

Get, Set, KNOW!

Issue 4, July 2016



Kalaap Sadhu, VIII, Triveni
Tissues Vidyapith, Hooghly



A Children's Magazine



GSK Hall of Fame p. 26

What Will He Say p. 10

Cover Story p. 17

Dear Readers,

It is my (fourth) privilege to bring your attention to this issue. This time we have a section; 'The GSK Hall of Fame' in which we have highlighted some of our contributors.

Last month, when I was on vacation, I bought an enormous book named 'Complete History of the World' from Delhi with my Uncle. After reading it, my attention drew towards history and wrote the cover story. I do need your feedback. (Because I have worked very hard on it)

All the GSK toons are here this time, including a whole new character (see the cover story). They are all visiting 'Ancient Civilizations' in the Cover story. The 'Football Fever' is back for enthusiasts! We also have a whole lot of incredibly beautiful drawings this time. Get ready to explore the stars, encounter the Loch Ness monster, find out about the paper this magazine is made of, visit the Garo hills, rediscover America, and fall from the Edge of the world and much more with the characters on your side.

Have fun!

Editor

Muhammed Muaaz

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Warren



The wisest member of the GSK team, he is a product of the Oxford University and is found to use 11% of his brain, almost equal to Einstein. Pencil-Mind is one of his greatest creations. He writes the 'I Wonder Why?' section

Nigel



The most curious and impatient, has borrowed a time machine from Warren which he uses to interview famous personalities of our past and sometimes behaves strangely. Writes the 'Great Lives' section

Craig



Claims himself to be one of the greatest mystery-solvers of all-time, he can be said as an adventure or mystery liker. Hates to sit idle and is super-determined. Writes the 'Mystery Talk' section

Wayne



An outer space alien who has settled in Pluto but birthplace is unknown. Has a special interest in Earth and its flora and fauna. Writes the 'Space Science' section.

Pencil Mind



Warren's greatest creation, is a replica of the human brain and can write anything, anywhere. Writes the 'Train Your Brain' section. Now writes the whole puzzle section

?

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Professional History guide and teacher, loves challenges and to learn from our past. Has the ability to blast the whole GSK HQ if disturbed or irritated. Writes the 'History Section'.

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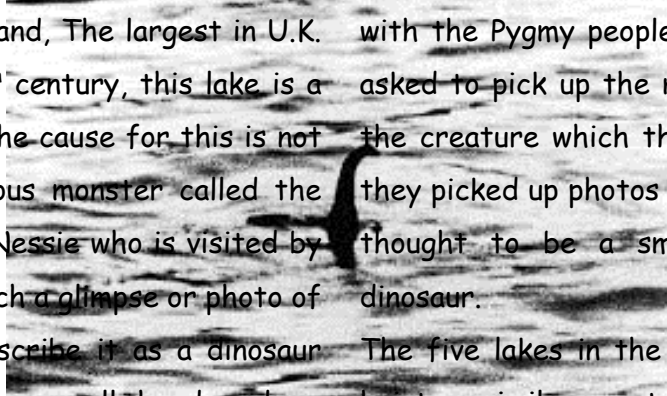
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Puzzles

MYSTERY TALK- *Dino Monster*

Muhammed Muaaz; Class VII-B, The Blossoms School, Aligarh

The creature in this famous photo, which looks like a dinosaur, was reported being spotted in the Loch-Ness lake of Scotland, The largest in U.K. From as early as the 7th century, this lake is a famous tourists place. The cause for this is not its size but the enormous monster called the Loch- Ness monster or Nessie who is visited by tourists who hope to catch a glimpse or photo of this monster. People describe it as a dinosaur with a long neck with a small head and an enormous body with flippers. Scientists believe it to be a surviving dinosaur termed as a plesiosaur.



Another similar creature is said to be residing in the deep inaccessible forests of Congo, along with the Pygmy people. When the natives were asked to pick up the most resembling photo of the creature which they call 'Mokele-Mbembe', they picked up photos of the brontosaurus. It is thought to be a small descendent of that dinosaur.

The five lakes in the Canada-USA border also hoists a similar creature. Many fishermen have seen it including red Indians who call it 'Ogopogo'. Scary, isn't it?

UMBRELLA OF OUR EARTH

Abdul Wajid, Doctoral Studies, Department of Physics, AMU.

The lucky planet 'Earth' is our home. Why is it lucky? Even Mars and Venus are our neighbouring planets but have no life. How Earth lived and Mars died is a question whose answers can be found in the unravelling secrets of the nebula out of which our solar system was formed billions of years ago. To find these answers many countries have sent their missions to Mars. The Curiosity Rover (space exploration vehicle) had drilled into a piece of Martian rock and found evidence of an enormous reservoir of water underneath the surface of Mars which became a staggering discovery. It has been concluded by scientists of NASA that Mars has lost it, due to solar wind and coronal mass ejection of the sun which ionized and swept off the atmosphere and without it liquid water could not exist. But how did Earth avoid the same grim fate? It has been found that an invisible protective shield, some 11,600 Km above the land exists, that Venus and Mars lost around 4 billion years ago. This shield was discovered in the Van Allen Radiation Belts.

This is a magnetic shield, an umbrella for Earth to protect its life.

The heart of the planet which powers Earth's magnetic field is at its centre. The solid inner core is surrounded by a fluid outer core, which is hotter at the bottom. Hot iron rises within the outer core, then cools and sinks. These convection currents, combined with the rotation of the Earth, are thought to generate a "geodynamo" which powers the magnetic field. Many experiments confirmed this theory. This magnetic field is strongest at the poles and its effect can be seen in the form of aurora activity caused by charged particles. If the solar particles were free to hit the Earth's surface they could produce serious damage to any living organism, a fatal DNA mutation. Fortunately the Earth has a defence in the form of an invisible forcefield called the magnetosphere around it. As the wave of solar particles strikes on the magnetosphere, most of it gets deflected. But when a coronal mass ejection arrives at the charge particle peel over the outer layer of

magnetic field. The particles are free to rush into the planet. But the Earth's inner magnetic field swept them along the Earth's North and South Pole. The charged particles ionizes the atmospheric gases at the poles and bright green and blue flares illuminate in the sky.

Unfortunately, this shield is weakening and the position of South Pole and North Pole are shifting very fast. Scientists are still unsure why the magnetic field is weakening and shifting. European Space Agency's Swarm satellite array reveals the Earth's magnetic field has recently been weakening at the rate of around five per

cent per decade. The evidences found in rocks tell that the pole of Earth has been changed as many as about 170 magnetic pole reversals during the last 100 million years or so, and that the last major reversal was 781,000 years ago. If the European Space Agency's satellite data and the new paleomagnetic (earlier study of pole shift traces in rocks) data of Earth are both accurate, then the Earth's next geomagnetic reversal might have already begun. By the time we die or at least when our children die the North Pole might be in the south.

NUTRITION BITES...A. B. C.....Z- Dates

Dr. Kamil Ashraf; Assistant Professor.

Department of Medicine, JNMC, A.M.U

Dates are an important traditional crop in Iraq, Arabia, and North Africa west to Morocco. Dates are also mentioned more than 50 times in the Bible and 20 times in the Qur'an.

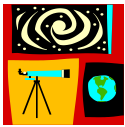
The benefits of dates include relief from constipation, intestinal disorders, heart problems, anaemia, diarrhoea, abdominal cancer, and many other conditions. Dates are good for gaining weight also. Dates are rich in several vitamins, minerals and fibre too. These delicious fruits contain oil, calcium, sulphur, iron, potassium, phosphorous, manganese, copper and magnesium which are all beneficial for health.

Dates are one of the very best sweet and versatile foods that can regulate the digestive process. It can significantly boost energy levels in people within half an hour of consuming it. The American Cancer Society recommends an intake of 20-35 grams of dietary fibre per day, which can be supplied through dates. It is also said that taking one date per a day will help you to maintain your eye health all your life. They are commonly known to be quite effective in guarding against

the problem of night blindness. According to a modern medical survey, it is now accepted that dates are useful in preventing abdominal cancer. Also, the nervous system can get a lot of help from consuming dates, since they have such significant amounts of potassium. Some health specialists have said that eating one day per day is necessary for a balanced and healthy diet.

The massive health benefits of dates have made them one of the best ingredients for muscle development. People consume dates in several ways, such as mixing the paste of the dates with milk, yogurt or with bread or butter to make them even more delicious. The paste is beneficial for both adults and children, especially during a time of recovery from injury or illness.

Many Muslims break their fast by eating dates and water according to their cultural traditions. Breaking fast by eating dates helps avoid overeating of food after the fast is finished. When the body begins to absorb the high nutritional value of the dates, feelings of hunger are pacified.



SPACE SCIENCE

Muhammed Muqaz; Class VII-B, The Blossoms School, Aligarh

Stars are the most common objects in the universe. They are huge bodies of luminous gas mainly hydrogen and helium.

Size: Stars size vary from 500 times smaller (than our earth) dwarfs than to 1000 times bigger supergiants. Let's look at some of the star sizes (diameter). Our Sun (Main sequence star) is 1.5 million km across.

White dwarf- 3,000 - 50,000 km, Neutron star- 10 km, Red giant- 15 to 150 million km

Temperature and Colour: The blue stars are the hottest while the red ones the coolest. Our sun is in between with around 4500°C.

Brightness: A star's brightness is calculated by its magnitude. The lower the number, the brighter the star. The temperature, colour and brightness of a star is plotted on a scale called the Hertzsprung- Russell diagram.

Star Life: Small stars (upto 1.5 solar mass)

Neutron stars spin a head spinning 1000 times per second!

1. 50 million years: **Protostar**- If the temperature in this stage reaches 15 million°C, nuclear reactions start taking place in the stars core. Else, it remains a dull brown dwarf throughout its life

2. 10 billion years: **Main sequence star**- The nuclear reaction prevents the star from contracting and gives it a shine. Our sun is currently at the middle of this stage.

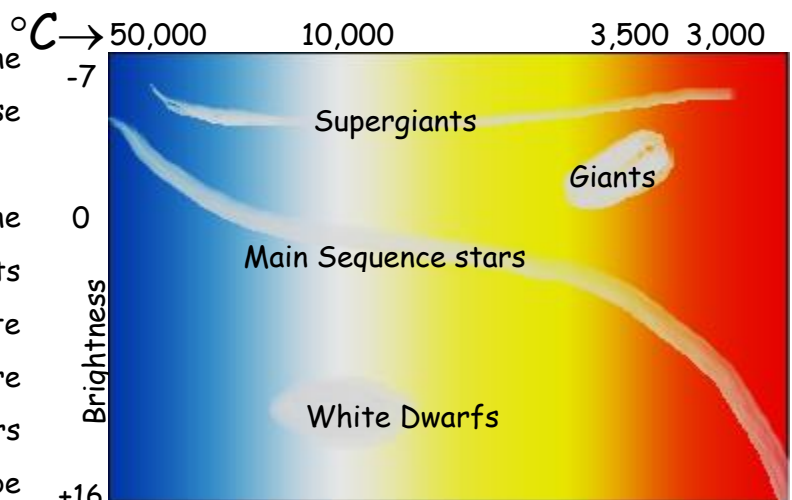
3. 1 billion years: **Red Giant**- Here the simplest atoms i.e. hydrogen atoms have fully converted to the second simplest element helium. The helium fuses to form carbon and its outer layers expand. It is



believed that during this stage our sun will grow big enough to swallow all the inner planets including earth.

4. 3,500 years: **Planetary nebula**- The outer layers drift apart to form a loose gas shell around the core.

5. >13 Billion years: **White Dwarf**- The star now begins to collapse under its own pressure into a super dense white dwarf. The stars at our galaxy's centre are old and at this stage. The stars duration of this stage is thought to be older than the current age of the universe.



6. None discovered yet: **Black Dwarf**- The star finally cools, reddens and stops shining and becomes a dead cinder floating in space.

Massive Stars - (At least 3 solar masses)

3. 4 million years: Massive stars start off similar to smaller ones until the third stage when they become a **red supergiant**. The lifespan of larger stars is less than the smaller ones.
4. 1-2 years: **Supernova**- The core collapses in less than a second and blasts. This blast called a supernova lasts for a year and can outshine an entire galaxy.
5. If the surviving core is less than 3 solar masses, it forms a super dense **neutron star** completely made up of neutrons, as the name suggests.

But if its mass exceeds the limit its core continues contracting to form a **black hole**.

**HISTORY OF INDIAN FOOTBALL**

Aminul Islam; Department of Chemistry, AMU

It seems a bit sad to watch Indians celebrating the German conquest in 2014 FIFA world cup and Portugal's victory in the recently-concluded Euro-2016. Do you know that there was a time when Indian fans used to cheer their own football team? At the Olympics, no less? The glam-sham of cricket seem to have dimmed the enthusiasm for football. For the uninformed, the answer is a resounding yes. With the Rio Olympics just weeks away, we take you on a journey back in time and to the legends who made the country proud. The football history of India is replete with the tales of "The Big Three" Clubs of Calcutta -**Mohun Bagan Athletic Club** (declared as the national club of India in 1989), **Mohammedan Sporting Club** and **East Bengal Club**. The Indian independence movement against the British rule was spreading rapidly after the uprising of 1857. It was a period of growing political awareness and manifestation of Indian public opinion at national and provincial levels. The spontaneous rebellion fired the imagination of the Indian nationalists throughout the country. Under these circumstances, the foundation of Mohun Bagan in **1889** and Mohammedan Sporting in **1891** was seen not only

the birth of football club but a step forward towards promoting a patriotic feeling, developing competitive ethos and fighting spirit among the youth of Bengal.

Football tournament was initially a military affair, open to the British Army in India with clubs like East Yorkshire Regiment, Highland Light Infantry, Shimla Rifles Worcester Regiment, King's Own Scottish Borderers, Black Watch, Royal Irish Rifles etc. In typical 'Lagaan' style, the barefooted locals (Indians) played against the fully equipped and booted British troops. The disparity was huge, but it is said that they did exhibit their skills, which even the Englishmen acknowledged. In India, the first football game was organized between 'Calcutta Club of Civilians' and the 'Gentlemen of Barrackpore', in 1854. **Durand Cup** is a football competition in India which was first held in 1888, making it the third oldest football tournament in the world (FA Cup-1871 & English Football League-1888; both in England). Then there were **IFA Shield** (Calcutta; 1893) and **Calcutta Football League** (1898- the oldest league in Asia), **Rovers Cup** (Bombay; 1891), Koochbehar Cup, Trades Cup, Gladstone Cup,

Minto Fort Competition etc. Indian clubs had to endure the dominance of British Clubs till 1933. Although Mohun Bagan won the IFA shield in **1911** defeating East Warwickshire Regiment, it was Mohammedan Sporting Club who broke this tradition in its first appearance in the Calcutta Football league in **1934** and went on to create history by winning it successively for five times upto **1938**. It was also the first Indian team to smash the monopoly of the British football teams in the Durand Cup, when they became champions in the year **1940** defeating Royal Warwickshire Regiment. Bangalore Muslims Club was the first Indian team to win the Rovers cup in 1937. Mohammed Salim became the first player from the Indian subcontinent to play overseas, in the year 1936 for the Scottish Club Celtic F.C. With the success of several Indian football clubs, the **All India Football Federation (AIFF)** was formed in 1937 and affiliated to FIFA, the international governing body for football. In 1954, AIFF became one of the founder members of the Asian Football Confederation (AFC).

FIFA World Cup: India have never played in the World Cup, although they qualified by default for one in 1950-Brazil as a result of the withdrawal of all of their scheduled opponents. AIFF being not prudent enough and unaware of the significance of this tournament over Olympics took up disastrous decision - not to send Indian team mentioning reasons such as cost of travel (despite the fact that FIFA agreed to bear a major part of the travel expenses), lack of practice time, team selection issues. Ironically, India has never since come close to qualifying for the World Cup.

Olympics: The 1948 London Olympics was India's first major international tournament, where a predominately barefooted Indian team lost 2-1 to France, failing to convert two penalties.

Sarangapani Raman from Bangalore State police was the lone goal scorer. The Indian team was greeted and appreciated by the crowd for their sporting manner. Centre-back, Sailen Manna (Mohun Bagan) was named one of the best 10 Football Captains in the world by the England Football Association in its Yearbook of 1953. Later that event they went on to participate in the 1952 Olympics, but lost to Yugoslavia by 10-1 with Ahmed Mohammed Khan from Bangalore Muslims, the only scorer. After the result AIFF immediately made it mandatory to wear boots. At the **1956 Melbourne Olympic Games** they finished **fourth**, which is regarded as one of finest achievements in Indian football. India defeated host Australia by 4-2 with Neville D'Souza



becoming the first Asian to score a hat-trick in the Olympics and also making **India the first Asian team to reach the Olympic semi-finals** (Kittu, being the 4th goal scorer)). They lost 4-1 to Yugoslavia (D'Souza being the only scorer), and lost the third place play-off match 3-0 to Bulgaria. Syed Abdul Rahim, fondly known as "Rahim Saab", the coach, deserves accolades for India's success for implementing team's new embryonic 4-2-4 formation with Samar Banerjee, the captain, sacrificing his preferred position to play in the most critical role of a withdrawn centre-forward. In **1960 Rome Olympics**, India could not reach the knockout stage. In the league stage she lost to Hungary by 2-1 (Balaram) and Peru by 3-1 (Balaram) but drawn (1-1; PK Banerjee) against mighty France after holding 1-0 lead deep into second half.

Asian Games: India became the best team in Asia during 1951 to 1962 (considered as the golden era in Indian football) winning gold medals in the 1951 and 1962 Asian Games. In 1951, India

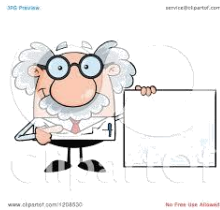
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beat both Indonesia and Afghanistan 3-0 to reach the final where they beat then Asian giant Iran by 1-0. They finished second in the 1954 Asian Games held in Manila and fourth in the 1958 Asian Games in Tokyo, They won 1962 Asian Games where they beat South Korea 2-1 in the final. In 1966 in Bangkok, India were eliminated in first round but took third place in the 1970 Asian Games, beating Japan 1-0 in the third place, play-off.

Asian Championship: India have never won the final but managed their best ever finish by

making it to the final in the 1964 AFC Asian Cup and had only made three appearances since (1984, 2008, and 2011). India finished second in the Asian Cup in 1964 which was held in round-robin format.

Current FIFA Ranking- 152; Very shocking!! The challenge is to tackle the AIFF's misgovernance, apathy towards the legend footballer and lack of vision. If we do not let the majority of our population know about our glorious past, how can we expect that the common people of India will ever be interested in Indian football?



I WONDER WHY- Paper

Paper, even today dominates the world of written literature.

It is cheap, easy to make, simple which even subdues e-books and electronic readers of today.

So how did this papery stuff come into existence?

Although papyrus was widely used in ancient Egypt (see cover story) but this cannot be termed as paper since the fibres have to be pulped in it.

The discovery of true paper is credited to a Chinese named Ts'ai Lun who used mulberry fibres, fish nets, old rags and waste hemp.

Although any material can be used, until the mid-

Muhammed Muaaz; Class VII-B, The Blossoms School, Aliqarh

nineteenth century, only cotton rags and linen was used. However it proved to be excellent, it was not sufficient for the rapidly growing demands of that time. Then something else was used, cellulose fibres (wood pulp).

The soft wood chips (not the edible ones) are put into enormous digesters (not your stomach) with chemicals such as sodium sulphate and raised to extremely high temperatures to separate out the fibres. Impurities such as resin and pitch are removed and the pulp is bleached and mixed with chemicals to produce the ideal colour or make it whiter. The rest of the water is drained and dried by steam heated cylinders. It is finally coated with clay or chalk to improve its surface.



WORD RIP- Ripped

Try and make as many smaller words from the word- **VIGILANT**

The maximum number of words will be featured as winners in the next issue.

Winner of 3rd issue- Mohammed Zaid Agha, Class III, Our Lady of Fatima- 88 words.

Email your answers to getsetknowmagazine@gmail.com with 'Word Rip' / 'What Will It Say' as subject.

NOTE: The winners will be decided only on correct entries.

WHAT WILL IT SAY? - *Kicked!*



What will the kicked person (not in the picture say)?

Email you answers to getsetknow@hotmail.com with 'What will he say' as subject.

NOTE: The winners will be decided only on correct entries.



Travel & Leisure

ORANGE COUNTY - *Amazing Tura of the Garo Hills* Already appeared in www.thethumbprintmag.com

Raza R Haque; Associate Professor, Department of Environmental Science, Tezpur University, Tezpur 784 028, Assam.

Tinti, the cook at the **Central Agricultural University** (CAU) - Tura campus guesthouse, though a local Garo boy cooked great Punjabi food. He had no formal culinary training though. Tinti carefully decorated the mess table with oranges at every meal. "Tinti - oranges at breakfast; oranges at lunch; oranges at dinner - what kind of table planning is this?" I teased him. I did not let him know that I loved those oranges. "You will not get oranges like this anywhere - that taste like real oranges. This is the real taste of orange. What else we have in Tura to serve you excepting these oranges?" He smiled.

"Ah, these oranges taste great, Tinti!" I told him having gobbled one. "Really Sir, I must get more for you then", Tinti exclaimed.

I love oranges. There is something great about this citrus fruit. The green ones are hard and tangy, and the ripe are sweet yet fresh!

I was in **Tura**, the HQ of five Garo Hill districts of Meghalaya, last December. Tura boasts to be the abode of oranges. If you love oranges then do not miss to be there around Christmas - Tura would be gaudily painted orange. So, good to correct the visual senses - how the actual orange colour synthesised naturally by green plants appear under clear sunshine, unaltered by pollution, haze or mist!

On the roadside or the bazaar, on the left or the right one would see oranges all around. Big and small in baskets or piled, these oranges are mostly attended by women. They would smile with the **kwai** laden red lips in a welcoming gesture and one just can't wait negotiating the price of the oranges.

They sell oranges in lots of four, eight or 12 and display the lots in pyramidal patterns. No bargaining! But on buying more one could get **baksis**, bonus of extra number of oranges.

The Garos are simple people and so is their obvious way handling business.

A Khasi friend at CAU living there for some time, Mr Lingdoh, told me about the endemic oranges of Garo Hills - **Memang Narang**. Garos call oranges as narang. Mainland India's narangi, right? Is there a connection between the Garos and the mainland Indians through the nomenclature of orange?

Memang has ethno-medicinal values. It seems researchers make frequent visits to the Garo Hills to explore its bio-prospects and research potentials. I went around looking for memang but had to return without success. A student of Home Science told me that women from far off villages bring memang to Tura market. I kept my eyes open all through my time in Tura and through my return journey, till the Meghalaya-Assam border, for memang. Women sitting with piles of oranges by the roadside do not sell memang for its extremely sour taste, which visitors do not like. I had to, therefore, console myself for not getting to see memang and buy a few.

Tura is a clean and green city. Lovely roads. No smelly solid wastes around the municipal dustbins. Unusual of typical Indian cities! Governments after government, year after year India's efforts have shown a bit of change yet just marginal.

My driver, a smart Manipuri boy, and I entered the newly built municipal shopping complex (Urban Hub). Meat, fish, veggies and groceries on the ground floor, and garments and other fancy items on the first. No plastics. Vendors use banana leaves for packing meat, fish or vegetable. Banana leaves come in nicely packed rolls for the vendors. This reminded me of the banana market of Darangiri, known to be the

Asia's largest, just down in the plain of Goalpara district. The banana growers would definitely get some incremental revenue from the leaves if plastics could be kept away from our society.

"I did not know this - Tura without plastics!" I murmured.

"No, people of Tura are law abiding." - My driver corrected me. - "They obey the municipality orders happily."

We hurriedly returned to the guesthouse since the Dean of CAU-Tura, an astute lady administrator hailing from South India, was waiting for us there after the day's work. She took good care of me and ensured that Tinti cooked good food, and the hot water geyser was working. In fact Tinti was picked and brushed by her for taking care of the kitchen at the guesthouse.

"Just to get some oranges, Madam." - I told her joyfully on reaching.

"Only oranges. What else you get here? No good food. No good shops. It is just waste of time." She responded with a bored expression. I enquired with a teacher accompanying the Dean if anything wrong happened. "Her car remained unlocked till the end of the office hour. So, Madam was upset." He said to me quietly.

Just then my friend Mr Lyngdoh came to the guesthouse. "So many oranges! What are you going to do with these oranges? Let us go to the city. I will show you a few good shops." Mr Lyngdoh tendered a warm offer.

"I am going to eat a few of these and take the rest home for my family and friends." - I replied.

- "Okay. Let us go for few more oranges. I did not get enough. Need few more for my scholars." Mr Lyngdoh and I headed the Urban Hub again.

Shops are modern, mostly run by women. There at the Urban Hub I met Nelorie Marak, a young

educated entrepreneur. She speaks fluent English, cogent enough to aid her work. I could foresee a successful big-time business person in her because of her sharp entrepreneurial sense and confidence. I was surprised to learn that she makes frequent trips to Thailand to buy assorted items for her shop. Nelorie understands the mind of the trendy Garo young generation.

Nelorie told me that Tura youths are very fashion trendy. Price is not a factor. As long as she had chic and fashionable stuff in her shop, which she collected from several destinations, she never had to worry about her business.

The people of Tura start Christmas celebrations much ahead of Christmas. Decorative lights are seen in most houses. Folks sing and celebrate through the nights. While returning to the guesthouse Mr. Lyngdoh who is a Christian from Shillong told me that the people of Tura celebrate Christmas with greater vigour. The loud songs and music from the neighbouring village kept me awake through the night. As I had to leave for home next morning I did not mind

lending my ear to the rhythms of the songs that were characteristically unique. Exclusivity is typical of folk songs, which was obvious in the rhythms.

Tura to Tezpur is a long distance by a cab. So, I started early. After we crossed the inter-state border, I dozed off for some time. When I woke up and enquired with the cab driver about the distance we had covered, he told me that we 45 km or so. We stopped at a small highway side bazaar - Bamunigaon - for tea. A few women selling oranges caught my eyes.

Ah, those oranges! "What are these smaller ones with the branch stick tied in bundles?" I asked the ladies curiously.

"Memang" - one of them replied.

"Memang narang?" I went ahead asking.

"Oh, you speak Garo? We all are Garo women from nearby village." - One among them looked at me amazed and said to me in Assamese. - "Yes, Memang narang. These are special oranges. You will love them."

THE AMAZING "EDGE OF THE WORLD"

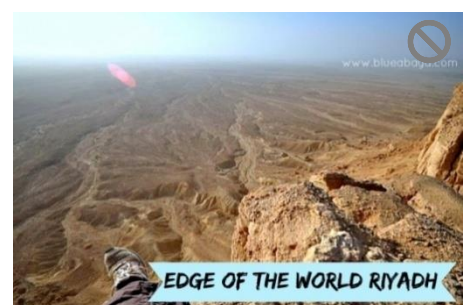
Dr. M. A. Laskar, Assistant Professor, Department of Chemistry, Saudi Arabia

The amazing "edge of the world" is a desert trek, which is located in Tuwaiq and can be reached after passing through the Acacia valley. The Tuwaiq escarpment stretches for 700 km through central Saudi Arabia. It was once the bottom of the ocean some 50 million years ago and hence rich in fossils.

This escarpment has long edges that extend outward from the plateau, so that one can see

the endless flat plain from the end of the cliff and feel the experience of being at the "edge of the world". From the top of the cliffs, one can see below dried up rivers which get filled during rainy season as the water rushes down the escarpment into the plains.

The desert tracks are very tricky because of soft sand. Along the actual route, there are several diverging tracks that lead to small valleys with dead end.



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The lush green trees along the Acacia valley have made it a popular picnic spot. Along the valley, one can come across huge Acacia trees, wild flowers, birds and different insects. This place

is also called the "rock framed window", as one can see the spectacular view of the plains below. GPS coordinates for the Edge of the World end location N24 56 41.4 E45 59 32.1

GREAT EXPLORERS- *Hoi Shin*

Muhammed Muaaz; Class VII-B, The Blossoms School, Aligarh

Although Neolithic people from Asia had already visited America in the ice age in search of food, shelter, etc. But we cannot classify these wanderers, explorers because explorers go to a particular place and return.

Around a thousand years before Columbus landed in the Bahamas, a Chinese explorer, Hoi Shin came back from a voyage to a land 32,000 km to

the east. The land would precisely be the western coast of present day Mexico. Those who have intensively studied his biography agree on the fact that Columbus wasn't the first one to reach America. The place which Shin discovered was named 'Fusang' by him. The name comes from a plant used extensively by the early Mesoamericans call 'Maguey'.

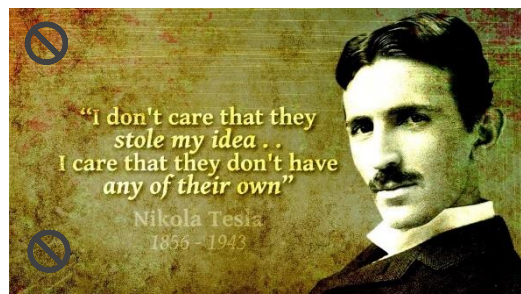
So you see, Columbus may has the wrong credit!

GREAT SCIENTIST- *Nikola Tesla*

Dr. Aftab Ahmad (Anesthetist, King Saud Medical City, Riyadh; Saudi Arabia)

Let the future tell the truth, and evaluate each one according to his work and accomplishments. The present is theirs; the future, for which I have really worked, is mine.- **Nikola Tesla**

Nikola Tesla, the eccentric - and unbelievably under-rated - genius known as the 'wild man of electronics', was without doubt one of the



greatest minds in the history of the human race. Born in the Croatian town of Smiljan in 1856, he studied electrical engineering at the Austrian Polytechnic in Graz and later attended the Charles-Ferdinand University in Prague. Tesla initially started working Tivadar Puskás in a telegraph company in Budapest. He was later

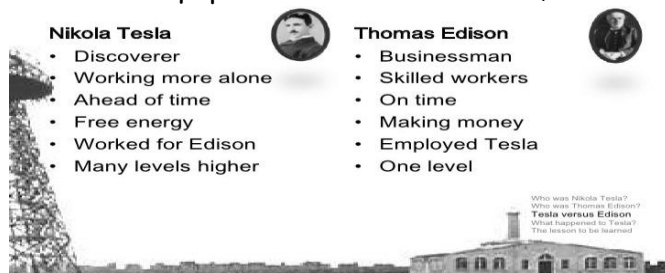
promoted to chief electrician and later engineer for the company. He later moved to Paris to work for the Continental Edison Company as an engineer. Tesla constructed his first induction motor in 1883 and immigrated to America in 1884 on recommendation of Charles Batchelor, a former Edison collaborator.

Tesla began working with Thomas Edison, but the two men were worlds apart in both their science and cultures and they soon went their separate ways. Tesla was offered the task of completely redesigning the Edison Company's direct current generators. In 1885, he said that he could redesign Edison's inefficient motor and generators, making an improvement in both service and economy. According to Tesla, Edison remarked, "There's fifty thousand dollars in it for you, if you can do it." Edison's company was tightfisted with pay and didn't actually have such an amount. Tesla completed the work but on

demanding his pay, Edison, saying that he was only joking, terming it as American humor. Instead, Edison offered \$10-a-week raise over Tesla's US\$18 per week salary; Tesla refused the offer and immediately resigned.

Letting Tesla go wasn't the brightest thing Edison had ever done, though - George Westinghouse promptly snapped up the patent rights to Tesla's alternating-current motors, dynamos, and transformers. The buy-out triggered a power struggle which eventually saw Edison's direct-current systems relegated to second place, and the DC motors installed in German and Irish trains only a few years before, rendered obsolete

Tesla invented the alternating-current generator that provides our light and electricity, the transformer through which it is sent, and even the high voltage coil of your picture tube. The Tesla Coil, in fact, is used in radios, television sets, and a wide range of other electronic equipment - invented in 1891, no-one's



ever come up with anything better..

Advocates of direct-current power - desperate to discredit their alternating-current competitor - claimed that AC current was hazardous to humans. In support of their argument, DC defenders took the novel approach of using a standard Westinghouse (AC) generator to discharge death sentences in New York State.

In 1893 Westinghouse used Tesla's alternating-current system to light the World's Columbian Exposition in Chicago.

Edison was not a happy man. His company, General Electric, had also bid for the lighting contract, but the GE proposal would have cost roughly twice as much and have produced less light for a lot more heat. Edison tried to ban the use of 'his' light bulbs with Tesla's electrical system, and urged General Electric to bar the use of the company's lamps in any Westinghouse exhibits. Despite Edison's tantrums, Westinghouse soon gained a contract to build the massive turbines at Niagara Falls, and alternating-current was firmly entrenched.

Within a short time, he had pre-empted Wilhelm Rontgen's discovery of X-rays with his own experimental shadowgraphs; the relays, vacuum tubes, and transistors of future decades with his electric logic circuits; even the wireless radio - the principles of which were described by Tesla in minute detail years before Marconi transmitted his first Morse code message. Tesla, on hearing of Marconi's efforts, is said to have remarked to a friend: "Marconi is a good fellow. Let him continue. He is using 17 of my patents." Eventually however, Tesla changed his mind, suing Marconi for patent breach.

The court eventually found for Tesla after examining some circuit diagrams he had designed in 1893, and Marconi's patents were declared invalid in 1935. Unfortunately, the law suit dragged out until a few months after Tesla's death and he never saw a penny in compensation. Turning to studies of resonance, by 1898 Tesla had designed an oscillator that generated half a million volts. The first time Tesla tested one of his inventions at full power, the roar was heard for more than 16 kilometers (10 miles). It also blacked out the entire city of Colorado Springs and set the power generator on fire. Tesla had to pay to replace the generator.

In January 1900, capitalized by financier J P Morgan, Tesla returned to New York to work on his 'wireless world broadcasting tower'. Even before Marconi's Morse code's' hit the airwaves, Tesla was determined that his invention wasn't going to be limited to dots and dashes. Tesla planned on linking the world together through its telephone and telegraph systems, transmitting pictures and text from one end of the globe to the other in minutes, and delivering mail between special terminals, using electronic messaging.

Labour disputes and financial panic got in the way, and Tesla's Long Island construction was abandoned when Morgan withdrew funding. Much of Tesla's work was also lost when the Wardenclyffe Tower was dismantled for scrap towards the end of World War One.

At the age of 81, Tesla challenged Einstein's theory of relativity, announcing that he was

working on a dynamic theory of gravity that would do away with the calculation of space curvature.

The theory was never published, but a similar theory involving gravity waves - developed in the mid-1990s - is used in the study of plasma cosmology (which explains properties of energy and the structure of the universe by studying the electromagnetic effects of plasma).

In 1943, at the age of 86, Tesla offered his much-vaunted 'Death Ray' to the US War Department. There's some confusion on whether the 'ray' consisted of laser or particle beams (both of which Tesla had been mulling over for years), or if a working prototype had been developed.

Tesla couldn't share the details. In a coincidence that raises the hackles of conspiracy theorists to this day, Tesla died sometime between that evening and when his body was found three days later.

GRIEVOUS ENVIRONMENTAL ISSUES OF TODAY

Dr. M. A. Laskar, Assistant Professor, Department of Chemistry, Saudi Arabia

Pollution: The polluted air, water and soil need many years to recover/or get replenished. Water resources may get polluted by oil spill, acid rain or urban runoff. Air pollution is caused by the release of different gasses and toxins from the industries, factories and combustion of fossil fuels. Soil is contaminated by the disposal of industrial waste.

Global Warming: The emission of greenhouse gasses is one of the major causes of global warming. As a result of global warming, the temperature of the oceans and the surface of the earth rise causing the melting of polar ice caps, rise in sea levels and also unnatural patterns of precipitation such as flash floods, excessive snow or desertification.

Population explosion: In the less developed and the developing countries, the shortage of resources like water, fuel and food is caused by population explosion. In agriculture, the use of chemical fertilizer, pesticides and insecticides to produce more food is damaging the environment.

Loss of biodiversity: The extinction of certain species and habitats is disturbing the ecosystem. As for instance, natural processes like pollination is being threatened. Again, the destruction of coral reefs (in the oceans) is threatening the rich marine life.

Deforestation: The clearing of the green cover (trees and plants) for residential, industrial and commercial purposes is posing danger to the existing 30% forest cover. Forests are natural sinks of carbon dioxide and produce fresh oxygen as well as helps in regulating temperature and rainfall.

Ozone layer depletion: The release of Chloro-Floro carbons gasses from different industrial and consumer products is causing the depletion of the ozone layer (in the upper atmosphere). Ozone layer prevents harmful UV radiation from reaching the earth.

Urban Sprawl: The migration of population from urban areas to rural areas, whereby causing the extension of city, is resulting in the degradation of land, increased traffic, health issues and the displacement of flora and fauna.

Genetic engineering: The genetic modification of food results in increased toxins and diseases as genes from an allergic plant can transfer to target plant. Genetically modified crops may be toxic to certain wildlife. The development of insect resistant plant can cause the resultant organisms to become resistant to antibiotics.

POEMS

Naba Arif; Class VII, The Blossoms

School,

My shadow

My shadow follows me everywhere,
From morning to afternoon,
From evening to night.
Once I went to the market,
I saw something behind me
That was my shadow
And that was the first time I saw a shadow!
Everyone has a shadow,

There may be some reason behind it
Which I don't know
And I guess you too don't know
And as I find it out,
It will be in a poem
My shadow follows me everywhere,
From morning to afternoon,
From evening to night.

My biggest wish for my country

Aliza Agha, III- C, The Blossoms

India is my home
India is my country
I want her to be-
Healthy, wealthy and wise!
Clean, green and always on the rise!
Where happiness blows all around
Where all of us study hard
Living free of caste and class!
The flag flies up

The rivers flow down
The farms give plenty
And all play gently
The girls are strong
The boys are soft
Where books are friends
Animals are pals
Where trees are alive
And the world is human!
That's the wish

COVER STORY *Civilizations*

Muhammed Muaaz; Class VII-B, The Blossoms School

Wayne was running around in Warren's office constantly troubling him in his research.

Wayne: Please Warren PLEASE! Give me some information on this topic! Mrs. Toggly will boil me in that galactic goo alive! Only one week is left to complete my work! My holiday homework!

Warren: Can't you let me research in peace?

Me: Calm down, what's your homework topic?

Wayne: Every year we are given to research on the history the most prosperous creature of a particular planet.

Me: Why can't you do it yourself? Your astronomical knowledge is much more than any one of us, even more than Warren. Which planet is it, by the way?

Wayne: Earth! Humans!

As you see, we had to hire a professional history tour guide to really experience about the civilizations we heard earlier (see 'History' section of earlier issues) and of course, help Wayne with his school project.

Nicola (Our historian): We will start with the 'Egyptian civilization' which prospered along the banks of the river Nile in North Africa. I have brought along a few sample dresses with me to camouflage us in the area. These are made with white linen, the cloth of mummy bandages.

Nigel: (curiously probing through Nicola's bag) How would we wear this?

Nicola: We will roam through the area; Craig and I will become the nobles, Warren the scribe, Nigel the farmer, Wayne would (obviously) work on his assignment, Pencil brain would work on our further tours and communicate with us through...

Warren: I brought these earpieces with me. However I recommend it to be used only in emergencies.

Craig refused to take off his hat since he feels



incomplete without one. When we (or the heat) made him change his mind, he wore the pharaoh's crown (see for yourself).

After reaching there, we bought a house from a wealthy

noble and established an underground base for Nigel and Pencil Brain. We stayed in the same house (or else Nigel would put us in trouble). In the evening, we discussed about our day.

Craig: I woke up the in the morning from my linen covered bed. I took out clothes from my cabinet and changed, washed and shaved with the help of a servant. It was uncomfortable to wear the linen kilt and leather sandals that were... I mean are worn here. I shouted "How do they...I mean...we wear this thing?"

Nigel: He always hates unfamiliar clothes and feels incomplete without his hat (after a lot of persuading, luckily the weather made him change his mind)

Meanwhile Nicola had woke up and washed and dressed. Glass jewelry was...I mean is very popular (indeed) among women in ancient Egypt. Our breakfast consisted of bread and fruit. We went off to have a meeting with his land's overseer.

Nicola: I was the supervisor of the preparations of the evening banquet after which I came out in the garden to escape the heat in the shade of trees.

Warren returned and prepared for the banquet.

Craig: Why do we have to greet so many guests? The guests were offered cones of perfume wax and meals of meat, bread, cakes, wines, figs and dates (you must have seen Craig devouring the dishes)

Nigel returned from his field (after the party) and slept as soon as he reached the terrace.

Nigel: After waking up, I washed, shaved and took out his clothes from the basket. I dressed in a coarse linen kilt and reed sandals. My breakfast only consisted of bread and fruit (we



gave him some of our food). We had a large harvest and paid a part of it to the temple for the use of its land. I loaded the baskets of harvest on donkeys and set out.

Nicola: Who is the other person?

Nigel: Craig?

Nicola: No, with whom you did this 'good' harvest.

Nigel: Oh, it's the farmer I collaborated with. My midday meal with my partner consisted of bread and meat. At night, after a long day of tedious work, I lit the lamp and slept soundly (really) and quite early (especially Nigel).

Our house was double storied, containing a garden, a courtyard and a fish pond surrounded with plants. Each of our bed rooms had a private washroom, the walls, columns and ceilings were painted with nature inspired drawings and food

was prepared outdoors in a mud brick oven. Stairs led to the upper floor and the roof.

At the banquet, there were dishes of onions, garlic cabbage, cucumber, beans, leek, lentils, peas and fruits (such variety!) such as dates, melons, figs, pomegranate and grapes. Fish and meat were also included on special occasions like this one with variety of spices. The meat was obtained from rabbits, bears, bull, elephant and fowl. The deserts included dishes such as dates with honey. Nicola was playing the harp which was extremely famous at that time.

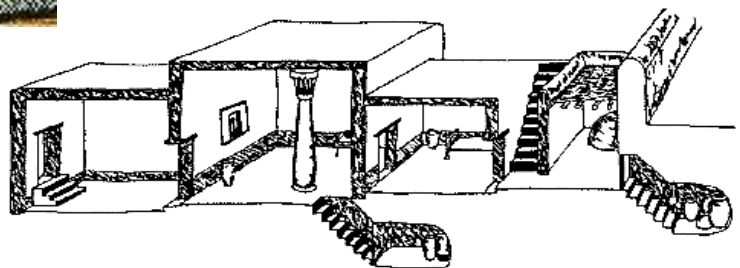
Warren: My day was not so eventful. First I wrote the king's letter, then the tomb's inscription, after that the list of food supplies...

Nigel: Enough.

Warren: I could eat whatever I wanted from the royal stores (after this Craig began to drool).

At night, Nicola told us all a story about Egyptian mythology.

Nicola: Before this story, the world was an



infinite expanse of bleak darkness and endless water, termed **Nun**. The god **Atum** was created out of this chaos in the form of a **Bennu bird** (mythical Phoenix), by saying out his name. He flew to the ancient city of **Heleopolis** and landed on **Benben**, an obelisk representing the sun's rays, at dawn. He



created a nest of spices and then was swallowed in a fire. Magically he sprang to life and became the symbol of **rebirth**.

He had a pair of twins, **Shu**, who represented dry air, and **Tefnut** who represented moist air. These twins separated the sky from the sea. They had two offspring, **Geb**, the dry land and **Nut**, the sky. They had four children, the god of order, **Osiris**, god of disorder Seth, and their sisters **Mephitis** and **Isis**.

Meanwhile Ra was becoming old, humans started plotting against him. He transformed into **Sekhmet**, the raging powerful lion goddess and after punishing his enemies, he changed into the contended cow god **Hathor**.

He withdrew from the world and mounted on Nut who took him to the heavens. Now Ra was living in the heavens, each morning he was reborn in the east and travelled across the sky in a boat accompanied by other gods. He was carried across the sky by the dung beetle **Khepri**. He was everyday obstructed by a huge serpent, **Apep**, but ultimately was victorious.

Osiris married Isis and reigned on earth, teaching the people about government, religion and marriage. Isis's knowledge of weaving, crop growing, flax spinning and corn grinding were passed to the people.

Seth, the god of disorder invited some guests at a banquet and asked them to lie in a coffin. Several tried unsuccessfully, but when Osiris lied perfectly, Seth nailed the lid, weighed it by lead and threw him in the Nile. He did this when he heard that his child **Anubis** was not conceived

by him but Osiris. The death of Osiris distorted the cosmos and gods wept. Isis found the coffin in the trunk of a tree and shipped it back to Egypt. Then she transformed herself into a kite, and conceived a child when she flew over Osiris. She gave birth to **Horus** in the delta marshes away from Seth. One day when she was away in search of food, Seth entered the marsh, transformed in a poisonous snake and bit Horus. When Isis returned, she called for help, which was listened by the gods in the airborne boat.

When the boat stopped, the earth fell into darkness. Thoth had come down, removed the poison from Horus in the name of the sun and he was cured. Horus came to know as the representative of Ra on earth. Isis kept Horus hidden until he grew up and could face Seth. He had grown very old and started to drool. Isis took the saliva, made a serpent out of it and placed in the sky, the boats daily path and it bit the sun. Since the snake was not made by him, he was unable to cure himself and called Isis. She demanded his secret name. He hid from the

gods and revealed it to Isis if she could not reveal it to anybody except Horus. The eye of Ra was given to Horus.

A dispute broke between Seth and Horus, and it was decided that Horus would rule over Lower Egypt and Seth would rule Upper Egypt. This was impracticable, so Horus became the ruler of both lands and Seth was given the duty to guard Ra in the boat. And so, Horus became god of kingship. The next day, Warren taught us about the **Egyptian system of Numeration**.

How many are your deeds
Though unknown to us,
O sole god who has no equal!
You alone,
All men, herds and wild beasts
All men, herds and wild beasts,
All that is on earth
And walks on legs,
All that is in the air and flies,
With wings outstretched,
All the foreign lands
From Syria to Sudan
And the land of Egypt
The great Hymn to the sun
Akhenaten
Note: This is papyrus

Warren: Although they lack the symbol '0', they clearly know its concept and left a blank to denote it. Their numeral system is based on the decimal system.

⇒ 1, 10, 100, 1000, 10000, 100000, 1000000

Would you now like to write some numbers this way yourself?

This was the first time I saw Craig engrossed in writing something.

Craig: Today I secretively watched the whole process of mummification. Listen-

"After death, the body is washed and the dead pharaoh's brain is extracted through the nostrils using a long iron hook and the rest is dissolved with certain drugs.

The edge of the body is slit open and all the organs except the heart is removed. The organs are washed with spices and placed in **Canopic**



jars. The cavity is cleaned thoroughly, and filled with mud, sawdust, cloth scraps and aromatic substances. The cut is then sewed and the body is placed in Natron (a salty mineral) for exactly 70 days. After this, the body is washed and wrapped completely in linen cut into strips (more than 35 layers), soaked in oils and resins which gave the skin a blackened look. The eyes were replaced with linen balls or cooked onions. At last, a mask was put over the mummy's face.

These people believe death to be an interruption, and the pharaoh's belongings are placed outside the burial chamber. The afterworld journey is a dangerous, place with knife armed serpents, five headed reptiles and fire splitting dragons. I also explored the tomb in which the mummy was kept.

The dead has to pass through seven gates reciting a certain spell at each stop in the **Duat**



(Land of gods). 42 gods listen to the person's confession who claimed to be innocent. Here the gods performed the 'weighing of the heart', to judge the persons deeds. It was supervised by **Anubis**, the god of dead, and the judgment was recorded by Thoth, the god of writing. The heart was balanced by a feather representing **Maat**, the god of justice. If the heart was equal to the feather, he achieved immortality; else he would be devoured by the monster goddess Amit."

Wayne: My Assignment is complete!

Nigel: Can we now visit the Tombs?

Nicola: Have you heard about the curse of Tutankhamen?

Nigel: Run!

The next stoppage was the 'Roman Civilization'. We bought yet another large house.

Our house was had a front door leading to the atrium or the courtyard. It was the most decorated part of the house. All the room were attached to the courtyard. The windows and the balconies were facing the courtyard not the front street to avoid noise and danger. Many parts of the house had mosaics on the floor and paintings on the walls. Our house were one of the rare ones who had flushing toilets and a central heating system. Well Nigel had questioned what type of heating system was it and got the same answer from both Warren and Nicola.

"Warm air from a furnace circulated throughout the house through underground channels."

The speech on education of the Romans was obviously delivered by Warren-

Warren: Education a vital component among the romans. Both the rich and the poor studied till the age of twelve. Boys continued their

Get, Set, KNOW!

education at school where girls got their rest of knowledge at home. Students would write on a wax tablet which could be erased by heating. Only that when they had done well on the wax slate, they could write on paper. Their pens used to be of quills of gum and sometimes octopus ink. And the food one was given by Craig-

In formal dinners the meal started with sea food such as fish and oysters and ended with fruits. In between came vegetable dishes and delicacies loaded with **garam**, a fish sauce. It is also good manners to belch at the end of the meal (After this Craig ran to the kitchen).

Perhaps Nigel's favorite place to chat and relax

Androcles, a slave had escaped from his master into the forest. There he cured a lion whose paw was hurt with a thorn. He was recaptured later and thrown in the arena. He had to fight with a lion and feared his death. Surprisingly it was the same lion who he helped and it licked him.

was the public bath. (We know this because he gave his speech on that very topic)

Nigel: The public baths of Rome is a very unique place (really!) since people of all sorts were dipped in including a batch of people who were carrying out a business meeting! The

water came from

pumps fitted on springs and underground furnace released steam through vents between tiles to keep the pool warm. The bathrooms also has towels exercise rooms, salons, gymnasiums, restaurants, stalls and even libraries! (Wow!).

The same night we visited the roman drama amphitheater to watch Nigel's play which he was practicing. The expressions were created by masks and if the play was not interesting, (like Nigel's) the audience would shout and ask them to get off the stage or else they would throw all sorts of things including rotten tomatoes and smelly shoes! (Poor Nigel!)

Nicola gave the army and the Republic one herself;

The republic of Rome was very complicated and consisted of various groups of people.

The consuls were two men, who controlled the army and decided to start a war or not. The problem was both had to agree to bring a change.

If one of them disagreed, he would say 'veto' which means 'I forbid it.'

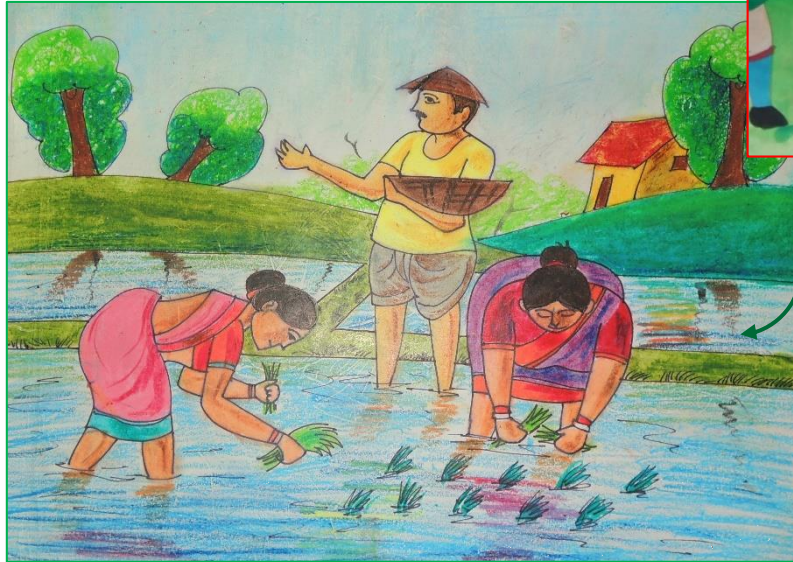
Nicola: The roman army consisted of about 30 legions, each containing upto 5000 soldiers or legionaries. These were trained in groups of 100 called centuries. This

A clever army tactics was a formation called the 'tortoise'. The soldiers formed a circle and held their shield in their front. The ones in the middle would hold it above their heads thus protecting them from attacks from all possible directions.

trainer is called a centurion. He used a hard stick to beat the soldier on every mistake. The high discipline, made the Roman army invincible. Sorry for we could not go to other places. But wait, Keep reading the history section of further issues to know more about our adventure.

DRAWING GALLERY

Anuska Chhatik, VII, Dhaniakhali Pankajini
Devi Girls High School, Hooghly

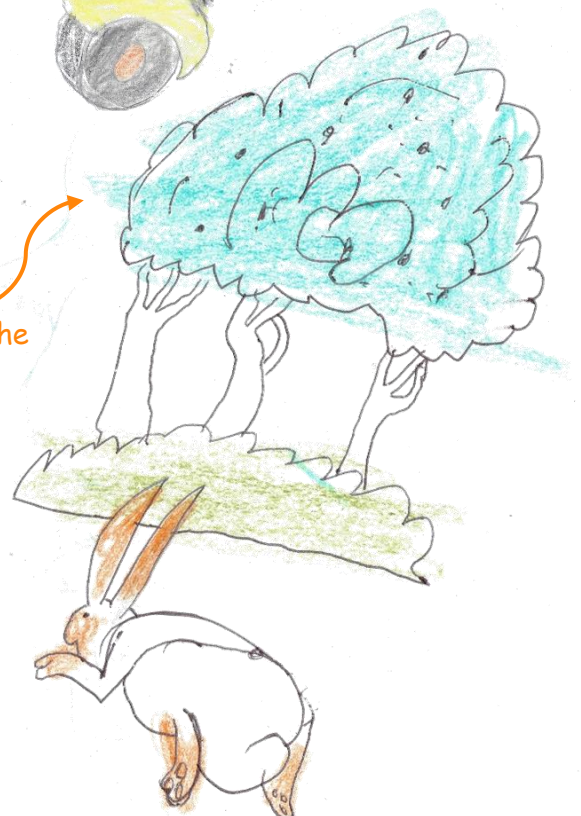
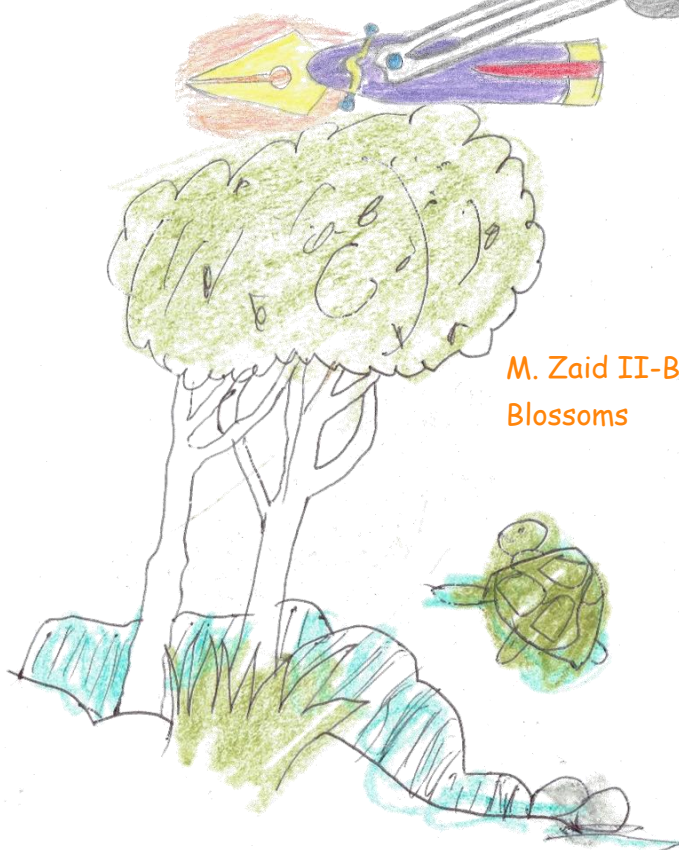


Ishita Dey, V, Vivekanand Mission,
Harit, Hooghly

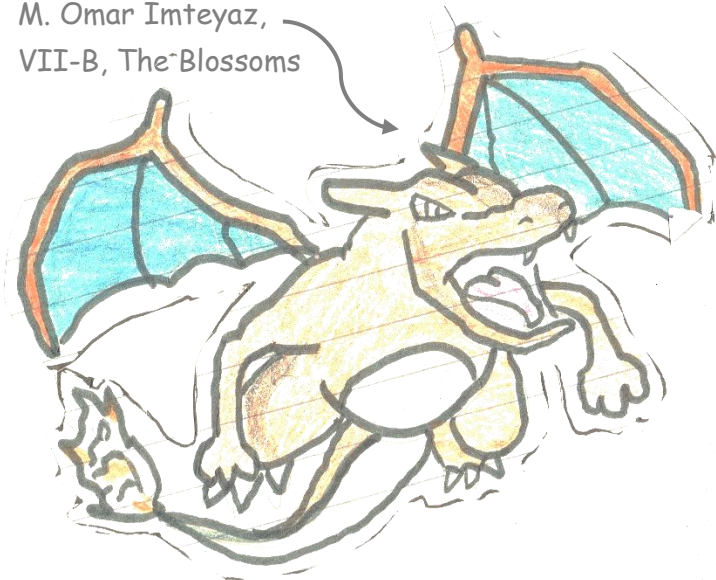
Muhammed Muaaz; Class VI-C, The
Blossoms School



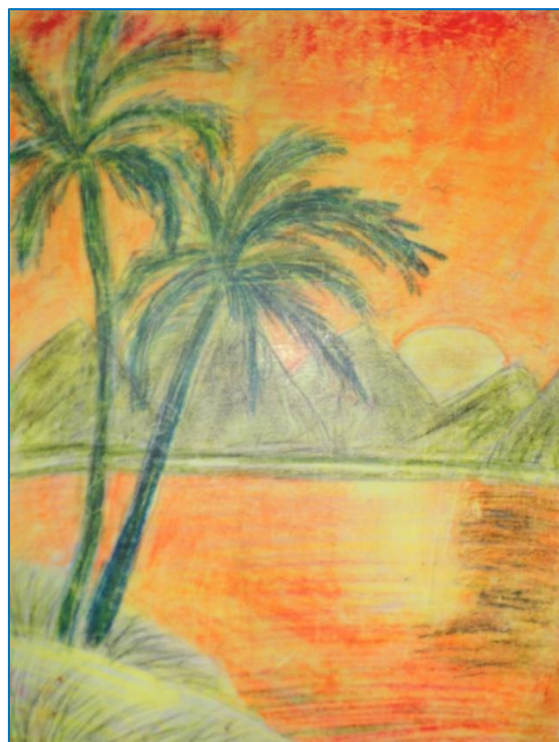
M. Zaid II-B, The
Blossoms



M. Omar Imteyaz,
VII-B, The Blossoms



M. Zaid II-B, The
Blossoms



Anuska Chhatik, VII, Dhaniakhali
Pankajini Devi Girls High School, Hooghly

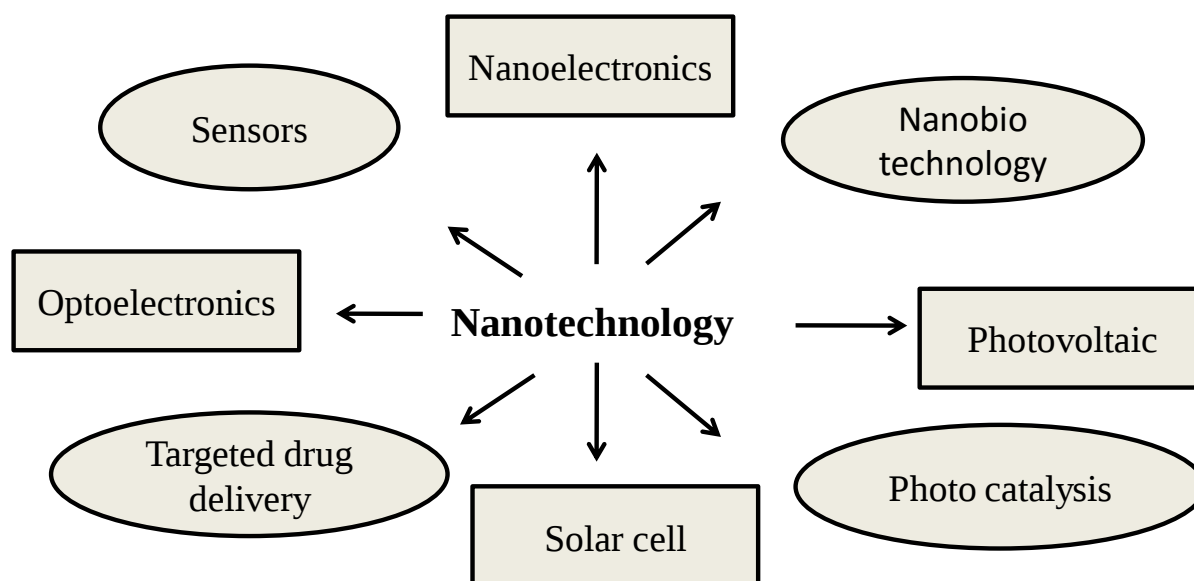
Ishita Dey, V,
Vivekanand
Mission, Harit,
Hooghly



USE OF NANOTECHNOLOGY FOR THE MANKIND

Md. Shamim, Doctoral Studies, Department of Chemistry, IIT Delhi

Nanotechnology involves synthesis, design, fabrication and application of nanomaterials (size 1-100 nm in any direction). Due to the small size it possess typical quantum dynamic phenomenon. These materials show quantum confinement effect, anomalous electrical, optical and magnetic properties etc. Nanotechnology have extremely broad range of potential applications from nanoscale electronics and optoelectronics to biological system and targeted drug delivery.



The conventional drug which is used as therapeutic action have limited effectiveness, less sensitivity, poor distribution. These drawbacks and limitations are overcome by the targeted drug delivery where nanotechnology plays a major role. Polymer nanocomposite, magnetic nanoparticle, Carbon nanotubes, plasmonic nanoparticles are used as nanocarriers for the targeted drug delivery. Nanoparticle serves as a platform to facilitate its specific targeting to cancer cells, minimizing the risk to normal tissues. Gold nanoparticles can be used to detect early-stage Alzheimer's disease. Quantum dots are semiconducting nanocrystals that can enhance biological imaging for medical diagnostics. TiO_2 , ZnO , SnO_2 nanoparticle as mesoporous oxide and CdS , CdSe , ZnS , CuInSe_2 , CdTe quantum dot as sensitizer extensively use in solar cell technologies. Graphene and other transparent conducting metal oxide e.g. CuAlO_2 nanoparticle open new doors in the transparent transistor technologies. Single atom thick graphene film form very high speed transistor. Cadmium selenide nanocrystals deposited on plastic sheets form flexible electronic circuits. The tunable energy band gap semiconductor nanoparticles use as the degradation of environment pollute. Nanotechnology based sensors, which are highly sensitive and selective detect very small amounts of chemical vapors, poisonous gases etc. Carbon nanotubes, zinc oxide nanowires or palladium nanoparticles used in nanotechnology-based sensors. Because of the small size of nanotubes, nanowires, or nanoparticles, a few gas molecules are sufficient to change the electrical properties of the sensing elements.

TIME AND SPACE

Mohammed Zaid Agha, Class III, Our Lady of Fatima, Aligarh, U.P.

Friends ! Have you ever imagined how fast the time runs? Today we will solve the mystery of two mind-boggling questions! But, first let's know the speed of time...

$$1 \text{ atto sec} = 0.0000000000000001 \text{ sec} = 10^{-16} \text{ sec}$$

$$1 \text{ pico sec} = 0.000000000001 \text{ sec} = 10^{-12} \text{ sec}$$

$$1 \text{ nano sec} = 0.000000001 \text{ sec} = 10^{-9} \text{ sec}$$

$$1 \text{ micro sec} = 0.000001 \text{ sec} = 10^{-6} \text{ sec}$$

$$1 \text{ milli sec} = 0.001 \text{ sec} = 10^{-3} \text{ sec}$$

$$\text{Hence, } 1 \text{ sec} = 10^3 \text{ milli sec} = 10^6 \text{ micro sec} = 10^9 \text{ nano sec} = 10^{12} \text{ pico sec} = 10^{16} \text{ atto sec}$$

$$1 \text{ Day} = 24 \text{ hours} = 24 \times 60 \text{ min} = 24 \times 60 \times 60 \text{ sec} = \mathbf{86400 \text{ sec}} = 864 \times 10^{18} \text{ atto sec} \\ = 86400000000000000000 \text{ atto sec}$$

$$1 \text{ solar year} = 365 \text{ days } 5 \text{ hrs } 48 \text{ mins } 45.51 \text{ sec} = 31536000 \text{ sec}$$

$$1 \text{ leap year} = 366 \text{ days} = 316224 \times 10^{18} \text{ atto sec} \approx 3 \times 10^{23} \text{ atto sec}$$

$$1 \text{ millenium} = 10 \text{ centuries} = 10 \times 10 \text{ decades} = 10 \times 10 \times 10 \text{ years} = 1000 \text{ years}$$

$$1 \text{ aeon or eon} = 1 \text{ billion years} = 10^9 \text{ years (in geology and astronomy)}$$

So, that's the mystery of time which elders love to call "precious". I must confess that I also believe so. Hey, am I growing too fast!

Question: How much distance does a light-year cover?

Answer: Distance covered by light in one year. Well, first we have to know the speed of light that is 186000 miles or 300000 Km per sec and there are 31536000 sec in one year so that means $300000 \times 31536000 = 9460800000000 \text{ Kms}$ are covered by a light-year.

Question: What is the distance between our Sun and our nearest star, Promixa century?

Answer: First we have to know the time taken by light that is 4 years and about 280 days. Then convert these into days, that is $(4 \times 365) + 280 = 1740 \text{ days}$. Then the distance covered by light in one day, that is $300000 \times 86400 = 25920000000 \text{ Km}$, then $25920000000 \times 1740 = 45100800000000 \text{ Km} = 4.5 \times 10^{13} \text{ km}$.

GET, SET, KNOW! HALL OF FAME



I. Skill Contributor

3. Consecutively contributing articles for 2 issues

- Dr. Aftab Ahmad (Anesthetist, King Saud Medical City, Riyadh; Saudi Arabia)
- Mohammed Zaid Agha, Class III, Our Lady of Fatima, Aligarh, U.P.
- Aminul Islam; Department of Chemistry, AMU

2. Consecutively contributing articles for 3 issues

- Dr. Ghulam Nadri; Assoc. Prof. History Department, Georgia State University, Atlanta, GA
- Md. Shamim, Doctoral student, Department of Chemistry, IIT Delhi

1. Consecutively contributing articles for 4 issues

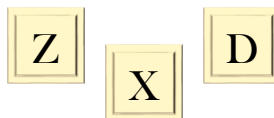
- Dr. Kamil Ashraf; Assistant Professor, Department of Medicine, JNMC A.M.U
- Dr. M. A. Laskar, Assistant Professor, Department of Chemistry, Saudi Arabia

II. Loquacious geek

3. 50 words in Word Rip- Mohammed Zaid Agha, Class III, Our Lady of Fatima Hr. Sec. School

2. 75 words in Word Rip- Mohammed Zaid Agha.....

1. 100 words in Word Rip-



III. Painting professional

3. Best liked drawing for 2 issues- Ishita Dey, V, Vivekanand Mission, Harit, Hooghly

2. Best liked drawing for 3 issues- Ishita Dey.....

1. Best liked drawing for 4 issues-



IV. Wordy writer

3. Best liked story for 2 issues- Muhammed Zaid; Class II B, The Blossoms School, Aligarh

2. Best liked story for 3 issues-

1. Best liked story for 4 issues-

V. Best liked item of Get, Set, KNOW! (Till now)- Muhammed Zaid (The Dangerous Dracula)

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The GSK Toons