



Reuse and Recycle the
Magazine paper



Delphic

Where reason and imagination break even

Welham Girls' School Science Magazine

November'15

From The Editor's Desk

Dear Readers,

Through the Founders day madness and with pre-boards and college application deadlines hovering over us, the Editorial Board, along with the relentless Mrs. Richa J Pant, managed to put together one last issue of the Delphic for this year. It might seem like Founders are long gone to you as you sit back and read this, but for me, time has flown by rather quickly, as these eight pages, worth twenty minutes of your afternoon, have taken over two months to come together. Nonetheless, I am glad that it happened.

As is customary, I must introduce to you all the essence of this specific issue of the Delphic in this address. It can be rather difficult to judge what is and what isn't scientific in terms of a school's science magazine as Science is nothing but rationality. So, many different spheres like History, Literature and Language have come together in this issue. This time, we have tried to stick to a specific theme, the theme being 'Wall'. Be it in a tissue culture or in your homes, in a computer or in your thought process; walls of various kinds seem to exist everywhere and at any given point of time. Take one quick look around you, or even within you, and you'll find out what exactly am I talking about.

One very closely related process to the building of walls is compartmentalization- whether physical or psychological. It is a natural human instinct to build walls for various reasons like better organization, personal space or random prejudices. In the World War II, people were cramped in very large numbers in very tiny spaces; but this didn't stop almost everyone from making little personal quarters for themselves by hanging rags in the shape of a cubicle or putting around a few yardsticks. Compartmentalization has also played a significant role in respect with Biology and Evolution. The development of various biological walls and septum in our bodies make mammals- specifically humans- the most complex, advanced and efficient organisms.

Finally, with the coming of the last issue in my term of Editorship, it is time for the acknowledgements. My heartfelt gratitude goes out to the entire Editorial Board for being so patient, not only with the magazine but also with me. A very special thank you to the Teacher-in-Charge, Mrs. Richa J Pant, for being more than just that. Very warm thank yous to each one who contributed to this magazine in any possible way, even those whose works might not have seen the publishing house; Well done and keep trying!

Here is to the final eight pages of the Delphic 2015: a place where rationality doesn't hinder creativity but gives it wings instead.

Cheers!

Manasvi Mathur

Berlin Wall is gone but mental barriers remain...

In the wake of Spielberg's latest release, 'Bridge of Spies', The Delphic brings to you a brief insight into the most prominent development of the Cold War, 'The Berlin Wall' and its psychological impact on the people of Germany.

What exactly was the Cold War and which of the major powers was involved?

The atmosphere of distrust and mutual tension which did not involve the actual use of arms and weapons came to be known as the COLD WAR. The world was polarized between the 2 major powers, USSR and USA although it came to have a global dimension.

- What is the 'Berlin Wall'?

The GDR (German Democratic Republic) began building a 28 mile long concrete wall right across Berlin that separated West Berlin (the prosperous sector controlled by USA) from East Berlin (the backward sector under the USSR).

- What is the psychological impact of building this wall?

There is a recognized psychological illness called 'Maverkrankheit' or 'Wall Sickness' that was discovered by an East Berlin psychiatrist, Dr. Mueller Hegemann. It was an East German Syndrome whose patients suffered from a high level of depression, alcoholism and an acute fear of confined spaces. Symptoms also include delusions of persecution, listlessness and repeated suicidal attempts. Dr. Hegemann observed that the Wall caused psychosis, schizophrenia and phobias in the East Germans who lived in its shadow.

One sufferer, Gitta Heinrich was interviewed recently, "The whole village was like a prison", she says, "Wherever you went, you had to see the Wall", "It was this real feeling of narrowness."

Hegemann predicted that despondency would persist in Berlin for as long as the Wall stood. The only remedy was to bring it down. Sure enough in 1990, another psychologist wrote of the "emotional liberation" felt on the November night the Wall finally came down.

- What is the sociological impact today?

Particularly worrying for the sociologists are the ranks of the unemployed young men who are often attracted to the far-right parties, especially when it comes to accusing neighboring East Europeans of taking away jobs. "It's a kind of wall in the mind", Dr. Holtmann said. These young people barely leave their communities or seek retraining opportunities, reinforcing the residue of unskilled labour in some of the Eastern states.

Dr. Seuss, in *The Butter Battle Book*, an allegory of the Berlin Wall and the Cold War brilliantly talks about the futility of the Wall. The Wall stands between the "Yooks" and the "Zooks", and a grandfather explains the absurd necessity of the barrier to the boy:

"It's high time that you knew
Of the terribly horrible thing that Zooks do.
In every Zook house and in every Zook town
Every Zook eats his bread
With the butter side down!"
"But we Yooks, as you know, when we breakfast or sup,
Spread our bread, Grandpa said
With the butter side up
That's the right, honest way!
Grandpa gritted his teeth.
So you can't trust a Zook who spreads bread underneath."



-Anahita Sahu

Word Association

Word association is a word game that involves an exchange of words that can be associated together. It refers to stimulation of an associative pattern by a word in response to a given word, done spontaneously as a game, creative technique or in a psychiatric evaluation. Carl Jung theorized that people connect ideas, experiences, feelings and information by way of associations linked in the unconscious in such a manner as to exert influence over a person's behavior. He called these subconscious links 'complexes'. Here are some of the first things that came to their mind when I said the word -"Wall":

Shruti- "*Van Der Waal*"

Mrs. Saklani- "*White*"

Manasvi- "*Wolf of wall street*"

Mrs. Datta- "*Berlin*"

Mrinaal- "*Wallflower*"

Maria- "*Walt Disney*"

Mrs. Brar- "*Expression, it's not a barrier for me!*"

Aprajeeta- "*Facebook*"

-Era Kakar

“Mirror, Mirror on the wall”

A well-known phrase used by the evil queen from Snow White, it is used to convey her narcissism. Ever wondered why so many people seem to have a touch of the queen’s vanity? Here’s why – illusory superiority. Illusory Superiority is one of the various positive illusions we have regarding ourselves in which we tend to over-estimate our own qualities and abilities as compared to those of others around us.

Two logical obstacles in demonstrating and recording this psychological phenomenon are the varying definitions of ‘average’ and the differing interpretations, standards and opinions regarding the quality in discussion. Theoretically, average would be the ‘mean’ value but it is too easy to surpass the mean mark. So, we use the ‘median’ to set theoretical standards, as it is impossible for everyone to beat that. However, is that how we judge ourselves? No! We formulate an image of the lowest possible ‘average’ by tampering with either the number or the standards of various people in the given pool. Also each individual’s meaning of any given quality, for example Kindness, alters in accordance with their own actions.

This cognitive bias, often called the Lake Wobegone effect, explains the Evil Queen’s immortal question as well as her need for a specific answer. The name ‘Lake Wobegon effect’ came after that of the fictional town invented by Garrison Keillor. “Welcome to the town where all the women are strong, all the men are good looking and all the children are above average”, was his introduction to his little dream town, Lake Wobegon.



-Manasvi Mathur

Across all the high walls and massive voids...

“Quantum Entanglement – “Spooky Action at a Distance” –Albert Einstein

Consider an arbitrary situation- Earth and Venus have the same mass.

Earth rotates from West to East. On the other hand, Venus rotates from East to West (in the opposite direction). What if Venus’s opposite rotation with respect to earth, is in fact due to a perplexing web like network ensnaring the two planets or rather a matrix of threads entangling them? This is not the case, but a similar inexplicable hypothesis can be discerned in Quantum theory. According to quantum physics, entangled particles remain connected in such a way that actions performed on one affect the other, even when separated by massive distances.

Entanglement is a phenomenon which occurs when a pair of particles, like photons, interacts physically. On firing a laser beam through a certain crystal, individual photons can be split into pairs of entangled ones. These entangled photons can be separated by hundreds of miles or even more.

Suppose the first photon (say photon A) has an up spin state. Entangled photon B which is spatially, very far away from Photon A occupies a spin state opposite to that of the former, which is a spin state in the downward direction. What we decipher from the above information is that although both photons are galaxies, or maybe even light years away from each other, there seems to exist a bizarre connection between the two. This interconnection is of such sort, that actions taking place on one instantaneously influence its entangled particle, photon B. This theory is contradictory to that of local realism which states that an entity is only *directly* influenced by its immediate surroundings.

Quantum entanglement explains that there could be a possibility that information *can* travel faster than that of the speed of light, or that space is merely a fabrication of esoteric enigmas, that deludes us into thinking that there might indeed be separate entities. Maybe, space is just an illusion.



-Shruti Kaul

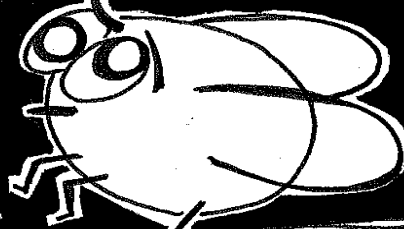
Fly on the wall

An unseen observer or listener.

Walled Eyes

Shhhhh!!!!
I'm trying to listen....
I can't believe
What I'm Hearing

Frank,
I gotta go
to the bathroom

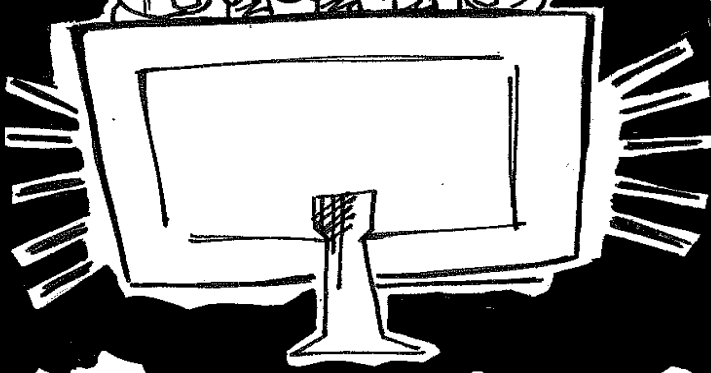


BREAK THE FORTH WALL

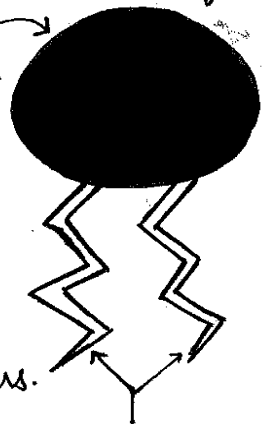
of fiction,
especially
theater, film
or television,

to break the illusion of separation between the audience and the fiction itself, either intentionally or unintentionally.

ETYMOLOGY. | (Latin) a s
From Vallum



This is the polar head.
It attracts water.
This means it is
HYDROPHILIC.



Human body is
made up of
phospholipid bilayers.

These are fatty acid
tails. They repel water.

This means they are
HYDROPHOBIC.

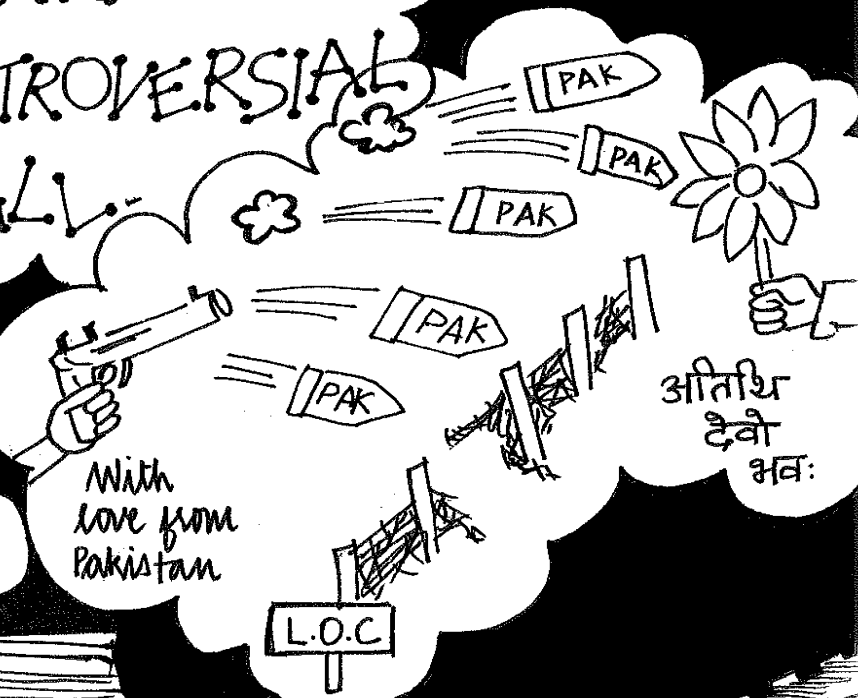
The conference of three religions -
Islam, Judaism and Christianity, the wailing
wall, situated in Jerusalem, is where
people often go to grieve.

ALCOHOL TOXICATED

THE MOST CONTROVERSIAL WALL

PICA:

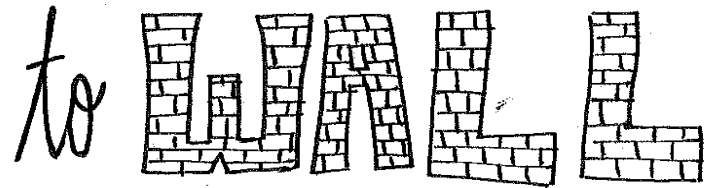
eating walls and bricks and more!
(The only eating disorder that isn't about FOOD)



With love from Pakistan

अतिथि दैवो भवः

row or line of stakes, a wall, a rampant



491.

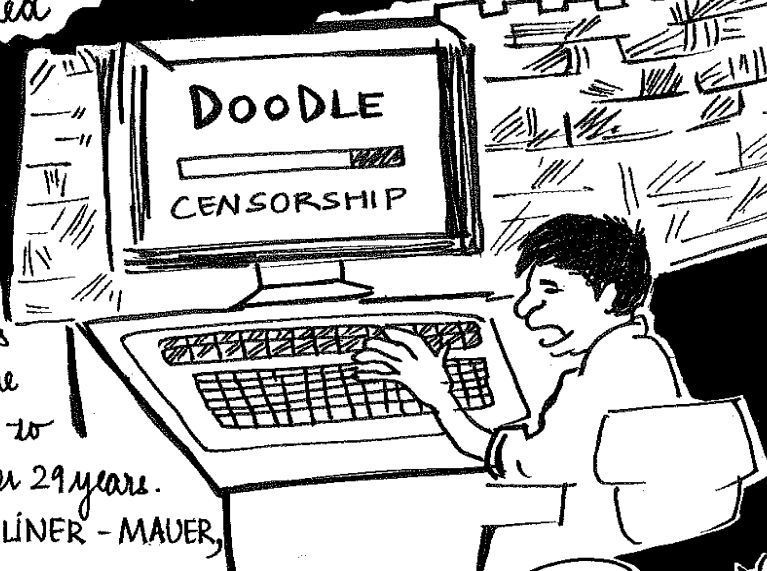
A firewall is a network security system that controls incoming and outgoing network

traffic based on a set of rules and prevents unauthorized access to or from a private network.



A woman with a bizarre fetish for inanimate objects has revealed she has been married to the Berlin Wall for 29 years. EITA - RIITA BERLINER - MAUER, 54, whose surname means

Berlin Wall in German, wed the concrete structure in 1979 after being diagnosed with a condition called OBJECTUM - SEXUALITY



Peshawara

The Walls Within

Initially, the heart was just a contractile vessel whose peristaltic movements pumped blood at low pressures. Then, fish developed two chambers—a single atrium and ventricle. Here, the blood first penetrated the gills and then travelled to the rest of the body. This was the beginning of pulmonary circulation.

In amphibians and reptiles, a partial division of the ventricles appeared, leading to the formation of the three chambered heart. Why then, did mammals need four chambers when reptiles and fish were doing just fine?

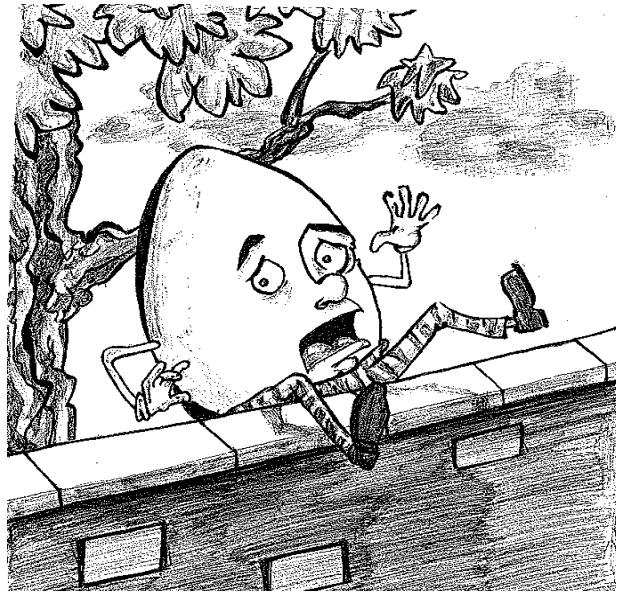
Birds and mammals evolved independently with the full separation of ventricles and the division between pulmonary and systemic circulation. This division was accompanied by a rise in maximal heart rate, an important requirement for high cardiac output, which is needed to sustain the high metabolism associated with endotherms.

As the mammalian heart develops in the unborn child, it takes on several distinct appearances, resembling the hearts of other animals; with each step, a little higher on the evolutionary ladder. At first, the tube heart is much like a fish's heart. When it divides into two chambers, it is similar to a frog's and with three it resembles a turtle's heart. Finally, with four chambers, the mammalian and the most evolved heart is formed.

Compared to other organisms, the oxygen content is much higher in mammalian blood. The reason behind this is the presence of separate chambers to oxygenate blood in one cycle and distribute it in the next. A four chambered heart thus allows us to be more energy efficient and move away from our energy source, whereas, other organisms like fish have to stay close to its energy source, eating all the time.

-Saumya Ratan

Humpty Dumpty sat on a Wall



Humpty Dumpty is a character in an English nursery rhyme which presumably every child who has learned the English language is acquainted to. In the rhyme Humpty is portrayed as an automorphic egg. According to the Oxford English Dictionary the term "Humpty-Dumpty" referred to a drink of brandy boiled with a type of beer brewed from malted barley commonly known as ale.

Humpty Dumpty holds an important relevance in the field of science. Humpty Dumpty has been used to demonstrate the second law of thermodynamics. The law describes a process known as entropy, a measure of the number of scientific ways in which a system may be arranged, often taken to be a measure of "disorder". The higher the entropy the higher is the disorder. After his fall and subsequent shattering the inability to put him back together is representative of this principle, as it would be highly unlikely, though not impossible, to return him to his earlier state of lower entropy, as the entropy of an isolated system never decreases.

Dumpty's cracking up also is used to explain some biological phenomenon known as the "Humpty-Dumpty Effect". The Humpty Dumpty Effect occurs when doing our best is still not good enough, when more of the same only digs us into a deeper hole, and when the sum of our solutions does not balance the weight of our problems. In spite of the finest intentions and much hard work, things slide more in the direction of for-worse, not for-better. If the Humpty Dumpty Effect continues too long, we reach a tipping point from which recovery is expensive and difficult, if not impossible.

-Pooja Patwari

WANTED

BUSHWACKIN' BACTERIA

Description: Simple, one celled organisms. The most numerous and also among the smallest of all living things. Reproduce fast— one cell can become more than a 1000 in just 3 hours.

Gang members: Strep throat, leprosy, cholera, typhoid, scarlet fever, tetanus, botulism and anthrax.

Warning: Most can be stopped with antibiotics but a number are becoming resistant to drugs.

lavya

The 'Great Wall' of China

Consider this: There is a certain species of animals located on a patch of land. Now a rift is formed and two halves of the group are created and situated on either side of the rift. The rift in consideration has, say, the same length and breadth as the Great Wall of China. What is so fascinating about this particular hypothetical musing is that the two halves, which were originally of the same species, develop different features and morph into a new species altogether. This phenomenon is also known as Speciation.

A real and actual example of speciation is the Galápagos finch. Different species of these birds live on different islands in the Galápagos archipelago, located in the Pacific Ocean off South America. The finches are isolated from one another by the ocean. So, over millions of years, each species of finch developed a unique beak that is especially adapted to the kind of food it eats. Because they are secluded, the birds don't breed with one another and have therefore developed into unique species with unique features.

Speciation can occur due to natural barriers or man-made ones. One of the most prominent man-made barriers is the Juyong-guan Great Wall or, more popularly known as The Great Wall of China. A geographically continuous population has a gene pool that is relatively homogenous. It remains homogenous because individuals can move and mate with individuals of the same species and thus the homogeneity is maintained. When populations become geographically discontinuous, the two populations or halves are able to evolve along different trajectories.

What happened with the Juyong-guan Great Wall is that it divided many species of fauna and flora namely *Ilmus pumila*, *Prunus armeniaca*, *Ziziphus jujuba* (Yes. They exist!) And now there are different kinds of plants, originally of the same species, found on either side of the wall. It is therefore reasonable to deduce that the Juyong-guan Great Wall has served as a physical barrier to gene flow for more than six hundred years.

-Manishka Banerjee

Wall Phobia

"Nothing in life is to be feared, it's only to be understood. Now is the time to understand more so that we may fear less."

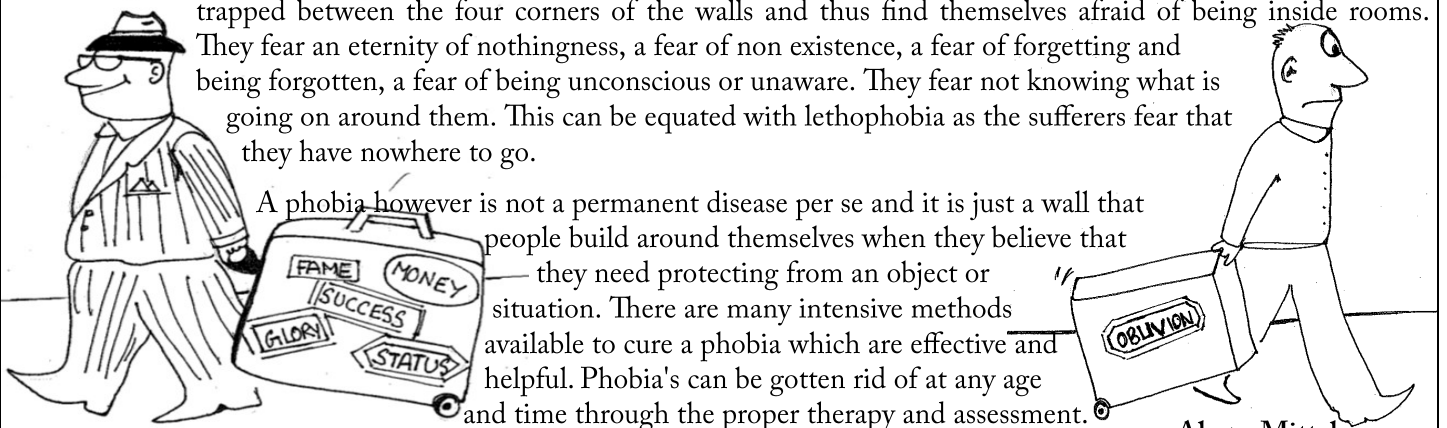
- Marie Curie

A phobia is a type of anxiety disorder which is defined as the persistent fear of an object, or a situation in which the sufferer is compelled to avoid the object that he fears. The person suffering from a phobia may know that his fear is irrational nonetheless coming in contact with the object of his fear, he may react severely by showing symptoms of anxiety and panic attacks. According to many researches there are over a thousand phobias that have been named however many psychologists say that an intense fear of any object can be termed as a phobia, therefore a clear number of phobias in the world cannot be given.

There are many unique phobias that exist in today's time like the fear of the number 666, fear of cookies, fear of small holes etcetera. One such unique and widely growing phobia is wall phobia. Wall phobia is very commonly associated with lethophobia which is the fear of oblivion. Most people suffering from wall phobia find themselves scared of being trapped between the four corners of the walls and thus find themselves afraid of being inside rooms.

They fear an eternity of nothingness, a fear of non existence, a fear of forgetting and being forgotten, a fear of being unconscious or unaware. They fear not knowing what is going on around them. This can be equated with lethophobia as the sufferers fear that they have nowhere to go.

A phobia however is not a permanent disease per se and it is just a wall that people build around themselves when they believe that they need protecting from an object or situation. There are many intensive methods available to cure a phobia which are effective and helpful. Phobia's can be gotten rid of at any age and time through the proper therapy and assessment.



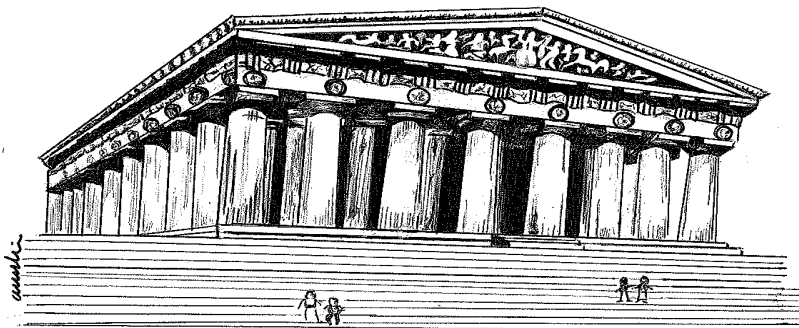
-Almas Mittal

The Parthenon of Pythagoras

When one thinks of the Parthenon, one always relates it to the mythical Greek goddess of wisdom, Athena. But this ancient monument has a lot to do with math too. Well it probably has more to do with Math than with mythology.

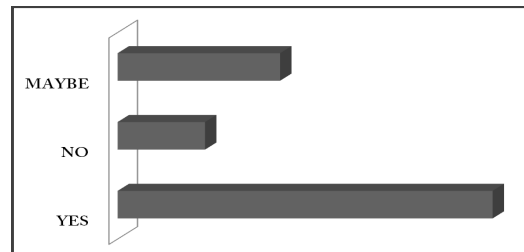
The Parthenon is 69.5 m long, 30.9m wide and is 13.7m in height .When reduced in ratio; the ratio of height to width is the same as that of width to length which is 4:9. Putting all the ratios together gives an ultimate ratio of 16:36:81 which to the Pythagoreans is $4^2:6^2:9^2$. In order to create a 4:9 rectangle, three contiguous rectangles with sides in the ratio of 3:4 must be constructed. The half of each rectangle is then equal to a 3:4:5 right triangle which allows the angles and sides to be checked with a knotted rope. The interior too is in a ratio of 4:9 and ratio between the diameter of the outer columns and the spacing of their centers is also 4:9. Just like other Greek temples, the platform has a slight parabolic curvature upwards to shed rainwater and to protect the monument from earthquakes. In this case, one might suppose the columns to lean outwards but in reality they lean inwards so that when extended they would meet a mile or so above the building's center. Since all the columns are of the same height the curvature of the edge of the outer platform is carried on to the architecture and the roof. Pythagoras and his followers believed that "all things are numbers". They observed the harmonies produced by notes with particular integer ratios of frequency and argued that the design of buildings too showed be governed by similar ratios. I guess his dream came true.

-Sulagna Tripathi

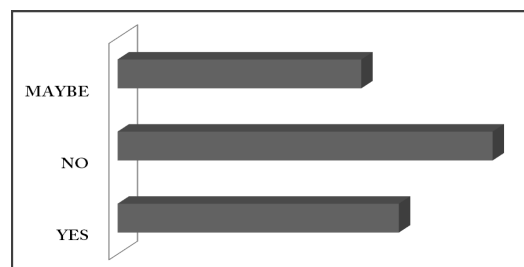


Know your Neighbours

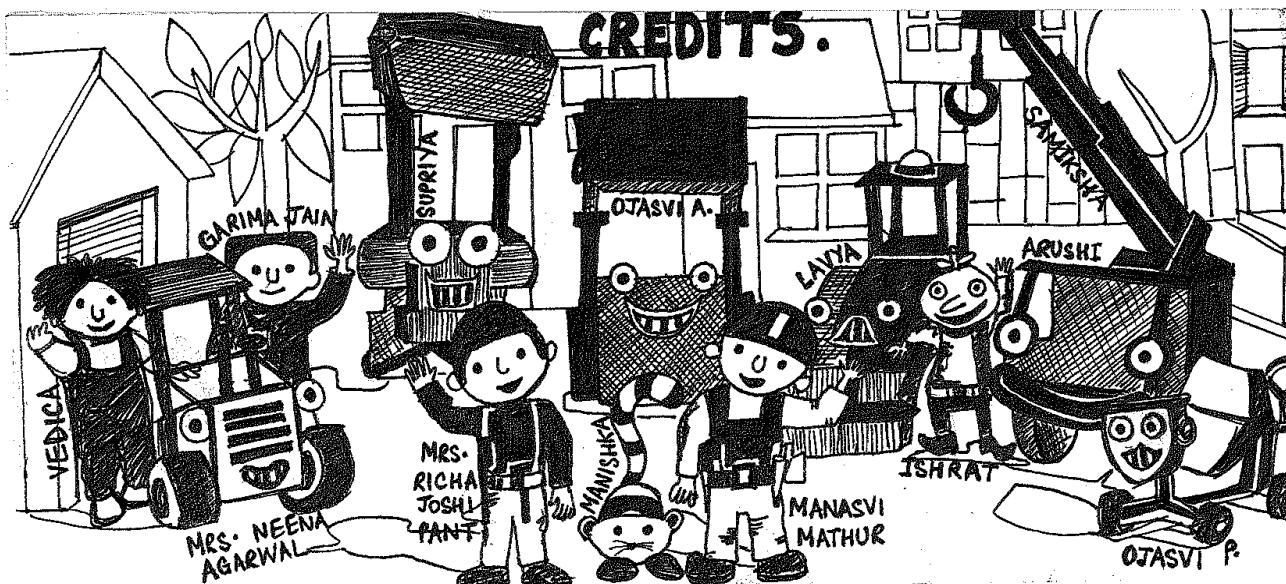
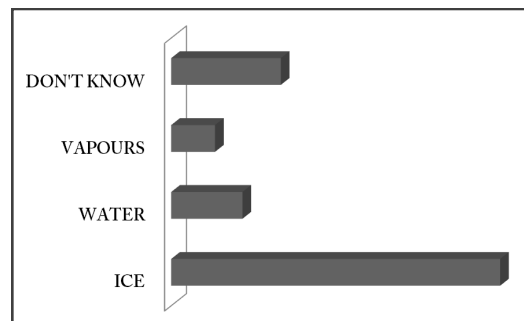
- Do you think that it is ethical for humans to explore the Martian surface?



- In your opinions it possible for a human settlement to come up on the Martian surface within the next 100 years?



- Water is said to be detected on the Red Planet in which one of its phases?



Credits!!