century AD. Not only the largest pyramid it is also the largest monument ever constructed, The ceramics of Cholula were closely linked to those of Teotihuacan, and use of both sites appeared to decline simultaneously.

## HAND BUILT

The Postclassic nahuas called the pyramid *Tlachihualtépetl* or "hand-made mountain", as believed the structure was built by human hands instead of by sacred beings.

At its peak, Cholula was the second largest populus in Mexico with an estimated 100,000 people living at this site. The site was once called Cho-

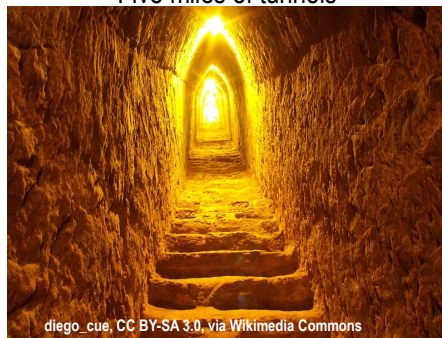
lollan meaning "the place of those who fled", a clear reference to the events written on the colonial text *Anales de Cuauhtinchan* where a group of *toltecachichimeca* arrive and conquer the city after running from their previous capital city, *tollan-xicocotitlán*.

Unfortunately religious fervour did not protect the local inhabitants, who were easily captured by Hernan Cortez and his Spanish army in 1519 AD. They massacred around 3,000 of the city's people—about 10 percent within 3 hours. As a symbol of Christian conquest, the invaders established the church on top of the 'hilly' surface of the Great Pyramid of Cholula which was probably already hidden in mud and dirt.

## NATURAL HILL

Today the pyramid looks like a natural hill surmounted by the *Iglesia de Nuestra Señora de los Remedios* (Church of Our Lady of Remedies), also known as the *Santuario de la Virgen de los Remedios* (Sanctuary of the Virgin of Remedies) The church is a major Catholic pilgrimage destination,

Five miles of tunnels



diego\_cue, CC BY-SA 3.0, via Wikimedia Commons

and the site is also used for the celebration of indigenous rites.

Many ancient sites in Latin America are found under modern Catholic holy sites, due to the practice of the Catholic Church of repurposing local religious sites.

Due to the historic and religious significance of the church, which is a designated a colonial monument, the pyramid as a whole has not been excavated and restored.

But it is known that the pyramid consists of six superimposed structures, one for each ethnic group that dominated it. However, only three have been studied in any depth which uncovered 5 miles of tunnels. The core of the structure was built with adobe bricks, brick made by mixing mud with a binding material, such as straw or sand. They were then dried in the sun. And as the building increased in size the outer layers were covered with smooth-faced bricks containing more earth.

## GODS AND PRIESTS

Excavations from 1950 to 1974 found offerings, floors, walls and buried human remains from 900 AD. They found male and female clay figures with complicated hair styles. Figures from later periods, such as those coinciding with Tula and Teotihuacan, tend to be of gods and priests. Various musical instruments, such as flutes, were also found, as well as tools for the making of textiles, paper and axes. One major find included a ceremonial sceptre carved from bone, with images related to the concept of life and death as a duality. Also inside are murals.

The original *Tlachihualtépetl* the largest archaeological site of a pyramid (temple) in the New World, the Great Pyramid of Cholula in Puebla Mexico



ördisk familjebok, Vol 4, Public domain, via Wikimedia Commons

The *Iglesia de Nuestra Señora de los Remedios* (Church of Our Lady of Remedies), built on top of the prehispanic temple by the Spanish in 1594 .



AlejandroLinaresGarcia, CC BY-SA 4.0, via Wikimedia Commons

# DO YOU REMEMBER?

As the world moves forward and technology creates changes in the way one live their lives, one's memories disappear further into the past. Trying to explain to the younger generation does not seem to impress them. Their misunderstanding created by the fact that they did not experience what then was common practice but today seems unbelievable and to some extent totally unacceptable. So here are some things which might evoke some memories!

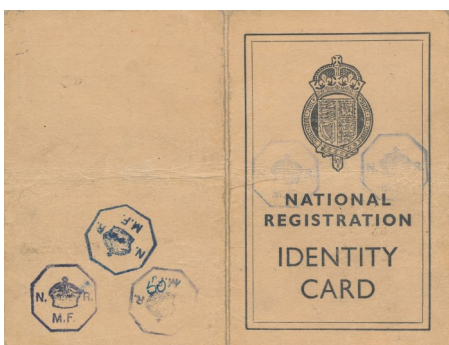
## COOKING AND HEATING

One unit provided the warmth for heating and cooking. It was called a range!. To use, one had to have double knowledge. That of preparation of ingredients and how to operate a heat source that was, in todays language the central heating unit except that it only heated the room in which it was installed. Fired with wood or coal in the left section it heated the oven in the right. Moving, in 1941 from a London gas cooker to this my mother made terrific meals. The tin of Zebo has memories to having to polish it!



## MY UK IDENTITY CARD

Yes my identity card which was issued for everyone under the National Registration Act 1939 so that people could be identified if injured or killed. They were withdrawn in 1952.



## TOILET—OR THUNDER BOX

No tiled wall just rough wood shed in which there was seat with a hole and underneath either a bucket or a 6 ft deep hole. Never the best of places smelly, hot in summer and cold and draughty in winter. Added to that it was outside so one had to face the elements. But it was also part of the recycling regime as, with no toilet paper, newspaper, or if that was not possible magazine pages were the order of the day. Torn into squares and hung on a nail. But beware of the shiny pages!



## BATH NIGHT

There was no room in which there was a bath and toilet, For bathing, usually once per week, often on Friday, a tin bath was removed from a nail in the wall outside. The water was boiled in a copper fired by a wood fire underneath and brought to the bath by bucket. All used the same water—youngest first!



## INKWELL AND SLATE

Every desk had an inkwell, as the black round mark in top right hand corner of picture. A pupil, the ink monitor, refilled them. Below that a slate, with a slate pencil to save paper. A cloth removed markings.



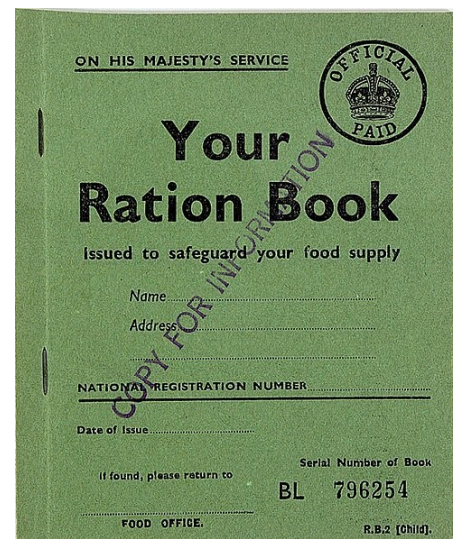
## THE TILLEY LAMP

In my childhood, during the war we were evacuated to a lonely farmers cottage 3 miles from any village. Therefore our only form of lighting was candles, paraffin lamp or Tilley lamp the latter of which give out the best lighting. It was created from John Tilley's invention of the hydro-pneumatic blowpipe in 1813. The paraffin fuel is forced from the tank by air pressure, or pumping, up to the mantle where it is turned into a gaseous form prior to burning. The incandescent mantle gave off a better light than a wick or flame. Another benefit was that this improved light was better for eyesight due to reduced eye-strain. With a handle at the the top it was easier and safer to carry than a normal paraffin table lamp or candle.



## RATION BOOK

By mid 1939, preparing for war, 50 million ration books had been printed. The first item to be rationed in 1939 was petrol, followed in January next year by foodstuffs like bacon, ham, butter, and sugar. Then food from animal sources, margarine, eggs, milk, tea, breakfast cereals, rice, and biscuits. By mid-1942 most foodstuffs were rationed, except fresh vegetables, fruit, fish and bread. Clothing, shoes, fuel, and soap were also rationed



The National Archives UK, Public domain, via Wikimedia Commons

# ST GEORGE PATRON SAINT OF ENGLAND

St George is considered as a heroic knight slaying a ferocious, fire-breathing dragon. But like many early saints, the exact details of his life remain a mystery. So one has to delve deeply to try to separate fact from fiction and get closer to the truth behind the legend of St George and the Dragon

He is hailed as the patron Saint of England, a national hero and depicted, in popular culture, as a knight in shining armour, the truth is less fanciful as it is more likely that he was an officer in the Roman army and a member of the Praetorian Guard.

## NO ENGLISH CONNECTION

Interestingly he actually has no physical connection with England as he was born; in the 3rd century AD; over 2,000 miles away in Cappadocia now modern day Turkey.

He is thought to have died in Lydda, modern day Israel, in the Roman province of Palestine in AD 303. It is believed his tomb in Lydda was a centre of Christian pilgrimage.

Like many saints, St George was described as a martyr after he died for his Christian faith. It is believed that, during the persecutions by the Emperor Diocletian, in the early 4th century, St George professing his Christian faith, was executed for refusing to make a sacrifice in honour of the pagan gods.

## ENTER THE DRAGON

The story of the dragon states that George rode into Silene; modern day Libya where tradition recalls a fierce dragon, whatever that was, was causing panic at the city by demanding food of two sheep per day. They were not enough so the dragon demanded humans which resulted in the king's daughter being chosen for sacrifice. George saved the girl by slaying the dragon with a lance.

In 494, he canonised as a saint by Pope Gelasius I. which seemed to be based on the fact that the king was so grateful that he saved his daughter that he offered him treasures as a reward. But George refused and instead gave it to the



Public domain

poor. The people of the city were so amazed at what they had witnessed that they became Christians and were all baptised.

A church was built in Lydda during the reign of Constantine the Great (306–337) and was consecrated to "a man of the highest distinction". Initially the patron was not disclosed, but later it was asserted to have been George The Church-Mosque of Saint George in Lydda.

## RED CROSS EMBLEM

He became popular with English kings. Edward I had banners with the St George, a red cross emblem on a white background, as in the Union Jack flag. Edward III interested in the saint and owned a relic of his blood. The St George cross was not used to represent England until the reign of Henry VIII.

## MANY COUNTRIES

While Saint George's Day, is traditionally celebrated on 23 April in England, it is also celebrated in Ukraine, Ethiopia, and Georgia, Catalonia, Aragon, Moscow and several other regions, there are cities, universities, professions, and organisations, also claiming St George as their patron saint. The veneration of George spread from Syria, Palestine through Lebanon into the Byzantine Empire.

## DRAGON METAPHOR

Problem is dragons never existed!! The religious significance of the Dragon derives from the Crusades and is possibly a metaphor for

the conquest of Christianity over what they saw as 'evil'; the Seljuq Turks' occupation of Jerusalem and the Holy Land. Iconography of the horseman with spear overcoming evil was widespread throughout the Christian period.

## CHURCHILL'S CONNECTION

In the medieval romances, the lance, with which George slew the dragon, was called Ascalon, after the Levantine city of Ashkelon, in Israel. The name Ascalo was the code name used by Winston Churchill for his personal aircraft during World War II, according to records at Bletchley Park.

## MARTYR'S SARCOPHAGUS

Israel, claims to contain a sarcophagus believed by Christians to contain St. George's remains as he was apparently martyred there, at the end of the third or the beginning of the fourth century. A new church was erected in 1872 and is still standing. The relics of Saint George to that location is celebrated yearly on 3rd November.

## NEVER VISITED ENGLAND

Although he never visited England, his reputation for virtue and holiness spread across Europe. In 1940 King George VI created the George Cross for acts of the greatest heroism or courage in circumstance of extreme danger. It bears the image of St George vanquishing the dragon. The image of St George is on many memorials honouring those killed in WW1.

# 1820 COSTUMES OF LONDON'S 'LOWER ORDER'

It seems we have come the full circle with deliveries. Also jobs which no longer exist such as scissor sharpener, kettle mender, and water carrier all to our door! All with the most famous of all Nell Gwynne who sold oranges and finished up marrying a king. From a hand coloured engraved book published by Samuel Leigh.



WATCHMAN



MILK



WATER CRESSES



CHICKENS



MATCHES



SCISSARS GRINDER



BALLAD SINGER



DOOR-MATS



ONIONS



DRAY MAN  
DRAYMAN



MACKAREL



KETTLES TO MEND



RAREE-SHOW



DOGS MEAT



SCAVENGER

Images Courtesy New York Public Library

# OLD JOE THE WORLD'S TALLEST FREE-STANDING CLOCK TOWER

The world's tallest free-standing clock tower, the Joseph Chamberlain Memorial Clock Tower, often referred to as Old Joe, is a clock tower and campanile located in Chancellor's court at the University of Birmingham. While there have been various claims about its height ranging from 328 ft to 361 ft, tall. Mr Burton, secretary of the University, stated that the tower stands 329 ft high. The dials measure 17 ft in diameter, the length of the clock hands are 10 and 6 ft. The bells weigh 20 tons and the biggest 5 ton. It was built to commemorate Joseph Chamberlain, the first Chancellor of the University. Although one of the original suggested names was the "Poynting Tower", after one of the earliest university professors John Henry Poynting.

## ITALIAN STYLE

A prominent landmark the grade II\* listed tower can be seen for miles around the campus, and has become synonymous with the University. Constructed between 1900–1908, as part of the initial phase of the Edgbaston campus by architects Aston Webb and Ingress Bell, it stands at the centre of a semicircle of matching red brick buildings. The original tower designs were amended due to Chamberlain's great admiration for the Italian city's campanile. On 1 October 1905, the Birmingham Post reported that Chamberlain had announced an anonymous gift of £50,000 (£4,903,000 in 2023) The donor was Sir Charles Holcroft an iron and coal master and benefactor of Birmingham University The Birmingham Post announced the gift as intended for the erection of a tower in connection with the new buildings at Bournbrook at a cost estimated by the architects at £25,000 (£2,500,000) It was suggested, the tower would be upwards of 300 ft in height, and while it would form the main architectural feature of the University it would be useful in connection with the Physics Department and as a record tower.



Dunpharlain, CC BY-SA 4.0, via Wikimedia Commons,

## RADAR EXPERIMENTS

In 1940, Sir Mark Oliphant an Australian physicist who became Poynting Professor of Physics headed radar research and used the tower for radar experiments. The Old Joe asteroid 10515 discovered in 1989, is named in the clock tower's honour. There is a superstition that if students walk through the tower's archway when it chimes, they will fail their degree.

Built on a 50 ft square by 10 ft thick concrete base the foundations extend 328 ft below ground to ensure stability. Joyce of Whitchurch built the clock,

The hands are made from copper with the ten floors accessed by a lift in the SW corner. Following on from the lift, to the level of the balcony, from the inside, it did not require any scaffolding. This meant the brickwork as not "pointed" and had to be repointed in 1914, 1957 and 1984–85. Faced with red Accrington brick with Darley Dale dressings the tower tapers from 29 ft to 23 ft just below the balcony. The clock is regularly serviced by Smith and Derby, the company which installed the original clock.

## ORIGINAL DESIGN

The original design for Old Joe is thought to have been based upon St Mark's Campanile in Venice, the latter having served as the inspiration for Sather Tower at University of California, Berkeley. The final design is thought to have been in-



Myrabella, CC BY-SA 3.0, via Wikimedia Commons

The Torre del Mangia on which Old Joe was based

spired by Torre del Mangia which is of similar design but for the clock being placed towards the bottom of the tower. David Lodge's novel Changing Places tells the story of exchange of professors between the universities of Rummidge and Euphoric State, Plotinus (thinly disguised fictional versions of Birmingham and Berkeley), which has replicas of the Leaning Tower of Pisa on campus.

In more recent years the tower has been used as a working water tower and it is frequented by peregrine falcons who have made their home at the top of the tower.

# THE SECOND WORLD WAR MONUMENTS MEN

During the second world war it was known that certain top ranking Nazis were raiding and stripping works of art from top museums and collections. So the question was asked, by a select group of men and women, whose main objective was to safeguard culturally significant works of art, how can they be traced and saved from destruction, for the world. In June 1943, the American Commission for the Protection and Salvage of Artistic and Historic Monuments in War Areas, eventually known as "The Roberts Commission, was formed. The Monuments, Fine Arts, and Archives (MFAA) section, consisting of approximately 345 men and women representing 14 nations, was created as a result of this commission.

## AVOID DESTRUCTION

The core aims of the MFAA officers were to work with Allied troops to avoid unnecessary destruction of cultural targets, assess heavily damaged areas and create as well as implement procedures for the protection of important historical monuments. The MFAA, nicknamed the Monuments Men came into existence in 1943, but the majority of its officers deployed the following year. Major Robert K. Posey and Lieutenant Commander George K. Stout, who arrived in Normandy, France in July 1944, were two of twelve Monuments Men who served near the front line during active combat and were each responsible for large regions in Europe. Stout was an art conservator who helped establish the American Defence Harvard Group, which was instrumental in the creation of The Roberts Commission.

## PROTECTING ARTIFACTS

He was transferred to the MFAA in June 1944 and tasked with protecting significant cultural artifacts in France. Posey was an architect whose main objective was to inspect damaged monuments and make temporary repairs as best as possible. At the time of the MFAA's deployment to the European theatre of operations, the eventual scope of their mission was not yet known, as they would be re-



sponsible for the recovery and restitution of millions of items of cultural importance.

## HITLER'S FUHRERMUSEUM

Majority of these objects confiscated or illegally acquired by the Einsatzstab Reichsleiter Rosenberg (ERR), which was created by Alfred Rosenberg with the sole purpose of gathering the finest artworks for display in Hitler's proposed Fuhrermuseum. Luckily the ERR created detailed records of the items that were seized, in the form of large leather-bound albums that were later used as evidence in the postwar Nuremberg Trials to convict Nazi criminals. In 1947, the United States military transferred 39 of these albums to the National Archives and Records Administration (NARA), however it is believed that over 100 of these albums were originally created.

## MORE ALBUMS

From 2007 to 2014, The Monuments Men Foundation, created by Robert Edsel, obtained another four ERR albums that were ultimately donated to NARA. Many stolen items pictured in these albums were hidden in areas throughout Germany and Austria. During the war, Major Robert Posey was able to inadvertently gather information from someone close to the Germans after he came down with a horrible toothache. The information he obtained led to the discovery of one of the largest repositories of stolen items. Posey was referred to a local dentist whose son-in-law happened to be an art scholar. When questioned by Posey and his assistant, he admitted to working for Herman Goring and Alfred Rosenberg. The information the scholar disclosed led to the discovery of a massive stockpile in a salt mine in

Altaussee, Austria in May 1945. The entrances to the mine had been blocked by the local miners after they realised the Nazi soldiers intended to destroy everything within, but Posey was able to use his architectural engineering knowledge to safely access the mine. The mine contained such priceless works of art as Michelangelo's Bruges Madonna, Vermeer's The Astronomer and The Ghent Altarpiece by Jan van Eyck. Lieutenant Commander Stout coordinated the removal of these items to the Munich Central Collecting Point with assistance from Posey and a small team of Monuments Men. In Munich, the items were identified, catalogued, and prepared for return to their owners or countries of origin. By 1951, when the last Monuments Men officer returned home, over five million culturally significant items had been restored to their country of origin. These items included Torah scrolls, church bells, library books, and famous artworks completed by some of the greatest artists ever known. Lieutenant Commander Stout recognised the significance of the work with which the Monuments Men were tasked and the important legacy they would leave behind.

## HERITAGE OF MANKIND

In 1943 he stated: "To safeguard these things shows respect – of beliefs and customs of all men and will bear witness that these things belong not only to a particular people but also to the heritage of mankind." In these uncertain times we cling to our culture, our values, and the enduring lessons learned by past generations. These lasting reflections of the past illustrate stories of resilience in the most challenging periods of our history, and we can look at them for guidance during our darkest hours.



## THE DISCOVERY AND MEANING OF ZERO

Without zero you would not be able to read this as a computer operates on a binary system; strings of zeros and ones. Therefore without zero, modern electronics would not exist. Without zero, there would be no calculus, which means no modern engineering or automation. Without zero, much of our modern world literally falls apart. Its like a numerical glue!

### ZERO A GAME CHANGER

Discovery of zero was a total game changer; equivalent to learning a language. But for most of human history no one understood the number zero. It had to be invented. .

Research has shown that other animals, like monkeys, have evolved a rudimentary concept of nothing. Even tiny bee brains can compute zero. But only humans have used zero as a tool.

### THE UNSEEN NUMBER

The understanding of zero is profound. Something is naturally there or it does not exist! Numbers are there and can be seen. We can see one light flash on. We can hear two beeps from a car horn. But zero? It requires us to recognise that the absence of something is a thing in and of itself.

Zero is in the mind, but not in the sensory world, Perhaps a true zero; meaning absolute nothingness may have existed in the time before the Big Bang. But we can never know.

Zero doesn't have to exist to be useful, we now know that we can use the concept of zero to derive all the other numbers in the universe.

### THE MATCHBOX THEORY

According to mathematicians it's deceptively mathematically simple.

Imagine a box with nothing in it. This is an empty box It's a physical representation of zero. What's inside the empty box? Nothing. Now take another empty box, and place it in the first one. How many things are in the first box now? There's one object in it. Then, put another empty box inside the first two. How many

objects does it contain now? Two. That's how we derive all the counting numbers from zero; from nothing which is the basis of our number system. Zero is an abstraction and a reality at the same time. It's the nothing that is. Our zero stands as the far horizon beckoning us on the way horizons do in paintings; it unifies the entire mathematical picture. If you look at zero you see nothing. But if you look through it, you see the world. It's the mathematical horizon.

### IMAGINARY NUMBERS

Zero then opens up the concept of negative numbers. which helps us understand that we can use maths to think about things that have no counterpart in a physical lived experience. Imaginary numbers that don't exist but are crucial to understanding electrical systems. Zero also helps us understand its antithesis, infinity, in all of its extreme weirdness. For instance one infinity can be larger than another?

### PLACEHOLDER DIGIT

Zero's influence on our mathematics is twofold. It's an important placeholder digit in our number system while at the same time it's a useful number in its own right.

The first uses of zero in human history can be traced back to around to ancient Mesopotamia about 5,000 years ago when it was used to represent the absence of a digit in a string of numbers.

For example. Think of the number 103. The zero in this case stands for there's nothing in the tens column. It's a placeholder, helping us understand that this number is one-hundred and three and not 13.

### ROMAN NUMERAL PROBLEM

This may sound basic but the ancient Romans did not know this. It was impossible with their number system based on letters. 103 in Roman numerals is CIII. The number 99 is XCIX. You try adding CIII + XCIX. It cannot be done unless you know the answer!

Placeholder notation is what allows us to easily add, subtract, and manipulate numbers. Allows us to calculate complicated math problems on a sheet of paper.

If zero as a placeholder digit, is a profound tool on its own. But around 1,500 years ago in India,

zero became its own number, signifying nothing. The ancient Mayans, in Central America, also independently developed zero in their number system around the dawn of the common era.

### INDIAN MATHEMATICIAN

In the seventh century, the Indian mathematician Brahmagupta wrote what is recognised as the first written description of the arithmetic of zero. When zero is added to a number or subtracted from a number, the number remains unchanged; and a number multiplied by zero becomes zero.

This concept of zero spread across the Middle East reaching European mathematician Fibonacci in the 1200s.

### ARABIC NUMERAL SYSTEM

He popularised the Arabic numeral system we all use today.

From there, the usefulness of zero became accepted.

The spread of zero across the 17th century also saw the development of the graph and a whole new field of mathematics that depends on zero.

You may recall from school or college math lessons that the simplest function in calculus is taking a derivative which is simply the slope of a line that intersects with a single point on a graph.

### CALCULATING A SLOPE

To calculate the slope of a single point, you usually need a point of comparison. Isaac Newton and Gottfried Leibniz discovered, when they invented calculus, is that calculating that slope, at a single point, involves getting even closer, and closer; but never actually dividing by zero.

Why is zero so profound as a human idea? We are not born with an understanding of zero. We have to learn it, and it takes time.

Studies of how humans and animals represent numbers in their minds indicates that children younger than 6 understand that the word "zero" means nothing.

### CHILDREN AND ZERO

Children find difficulty understanding the underlying maths related to zero. When a child is asked which number is smaller, zero or one, they often think of one as the smallest number and find it hard to understand that zero is smaller than one."

# THE VICTORIAN COAL HOLE

Walking down a local street I asked my grandson if he knew what the round disc in the pavement was and what it was used for. Being 21 he had no idea so I explained it was a coal hole. Then he asked why in the pavement? So I explained to him that I can just remember their use in my early childhood.

## TRADESMEN'S DOOR

In the pavements outside many areas of up market Victorian houses one sees decorated metal discs; usually at about the centre of the property frontage.

Most of these up market Victorian houses had kitchens and rooms for servants in the basements. Therefore there was a tradesman's door to give servants access and for deliveries. This was accessed by steps down for acceptance of deliveries being the ideal solution without going through the main house. In the open space this created, often referred to as the airy, on the opposite side to the main house the builders included a small room which extended under the pavement and was referred to as the coal hole. This has a circular metal lockable plate.

The airy had a second benefit in that the basement area of the house did not suffer from penetrating damp.

## COAL IMPORTANT

In Victorian times coal was important as it was the main component for both heating and cooking. The Victorians were very proud of their hard won wealth and lived a life of pride in their acquisitions. A very much keeping up appearances living. The tradesman's door was familiar as, rather than carrying dirty coal sacks through these pristine homes The 112

pound sacks of coal were delivered by horse and cart, and each sack carried, on the back of the coalman, who tipped the coal into the hole in the pavement, Any coal left on the pavement, swept in and the lid replaced.

## SCULLERY MAIDS

It was locked on the inside by one of the servants. Some coalmen had a leather hat with a length of leather, which covered his back, stitched to it. Others cut a sack down its widest part and wore that to protect their head, neck and back. Scullery maids filled the



Designs of coal hole covers. Different depending on the street or builder involved. Below is a selection of different designs



Mark.murphy (talk) (Uptoads); Public domain, via Wikimedia Commons



Brian Willoughby Plumstead Stories

coal skuttles in the cellar coal hole, carried them to the various rooms, and put them in the fire place.

The coal hole cover varies from about 12 to 14 inches (30 to 35 cm) in diameter. It consists of a cast iron ring set into the pavement, with a circular lid.

## CIRCULAR DESIGN

Some contain concrete or glass inserts or small ventilation holes. Three main reasons for the circular shape of the coal hole plate is, first a circular disc can not accidentally fall through its own hole, a possibility with a square or rectangular one. Second it can be rolled rather than carried or lifted. Third no corners reduces a risk of damage. On some streets there are different cover designs which reflects that the coal holes were replaced or the houses built by different builders.

## UNDER STAIRS

I remember coal deliveries to my mother in laws house. First newspaper on the floor and all doors closed because of the dust as the coalman come in the front door. He had to turn 90 degrees in a narrow passage to tip it under the stairs! But one could not prevent the dust clouding up the stairs!

## COAL HOLE BOOK

When a medical student Dr Shepard Taylor started studying coal hole covers. When he was 90 years old he wrote a book illustrating over 150 covers. Walking along many London streets now there are only a few coal hole covers. They have been paved over; the space below used for storage. Also while some are present they are blanks and there for decorative purposes

## 10 TON PER DAY

Two men on a coal delivery lorry were expected to fill the 112 lb sacks, lift onto their cart and deliver, that means to include carry from cart to point of delivery, a total of 10 tons of coal per day! The strenuous nature of the job took its toll especially in wet and cold weather. Coalmen suffered with chronic back problems. Also breathing the dry coal dust resulted in lung problems. Their backs would be permanently grey with en-grained coal dust while their scalps would be embedded with tiny coal splinters!