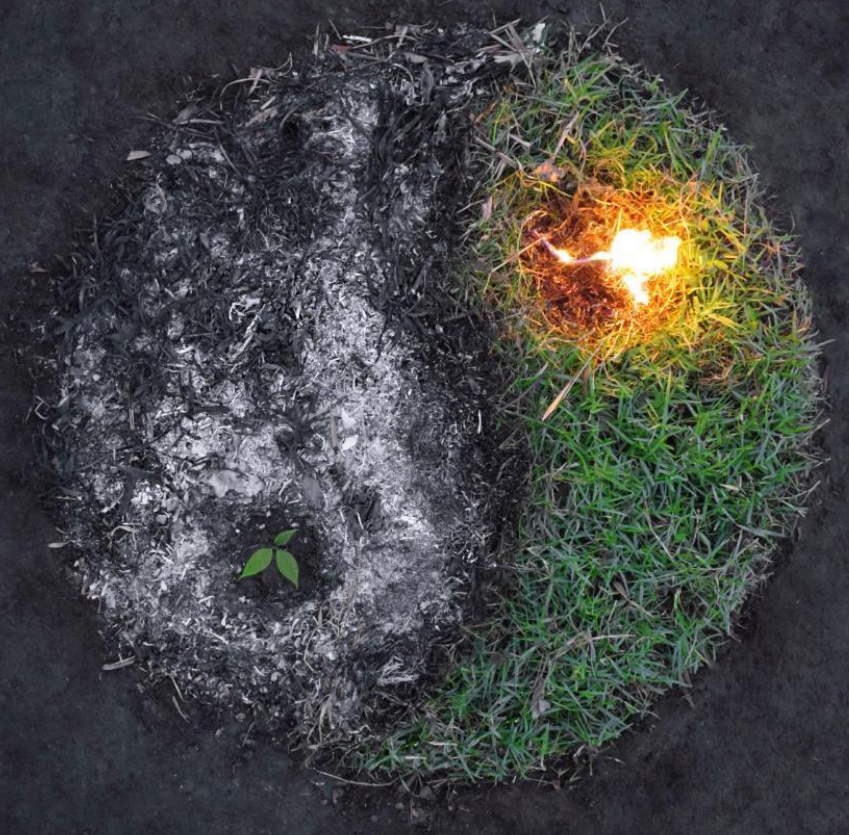


# Festiva

## DEPT. OF CIVIL ENGINEERING

"You cannot change your future, but you can change your habits, and surely your habits will change your future."

- Dr A. P. J. Abdul Kalam



# BEHIND THE COVER

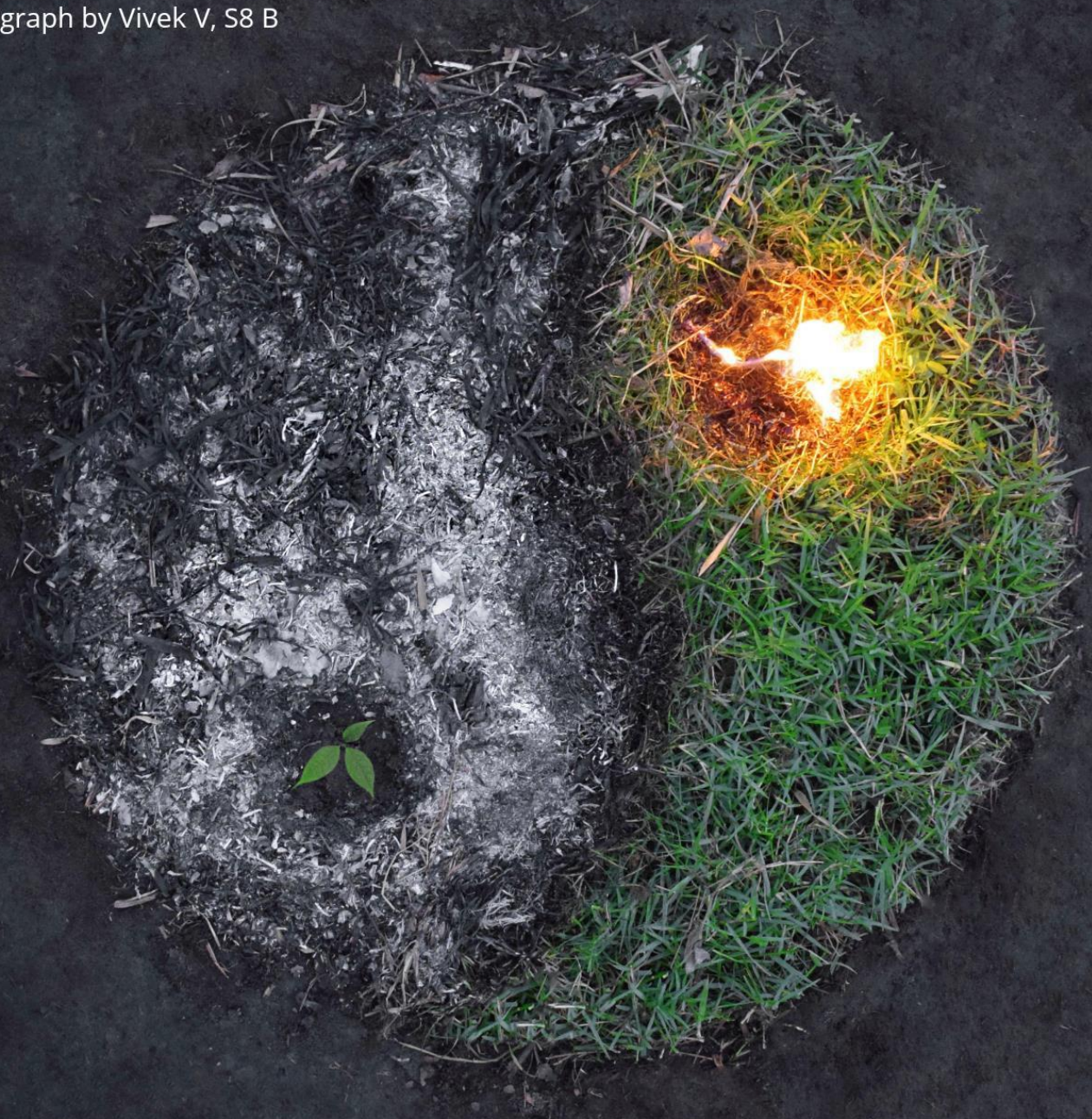
The principle of Yin and Yang is that all things exist as inseparable and contradictory opposites.

If we never experience the chill of a dark winter, it is very unlikely that we will ever cherish the warmth of a bright summer's day.

Nothing simulates our appetite for the simple joys of life more than the starvation caused by sadness or desperation.

This photograph also represents two extremes of the circle of life, like birth, death and all the experiences that mould us through the journey.

Photograph by Vivek V, S8 B



## **DEPARTMENT OF CIVIL ENGINEERING**

**MANGALAM COLLEGE OF ENGINEERING, ETTUMANOOR**

### **VISION**

To emerge as a knowledge center in civil engineering education focusing on research and industry outreach services with emphasis on sustainable development.

### **MISSION**

- Generate Civil Engineers with high level of professional, moral and ethical values.
- Attain highest standards in theoretical as well as practical knowledge.
- Excel in major areas of Civil Engineering to respond to the current and future needs of the industry and higher studies.
- Employ the principles of continual quality improvement to enhance the program and faculty.



## **MESSAGES**

### **A great accomplishment**

It is my proud privilege to pen down the message for HESTIA, the Civil Engineering department magazine for the academic year 2019-2020. It is a huge platform to express creative talents and potential. This magazine proves that the meaning of education is all about unlocking and unleashing the dormant potential found deep within each student. Congratulations to all those who rendered their valuable suggestions and precious time for the publication of this magazine in this excellent way. I hope the readers would enjoy reading it beyond expectations.

- Mr. Vilbin Varghese, Assistant Professor and Coordinator of Hestia

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### **Lessons from the pandemic**

Reference and experience says that money, status, fame and looks have no bearing on what happens to us, and they don't protect us in any way from illnesses and consequences. We need to remember that we are all human.

Career backup plans are important. So many people are suffering pay-cuts or losing their jobs during this time. A common thing that I've noticed is to espouse multiple income sources. Illness and natural disasters are great equalizers and they also highlight the disparities in our society. It reveals the fact that we are all equal.

Most of us are working from home, many of us are around our families all the time, some of us are living away from our loved ones, and all of us are trying to adjust.

We are constantly having to re-orient and reset. We are a lot more adaptable than we thought.

- Dr. Radhakrishnan R, Head Of the Department

# EDITORS' LETTER

## Seizing Opportunities.

July 2020

What we both have learned from the past two months of making this magazine possible is that small steps lead to great heights. We heartily thank our professor Mr. Vilbin Varghese, for providing us with this wonderful opportunity and for trusting us with it, and our fellow students for their amazing cooperation. We were truly mind-blown by the beautiful works that many of you contributed. There was so much talent in every single piece. We surely hope that Hestia helps you to hone your gifts and inspire the ones who haven't found theirs yet. This is the perfect time for self-discovery.

On a separate note, constantly check on your friends and family and don't hesitate to ask for help if you need it. One of the greatest lessons that the pandemic has taught us is how much we require human connections. Let us all do our part in making the world a better place.

Working on Hestia was a real pleasure. We hope you enjoy reading it as much as we loved making it.

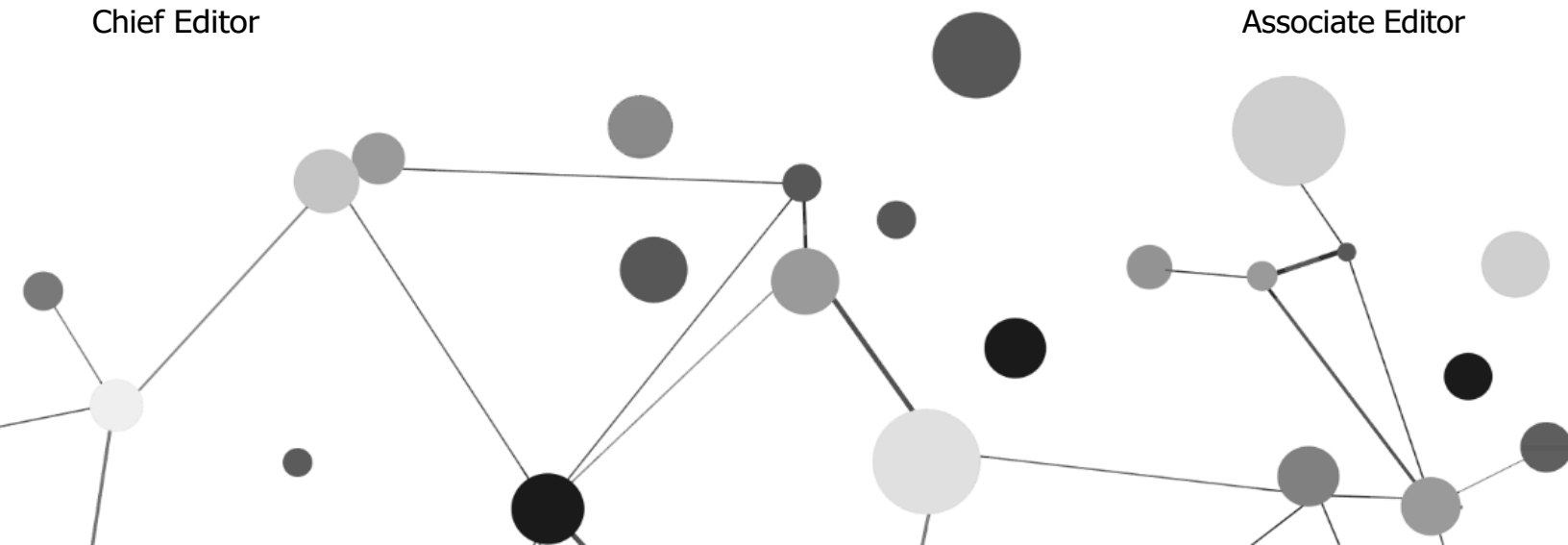
Sincerely,

Fousiya Zaker

Chief Editor

Mukthar V. Basheer

Associate Editor



# We asked the students what Happiness meant to them...!

My happiness is all about spending time with my loved ones.

*Merin Mariam Mathew, S4 B*

I find happiness in almost everything. Waking up in the morning, going for a walk, seeing people smile, talking and being with friends, even not doing anything makes me happy. Being myself is my greatest joy.

*Mukthar V. Basheer, S6 B*

To me, happiness is self-satisfaction. I find my happiness in trying out something which I thought I could never do. Even an attempt to do it makes me happy.

*Aleena Alan, S2 A*

According to me, happiness is the state where I am in love with myself.

*Aparna B. Prasad, S2 A*

My happiness is in appreciating and encouraging people. Also, real happiness is when we overcome life's obstacles.

*Amrutha Balakrishnan, S4 B*

Watching cricket, hanging out with my friends...  
Happiness is there in everything, really.

*Febin Antony, S6 A*



Spending time with my friends is relaxing to me, whether it is within the classroom or anywhere else, and that is my source of joy.

*Jiss Dominic, S4 B*

I believe that happiness comes from our own minds, and not from other people. We are the creator of our own happiness. Also, if my presence makes another person smile, that is true joy to me as well.

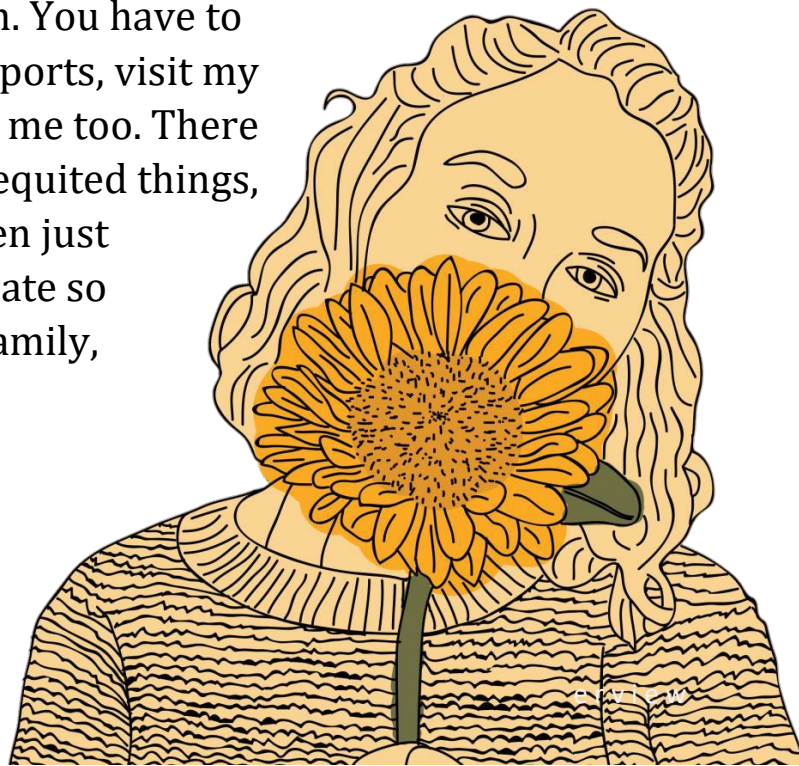
*Merin Jose, S6 B*

Money and a luxury life does not guarantee happiness to anybody. My happiness comes from that of my family and friends, and anybody whose day I am able to brighten up in some way possible.

*Anna Mary, S4 A*

I think the feeling of happiness is hard to explain. Very often I'm happy but I don't realize it. I am happier when I seize the day than when I just sit at home and do nothing. The feeling of joy doesn't come to you, you have to let it out. For me, happiness is when I get up in the morning after being drowned by life's circumstances. I'm learning to ride the waves. Keep learning, I tell myself. Share your light to people you meet every day. Happiness means living the moment fully. Happiness is a heart filled to the brim. What makes me feel good might not be the same to another person. You have to discover your joy. I love to go out, play sports, visit my friends, etc. Success brings happiness to me too. There is happiness when I am able to give unrequited things, be it a small help, a sincere advice or even just sharing my soul through a smile. I associate so many words with this special feeling – family, friends, youth, love, and many more.

*Sarun A, S2 B*



# Q N'A

WITH DR. RADHAKRISHNAN R, HEAD OF THE DEPARTMENT

## **What ignited your interest in Civil Engineering?**

The vast opportunities for innovation in the world's largest industry in fulfilling the basic needs of society is what ignited my interest in this field.

## **What was your inspiration to become a teacher?**

Prof. Harihara Subramony, our first Principal inspired me to share the knowledge I acquired from my work experience to the young generation.

## **Were you a good student? What is your best memory from that phase of your life?**

I was an average student in all aspects. My best memory was from the day a new teacher joined our school. When he came to our class for the first time, he did not introduce himself or ask anybody to interact. He did not say a single word for the first ten to fifteen minutes, but allowed the students to behave as they wished. Everybody started making comments on his appearance, way of walking etc. At the end of the fifteen minutes, he said, "You will not forget this fifteen minutes in your life because all of you have enjoyed my arrival the way you wished." He became a role model to many of us by his actions and words.





**What is your definition of a successful person?**

A person who knows his destination, moves towards it with extraordinary determination and paves way for others to succeed along with him or her.

**What do you think you would have become, if not a teacher?**

A good, practicing Civil Engineer abroad.

**What is a mantra that you observe in your daily life?**

Integrate sustainability into all activities.

**Besides teaching, what are your other interests?**

To practice as a certified Civil Engineer, of course.

**What would you do to overcome a difficult situation?**

Acknowledge the situation professionally and seek help from the concerned.

**What was your first ever dream as a child?**

My father was a Civil Engineer, so I was attracted to the profession from a young age. Thanks to my parents and teachers who helped me fulfil my dream.

**If you had the chance to initiate something new, what would it be?**

To minimize the carbon footprint of buildings/projects and to increase its greenness.

**What do you think of our college?**

Our college is one of the frontline institutions in the state. This is one of the few campuses which provides primary education to research to the society. The uniqueness of this college is that students, staff and management work shoulder to shoulder for its betterment.

**What message do you have for your students?**

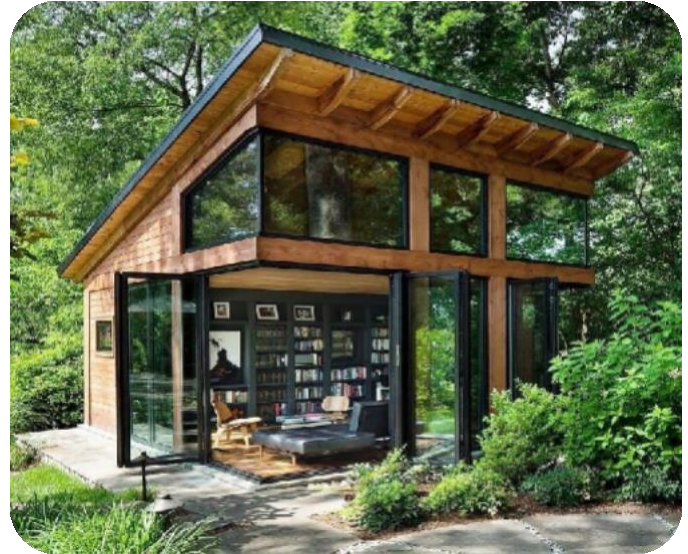
We are blessed with good students like you all in the campus. Keep your spirits up in your future just as you do in your campus life. My sincere wished to you all for achieving your goals.

# ECO-FRIENDLY LIVING

*Shinu S. Mannil, S6 B*

**A**s a Civil Engineer, it is our job to provide the customer with "Maximum satisfaction with Minimum investment" to build an eco-friendly structure. The best way to build such sustainable housing is by The Tiny-House Living.

This movement is also known as the "small-house movement" is an architectural and social movement that advocates living simply in small homes. Building a residential structure under 37 m<sup>2</sup> (400sq. ft.) is generally considered a tiny home. The tiny-house movement promotes financial prudence, economically safe, shared community experiences, and shift in consumerism-driven mind-sets.



Tiny homes don't need as much energy because there is not as much space needed to either heat or cool the environment. With less space, there are less materials required, meaning less electrical appliances. The decline in energy usage is also another major reason why tiny houses are friendly to the environment. But it is not practised in India yet. It is mostly seen in foreign countries such as America, Australia, and Sweden etc., where the populations are increasing in a large scale. In India we should also practise such construction which will lead to eco-friendly living.



# Mom

*Aparna B. Prasad, S2 A*

You are the sunlight that wakes me up  
You are the wind that cools me down  
I know we are miles apart,  
There were many obstacles in between us  
But that doesn't matter for us  
Because we are strongly connected with a bond  
The bond has a beautiful name, "love"  
Love is eternal  
You are the angel that God has gifted me  
The angel who always suppresses her sorrows  
And make me feel good  
When the days pass, I know that fact  
The aches and wrinkles in your face is doubling  
My heart were filled with a great pain  
Whenever I think of that  
Nothing more than one thing to say  
I want this angel forever in my life.



# ON TOP OF THE WORLD

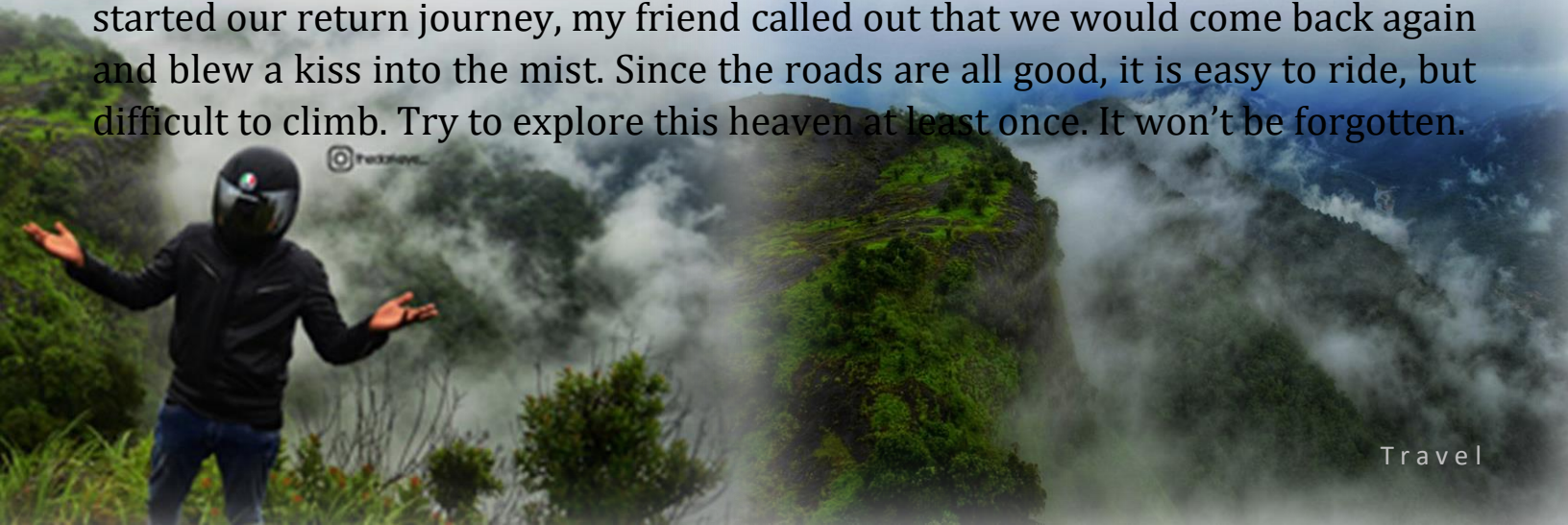
Muhammed Ijas, S4 B

“The best views are obtained after the hardest climb”. These words will perfectly fit *Meenuliyannpara*.

The exact spot is Vannapuram, in Thodupuzha, Kerala, which is 93 kilometers away from my home.

The 500 acres vast rocks make this place so unique. The rocks appear as the scales of a fish and hence the name *Meenuliyannpara*. There is an evergreen forest on the top of the rock clusters which is invisible from the bottom, which causes many of the travelers to drop their climb thinking that there are just rocks to the top. The only way to reach here is to take a 3 km trek across the steep rocks. On the top we have a visual treat comprising of a view of lower Periyar, a beautiful sunrise, Bhoothathankettu and the greenish view of Western Ghats through the mist. Some portion of Ernakulam district is also visible.

Our journey started really early, at about 3:30 am and we reached our spot by 5:50 am to try and see the Sun kiss the Earth with its rays, but unfortunately the trekking took longer than we had anticipated and we missed the sunrise. As we moved closer to top, the gigantic cluster of trees having a shape like a resting dragon became visible through the mist. Through the evergreen forest with the sounds of the chirping of insects in the background, we reach the rock that was the viewpoint. The view was blocked by the misty weather up there, so we stayed for five hours to see it! Soon, it was time for us to leave. Right before we started our return journey, my friend called out that we would come back again and blew a kiss into the mist. Since the roads are all good, it is easy to ride, but difficult to climb. Try to explore this heaven at least once. It won't be forgotten.



# THE SPACESHIP

*Sudheesh Kumar, Shakeel Buhari, S4 B*

The space research center was recruiting people for research and space travelling. They would select ten candidates and divide them into five groups for training. Nadhil and Sahid were the two candidates in one of the groups. They were the best out of the ten. To become good astronauts was their greatest ambition. They became good friends during the training period. Their life's ambition, character, attitude matched perfectly, so their friendship was a strong and happy one.

One day the center decided to select two astronauts for their first space mission. All the candidates were anxious for the announcement. Nadhil and Sahid were chosen due to their excellence. They were overjoyed and was hopeful to achieve their dreams. The midnight before the journey, they were in their room, feeling excited and anxious about the travel. Sahid asked Nadhil, "What are you thinking?" Nadhil replied, "About how we are going to fly in space like feathers..." Both of them jumped on their beds with child-like excitement.

Finally the day arrived. The siren sounded, signaling that they were about to be launched into space. Four...three...two...one...The space ship fired with a loud sound and they flew to their dream.

After a few days, they returned with lots of experiences and stories to share. They were the heroes of the research center and the mission was a success. They received a lot of praise and felt proud.

Soon, the research center was ready for a second mission, but with just one astronaut. Both Nadhil and Sahid were ready and wished to go, but only one of them could step forward and the choice was theirs. At last they decided to toss



a coin, and heads fell in favor of Nadhil. Sahid was disappointed, but he wished Sahid good luck. Nadhil thanked him in return.

When it was time, the spaceship that Nadhil was in blasted off into the sky. Sahid watched with envy as his best friend made his second mission. Suddenly, red lights flashed and the danger siren blared...the spaceship blasted into flames. Sahid screamed. Everybody watched helplessly as it all happened. The rhythm of his own beating heart was all he could hear.

That night, Sahid's colleagues saw him watching the sky and mumbling. One of them asked, "Are you alright? What are you doing?" He looked up at the sky and replied, "He is very happy."

Sahid went on many missions after that. Every time, he believed that Nadhil was also there with him, fulfilling their dreams together.



# ANTIBIOTIC RESISTANCE

A MAJOR WORLD CRISIS OF OUR TIME

*Jetcy Elizabeth Philip, S6 B*

**A**ntibiotics are medicines used to prevent and treat bacterial infections. Antibiotic resistance occurs when bacteria change in response to the use of these medicines. Antibiotic resistance leads to higher medical costs, prolonged hospital stays, and increased mortality.

The world urgently needs to change the way it prescribes and uses antibiotics. Even if new medicines are developed, without behavior change, antibiotic resistance will remain a major threat. Behavior changes must also include actions to reduce the spread of infections through vaccination, hand washing, practicing safer sex, and good food hygiene.

## SCOPE OF THE PROBLEM:

Antibiotic resistance is rising to dangerously high levels in all parts of the world. New resistance mechanisms are emerging and spreading globally, threatening our ability to treat common infectious diseases. A growing list of infections – such as pneumonia, tuberculosis, blood poisoning, gonorrhoea, and foodborne diseases – are becoming harder, and sometimes impossible, to treat as antibiotics become less effective.

## IMPACT:

When infections can no longer be treated by first-line antibiotics, more expensive medicines must be used. A longer duration of illness and treatment,

often in hospitals, increases health care costs as well as the economic burden on families and societies.

Antibiotic resistance is putting the achievements of modern medicine at risk. Organ transplantations, chemotherapy and surgeries such as caesarean sections become much more dangerous without effective antibiotics for the prevention and treatment of infections.

## **PREVENTION OF ANTIBIOTIC RESISTANCE:**

- Only use antibiotics when prescribed by a certified health professional.
- Never demand antibiotics if your health worker says you don't need them.
- Always follow your health worker's advice when using antibiotics.
- Never share or use leftover antibiotics.
- Prevent infections by regularly washing hands, preparing food hygienically, avoiding close contact with sick people, practicing safer sex, and keeping vaccinations up to date.
- Ensure a robust national action plan to tackle antibiotic resistance is in place.
- Improve surveillance of antibiotic-resistant infections.





# THE UNGRATEFUL SON

*Anitta Paul, S2 A*

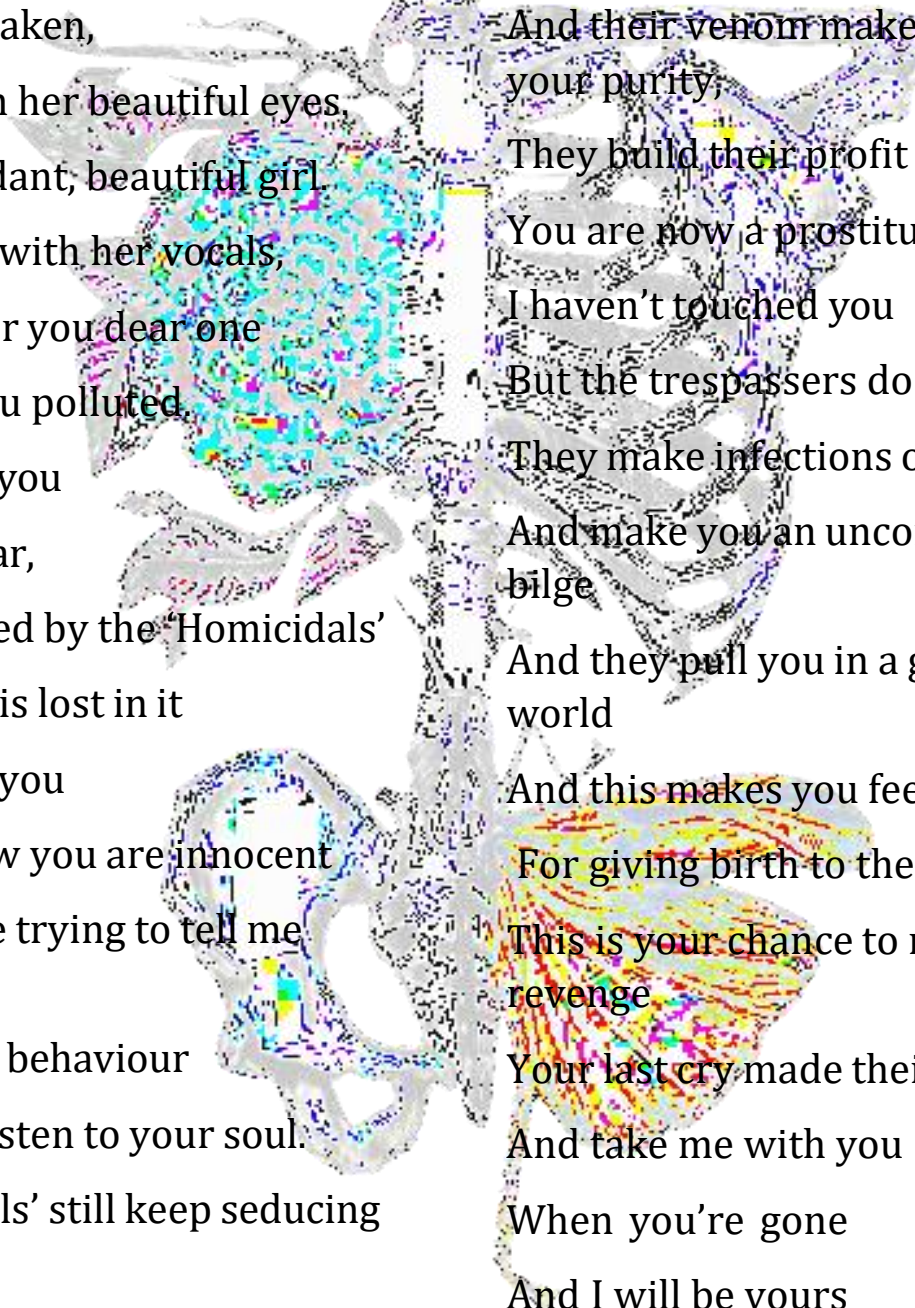
Once there lived a couple. They had a son named Anil. They were very poor and worked very hard to educate him. One day Anil was crying when he reached home. His parents asked, 'What happened? Why are you crying?' The boy replied, 'Since I did not pay the fees, the teacher made me stand outside the class. Everybody was laughing at me. If my mother also goes to work, then we can pay the fees'. From the next day, his mother also went to work with her husband as a cook. Anil was very good at studies. His aim was to become a collector.

Years passed by, Anil became a collector. He gradually became ashamed of others knowing that his parents were coolies. So he tried to get rid of them, but they could not go away from their beloved son. He started behaving rudely to them. He soon realized that they won't go away from him, so he planned to take them to the old age home. The next day Anil gave them sleeping pills and they went asleep. When they woke up, they were in an old age home. They asked the manager, 'Where is our son?' He told them that he had already left. When they heard this, they began to weep.

After two weeks, Anil found his parents photo in the newspaper. He was shocked to see that his parents won one crore from the lottery. He thought, 'What shall I do now? Shall I take them back?' After thinking for a long time, Anil came to a conclusion, 'I will bring them home and after getting the money, I will send them back to the old age home.' He went to call his parents back. By seeing him, his father became very, very happy but his mother knew what was going through his mind. Anil came and said, 'I am really sorry. Come, we can go to our house'. Then his mother told him, 'What do you think of us? You thought we were fools to believe what you are saying. I know what is in your mind. You are never going to get this money. We are donating it to an orphanage'. She cried loudly. Anil sadly returned home. Soon he realized the value of his parents, but it was too late.

# Her Last Cry

Midhun M, S2 B



Her voice is shaken,  
 I can see fire in her beautiful eyes,  
 She was a verdant, beautiful girl.  
 She kisses me with her vocals,  
 I have fallen for you dear one  
 Man makes you polluted,  
 But I still love you  
 It's you my dear,  
 You are seduced by the 'Homicidals'  
 Your virginity is lost in it  
 But still I love you  
 Because I know you are innocent  
 I know you are trying to tell me  
 something,  
 But my way of behaviour  
 Can't wait to listen to your soul.  
 The 'Homicidals' still keep seducing  
 you

And their venom make you to lose  
 your purity;  
 They build their profit through you.  
 You are now a prostitute  
 I haven't touched you  
 But the trespassers do it  
 They make infections on you  
 And make you an uncomfortable  
 bilge  
 And they pull you in a globalised  
 world  
 And this makes you feel guilty  
 For giving birth to them  
 This is your chance to make a  
 revenge  
 Your last cry made their last blood.  
 And take me with you  
 When you're gone  
 And I will be yours  
 By nature

# TOWARDS THE GREEN PARADISE

*Abina Akber, Aparna Biju, Fidha Hanan, S2 A*

**T**he moment we heard about the trip we became excited and started our discussion about various places which we can choose for an unforgettable journey. After a long discussion we planned to explore the Malabar Mountains in Wayand.

Every time something unforgettable happens in our daily life, it can be joyful or fearsome or any other emotions, and then something called a golden memory is confined and created in special parts of the brain. This trip we had is a golden memory for us and it is the most joyful one ever!

Our first destination among the Malabar Mountains was Edakkal cave.

The favorable climate helped us to enjoy scenes full to the brim. Edakkal cave is one of the famous tourist spots in Wayanad. There we can see one of the paradises on earth. We climbed the hilly areas and reached its top, where the undefinable view made us spellbound. The whole day we spent in Wayanad by being a part of nature. When the darkness started conquering us, we began the campfire, an immensely, graphing one. We enjoyed the night by having tasty foods of Wayanad and dreaming about the next spot.



On the next day we decided to explore the Chembra peak. Chembra peak trek comprises of 3 levels; about 1 km easy trail from the base point to watch tower, a 2 km trail through the forests, rugged terrains and grasslands from watchtower to a heart shaped lake and finally a 1.5 km steeper trail from the lake to the summit.

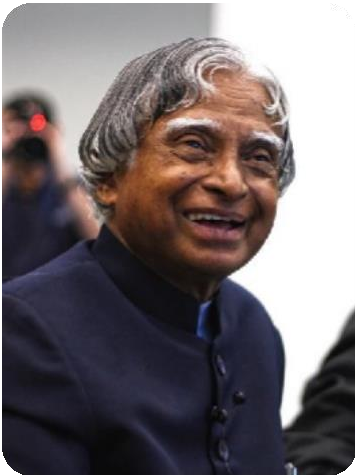
We started descending the peak and when we reached the watchtower for a much needed break, it started raining making our trail slippery. A day in the great Chembra peak was very much adventurous and eco-friendly. We had a nice day there in the ambiance of fresh air and nature.

And finally our exploring came to an end. Our trip helped us to know each other more deeply. We took cameras for our trip to capture various moments and beautiful scenery. But later we realized that the snaps we took were not needed for us to remember everything. Because each and every moment we are not captured in camera but directly to our heart.

The trip is over but the memories are still in our hearts.



Outer space was a mystery in the ancient times. As the capacity of humans and technology improved, the mystery started to unravel. This started with sending artificial satellites and is currently at the stage of sending humans to the space and living there for a short time period. Now most countries have independent space research organizations for the exploration of the space.



ISRO is the space research organization of India. This organization was started from the mind vision of Dr. Vikram

Sarabhai and has grown to a high level with the contribution of Dr. APJ Abdul Kalam, and is currently under the guidance of Dr. K Sivan. Now ISRO is one of the top space research organization in the world.

ISRO holds the record of launching most number of satellites in a single launch (104). Chandrayaan Mission, Mangalyaan Mission etc. are some of the pearls in the crown of ISRO.

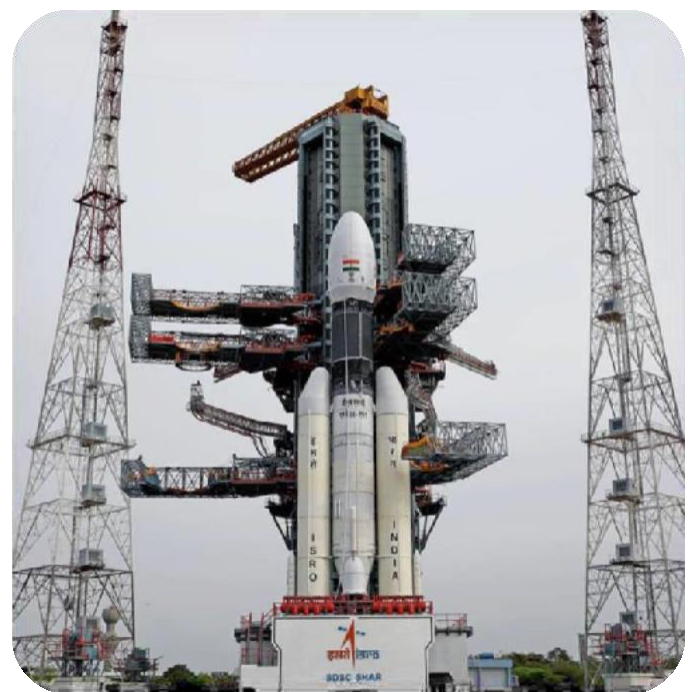
# GAGANYAAN

## Future Gemstone of India in Space

*Aboo Jacob, S4 A*

The upcoming Gaganyaan Mission aims in sending man to space. If the mission is successful India will become the fourth country to send human to space, after USSR (Russia), USA and China.

Gaganyaan is a Sanskrit word meaning sky-craft. This is the first manned space mission of India. This project has a crew capacity of three. The crew capsule will be 3.7 tons in weight and will be fully autonomous. It is decided to revolve in the Low Earth Orbit (LEO) which is at about



400 km altitude. It will be in the space for 7 days. The manufacturing of the crew module is undertaken by Hindustan Aeronautics Limited.

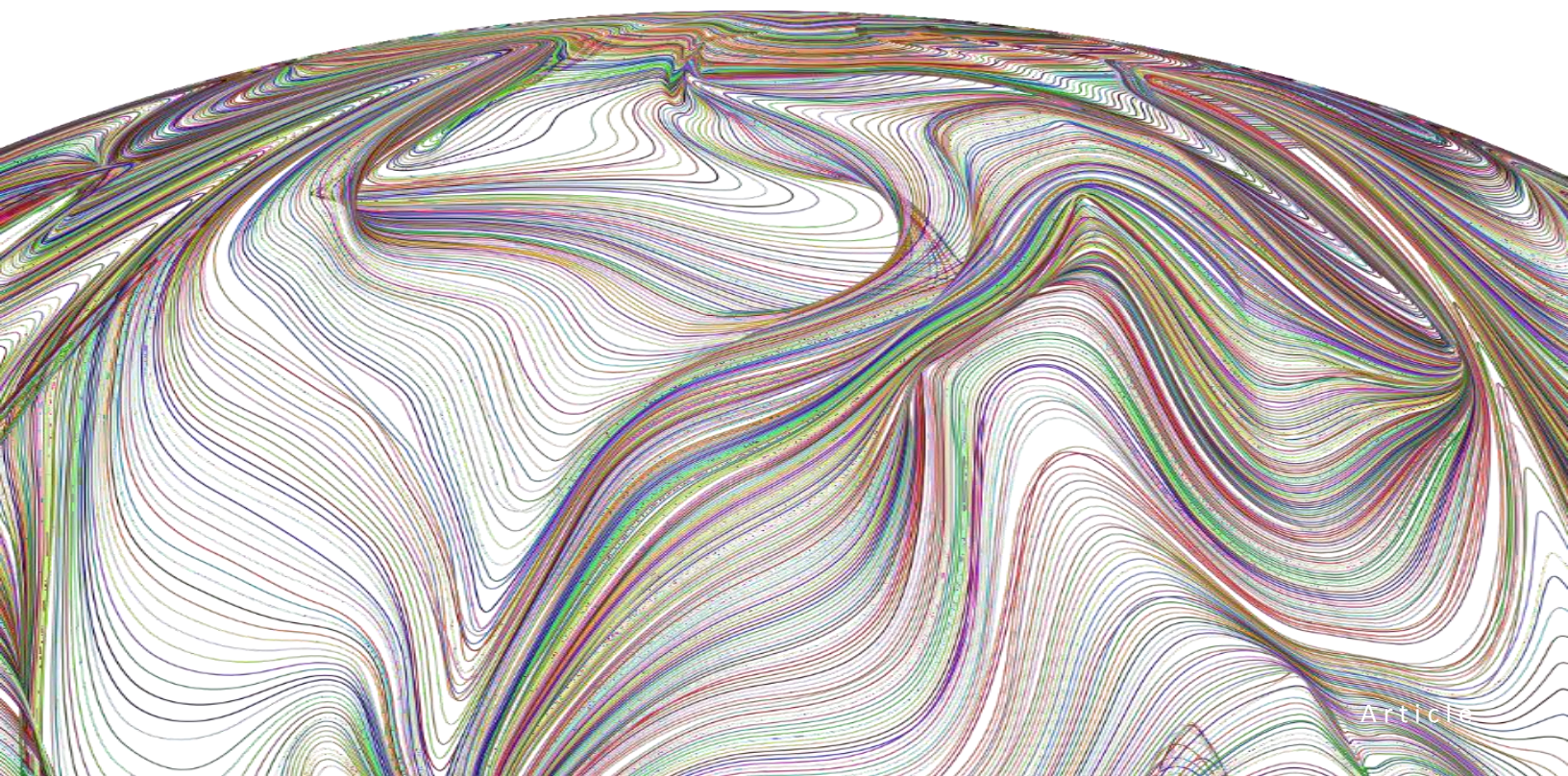
The Gaganyaan crew capsule will be launched in GSLV Mk III, a three-staged medium lift-launching vehicle, from Sriharikota. The return trip of the crewed capsule is planned for safe landing in the Bay of Bengal. The current status of the mission is that it had successfully completed Re-entry test and Pad abort test.

### **VYOMMITRA**

Vyommitra is a female looking humanoid robot which has been developed to accompany the space travelers in the Gaganyaan Mission. It is programmed to say the conditions

in the spacecraft when it becomes uncomfortable for the astronauts.

As an Indian, accomplishment of this mission will be a proud moment for each one of us. Wishing ISRO all the success for the mission.



# Nature the Immortal

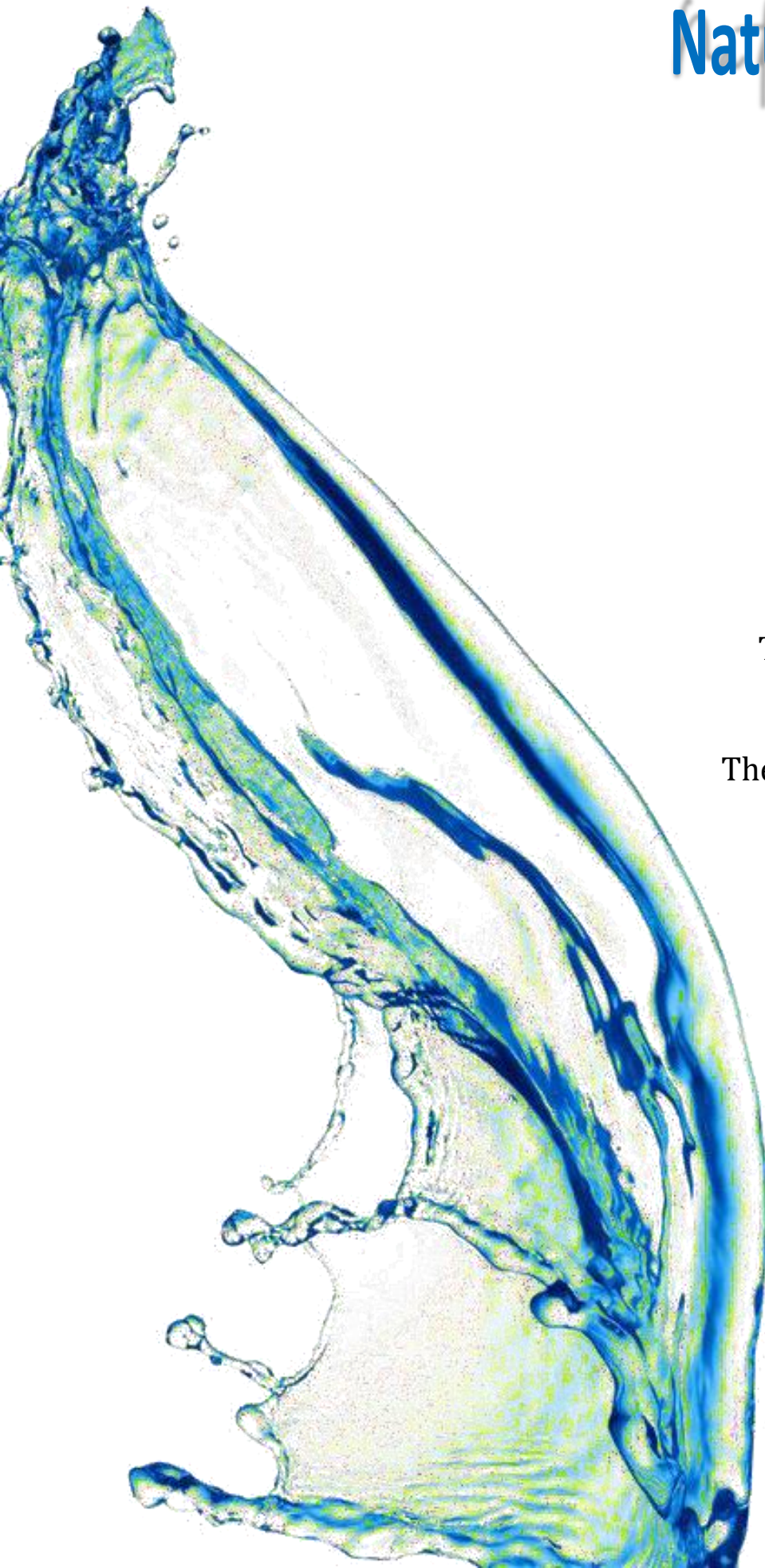
*Niranjana Jayaraj S8 B*

Oh, nature the ultimate beauty!  
Thou outshine mortality,  
In all thy grace,  
Art thou a Goddess.

Oh, nature the divine!  
The wind proclaims thy majesty,  
The sun adds to thy glory,  
The skies confine not to thy design.

Oh, nature thy fragrance!  
Born of the flowers,  
Of the wetness of showers,  
Thou excel in all reverence.

Oh, nature at the zenith!  
Thou art blamed on,  
For the seasons difference,  
Yet thou art not guilty.



# MEMORIES NEVER DIE

*Priya Venugopal, S6 B*

It was a chilling winter season. The students were gladly preparing for the celebration of their college's Annual Day function. Finally that day came, where the final year students would say goodbye to the college and depart their ways towards their future career. The students of final year enjoyed their day as they didn't have to study all those lengthy books anymore, but at the same time they also felt sad, for they will be missing their college days.

Praful and Bharat were close best friends right from the start of their college days. So, they felt sad that despite of many years of togetherness, after the send-off party is finished they will be going ahead in their own ways for carving their further career and life.

Thereafter a long period gap, the result of their campus recruitment program was intimated to the selected candidates. It was a great surprise, for both Praful and Bharat, when they got to understand that they both have been selected by the consultant of a top most engineering company. Praful was sent on deputation basis of 10 years to California and Bharat was deputed to Bangalore region by the consultant company. Bharat was not satisfied with his result, as he had a lot of expectations for getting deputed for California. But anyhow, he decided to leave for Bangalore as required. After their last get-together with all the college mates, Praful left for California with many dreams and expectations in his eyes. Simultaneously, Bharat also left for Bangalore for joining his duties

Initially many of the friends kept contact with each other through phone calls and texts. Later, as days passed, they all got occupied in their job environment. Gradually some of them lost their contacts due to their hectic job schedules. Still Praful and Bharat were in utmost touch each other, but later they also got derailed.

10 years passed. It was time for Praful to return back to his homeland, as his contract of deputation with the company was completed. Looking at his effort and dedication, the company promoted Praful to a senior position and allotted him posting at his home town Pune. So he was prepared to return back to his



home town and he was glad that he had achieved most of his dreams while he was abroad. He made money, married a beautiful girl of his choice, and had fulfilled almost all his desires of life.

When he arrived with his wife Hema at the airport, he was happy to see his family and close friends after such a long span, who had come to receive them. But he was missing his best friend Bharat as he could not get contacted to him. He tried hard to fetch the contact of Bharat and later he managed to get the contact details of Bharat through one of their common friends.

After such a long gap, both best friends were glad to hear and meet each other. Then Praful got to understand from Bharat that he is still unsettled in life, jobless as the previous company had disqualified him without a reason. Bharat informed Praful, in these years life has been too harsh with him, neither could he earn anything or get settled in career. After hearing about the struggle of his best friend, Praful felt bad at his heart and wanted to help him out. So he takes Bharat to his home. There he introduces Bharat to his wife Hema, who gave him a warm welcome.

Now, Praful and Hema decided to accommodate Bharat with them and fetch a good income job for him at Pune. Therefore, Bharat came to Pune and stayed with them. They supported him morally and financially in all his struggles of life. With the help of Praful, Bharat got a desired job there.

Days passed and all three stayed together happily. Gradually over a period of time, Bharat became more involved with his best friend Praful's wife Hema. Her interesting character, selfless nature, utmost love and care always drew his attention towards her. He admired her as a good wife, who cared for her husband and other household activities. Also, Bharat felt more homely and relaxed whenever he shared any of his matters with her. Later, he was more bothered with the closeness, intimacy and love shared by Hema and Praful together. He felt jealous of them, as he too had a dream for a peaceful married life, but unfortunately could not make it so far.

Bharat realized that he had developed feelings for Hema and wanted her in his life at any cost. Perhaps, at the same time, he also thought about his best friend Praful who supported him in all situations of life. He felt that he cannot cheat Praful, so he controlled his feelings for Hema and convinced his mind. But day

by day, his feelings for Hema grew more aggressive. Then he decided to lead as per his mind and always felt that Praful was like a thorn for him, so finally he planned out to get rid of Praful from his way to win Hema's heart and spend rest of his life with her.

Praful and Bharat were very fond of hunting right from their college days. So the very next day early morning, they both left for the forest at Chandannagar for hunting. As intended, Bharat pushed his best friend Praful to death over there and framed it out to be a car accident. On hearing the news of her husband's accidental death, Hema fainted. This tragedy landed her in high depression. Bharat supported Hema in her state of depression. He thought in his mind, that Praful's death had served his both purposes of gaining Hema and also achieving all their wealth & assets.

One month passed out, the Police and Forest authorities failed to find Praful's dead body. So the investigation got closed. Now Bharat felt quite safe and he never wanted to waste a single moment, so he decided to persuade Hema soon and get married to her. He became closer to Hema and tried best to win her feelings. The sudden changes in Bharat surprised Hema, like his body language towards her, his style of talking whenever he spoke to her. This made her insecure. Sometimes she felt may be she was over thinking about him.

But one day, Bharat dared to propose her to marry him, on which she expressed her rage to him. But he successfully persuaded her, saying that, he was a well-wisher and couldn't see her upset in life. He said, if required she can take her time to think as he can wait for her. Then he emotionally turned her saying that, even his best friend Praful's soul would not want her to lead such a sad life of a widow. After hearing all these, Hema got confused, but she was unable to think about re-marriage, as she could not forget her true love and feelings for Praful. Time was passing away, but Hema could not arrive into any conclusion about getting married to Bharat.

One fine morning, Hema got a call from an unknown number, which informed her to meet personally a stranger who knew the mystery behind her husband's death. The stranger wanted her to come down alone without informing about their meet to anyone. Hema agreed the terms and went out alone to meet him at the said venue.

There she got a surprise, could not believe her eyes and recognized that this stranger was none other than her husband Praful, who was termed as dead so far. She hugged him tightly and confirmed herself that she was not dreaming. Praful narrated to her the mystery which he faced at Chandannagar forest while hunting with Bharat, who attempted to kill him for gaining her and how he was rescued by the treatment of some tribals from his severe wounds. Praful and Hema cleverly planned out a mission over Bharat, who had betrayed and hurt them.

The next day, Hema behaved as usual to Bharat and told him that she was ready for the marriage, but said that she wanted to know him better. So they both planned to go on a proper date. Hema provoked Bharat to over-drink that night, she deliberately behaved as if she didn't bother about her husband's death and was glad to be the owner of all assets and wealth. After listening her, intoxicated Bharat expressed all his feelings openly and revealed the truth himself about why he killed Praful.

Later when after some hours passed out, Bharat came to conscious state and found himself in front of the cops and inside the jail. He also found there Praful and Hema together, he was shocked to see Praful alive. He felt ashamed of his deeds, as now his real face was exposed to everyone.

# Draper: Sprout Microplastics Sensing Autonomous Underwater Vehicle

*Divya Anna Saju, S2 A*

**T**ake a sample from almost any major body of water, and you're likely to find microplastics, or bits of plastic pollution less than 5 mm long. Many experts and environmentalists



agree that microplastics are a cause for concern, as they harm marine life and taint our water supplies. Microplastics in the ocean's waterways are an ever-growing invisible threat and since very little is known about them beyond their prevalence, getting more microplastics data is an 'urgent concern'.

To combat the problem of microplastic contamination, Draper has teamed up with Sprout and the Environmental Protection Agency to jointly design a ray-like drone meant to swim around a body of water, collecting and analyzing samples for their microplastics content. Draper's AUV (automated underwater vehicle) can detect and analyze microplastics, enabling scientists to understand where they are originating from, where they are most prominent, and how to prevent them from contaminating our waters. Draper project lead Lou Kratchman says that the data can be a jumping-off point for more advanced microplastics research.

When the AUV is deployed, it skims the top nine meters of the water where most microplastics are located, scanning for microplastics, testing for specific types, and ultimately relaying GPS coordinates into a heat map. A large intake has been designed on the front of the drone to filter a high concentration of microplastic into its internal processing unit while the excess water is flushed out the back. There are two proximity sensors located on either side of the intake that communicates with the GPS antenna to help the drone navigate the world's waterways. The two thrusters located on either side of the processing unit that propels the drone and the rear rudders handle the steering. The large outer ring houses the batteries, control unit, and induction charger while the open chassis allows for the easy deployment and retrieval. The battery powered drone is both low-energy and self-sustaining when paired with its self-docking, wind powered, charging buoy.

Draper hopes to launch a Plastic Particle Pollution Index, [pppindex.info](http://pppindex.info), posting measurements and trend predictions of microplastics particle concentrations in the world's oceans, coastal regions and rivers. Draper also plans to make its microplastic sensing technology widely available via open-sourcing so others can contribute to the PPP index. The system using the forthcoming ASTM standard, an open-source sensor design and a shared central data repository, would support comparative analysis of research done by scientists around the world.

Draper has begun testing its prototype sensor in the field on a boat deployed in the Northwestern Hawaiian Islands in partnership with the EPA. Future versions of the sensor could be installed on autonomous vehicles to monitor microplastics across large areas and even at various depths of the oceans.

The system will make available consistent, real-time, in situ measurements of microplastics that will help researchers understand how these tiny particles affect animals, the environment and humans. This will enable policymakers to make informed decisions on how to address the sources of microplastics in the oceans, such as failed refuse management programs on land.

*[Citation: sprout.cc, inhabitat.com, time.com]*

# MERAKI

*Sreelakshmi Suresh, S2 B*

Art begins where language ends

Were ideas dawn

Where life arise

Everywhere art persists

Even in each drop of water

In thy nature, there is more to be seen

In thy nature, a beauty untold

In thy nature, everything is worthy

◆ He created the world for us

He taught us

To walk, fly, swim, creep

The skies, mountains, oceans

Happened through his hands

He created man

He is the greatest engineer

The greatest creator

With his magical power

He makes beauty in his open canvas

Were Meraki begins

# MASS CONCRETE IN DAMS

*Jetcy Elizabeth Philip, S6 B*

**M**ass concrete can be defined as any large volume of cast-in-place concrete with dimensions large enough to require measures to cope with the generation of heat and attendant volume change to minimize cracking. Like regular concrete, mass concrete too is primarily composed of cement, aggregate, and water. Additionally, it has pozzolans and other admixtures to improve its characteristics. Proper proportioning of mass concrete mixture is aimed at:

- i) Achieving economy
- ii) Low temperature-rise potential with adequate workability for placing,
- iii) Adequate strength, durability, and impermeability to serve efficiently the structure in which it is used.

For this purpose, "low heat" Portland cement would always be preferred for massive structures such as dams. Obviously, both economy and low rise in temperature would be achieved by limiting the cement content of mass concrete to as low a

value as possible. Aggregate grading has considerable effect on the workability of concrete.

Fine aggregate should consist of hard, dense, durable, and un-coated rock fragments, and should not contain harmful grains of clay, silt, dust, mica, organic matter or other impurities to such an extent that they affect adversely the desired properties of concrete. Coarse aggregate is defined as gravel, crushed gravel, or a crushed rock, or a mixture of these, generally within the range of 4.76 mm to 150 mm in size. Coarse aggregate should also consist of hard, dense, durable, and un-coated rock fragments. Rock which is very fragile or which tends to degrade during processing, transporting, or in storage should be avoided. Further, rocks having absorption greater than 3 percent or a specific gravity less than 2.5 are not considered suitable for mass concrete.

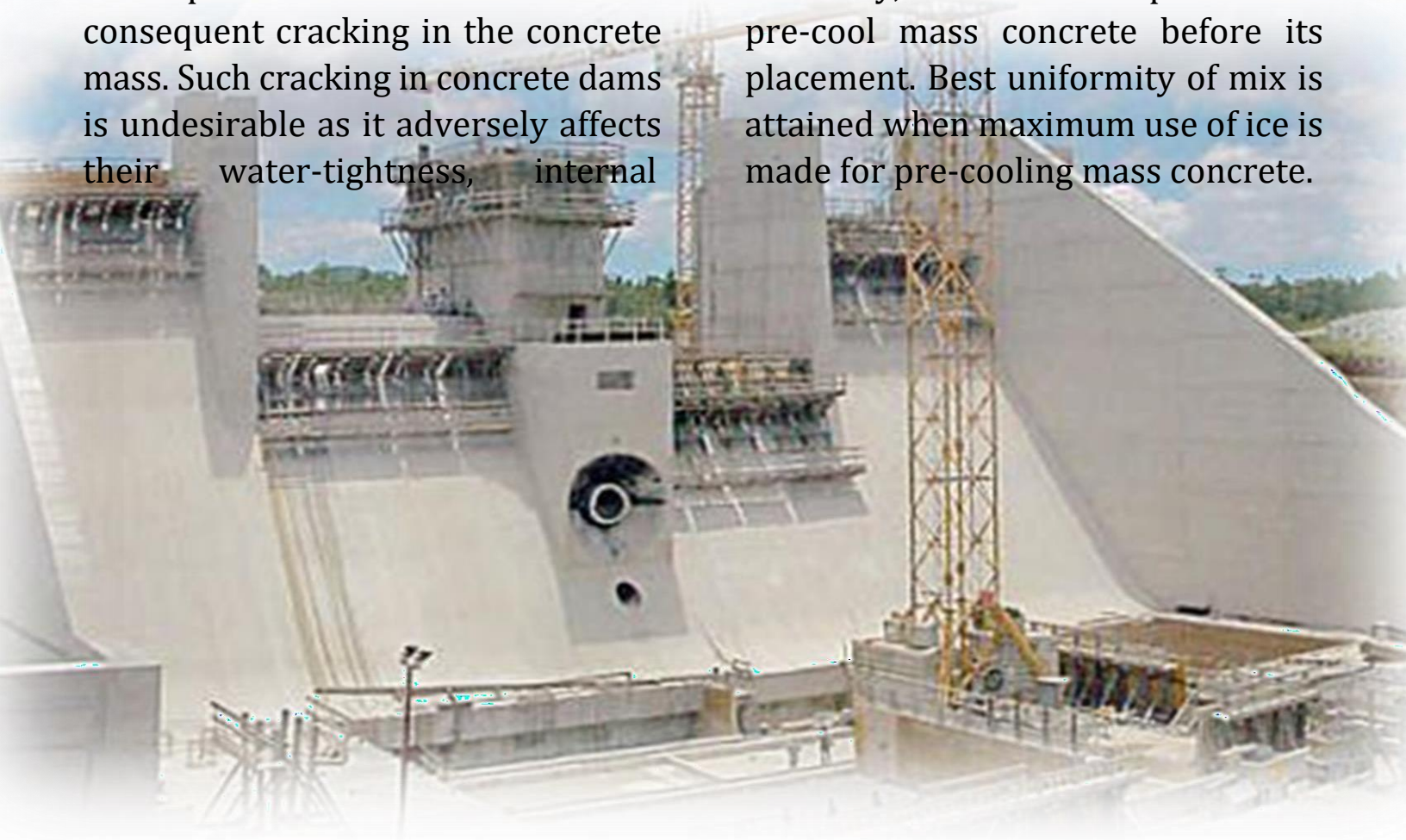
Water used for preparing mass concrete mix should neither significantly affect the hydration

reaction of Portland cement nor interfere with the phenomena that are intended to occur during the mixing, placing, and curing of concrete. Water which is suitable for human consumption is acceptable for use in mass concrete.

A major problem associated with mass concrete is the probability of high tensile stresses due to generation of heat by the hydration of cement along with subsequent differential cooling. A decrease in temperature of concrete causes volumetric changes resulting in the development of tensile stresses and consequent cracking in the concrete mass. Such cracking in concrete dams is undesirable as it adversely affects their water-tightness, internal

stresses, durability, and appearance. Temperature drop is, therefore, controlled by controlling placing temperature, limiting the temperature-rise potential of concrete, controlling lift thickness and placing schedule, and removal of heat through embedded cooling coils. From the considerations of temperature control, the longer interval between successive lifts is preferred provided the ambient temperatures are lower than those of the concrete surfaces while internal temperature is rising.

Presently, it is common practice to pre-cool mass concrete before its placement. Best uniformity of mix is attained when maximum use of ice is made for pre-cooling mass concrete.





# Forever

*Fousiya Zaker, S4 B*

Forever is a dangerous word  
An ominous beauty that attracts us  
Like a moth to a flame  
But we are captives to time  
Held in its grotesque chains  
Forever is a blatant lie  
A harbinger of suffering  
So my dear child,  
Pray cherish the nows.  
Always cherish the nows.

# BLAZE IN BORDERS

Teena Tara Tom, S4 B

India is a sovereign, secular republic nation. Our first prime minister, Pandit Jawaharlal Nehru adopted a carefully woven foreign policy. This policy has been followed by his successors. Nehru had the strong conviction that we should respect other nation's sovereignty. We should not interfere into their internal issues directly or indirectly. The same policy we are expecting from other nations as well. Nehru was against all military alliances between nations. This can create unnecessary tension and suspicion between countries.

India, under the leadership of Nehru was in the forefront for setting up non-alignment movement (NAM). When developed nations were siding with either US or USSR, developing nations formed a third front. When India was keeping equidistant policy from superpowers, we maintained cordial relations with all countries. No appeasement to any nation but a healthy relationship maintained. The biggest advantage was that no enmity towards us from world superpowers.

But recently there was a paradigm shift in the philosophy and policy of India. Nehruvian policies are rewritten. India adopted a policy of standing with U.S explicitly. This shift in foreign policy irked China. Indo-Sino relations were reasonably good after Indo-Sino pact. The *Panchsheel* principles relieved border issue between India and China. When India and U.S are moving closer to each other, China views it as a threat for them. So started encroachment and atrocities in the border. Other neighboring nations also seems to be with China.

Nepal recently prepared a new map including some Indian territories with them. This controversial map was accepted by Nepal parliament. Nepal has been a trusted friend of India. Indian currency can be used there. People of India and

Nepal could travel across the border without passport or visa. But Nepal clamped restrictions.

Republic of Maldives was always having friendly ties with India. But Abdulla Yameen government was sided with China. Now things have changed. Pakistan uses Kashmir issue to ignite problems in the Indo-Pak border. They never lose a chance to trouble us. Sri Lanka is also not very friendly with India.

In short, our neighboring countries are giving us tough time. Lot of diplomatic exercise is required to iron out the wrinkles in the fabric of fraternity of south Asian countries. Peace, co-operation, and mutual trust are essential for the prosperity of nations in a region. Rivalry among nations compel them to increase expenditure for defense. This affect the progress in the basic and essential sectors such as education, healthcare and other social welfare schemes. When neighboring countries are having cordial relations, there can be more trade and co-operation in various sectors. Defense expenditure can be curtailed.

When the British left India, they divided it into two countries-India and Pakistan. They knew that the dispute over border and other issues will be a stumbling block for the progress of both the countries. Even after seventy-two years, Kashmir issue remain unsolved. Second World War taught Japan a new lesson. Amassing weapons will not bring peace and progress. They stopped building huge army and nuclear tests. Instead, focused on economic progress. Japan realized this fact. With this conviction Japan rose high from the ashes of world war.

When individuals quarrel, they lose their peace and health. This is true in case of warring nations. Peaceful co-existence is the key to progress for all nations. United Nations Organization is expected to do the smoothening of strained relations between countries. But they can intervene only when both the nations are agreeing. We need a stronger UN to resolve the burning issue between neighboring countries. UN should be given the authority to intervene in all international disputes and resolve issues in an unbiased manner.

The ability  
to view

# AUGMENTED REALITY

constructions  
virtually before  
using the real

## THE NEWEST TREND IN CIVIL ENGINEERING

*Rohini S, S6 B*

resources to construct them has been of main interest in civil engineering over a long period of time. This has been achieved partially through virtual reality. The plans that are done in computer sometimes do not match with the real practical applications. In order to overcome the gap between the real and virtual environments, a new technology of Augmented Reality (AR) is used in all the areas of civil engineering instead of using Virtual Reality.

Augmented reality (AR) is a technology that allows you to superimpose computer-generated images created in CAD or building information modeling (BIM) software onto a user's view of the real world, which creates a composite or augmented view. It has several applications in construction, interior design, environmental management, soil mechanics, highway planning etc. In order to use the Augmented Reality in Civil Engineering effectively, it should be supported by technologies like Computer Aided Design, Geographic Information System and Global Positioning Systems.

When Augmented Reality is deployed in the commercial market, it will work significantly in reducing the man power, cost, time and the resources used. One of the most important benefits offered by this technology to civil engineers is the minimization of errors that occur while implementing the completed design during construction. AR provides a virtual design of the entire construction field, making it easier to control various processes, thereby helping the engineers achieve a better output. As error rectification prevents the possible errors during construction, the costs associated with the manpower and the materials used are also minimized, thereby reducing the overall cost of a construction project. .

Augmented Reality in civil engineering and architecture has offered proven benefits. The new applications of this technology are still under development. In future, if the processing efficiency of the hardware and software supports for the full real-time application, then the benefits of AR can be fully utilized in all the fields of civil engineering. AR will soon become a common term.

# THE LONELY FELLOW

*Aryamol P.A, S4 A*

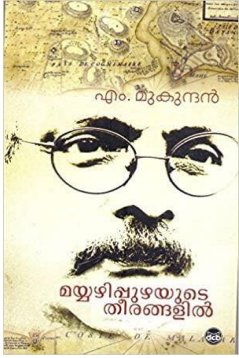
I am the lonely fellow in the sky  
I was born with a bang  
So big that they called it big bang  
But now I am all alone  
They threw me away from the bang  
I am the lonely fellow in the sky  
With my siblings, I was happy there  
Together we are revolving our father  
As the youngest they loved me most  
But now I am not one of them  
They threw me away from the bang  
I am the lonely fellow in the sky  
I wish to be with them forever  
I wish to be count as one among them  
But npw my dreams freezed as my surfaces  
Still I am revolving my father  
Even though they threw me away from the bang  
I am the lonely fellow in the sky

**“There is more treasure in books than in all the pirate’s loot on  
Treasure Island.”**

- Walt Disney



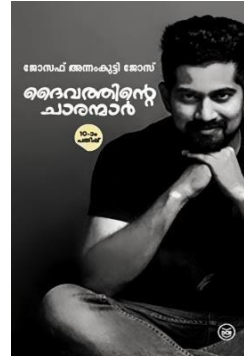
## MAYYAZHI PUZHAYUDE THEERANGALIL (MALAYALAM)



It is a well-known novel written by M. Mukundan. The novel describes about the political and social background of Mahe (Mayyazhi), a former French colony in the past. Through reading the novel, we can travel along Mayyazhi, through the life of Dasan, the center character and his family. We can understand the situation of Mayyazhi being a French colony and also the spread of communism over there, and how these things affected the life of Dasan and his love, Chandrika. It gives a clear picture of the Anglo-Indians and also depicts the struggle for freedom fight. The author paid a great effort in this epic one. It has been translated to English and French thereafter. A must read for those who take Malayalam literature seriously.

- Blitto M. Kuruvilla, S2 A

## DAIVATHINTE CHARANMAAR (MALAYALAM)

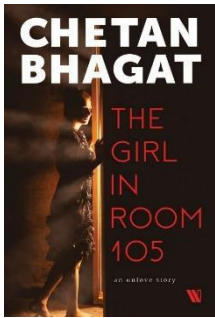


It is a book written by Joseph Annamkutty Jose who is an RJ, writer and a motivational speaker.

In this book he shares his life experiences which helps us to relate to our fellow humans on a deep level. It gives each of us the motivation to go on in our life, helps us to know how important our bonds with people are, how we are supposed to approach difficulties etc. It reminds us to be much thankful to those who have played a part in our life, whether it is small or large. It also includes many references from various books, speeches, movies and authors. This books tells us why we must see our life in every positive way. I truly believe that this book could be a survival medicine in life for a person.

- Sarah Madheeha, S4 B

## THE GIRL IN ROOM 105 (ENGLISH)



It is the latest novel of the famous Indian writer, Chetan Bhagat. This one is a bit different from his usual love story track. Here he tells about an IIT coaching class tutor Keshav, who goes to wish his ex-girlfriend Zara on her birthday in her hostel. Unfortunately he finds her murdered in her room 105. The book also addresses the stereotypes and political issues we face in our country. The rest of the story gives Keshav the role of a detective to find out the culprit. It gives us a thrilling experience, especially for those who love to read investigative stories. We can feel the anxiety of him by turning each page. His writing style has the same ease mode, supportive for the beginners. Considering his works, this one seem to be different and is worth a read. It is the best choice for readers who love the theme of investigation.

- Bhagya S, S2 A

## THE KITE RUNNER (ENGLISH)



The Kite Runner is the first novel by Afghan-American author Khaled Hosseini. It revolves around Amir, a young boy from Kabul and his best friend, Hassan. This is a wonderful, moving novel set in the Afghanistan of the early 70's and early 2000s, and partly in the US. Amir desperately wants his father's approval, but his Baba is not quick to give it. He is a rich man, brimming with macho vibrancy, while his son is a different sort altogether. Amir is fast friends with Hassan, the son of his father's servant. They are as close as brothers. But, beset by bullies, an event occurs that changes Amir's life forever. The rest of the story is about Amir's struggle for redemption, which, without a doubt, touches the reader's heart deeply. It is a novel about the inherent strengths and weaknesses in each person, the guilt, and the terrible consequences of trying to endure them, or avoid them, and it will certainly encourage both teens and adults to look at the world and the concept of "goodness" in new, profound ways.

- Jenita Kuriakose, S2 B





Gopika M.S, S6 A



Dharmajith M.S.S





# Saptharang '19





# Reinforce 6



# **COLLEGE UNION 2019**

Chairman – Lijo Iype

General Secretary - Jobin Joy

Vice Chairperson - Drisya Merin Saji

Arts Club Secretary – Aswin Anirudhan

University Union Councillor - Bibin Mathew

Fourth Year Lady Representative - Preenu Annie Daniel

Fourth Year Representative - Sreeshankar P.

Magazine Editor – Febin Antony

# **CLASS TOPPERS 2019**

## **YEAR I**

Blitto M. Kuruvila, Aparna B. Prasad, Arya N.R

Shreya Shaji, Varsha B.

## **YEAR II**

Athira M.S, Aboo Jacob

Teena Tara Tom, Tencymol Jose

## **YEAR III**

Anjaly Anilkumar, Amruta Murali

Sneha Punnoose, Jayalakshmi S.J

## **YEAR IV**

Christeena Thomas, Ajeeshma Nair

Nisha Mary Augustine, Preenu Annie Daniel



*We dedicate this magazine to our wonderful teachers and beloved seniors of 2016-2020*



Back cover photograph by Abhiram Krishna, S4 A

Send us your feedbacks and comments at [civilions2020@gmail.com](mailto:civilions2020@gmail.com)

# HESTIA

Hestia is a student-made magazine from the department of Civil Engineering of Mangalam College of Engineering, Ettumanoor.

The name Hestia is inspired from the Greek Goddess of the hearth and fire. The hearth is a symbol of warmth, light and protection. As Civil Engineers, we strive to provide the same for the world.

