

QUARKS

Fundamentally Unique, Fundamentally Different





From The Dean's Desk

I am very happy to write this note for the 7th volume of QUARKS, the annual magazine of the undergraduate students of the Indian Institute of Science.

The Indian Institute of Science started a unique four-year Bachelor of Science (Research) program in 2011. IISc has a strong research culture, both in science and engineering, which has evolved over the last hundred years. This has been created by the illustrious efforts of highly distinguished faculty, post-doctoral fellows and graduate students. The faculty at IISc recognized that this distinctive atmosphere should be used for the training of undergraduate students as well. With this conviction, IISc started this unique program.

The Bachelor of Science (Research) program is designed to be highly interdisciplinary. Academic life of the students is spread over different departments and centres of the institute, and is closely associated with IISc faculty, post-doctoral fellows and senior research students. This offers a platform for enquiry-based learning and ample research exposure. Four batches of Bachelor's and three batches of Master's students have graduated so far.

Since its inception, the program has attracted highly talented students. The undergraduate students are also involved in several extracurricular activities, apart from academics. The annual science, technology, and cultural fest Pravega, organized by the undergraduate students, and other cultural pursuits such as Nrityatarang, Rangmanch and Rhythmica are a demonstration of their multifaceted talents. The students have also brought laurels to the institute by winning several national and international competitions.

The undergraduate magazine Quarks illustrates their literary and artistic talents, and skills in photography. I thoroughly enjoyed reading the first six volumes of Quarks and I am sure that the seventh volume will be an equal treat for the readers.

P S Anil Kumar
Dean, Undergraduate Programme



Editor's Note

It is with considerable pleasure, and no small relief, that we present to you Quarks 2018.

It has been a tempestuous journey which must come to a close now; only to resume the following year.

Once again, I am amazed at the final outcome of the constant pestering for content, the elusive targets we set for ourselves, and the last-minute flurry and high efficiency of the team. From frustration and helplessness at the lack of content, to dispiriting attempts at prodding people to come up with some, to marvelling at beautiful pieces produced by the undergraduate community, we've been through it all. And what a superb sail it has been! To everyone who made this possible, kudos!

Quarks, along with Pravega, is an endeavour that brings together the entire undergraduate community in one way or the other, and has been going strong for seven years now; something that we can be proud of, and call our own. Personally, it has been a wonderful experience for me to work together with people passionate about this effort directed at creating something creative and original, which can be a cherished source of joy in the years to come.

An attempt at a novel theme for the magazine has been made this year. Received content has been classified into various sections based on the mood of the creative piece. From Alap to Coda, we hope this issue will keep you company through a variety of tempers. We also share a special interview feature, of some of the most loved people in campus, who are indispensable to our life.

Another special feature is a set of ramblings on everything under the sun. It promises to be an extremely engaging read. All this is, of course, apart from the myriad set of art, photography, poetry and prose pieces. Talk about untapped potential!

This publication would not have been possible without the support, active and moral, of a number of people in addition to the core team. Specifically, we would like to thank the Director, Professor Anurag Kumar, the Dean, Professor P S Anil Kumar, the undergraduate office and the Archives and Publications Cell for their constant support and encouragement.

Hope you have as wonderful a time reading this, as we had putting it together.

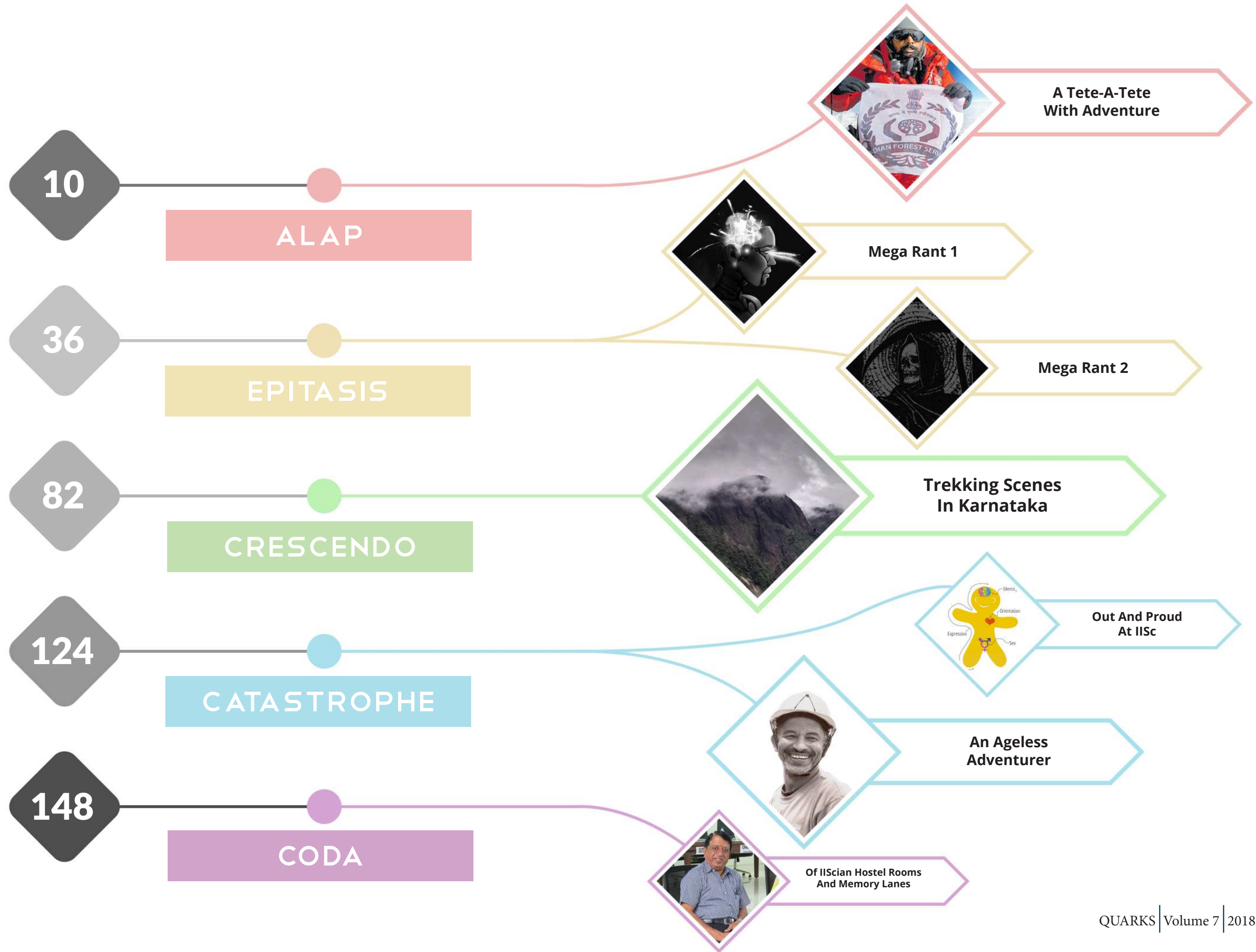
Here's wishing Quarks and the undergraduate community a glorious future!

To borrow Dr. Seuss's words, "Think and wonder, wonder and think. If you never did, you should. These things are fun, and fun is good".

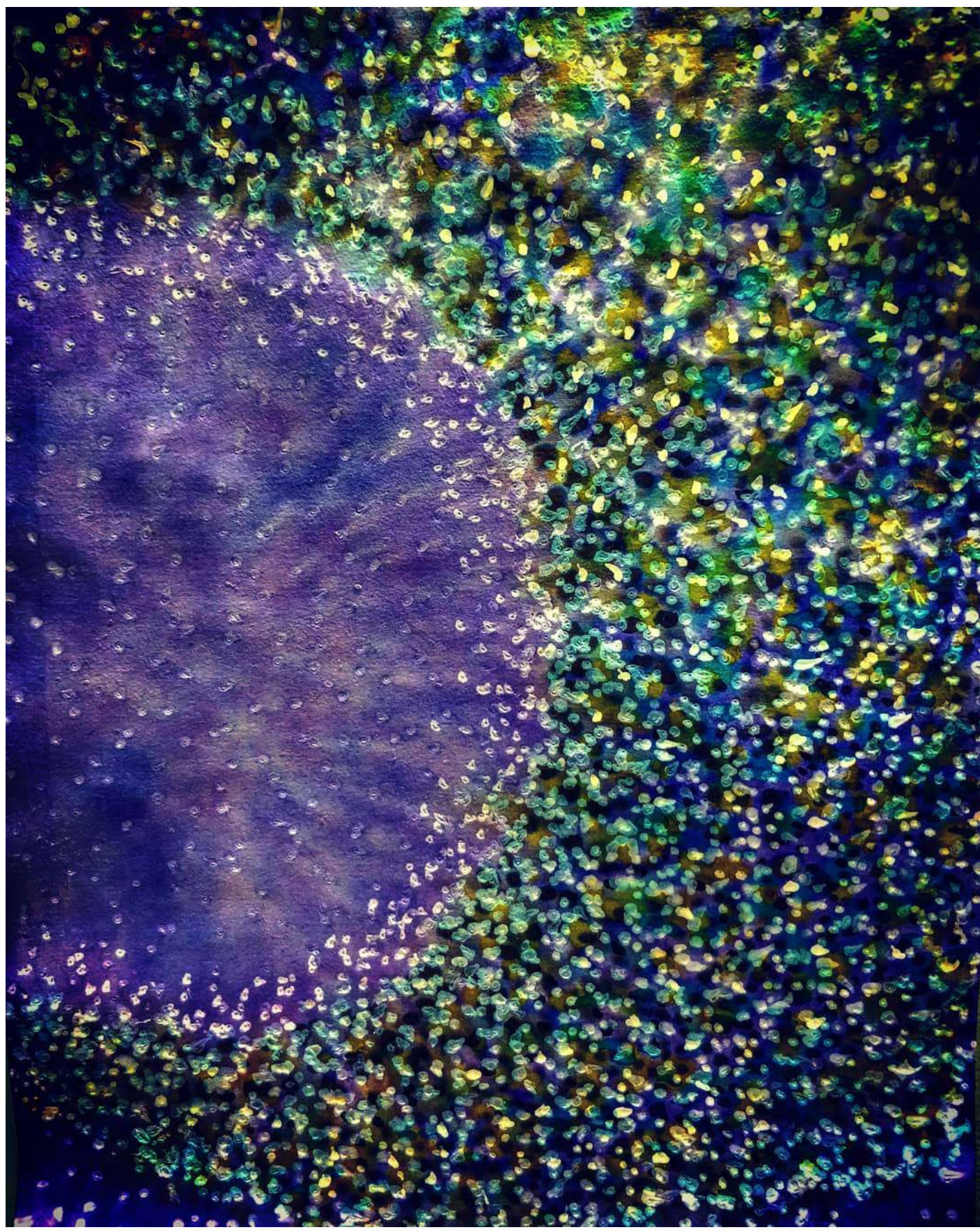
Cheers!

Dhanya Bharath
Editorial Coordinator

STENZ CONTENT



Art by:
Amrutha A D
3rd Year



Art by:
Amrutha A D
3rd Year

“Speak, Memory—”

This prologue is an excuse to use self-consciousness as a virtue. There is no great excitement in existence if it is an effortless rambling on, and Quarks, self-aware, acknowledges that fact. So, some of us who believe in something believe that it is a good time to contemplate the fundamental nature of Quarks as an annual undergraduate publication. What is it good for?

What are we good for? Are we simply tools in a highly amusing technical circus here? Thinking and working like it's often a chore, it'd be enlightening to wonder if we are really working as sentient and creative individuals, and not merely as condensed matter physicists or molecular biologists or something like that.

So, we decided to invoke the Muses upon this edition of Quarks to spark an ember in those of us in a daze, not sure where we are, why things around us are sometimes so beautiful and quiet. Mnemosyne, the Greek goddess of memory, gave birth to the nine angelic Muses who are known to descend on the minds of artists as inspiration. You have drama, poetry, dance, astronomy taken care of by one or more of them. Homer is believed to have produced his epics under the influence of the noble Calliope.

It is clear what this is a beautiful metaphor for. Elaborate as it may seem, it is nowhere near the sophistication of the human intellect and psyche. As contrived as some creations may seem—when you have a great length of time or space intervening between the conception and birth of an idea—there's a good chance they were the result of an inspiration. We often judge or even neglect the intensity of the inspiration by the impression the result makes. The inspiration is a purely personal thing, that will remain a mysterious notion unless we can dig into our brains and address it physically at a lower level of representation. Mystery is not very harmful here; on the contrary it's quite useful.

The sheer joy of innovation is immense, as wise and common men say. It is the curse and the nature of society that the individual is very often lost, dissolved in the middle of things dull and sundry. At IISc, we live in a society, and the aim of Quarks is to invite that mystery inherent in each of us to manifest itself in some ordered way, say, some artwork or some creative writing. Such creations are glorious in themselves, mirroring the zenith of life and Nature, where we can conceive of things that do not exist by a curious combination of contemplation and imagery that our imagination is. It is a reminder that we think in a language of symbols, and that is no mean monkey business. Some of us strive and seek to not yield in our attempts to have our life take on 'a rare and precious quality'. It is our hope from Quarks that both the content and the philosophy of Quarks sustains those attempts and further enables others to discover the charm of a such a life.

This year, we received a diverse array of articles, photographs, artwork. An effort has been made to give the magazine a sort of structure, borrowing concepts from drama and music. Roughly, articles have been grouped having mood, pace and expanse as parameters. This ordering is, however, by no means an attempt to direct the reader's perception. Rather, the reader is invited to use his or her own wisdom and senses to appreciate all these and other parameters of the articles.

The following are the five chapters of this year's Quarks:

Alap

The alap is the exposition to a raga in Indian classical music. The raga, which is a framework to journey through different moods, most often has the alap spreading out the notes in a particular way, but generally without a particular rhythm. There is freedom to establish the raga through the alap, it renders a certain breadth to the raga's interpretation. However, the execution of this expository movement is also often thought to be the most involved, as it requires thorough knowledge of how the entire raga unfolds, develops and settles on its route.

Epitasis

The epitasis is a sequence of events that contributes to the 'rising action' in a play, as a result of characters and the plot unravelling, and approaching a possible crisis. It usually is a veritable current that carries the audience to the climax of the play. There is an intended pace (read tempo and rhyme) to it classically that diversifies the theme.

Crescendo

The rise and the peak in fervour achieved in a composition is the crescendo. A diminuendo serves a similar purpose in a different direction. The listener becomes aware of the extreme point reached, in the context of the exposition and the preceding delineation.

Catastrophe

This part of the dramatic structure often brings a discovery to the front, or involves a change in fortune, that resolves something left hanging by previous developments. It is essential that it be both probable and necessary to be natural and not forced. A new emotion might be evoked from the characters already established, as the play moves through a denouement towards some achievement. A sense of catharsis, or the expression of strong emotions, may be dominant in this penultimate movement in a play.

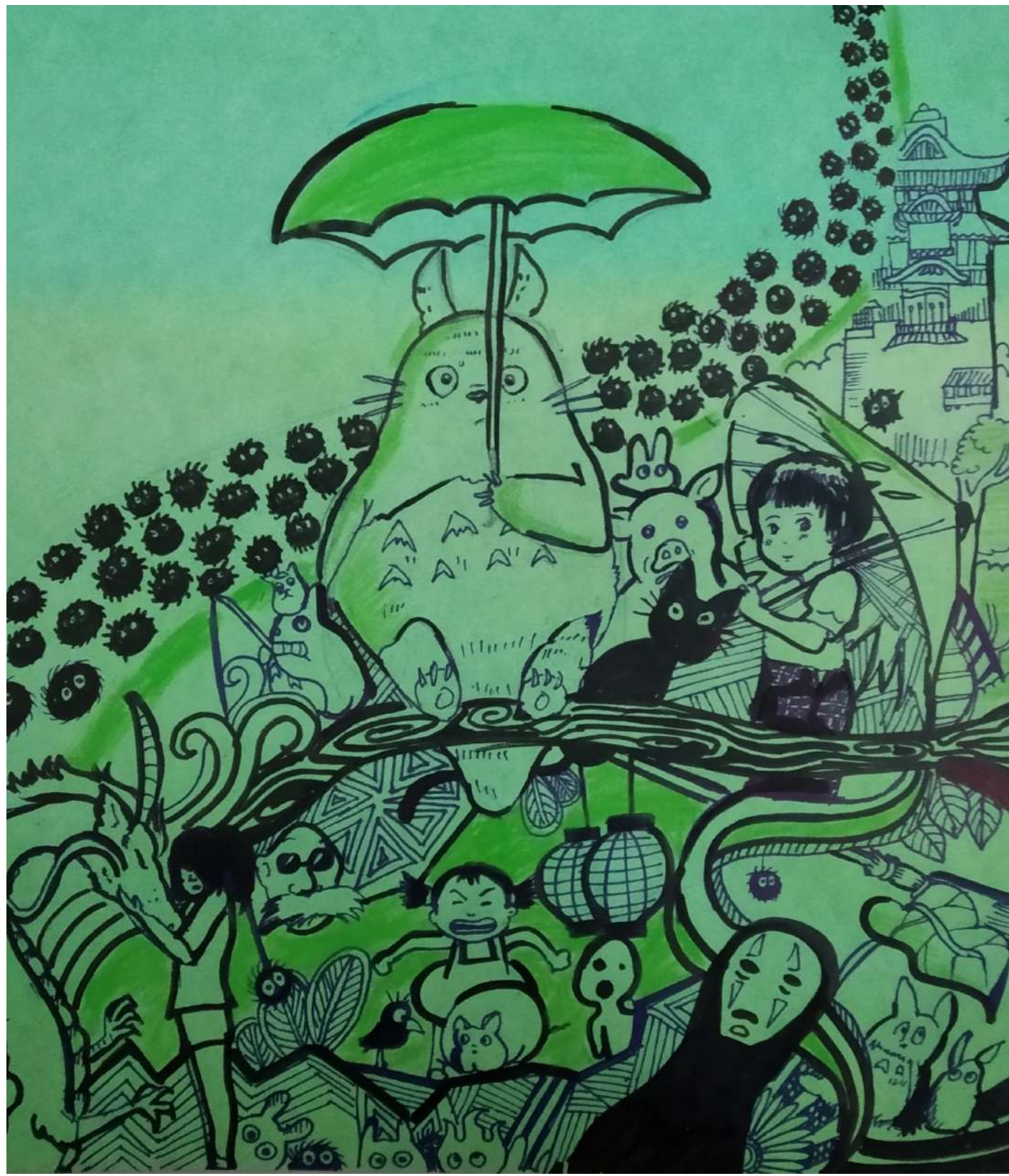
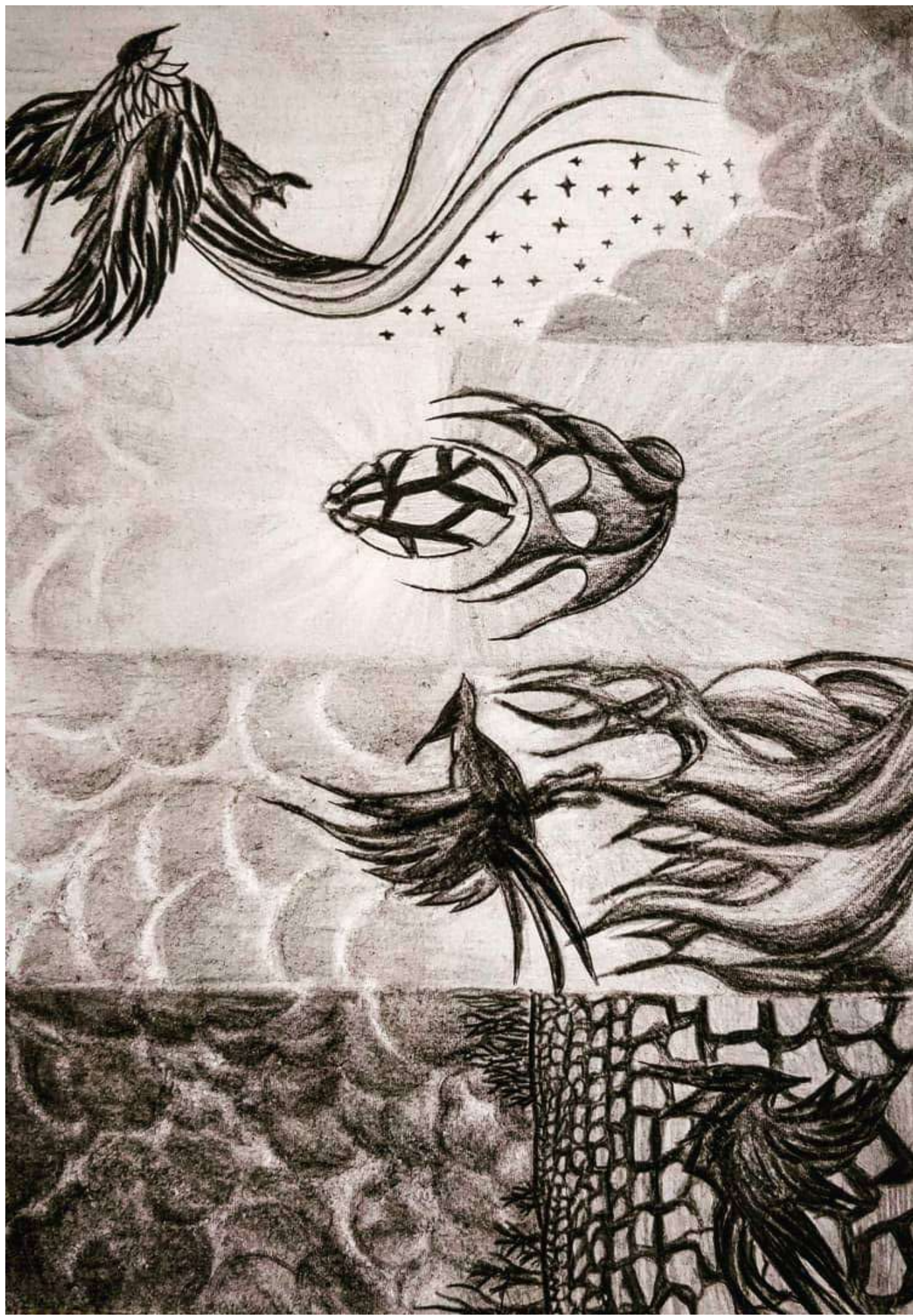
Coda

This finale is the space for reconciliation and rejoicing, and is found as much in classical music as it is in modern rock and jazz. There might be an element of recapitulating the composition through a summarising act, or it could simply serve to balance any residual tension. Like dessert at the end of a feast.

Welcome to the show.

~Sunreeta Bhattacharya

Art by:
Amrutha A D
3rd Year



Art by:
Simran Gade
3rd Year

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Average

Someone once told me that if I was the smartest person in a room, I was in the wrong room. It was quite easy to say I believed in this until I had to face a complete change in environment. As someone who quite easily made it to the far right of any class yet, I had never really put myself in the shoes of the far left.

I understand now that it is, in every sense, belittling to be someone who actually pulls the average down. The initial days were a crash course on how wrong I was on a lot of counts, especially about myself. The calm and composed world I had built around me came crashing down. I was drowning even before I realized I was not on solid ground. Even worse, when I realized I was drowning, my thoughts were not about how to swim. I was confused about why I was drowning in the first place. Again, someone had told me that it was good to be confused, with a caveat: you should think about how you can solve the problem.

Against instinct, I stopped struggling and decided to plummet to the bottom, knowing that the answers to my questions were definitely not on the surface. The answers I came upon were simple but not easy to digest. The calm and composed world I'd built for myself had foundations of hypocrisy. It was time to tear the world down as I had known it. It took a fairly long time, but my world was up again, this time on firm, solid ground with foundations of raw truth and adversity. I guess it took a bit of anarchy and chaos to bring world order.

- Adit Vishnu

A World Of Difference



Flashing lights. The latest cacophony to be crowned as music is blaring in the background. The street is fairly isolated, simply because the populace, the lifeblood, is all concentrated inside the establishment, in various stages of erythropoietic decay. The Albatross approves of my analogy.

One soul, unlike the remaining kindred soulless, simply sits there. Weary of the world, his head is in his hands. He carries a bunch of unsold pens.

Poetry begins as a lump in the throat, a sense of wrong, a homesickness, a lovesickness, said that silvertongued wordsmith of the cold. I feel a bit of the same coming on, please do excusez-moi for the same. (Pardon my French along the way, would you?)

That stark, naked difference.
That raw animalistic contrast.
That cavalcade of capitalism.

Of cowardice and cruelty. Of contrast.
Of hunger gnawing at insides and of uncomfortably full bellies.

That empathy.
The lack of it thereof.
That ethos.
The lack of it thereof.

Of payment in kind, with benevolence.
The lack of it, thereof.

Sounds like communist propaganda but okay.

"The world doesn't owe you a thing. It was here first"
~ Mark Twain

~Angsty Verbiage

CONTENTMENT

The incident is set in Kerala, India.

It really is a monumental achievement if you can reply “I am content” to someone asking “How are you?” I asked myself the question and realized that at all points in my life the answer has never been that. A few months before, I chanced upon someone who did not have anyone or anything to claim as his own. He was also seen to be in no fit mental state and spent most of his time in the local temple. While I did not talk to this man myself, I overheard the conversation he was having with a couple he had just met then. Whatever I know of this man was from this conversation.

It seemed that some good Samaritan had given him a room to sleep in. While he was in no shape to cook, some household and a restaurant in the locality had assured him a meal at some point of the day. While he was talking to them, he noticed that the couple did not have any prasad with them. He decided to give them some of what he had, which was presumably the only food he was going to have that night. The couple objected but the man would have none of it. He rushed to his room and found them a packet to take the prasad. They reluctantly took the packet and continued chatting with him. His parting words to them were about how content he was. The highlight of his routine, according to him, was that he got hot tea two times a day from someone.

While at my extravagant dinner that night, I asked myself,

“Will I ever be content?”

~Adit Vishnu

Curriculum Vitae

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Institute of Indian Science,
Bengaluru - 560012.

INTERESTS	I am an undergraduate student whose interests have been motivated by courses I took based on the easiness of getting grades, coupled with a significant bias-of-the-herd. To be specific, I am interested in USELESSTOPIC, UNINTERESTINGTOPIC, and DIFFICULTTOPIC ¹ .	
EDUCATION	Institute of Indian Science (IISc), Bengaluru, India 4-Year Bachelor of Science (Indian) with a major in EASYSUBJECT Current TGPA - AVERAGE_GPA ² / 10.0 Current CGPA - BAD_GPA / 10.0	2015 - Now
	This place doesn't matter anymore PUC I and II (equivalent to grades 11 and 12), Department of Pre-University Education, RANDOMSTATE. Class 12 : UNUSUALLY_HIGHPERCENTAGE %	2015
	Life used to be so much better Grades 5 - 10, Central Board of Secondary Education. CGPA - 10.0/10.0	2013
PUBLICATIONS	R. Undergrad & Interested Faculty, Undergraduate student managed to get work done, leading to publication. <i>Journal of Airborne Castles and Imaginary Futures</i> , Jan 2018	
RESEARCH EXPERIENCE	Most recent project which isn't moving forward Under the guidance of Dr Interested Faculty ³ Using computational methods and theoretical modeling approaches to waste time because I prefer that to wasting time in a laboratory.	2018 Feb-Now
	Project I've not started yet. Under the guidance of Dr Overbearing Faculty ³ This prof is scary but I might publish with them so I chose to do another project. I make stupid decisions in life someone kill me pls.	2017 Aug-Now

¹so that my classmates respect me
²(?)
³Centre for Unrelated Fields, IISc

RELEVANT COURSES	Project I sodding completed. Hell yeah. Under the guidance of Dr Overbearing Faculty ³ . Used esoteric optimisation techniques to determine the best possible future re- alisable after securing an unspeakably abominable GPA.	2017 Mar- 2017 Aug
	Training internship on outmoded techniques in totally unrelated rub- bish Under the guidance of Prof Big Shot ⁴ . This one time I thought I would try to explore the various facets of science, without realising that science is but another meaningless endeavour to distract ourselves from the futility of life.	2016 Dec
	Graduate level Theoretical Bad Grades; Computational Bad Grades; Special topics in procur- ing bad grades; Homicide - Pattern and Processes; Was IISc always this cruel?; Hopes, Dreams, and other fallacies; Analysis of bad grades (I and II); Be- havioural Ecology of Sub-Saharan Freshwater Sperm Whale	
	Undergraduate level Unrelated core course 1; Unrelated core course 2; Unrelated core course (I and II); Good prof bad course; Too many profs spoil the course; Unrelated lab course; Unnecessary lab course; Inane course for engineering credits; Be- havioural anomalies prevalent in undergraduates (<i>Homo sapiens hypogradensis</i>) at the institute - An observational approach	
FELLOWSHIP	Kishore Vaigyanik Protsahan Yojana [KVPY-SA ⁵] <i>All India Rank : 351</i> Includes stipend and contingency	2013 Aug- Now
SCHOOLS CONFERENCES SEMINARS	FORIEGNAME - Centre for Really Advanced Pursuits (CRAP) - <i>Philosophy of Chemistry</i> Summer School - An undergraduate and graduate level school on mathematical chemical philosophy, by researchers from across India in relevant fields. <i>One among 108 students selected from across India.</i>	2017 Jun
	INDIANNAME - <i>Boring Essentials</i> 2018 - An intense training programme on open source boredom	2018 Apr
TECHNICAL SKILLS	<i>Programming languages</i> Can print “Hello World!” using Python, L ^A T _E X(Duh), C, R, H, E, L, O, W, and a host of other alphabets	
	<i>Statistics</i> Strong background with cherrypicking; Quantitative analysis of suspicious-looking superconductivity data ⁶ ; Basic techniques in data falsification, More filler, Lots more filler, Still more filler	

⁴Dept. of Totally Unrelated Rubbish, IISc
⁵This is why I don't have a Vijyoshi certificate from my first year
⁶I am still developing this skill

EXTRA- CURRICULAR SERVICES	<i>Computational skills</i> Data visualisation using FANCYLIBRARY , Data Analysis and visualisation in FANCYPROGRAMMINGLANGUAGE , expertise in a wide range of C libraries such as stdio.h , stdlib.h etc, methods in Scientific Computing because I took <i>that</i> course in 4th sem, successful delivery of computers at service centre	
	Pravega—Coordinator for activities in Biology Never mention Pravega in your CV. Ever. They will never find your body.	2016 Dec - 2017 Jan
	Served as the traditional Indian dormitory officer in charge of our venerated custom of annual biomechanically risky birthday celebrations	2015 Jan - Now
REFERENCES	Dr Interested Faculty , Centre for Unrelated Fields, Institute of Indian Sci- ence, Bengaluru, India Contact: intfac@iisc.ac.in	
	Dr Overbearing Faculty , Centre for Unrelated Fields, Institute of Indian Science, Bengaluru, India Contact: ovbfap@iisc.ac.in	
	Dr Easyto Impress , Department of Easy and Average Technology, Institute of Indian Science, Bengaluru, India Contact: easimpress@iisc.ac.in	
	Prof Big Shot , Department of Totally Unrelated Rubbish, Institute of Indian Science, Bengaluru, India Contact: bigshot@iisc.ac.in	

A Tete-A-Tete with **ADVENTURE**

'India On Our Mind: The Conversations' was a lecture series organised in the April of 2018, at Faculty Hall. The theme of the talks was one of adrenalin, discovery and above all, the human will to live.

So, Quarks caught up the speakers: S Prabhakaran, the first IFS Officer to scale Mount Everest and Tomy Abilash, the first Indian to complete a solo, non-stop circumnavigation under sail.

As Conservator of Forests at Koppal, [S Prabhakaran](#) became the first Indian Forest Service (IFS) Officer to scale Mount Everest, in 2016. This was after a failed attempt in 2015, when Nature's fury manifested as the Gorkha earthquake, during which he braved a close encounter with death, even as he was buried under snow due to an avalanche. He remained undeterred and his second forty-day climb culminated in history.

[Lieutenant Commander Abhilash Tomy](#) is the first Indian and second Asian to circumnavigate the globe under sails- solo, nonstop and unassisted. His five-month long journey aboard the INSV Mhadei ended with the Honourable President of India welcoming him back. Cdr. Tomy is a recipient of the Kirti Chakra Award, the Tenzing Norgay Adventure Award and the MacGregor Medal among others.



Wooing Everest

~Aditi Pujar, Ashwith Prabhu

For all his tales of might and impressive build, S. Prabhakaran is pleasantly soft-spoken, even as he narrates his experience courting adventure at the roof of the world:

Tell us about your early life and your journey in the Indian Forest Service.

I am from the Tiruvannamalai district of Tamil Nadu, where I did my graduation. After graduation, in 2011-2013, I underwent two years of training in Dehradun. Then, I was allotted to Karnataka. So, since 2013, I've been in Karnataka. I've worked in Coorg, Dharwad, Koppal, and currently, I'm in Kundapur.

What inspired you to take this path? You have previously said that mountaineering has always been your true calling, IFS notwithstanding.

That's true...Trekking was my hobby. From that point, I wanted to move ahead, I wanted to achieve something in it. A hobby shouldn't simply remain a hobby. Even music is a hobby. You need to think of what to do next in it. But I wanted to do something bigger, so I decided to take up mountaineering. And I never let anything stop me, not even my asthma!

In the first trek, you faced an avalanche. In

your second attempt, which was succesful, did you face any crisis?

So, I felt an earthquake twice, in Lukla, Tibet. We were in the 5th floor at a hotel there. The tremors were quite strong the second time. But otherwise, this time, the mountains allowed us to climb them.

During your first attempt, you survived being buried in an ice flash after an avalanche. You have since gone on record, hailing Lance Naik Hanumantappa Koppad a hero. What went through your mind during those minutes?

Honestly, I couldn't think much...only of family



and friends. I remember thinking why did I have to come here and die. Then again, I was under the ice for two minutes. Koppad was buried under the ice for a week! I salute him.

About the second climb itself: you chose the north route instead of the south, though it is considered more difficult. What was this based on? Did your previous experience in the south route influence your decision?

Yeah, that was the primary factor. At first itself, we decided to go north because we didn't want to go and sit in the same place(s) again (in the south route). I had already experienced that nightmare...so going and sitting at the south side would be difficult.

Also, by the time I got organizers, I had enquired and analysed which is better. Though it (the north route) is more difficult technically, it is better to do it since you get acclimatized to the base camp. Then, I convinced myself that even though it is tougher, it's only so in the last phase. Till we reached base camp and advanced base camp, till then, we could save energy. So, I decided to go to the northern side.

The team had people from very diverse professional backgrounds, so how does a mountaineering team form? What is it on the basis of?

Mountaineering...Once you start, people will be very inspired about mountains. Nowadays, people have a lot more exposure about mountaineering, treks, and all that. So, mainly organizers contact different people and they form the teams. So, once you get into the team, what is remaining is to gel with the team members.

So, you do not know your team members beforehand. How does team spirit build?

Yes, various people will approach the organizers, and they will make the teams. This team, say, will have ten members, of whom only one or two will be known to you. The rest of them will be new. You'll be meeting them for the first time. So, for the next sixty days, you're going to be with them. The team has to be built properly. Team strength (is very important)...Together, we have to work, otherwise, if there's politics, it spoils the climb. You have to be happy. They say, the more you laugh in the mountains, the better you feel. As you laugh more, you feel lighter, you take in more oxygen. So, your success depends on your team. In good times and bad times, your team should be there, with you.

Any particular moment of daredevilry that has stayed with you?

Not exactly daredevilry, but there was a moment when my heart was in my throat: during the climb, my teammate collapsed. We gave him some first aid and we had to bring him back. Then another two team members who were late got stuck and couldn't come back. They were on the highest camp. Luckily, they got oxygen bottles. So, we were waiting for them...we didn't know if they were safe, whether they would come back safe. They came back a day later. So the wait for our team members, not knowing when or if they would return was thrilling and worrying.

Even as we probe about his future plans, he is evasive. Instead, he concludes with characteristic enthusiasm, and perhaps a touch of nostalgia creeps in:

"Whenever you go for mountaineering, you know, you always feel like going a second time. That's the power of the mountains."

It's a Small World After All

~Adit Vishnu, Ansh Kuhikar

Lt Cmdr Tomy is simultaneously a great story teller, yet laconic, a rare bluntness coupled with a wry sense of humour, as we circumlocute through his circumnavigation:

At the very end, how did it feel being received by the president? Did you know you were being received?

I knew he was coming to receive me because they were asking for my date of return two months before I came and they said they were planning on inviting the president.

But the thing is, at that time I was quite zoned out, I had a blank head, so at that time I didn't understand the significance of the event. Later when people were like "Oh, this guy was received by the president!" I realized it was quite an honour.

What was a typical day on the Mhadei?

If nothing much is happening and it's not a bad day then you wake up with the sun. Then you make something to eat and do your meditations. At 7 you get your weather report and decipher it and send it to naval headquarters after which you walk around the boat and plan what you want to do for the day. At noon, you make a navigational recording. At 1 is lunch and you can do what work you want to after that. At 7pm you will get another report.

Decipher it and send it back at 8. Have dinner. At night you generally don't do anything because you don't want to work. And whenever you get free time you catch up on some sleep.

How did your thought process change over the

course of your journey?

All of your learnt behavior gets removed from your head. Feelings of guilt and morality undergo a dramatic shift because you are alone. Guilt and morality are emotions that you process every day with the people around you. When isolated, you aren't practicing these emotions and hence you tend to forget them.

That is the biggest change that I noticed.

You were in isolation for 150 days and in the Tehelka magazine, we read about the media onslaught you faced. So, our question is, would you prefer the fame or the isolation?

Isolation is better.

How did you deal with the isolation? Are you an introverted person?

No, a psychology test revealed I was neither introverted nor extroverted. Somewhere in between. But I'm neither antisocial or very extroverted, I can tolerate society for some time.

Did you have any hallucinations or dreams?

No hallucinations. But the thing is when you're highly stressed you go from wakefulness to REM directly then come out of it directly and become awake. Regular sleep is wakefulness, then sleep, then REM, sleep and then wakefulness. Since the sleep pads the REM and you can't remember



the dreams. At sea, as there is no sleep padding between REM and wakefulness, you remember all your dreams.

How were you able to distinguish dreams from reality? Did they seem to blur into one?

No, I could tell them apart.

How did your family feel about your trip when you told them you were going to solo circumnavigate the earth?

They had a lot of issues, they couldn't figure out. In my school days, I had cleared both medicine and engineering examinations, both top 500 in the state (Kerala). When I decided to join the navy, all my friends thought I was crazy and my parents were like what's wrong with you. I then

decided to become a pilot and my friends said I shouldn't do it, "It is like ending your career". After becoming a pilot, I started sailing and then my parents said,

"What's your problem-why are you sailing-you can continue flying and become an airline pilot when you retire" and so on. People have always been having problems with me.

How did the journey physically affect you?

I lost about 15kgs, my hair became bleached. My skin peeled off, became bleached. I suffered bruises too but they healed very quickly.

Being only the seventy-ninth person to ever solo-circumnavigate the earth you must have a very unique perspective on the true size of the

earth.

I think the earth is very small. That's what I feel. Earlier when you're a kid every place seems so far away but when you go around the earth you feel like it's a very small place. Sometimes I feel like running away, but if you want to hide, you can't because it's so small. Where will you go? Where will you hide?

Did you have any fear before the trip?

No, no fear. My only fear was that someone would come to me and say, "You can't go" without giving any reason.

What of your preparations for the Golden Globe Race that is going to happen in July?

My biggest preparation is the boat, I've been putting a lot of effort into getting a good boat. It is from a 1923 model. After getting the boat in shape my next big effort has gone in getting the navigation part sorted.

Are you allowed an RO system on the Golden Globe Race?

No, no RO system and no water bottles even. I'll have to manage with rainwater.

As you said the ship you will use for this Race is an older model and you cannot use any technology that was invented past 1969 did you have to relearn some of the things?

Navigation is what I have to relearn. Navigation is very challenging if you want to do it without the use of a GPS.

What was the most challenging thing about your solo circumnavigation?

Not too many, no surprises. So it all went according

to plan.

What is something you will never forget about your trip? Any especially memorable moments?

Oh, there were too many. One night where the sea was bioluminescent and two dolphins were swimming in front of the boat and they were leaving a florescent green trail behind and it was very surreal. And then you get to see the entire Milky Way in March in the Indian ocean.

And on that enigmatic note, he waves us off; lost, no doubt, in his own sea of thought.

மறைத்தாய்

ஒளியணு காணின் உன்னொலி அறிந்தேன்,
முத்தாய் நீயென முப்பொழுதும் மகிழ்ந்தேன் ;
மழலை மறையின் பதின்கர்வம் கண்மறைக்க,
அறத்தாயே உன் மண்ணன்பு மறந்தேனோ !

ஆதினத்திரு குறளாய் சுயவொழுக்கம் கற்பித்தாய்,
பகுத்தறியும் விடுதலையாய் சுயமரியாதை விதைத்தாய் ;
மானுடம் காக்குமிறை வன்சாதி நஞ்சுமிழின் ;
கருநீல மேகமாய் சமத்துவமாரி பொழிந்தாயோ !

அகரமிட்டு மையாயுத வலிமை கற்றேன்,
முகரமெட்டு தினம்கேள் இலக்கியத் தேனுண்டேன் ;
யாழ் பான(ண)மருந்தின் குருதியாறு கண்டாயோ,
வல்லின மெல்லினமெரிக்க இடையினம் காக்க மறந்தாயோ !

அறமெனும் மொழிபெயரா வாழ்வியலீன்ற செம்மொழியே,
வீழ்ந்தும், புதைந்தும், முளைத்தும், எழுந்தும்,
ஆண்டோர் மாய எம்முயிர் காத்தாயோ,
செந்தமிழே,
உன் உரிமைக்குரலோங்க விடுதலை காணமாட்டாயோ !

- வி செ மனோஜ் குமார்



The Importance Of Being Earnest

~Aditi A Pujar, Divyoj Singh,
Bhoomika A Bhat, Akshara
Sharma, R Bangari

Life at IISc is a vibrant fabric in which the threads of so many lives come together. To us students, if “all the world’s a stage”, no longer is a teacher the only central character in our daily lives.

From being saved at the brink of starvation by the Tuck Shop or printing out entire lab reports (which are all virtuously original, with no manipulation of data, of course) at the Campus Xerox Centre, we’ve seen it all; done it all. But despite all the times Kabini indulges our laziness to walk all the way to mess, and the Cycle Repair Shop is our salvation, we often hurry past the people who make it possible. The sheer amount of time they might have spent in the haven that is IISc, the stories they might be teeming with, is overlooked.

So, this year, Quarks decided to do exactly that: we ferreted around after these guardian angels, (annoying them to no end), only to stumble upon story after story; reminiscence upon reminiscence; life upon life.

Mr. Seetharam: Tuck Shop Owner

Mr Seetharam is literally the one true knight-in-shining-armour to all undergraduates in distress. One of the most famous people among the UG populace, Seetharam aka. Tuck Shop Uncle, started off with his business at IISc about 10 years ago. A resident of Bangalore for nearly 16 years, he has seen the undergrads right from the beginnings of the program.

Taking off only on Sundays and in case of some unexpected emergency, Mr. Seetharam has all the essentials that students need, as he himself says, “I have everything from pins to pens.” He says students who study till late in the night and end up missing their breakfast (read every UG student ever) usually come to his shop, and so he always keeps fresh stock of sandwiches and burgers. For the convenience of his customers, who are majorly students, Mr. Seetharam accepts not just cash but also online payment; moreover he is affectionate enough to let students buy on credit.



With a good expertise in Kannada, over years, he has learnt English, Hindi and a bit of basic Bengali, Telugu, Tamil and Malayalam and spends his free time reading newspapers or books. As a hobby, he practices Palmistry and Astrology. The Tuck Shop is indeed an oasis for us hapless, hungry (not to mention, broke) undergrads.



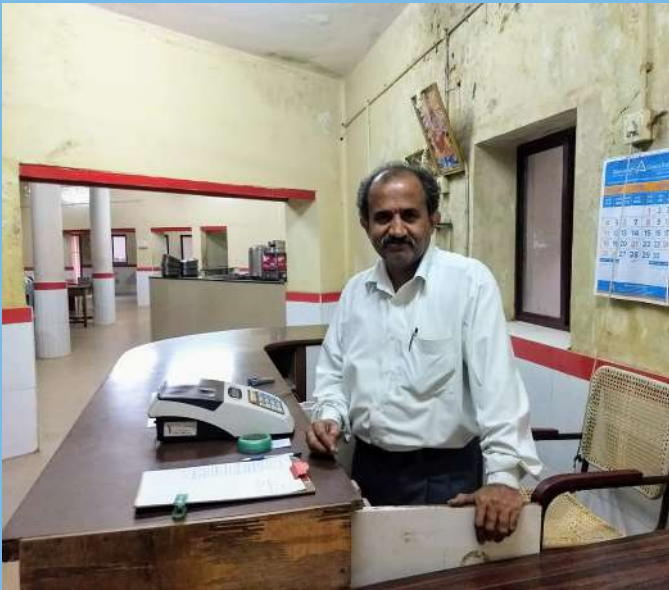
Mr. Narasimhaiya: Cycle Repair Shop Owner

As students of IISc (ahem - motorised vehicles are banned - ahem), we simply cannot do without our cycles or cycle servicing. For the past six years or so, Narasimhaiya has been here for us every day of the year. Native to Bangalore, cycle repairing became his profession by tradition. His thirty-five years of experience in the profession notwithstanding, Narasimhaiya feels privileged for having his business at IISc. While he stays engrossed in his cycles all day, he enjoys interacting with his customers, especially the students. He is a perfectionist and admits that he takes more time to service the cycles for the same reason.

While he sometimes feels he could have had a more flourishing business elsewhere, he considers being at IISc a privilege, and says the job satisfaction here is unparalleled.

Mr. Ravi: Kabini Canteen

“You can never spend more than Rs. 100 per person at Kabini” is a dictum of the holy scriptures. Kidding of course, but it is a universal truth no less. The canteen has been running for around eight years and has served everyone; students and staff alike. In the manager, Mr. Ravi’s own words, “it is one of the places where you get good food at an extremely subsidised price. Despite a limited menu, it remains one of the most popular student eateries.” For all the times we did not want to walk to mess for meals, for every curse we have hurled at the geniuses who planted the messes so infernally far away, Kabini is our solace.



Mr. Janardhan: Notebook Drive

Starting 14 years ago, Mr. Janardhan has helped Notebook Drive every year by driving his rental truck out to schools to distribute notebooks to local schools for the underprivileged. Covering up to 10 schools per day, he is a shining example of how the aam aadmi make a difference to another human life. “We’re given a list of schools every day, along with the books to be delivered by NBD. We just plan out our route so that we hit each school within their session timings and finish the distribution as quickly as possible”, he says. “Even if we get higher pay, even ₹10,000 elsewhere, I always bring my truck here first during that week, regardless of the fare.” He has even delivered computers to schools in the previous years, amongst other material for the benefit of the school children’s education. His collaborative efforts with the NBD are truly invaluable.

Mr. Mohan: Grocery Store

Mr. Mohan runs the General Stores at the Sarvam Complex. While the complex still smells of fresh paint, Mohan has been associated with IISc right from 1991. Previously a member of the Defence Forces, upon retirement in 2002, he had a two-year stint as the Manager of Operations at a security MNC. He then took over running the General Stores in 2004 and has been here, every day of the week, ever since. At the military, not only was he in charge of the canteens, taking care of massive amounts of expendables and the subsidy they were privy to, he was a war OT (operation theatre) Assistant. He would therefore help out during surgeries at military hospitals and has seen more than his fair share of blood and gore. Yet, despite working in shifts, and under tremendous stress, he is very proud that, “we never said no to any patient, civilian or army man in need, no matter how desperate our condition was.” Then, at the security company, he would arrange for the same at different events as per the clients’ requirements; with a bit of fire-fighting thrown in- “just your average nine-to-five job”, he chuckles. The defence mentality, however, remains very much alive in Mohan. He is the good Samaritan, the guardian angel not only to those in the Complex- the dry cleaners, the courier office, the cleaners and sweepers, but also to students. In his many years of service, he has gone above and beyond the call of duty, helping out students (especially non-localites) in any way he can: from helping get slippers and electric kettles repaired to helping them find accommodation outside campus and purchase vehicles! “Relationships



are built this way”, he smiles. One instance stands out from the rest: On the average day, he closes his shop to go back to a bit of well-deserved rest at 9:30. That particular day, a couple of students approached him at around that hour, asking for some medication. Knowing that the pharmacy would be closed then and seeing the urgency of their need, he set out to buy it himself, zooming straight to Yeshwanthpur, with no hesitation. He was even pulled over by the cops for not wearing a helmet: “I paid a fine of two hundred rupees so the student could get her medication worth ten rupees”. Moreover, this epitome of kindness is also very dedicated as a shopkeeper: if he is out of stock of any product, he ensures to get it in time and notifies the student of it too.

Mr. Ravichandran: Xerox Centre

While Ravichandran has been at IISc, for more than three decades, the Campus Xerox Centre has only (only!) been running for the past twenty years. He started out as a draftsman, (after having completed a year of apprenticeship at the BEL) at the Electrical Engineering Department. He then had a two year stint at the JRD Tata Memorial Library whereupon he was encouraged to open a Xerox Centre; it was sorely needed.

The tidal waves of change he has seen “are not little, it has been change upon change”. He starts with how almost everything is now electronic and automated, rather than manual and walks us through the analog-to-digital revolution. “Every technology (from the glory days of the typewriter and liquid Xerox to those of floppy disks, CDs), every process has undergone a drastic shift.”

Simply in terms of manpower, at the beginning, Ravichandran employed twelve to thirteen operators. This was required as the facilities were so primitive; something as simple as back to back printing had to be manually fed twice and inverted. Ten copies would have to be printed out manually as many times. “Technology has now advanced such that a single person can handle three to four machines- in fact I handle as many myself” he chortles.

Then with a sombre expression, he says “As a result of all these advancements, a student’s thesis gets printed, bound and done with in a span of two hours. Back then, it would be a two month affair. A real relationship would develop with each student.”

Even as he speaks, a student gives her thesis on a pen drive and asks him in broken Kannada if she can collect it the next day. He replies in the affirmative (in perfect English, might I add) and out she walks.

He continues, the nostalgia heavy in his voice, “They (the students) would bring a couple of pages each day, handwritten. They would sit with me and dictate as I keyed it in, rectifying mistakes along the way. They would then go back and show



the day’s draft to their professor, get it corrected. Then return the next day with edits and more pages to key in. Once the final copy was keyed in, they would get multiple Xeroxes of it.”

He speaks of the trifling troubles they faced too: for the cover page of the thesis, they required “glossy” papers called dressing sheets that were only available with a vendor outside campus; getting the cover printed was a three day affair. Moreover, different fonts were not possible as all the typing was done with one typewriter; one need only look at old documents in the library archives for evidence.

He then speaks of how mathematical symbols were printed, a slightly cumbersome matter to this day. It is in equal amounts both, appalling and amazing. In the typewriter, there would be a feature to insert different “wheels” containing various special symbols. A Dizzee wheel was one that contained mathematical symbols. So, for a simple ‘ α ’, one could either write it out manually



everywhere it appeared (for brackets, this was the only option), or even more painstakingly: type it out multiple times with the wheel, cut each one of them out into tiny pieces and paste it everywhere it appeared.

He then goes on to speak about typesetting, hailing LaTeX (“your generation is so privileged, you even have some software to format your stuff for you!”), while reminiscing about how it used to be: initially in typewriters, there was no right justification, neither was there any proportional spacing between the letters, i.e. the letters ‘i’ and ‘w’ would take the same amount of space. This increased the paper usage by almost two times. Moreover, pasting bits and pieces like the aforementioned ‘ α ’ added to the overall bulk of a document.

The sheer human labour leaves us incredulous. The above begs the question, what did one do for graphs back then? Ravichandran is a trained mechanical draftsman; he would therefore take the rough scribbles students would bring and draw a neat, proportional graph by hand. Multiple copies would then then taken via Xeroxing.

In such cases, he also used stencils in a technique called stencil cutting and duplicating to trace out alphabets onto the graph (they couldn’t be keyed in with a typewriter). Requisite “slots” (silhouettes) would be cut out; rolled up and ink passed through.

He then says, with pride strengthening his voice,

“I must have seen thousands of theses in my life so far, so intimately. I would even be acknowledged in the document. So many students have now become big professors and hold prominent administrative positions. Many of them even come back sometimes, make small talk. You see, they do not forget.”

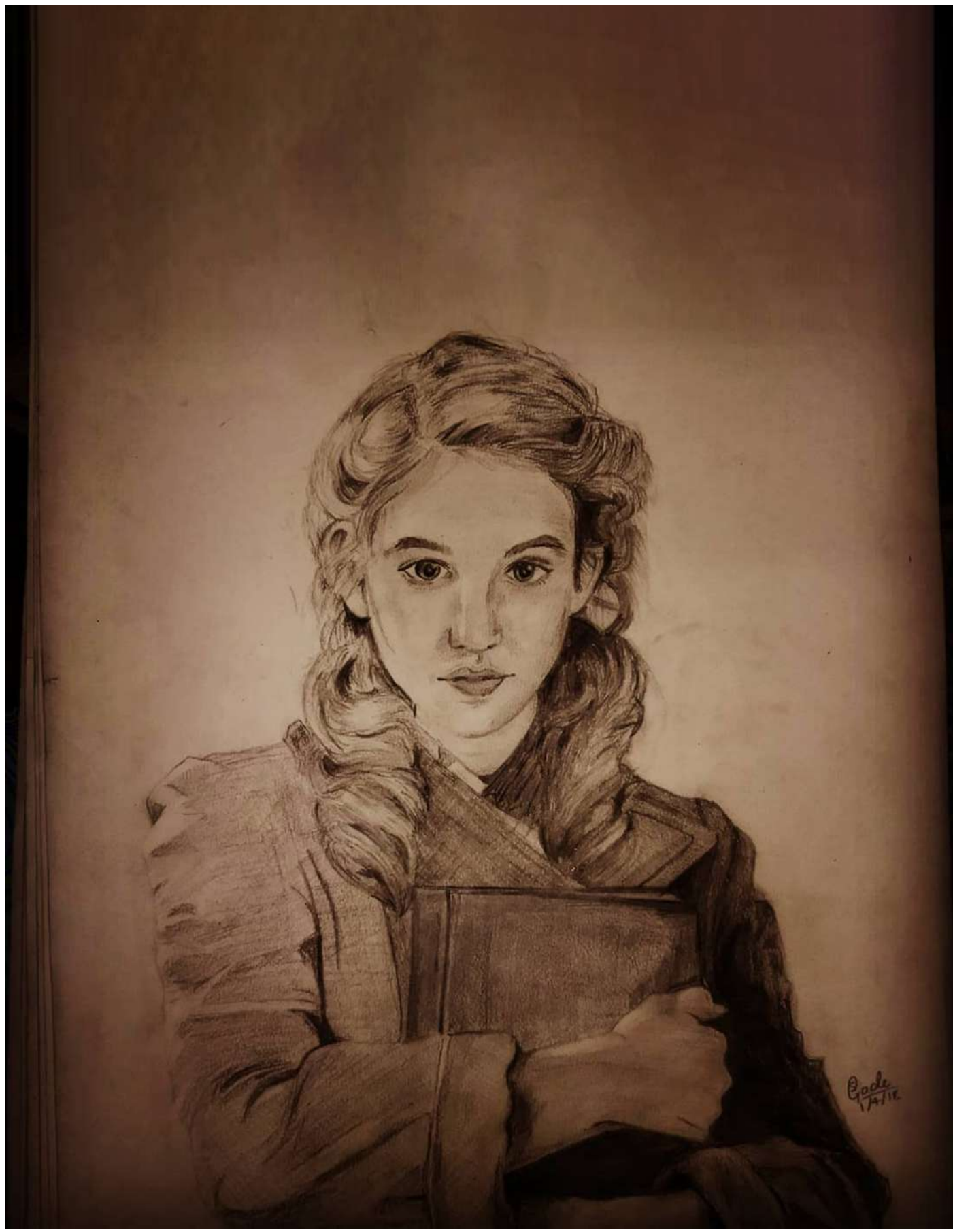
From when he was working well past midnight as a draftsman at Electrical Engineering or slaving over a student’s thesis to handling four machines single-handedly, Ravichandran’s single-minded dedication to his work is very apparent. It has even rubbed off on his assistants too; “the boys are so sincere that they are reluctant to take off even on festivals and holidays”.

He then takes a trip down IIScian memory lane: “The IISc of thirty-five years ago was very different. There was only one tiny hostel for women then. Initially, we set up the Xerox Centre at Gymkhana. But then on popular demand”, he grins, “we moved to a more accessible place: Union Office, near Nesara. Then, twenty years ago, we moved to this location.”

Like every baby boomer, he too takes a minute and goes on the “aaj kal ke bacche” rant. He speaks of the increasing impatience in Gen Y. He laments the loss of skill too: of penmanship and artistry- “especially as a draftsman, it is saddening to see this. We used so many instruments, for so many different types of drawings: isometric, orthogonal... It is all obsolete now, in a time when everything is increasingly being taken for granted” The wistfulness is still apparent as Ravichandran yet again says “we used to work together with the students. I literally and metaphorically had a hand in their theses. Four hours a day would be devoted to solely this. Students would often take me out for a stroll and some tea at the end of a day’s grueling work”. Even as he speaks, he is finished with binding another manuscript.

“Well, this is how your Campus Xerox Centre has come to be. This is how I’ve spent my whole life: at IISc.”

Art by:
Simran Gade
3rd Year



Art by:
Pratyusha Madhnure
3rd Year

Art by:
S Sriram
2nd Year



Sukanya M.
May, 2018



Art by:
Sukanya Majumder
2nd Year

EPITASIS



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RAMBLINGS ON EPISTEMOLOGY, SCIENCE, AND COGNITIVE BIASES

Raj Magesh &
Julian D'Costa

Vignette #1

You're crossing the road, biting into a Subway® Double Chocolate Chip cookie, relishing the indescribable mix of flavors delighting your taste buds. Everything about the cookie is gorgeous: the vibrant brown hues, the warmth as it melts in your mouth, the delicious scent of butter wafting into your eager nostrils – even the satisfying crunches it makes as you munch down in sheer joy. Your eyes roll up involuntarily, and you moan in decadent satisfaction. The cookie is bliss; you are in Nirvana.

And then a truck slams into you.

Your cookie falls to the ground in slow-motion, tumbling... tumbling...

Your eyes shoot open and you gasp wildly, adrenaline spiking through you. Your body is drenched in sweat, chest heaving for breath. It was just a dream, you think to yourself, silently relieved. When you finally feel the restraints on your neck, wrists and ankles, the relief shatters. This isn't my bedroom... Where am I?!

Harsh fluorescent lights flicker on, and you see the silhouette of a man hovering menacingly over you. As you blink in incomprehension, he reaches out a practised hand and deftly begins removing electrodes from your scalp, placing them in a saline bath by the bed. His movements are quick and efficient; he's done this hundreds of times before. Fear clogs your throat.

"Who are you? Why am I here?" you rasp, throat dry.

"Hush, my child. Don't worry. You won't remember a thing..." murmurs the man, running a hand lovingly through your hair. A hypodermic needle glints menacingly in his free hand. You feel a sharp jab. As you drift into unconsciousness, the last thing you see is the man's name-tag, pinned neatly to a green apron decorated with cookies of all shapes and sizes.

Jared, Subway® Advertising Department.

Only one thought runs through your head. The cookie was a lie.

Epistemology

How can you trust your senses? If you've ever been sleep-deprived, drunk, or high on LSD, you know that your brain can play tricks on you. Paranoia, schizophrenia, hallucinations: popular culture is chock-full of references to psychiatric disorders that can make you see things that aren't there, hear voices that don't exist, and converse with people who are long dead.

As a society, we have a perverse fascination with the mentally ill: we point and laugh at the asylum escapee on the streets raving about the giant pineapple in the clouds, whilst giving a silent prayer of thanks that we are not so afflicted.

I ask you this: how are you so sure? What gives you the supreme confidence, the sheer unmitigated hubris, to claim that your experience of reality is more valid than that of the Giant-Pineapple-worshipping madman? Ask him, and he'll claim with the utmost gravitas that the rest of the world is blind to His Fruitiness and he has been Chosen to be His sole prophet, the only one blessed to hear His Juicy Voice.

To him, you're the mad one.

René Descartes, the French mathematician and philosopher universally hated by all students studying coordinate geometry, postulated an "evil demon", an omnipotent entity that could control all your sensory inputs and completely alter your perception of reality. Jared the Demon could make you think you're stuffing yourself with delicious cookies all day long while in reality, your body is one of thousands of enslaved automatons used to mine the Chocolate Caverns of Baghdad.

This ~~delicious~~ terrifying thought experiment of Descartes was once a mere whim: after all, who believes in evil demons? Today, however, Jared the Demon doesn't seem all that impossible. Virtual reality (VR) and augmented reality (AR) technologies, though still primitive, are improving by leaps and bounds. At some point in the future, such simulations will almost certainly become indistinguishable from reality. Given the possibility of such hyper-realistic simulations (à la The Matrix), can you claim, with 100% confidence, that the reality you are experiencing is the "true" one?

In fact, who's to say you're not already plugged into one of these machines? Maybe everything you know to be true – your family, your friends, your entire world – is artificial. How can you know anything for sure? Are we to throw our hands up in desperation

and claim that reality is inherently subjective? Should the Giant-Pineapple-Prophet's beliefs be given equal credence as yours? After all, in principle, you could both be equally right.

Epistemology, the branch of philosophy that studies the nature of knowledge, seeks to address such questions. The answers are, unsurprisingly, contentious even among philosophers. Despite all these unsettling hypotheticals, you don't muddle through your day worrying about whether your existence and experience of reality are real in any meaningful sense, do you? Often, the best answer to such questions is a working definition.

No, we do not accept that reality is inherently subjective! No, we do not accept that the Giant-Pineapple-Prophet is right! We postulate, axiomatically, the existence of an external objective reality independent of the internal subjective reality shaped by our individual experiences. This is an assumption. There is no a priori reason for me to deny our Giant-Pineapple-Prophet his delusions, but I do anyway, because assuming an objective reality makes life really interesting!

Philosophy of Science

Why am I rambling about this? This isn't the Indian Institute of Philosophy. You're reading Quarks magazine, not Quacks magazine (though the Editor-in-Chief might secretly be a rubber duck!). All I've concluded thus far (arbitrarily) is that reality exists. A meme connoisseur would surely respond: "Such impressive, much wow". But this assumption of the existence of empirical truth is the backbone of the scientific endeavor.

Science is the attempt to understand our empirical reality by building accurate models of the universe. We modern scientists are the counterparts of the ancient cartographers who sailed the uncharted seas and created beautiful, elaborate maps to reflect the virgin territory they explored.

Again, we make implicit working assumptions to make progress. We assume that the universe follows natural laws, and that Jared the Demon is not actively messing with our superconductivity measurements. We assume that these laws don't change unpredictably. We assume that our subjective experience of reality is a reasonable map of the external territory – that our senses and brains, despite their flaws, catch glimpses of the true world. As our model of the universe improves, our beliefs align better with reality.

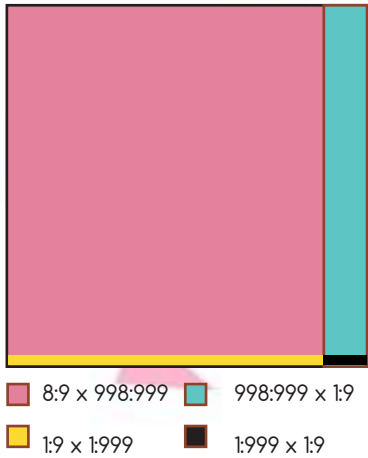
Beliefs? There’s no room for subjectivity in science, you may scoff. Belief, here, is used technically: our belief in the proposition that X is true is represented by a value in the open interval (0, 1). This is the Bayesian definition of probability, where the probability of X is our degree of confidence that X is true, given available evidence. This “belief” is not subjective: given new evidence, there is exactly one correct way to update beliefs, based on the laws of probability – Bayes’ theorem.

Bayes' Theorem

$$\frac{\text{Prob}(\text{hypothesis true} \mid \text{given evidence})}{\text{Prob}(\text{hypothesis false} \mid \text{given evidence})} = \frac{\text{Prob}(\text{evidence seen} \mid \text{given hypothesis true})}{\text{Prob}(\text{evidence seen} \mid \text{given hypothesis false})} \times \frac{\text{Prob}(\text{hypothesis true})}{\text{Prob}(\text{hypothesis false})}$$

Cancer test example: 10000 people, **Base Rate** = 1/1000, **Test Accuracy** = 90% both ways

New odds = Old odds x Weight of evidence



The more careful reader would have noticed a glaring omission in our definition: we have excluded the points 1 and 0, corresponding to the binary TRUE and FALSE. Does that mean we can never unequivocally state that X is true or that Y is false?

Yes! This is a direct consequence of the fact that we are working from a position of incomplete knowledge. Even the statement “This is an apple” cannot have probability 1 despite the red object looking like, smelling like, and tasting like an apple, because we can’t rule out the infinitesimal possibility that Jared the Demon, is messing with you.

Only the Sith deal in absolutes.

This is a restatement of the aphorism that in science, you can’t prove anything. Nonetheless, you can be pretty Pineapple-damned certain that something is true: P(X) = 0.999 is good enough for all practical purposes!

If all this was obvious to you, or perhaps a formalization of something that was already intuitive, that’s good! The next step is using this framework to actually understand reality: the scientific method.

Vignette #2

Four thousand years ago, in Ancient Greece, ALEX and HELEN are standing on a cliffside, admiring the sparkling blue waters of the Mediterranean. Their marriage – sixty years ago to the very day – had surprised the entire community. Two philosophers, marrying? Those stooges wrapped up in their dusty scrolls and enraptured by hours upon hours of tedious debates? Hah! No way! But their wedding had proceeded without a hitch (well, besides theirs), and their bond had only grown stronger as the days went by, like a tender sapling maturing into a solid oak.

ALEX: Your beauty invigorates me, dear Helen! Like the fresh ocean breeze on a sweet summer day!

HELEN: *[cocks an eyebrow, smiling]* Are you sure that’s not just the fresh ocean breeze you’re feeling, Alex?

ALEX laughs, then picks up a conch shell from the ground. He presses it to his ear, listens for a moment, and passes it to Helen.

ALEX: My dear, tell me, why do you think we can hear the sound of the sea in conch shells?

HELEN: Why, Lord Poseidon’s generosity, of course! The spirits of ancient Water Nymphs who fought bravely during the Titan War rest within every seashell, with Poseidon’s blessing. What we hear are the remnants of their voices, echoing through the deepest recesses of our souls.

ALEX: *[shakes his head]* You must be joking, Helen! After all, all voices that we hear come from the air, the domain of Lord Zeus. The rumbling of thunder, the crack of lightning! The sound we hear in conch shells must be the resonances from the souls of the Wind Aerae who helped Zeus during his struggles.

HELEN: Hippocampus droppings! There’s no way that we could hear the sea in a conch shell because of Zeus. Poseidon would never stand for his brother usurping his domain!

ALEX: No, no! All you’re hearing is the wind, Helen, and mistaking it for the sea! Think for a moment, there’s no water in a conch shell. How could Poseidon have any dominion there? Air, on the other hand–

HELEN: *[crosses her arms]* Don’t you tell me what I do or do not hear, Alex, do you hear

me?

ALEX: *[mouth agape]* Hades , woman, you’re impossible!

The sound of metal-shod hooves rings against the stony path up to the cliffside. ALEX and HELEN whirl around. A twenty-foot-tall CYCLOPS trots in on a Giant Wooden Horse that sounds remarkably hollow. A giant Band-Aid covers the left half of his eye and a web of scarring can be seen extending beneath. ALEX and HELEN wince in sympathy. The CYCLOPS dismounts from his Trojan steed and walks forward, leather boots thumping loudly on the rough-hewn stone.

CYCLOPS: Greetings, mortals! It is I, Polyphemus, King of the Cyclopes, and I am in the pursuit of a scoundrel with shifty eyes and a silver tongue. Hast thou seen any such man, perchance?

ALEX: *[stammers]* King Polyphemus, N-n-nobody has been this way.

POLYPHEMUS: *[elated]* Nobody ? It is him! At long last, after so many fruitless summers, my search is ended! My revenge shalt be sweet!

A hastily-aborted chuckle comes from POLYPHEMUS’ great steed, though its face remains wooden, immobile. ALEX’s eyes flick to the horse. POLYPHEMUS appears not to have heard. A panel on the neck of the horse slides up noiselessly. From within the horse’s body, ODYSSEUS raises a finger to his lips, eyes twinkling with mirthful laughter.

ALEX: Uh-

POLYPHEMUS: Tell me, dear mortals? What is your heart’s desire? Riches beyond compare, gold and diamonds trickling like waterfalls? Fame everlasting, your name sung by bards across the realm?

ALEX: *[blinking]* King Polyphemus, you honor us with your generous offer. Alas, we are but humble philosophers who seek nothing but the wisdom of great minds. We would seek your wisdom in resolving a minor disagreement between my wife and I.

ALEX sneaks a glance at HELEN. She rolls her eyes, feet tapping impatiently, but raises the conch shell to POLYPHEMUS. He peers down curiously at it.

HELEN: Do conch shells house the spirits of Poseidon’s water nymphs or Zeus’ wind aurae?

POLYPHEMUS: *[blinks and straightens]* Well... I suppose... Posei- Zeus? I really don’t know, actually. My History tutor never covered this.

ALEX and HELEN sigh, and glare at each other.

POLYPHEMUS: *[brightens]* Wait! I know how to find out!

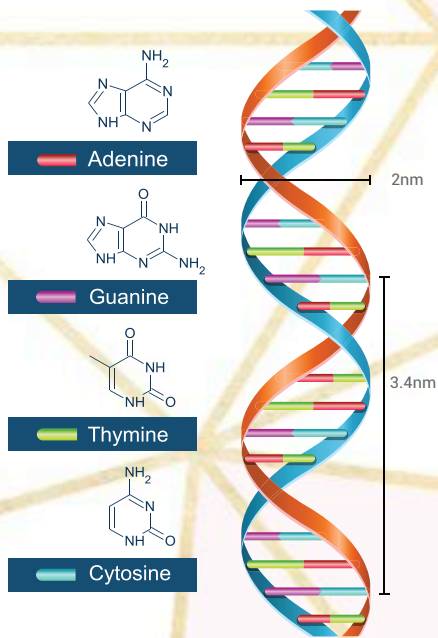
POLYPHEMUS plucks the conch shell deftly out of HELEN’s outstretched hand and crushes it within his palm. A cloud of chalky dust emerges from his fist. ALEX and HELEN stare, uncomprehending.

With a resounding crack, a bolt of silver lightning races down from the heavens and slams into POLYPHEMUS, who wears a surprised expression. As his corpse topples to the ground, a gigantic waterspout emerges from the ocean, rises up to the clifftop and deftly pulls the cyclops into the sea. ALEX, HELEN and ODYSSEUS stare at where POLYPHEMUS had stood a scant minute ago, unblinking.

ODYSSEUS: *[from inside the Trojan horse]* What. Just. Happened.

ALEX and HELEN look to each other, eyes wide. Then, they race back to town, whooping excitedly. Finally , something they could publish in Nature.

The Scientific Method



1. Question. What is DNA shaped like?
2. Hypothesis. Helical
3. Prediction. X-shaped diffraction pattern
4. Experiment. Photograph 51
5. Analysis. Build models, phosphorus on the outside.
6. Iterate. Falsify, retest
7. Communicate

Cognitive Biases

There's an oft-cited cautionary tale about making erroneous conclusions despite collecting good data.

A froggologist is investigating the sensory systems of well-trained frogs. He begins his experiment: placing a frog on a table, he barks the command, "Jump!" and the frog leaps up three feet into the air! The froggologist meticulously notes this down. Now, he grabs a pair of shears, snips off the frog's front legs, and barks "Jump!"

Tears streaming from its eyes, the frog jumps up two feet into the air. The froggologist notes this down too. Dispassionately, he cuts off its rear legs, and barks "Jump!" but the frog doesn't move. He repeats himself, louder and louder, but the frog simply does not jump any further. The froggologist rubs his chin excitedly and concludes: "Upon surgical amputation of all four legs, the frog becomes deaf!"

Where did the froggologist go wrong? He'd trained at the best scientific institutes in the nation. He'd learnt all about frogs: their anatomy, their physiology, what kind of flies they loved to eat and even how to train them to respond to voice commands! He had followed a precise experimental procedure. He had replicated his experiment over a hundred times with different species of frogs, frogs trained in different languages, and even different knives! His p-values were well below 0.05 and he had used MATLAB to plot complicated fits to his data. He'd done everything right!

But lest we laugh at our dear froggologist, we first have to understand our own cognitive biases. Cognitive biases are systematic errors in reasoning. Unlike random errors, systematic errors are insidious: collecting more data will increase your confidence in your erroneous result. If you think that legless frogs not jumping oncommand is indicative of deafness, repeating your experiment and calculating p-values is not going to help.

As the name suggests, cognitive biases arise from our underlying cognitive processes. Our brains evolved in an ancestral environment where quick decisions meant life or death. If you spot something orange moving through the grass, you don't pause and calculate the probability of it being a tiger considering the time of day, your location and feline mating habits – you hightail it out of there! Humans are remarkably good at making rapid yet accurate heuristic judgments but this ability comes with the price of making systematic errors of several types.

Seems abstract, doesn't it? From inside your head, everything you do always seems

sensible enough. No one ever thinks they're behaving irrationally and this lack of self-awareness can come back to bite you in the rear. Cognitive biases have been studied by psychologists for decades in the role of human decision-making, creating a vast body of literature illustrating exactly what traps humans are likely to fall into.

Here we present a carefully-curated collection of cognitive biases and suggestions for avoiding them. Please note that reader discretion is advised: the authors are not liable for any loss of limbs, illusions or dignity.

Confirmation bias

"People put a lot less effort into picking apart evidence that confirms what they already believe." — Peter Watts, *Echopraxia*

As his severely-insulted wheelchair-bound colleagues pointed out, our froggologist had assumed that the only reason his beloved frogs would fail to obey their God was that they couldn't hear him. All his experiments were designed to confirm his hypothesis and never once disprove it. In science, testing a hypothesis always involves trying to falsify it. The more you fail, the more likely your hypothesis is to be true. In our froggologist's case, he could have simply ordered his frogs to croak twice if they loved Jesus – or for the atheistic frogs, if they loved flies! We suggest dealing with your own confirmation biases by assuming that your opinion on any issue is wrong and trying to figure out why that might be the case post facto. Once you think you can handle this, check out the 2-4-6 puzzle!

Scope insensitivity

"A single death is a tragedy, a million is a statistic." — Stalin

Stalin had commendable self-awareness, despite being a terrible human being. If you're being stalked by lions in the savannah, the difference between one lion and ten might be huge but the difference between a thousand lions and ten thousand is negligible – you'll die anyway. We just can't appreciate the bigness of big numbers because we never really needed to. We have no suggestions on overcoming this, apart from telling you to be aware of it. In case you wish to kill a million people, to fully appreciate the gravity of your actions, make sure you personally promise to pass on their last words to their families before you gently slit their throats one by one. See? I bet you just visualised doing that with one person. Not a million people. Your brain simply can't process that feeling multiplied by a million. Smoke would come out your ears.

Planning fallacy

(Why you can't ever get anything done on time)

As every IISc student knows, the amount of time you think it will take you to do something and the amount of time it actually will, cannot be measured in the same units without

invoking a logarithmic scale. For some reason, we are terrible at planning. From iGEM to Pravega, nothing that happens in IISc happens on time. But lest you fret, this is a universal human experience: we are all broken in the same way.

We always think we know why this specific project will happen on time, unlike the previous ones. Maybe your prior experience would help get things done faster. Maybe you have more manpower to help. Maybe you bunked all your classes to focus on it. Whatever your reasons, you are lying to yourself. The only reliable measure for how long a project will take is how long similar projects took in the past.

Sunk cost fallacy

“I’m in too deep, man.” — Someone, probably

Many, many people regret doing their PhDs. They’ll come to the realization that they hate academia sometime during their PhD, of course. Maybe it’s the stress, or their advisor, or the series of experiments that continues to fail repeatedly despite all the effort they’ve been putting into it at the cost of their health, freedom and sanity. No, I’m not bitter. For some, this torture eventually pays off and they enjoy their further years in academia or industry. Others are stuck doing a job they hate with a degree they don’t want.

Why people stay in situations they hate often boils down to the sunk cost fallacy: the feeling that you’re too invested in something to give up. Maybe you’ve spent a lot of money, or time, or effort. If you quit now, all that suffering means nothing, right?

Wrong. If that’s the only reason you can think of to stay in a situation, get out immediately. The correct thing to do is run an honest cost-benefit analysis of the situation ignoring all sunk costs that have already been put in. You can’t change the past, you can only change the future. If you believe that the benefits of a PhD are worth the mental stress it’ll put on you for the next few years, go ahead and do it! But if you’re trying to justify it using effort you’ve already expended, don’t bother.

A good strategy to avoid the sunk cost fallacy is to periodically imagine that you’ve just been teleported into the body you currently occupy. Somebody else made all the decisions that govern your life right now. You’re starting from scratch, as of this moment. Are you sure there aren’t things you want to do differently? Go do them!

The Dunning-Kruger effect & Impostor Syndrome

“The fool doth think he is wise, but the wise man knows himself to be a fool.” — William Shakespeare, *As You Like It*

The Dunning-Kruger effect has been popularized everywhere on the Internet, and most of us understand it as “Dumb people are too dumb to realize they’re dumb.” Despite

several controversies regarding Dunning and Kruger’s experimental methodology, the effect seems robust: unskilled people tend to overestimate their skills.

The converse (though again contested) is also common: skilled individuals in a professional or academic setting often underestimate their skills, leading to a persistent feeling of self-doubt. This has been termed “impostor syndrome” and has been correlated with stress, anxiety and depression.

If you ever catch yourself thinking, “I’m not actually smart. I just got lucky. I’m just good at fooling people into thinking I’m competent,” you are likely to be a victim of impostor syndrome. Remember, you were objectively good enough to get into IISc. You are competent. You are smart. No one can take that from you.

These are especially difficult biases to overcome because they are often tied to our notion of self-worth and we humans hate thinking rationally about things that also evoke strong emotions. Yet, knowing that these effects exist can help protect you against them: the next time you catch yourself shrugging off a compliment because “Oh, they’re just being nice. I’m not as great as they think I am,” you’ll know to blame impostor syndrome.

Hyperbolic discounting (Why you can’t ever get to bed on time)

Just one more game... Just one more episode... Just one more cookie...

Sounds familiar? That’s your brain doing mental gymnastics to convince you that a little bit more will do you more good than harm. Hyperbolic discounting occurs when you value a small reward obtained immediately over a large reward obtained at a later time. The longer the delay, the less the large reward is worth.

You might think, this doesn’t sound like me, I never think like this. You’re probably wrong. While you may not have explicitly put it into this form, you behave as though you implicitly think this way. One more game of DotA or one more episode of Game of Thrones sounds incredible compared to a full eight hours of sleep. That’s because the restfulness you gain from good sleep comes much later than the entertainment value of one more game/episode.

In fact, the effect is so robust that hyperbolic discounting is a pillar of behavioral economics. To gain some self-control and get your messed-up life back in order, we suggest recruiting help: someone you trust to curb your excesses.

RAMBLINGS ON DEATH AND IMMORTALITY

Raj Magesh &
Julian D'Costa

Vignette #1

You're walking out of the Health Centre, a self-satisfied smirk on your face. A fraudulently-acquired Medical Certificate rests in your hands. Overslept and missed an exam? Attendance below 80%? Need a day off? Hah, no problem! Go to the Health Centre, rub your temples, look morose, sniffle dejectedly, and presto – you'll soon be walking out with a crisp Medical Certificate!

[DISCLAIMER: The authors claim no responsibility for anyone feigning illness to get out of classes as a result of this article. Indeed, the authors vehemently insist that they have never used such dishonest techniques before – why are you sniggering, Julian? – and strongly discourage their juniors from attempting anything similar.]

As you head back to E Block, whistling jauntily, you hear a faint rustling from the bushes. You pause, quizzically looking up into the treeline. "Are the monkeys back?", you wonder, with a silent groan. Time to close my windows again. But the canopy is still and the monkeys are nowhere to be seen. Huh. Must have been a trick of the wind. You shrug, and take a step forward –

"RAHHHHH!" You hear a mighty roar from your right, and you spin towards it. "What the f –" you manage to get out, before the unkempt caveman swings his club into your skull at a bajillion miles an hour. You go down like a sack of recently-clubbed potatoes, and your hard-won Medical Certificate drifts to the ground, permeating the dramatic moment with delicious irony.

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You wake up to the sound of crackling flames and the familiar scent of a delicious soup. Your skull throbs in time with your heartbeat. I wish the bloody thing would just stop beating, you think to yourself, unaware of your subconscious giggling at its terrible pun. You groan and open your eyes. The night sky fills your vision, stars glinting like pinpricks in the blanket of the universe. A warm glow draws your eyes, and you turn your head slowly to the campfire. That's where the crackling sound is coming from, your subconscious reports, all too cheerily. At the fire, the caveman is humming to himself, happily toasting some marshmallows. A pot hangs above the flames, curlicues of steam rising from its rim. An empty packet lies nearby, carelessly discarded. You sniff. Maggi® noodles.

Without moving your head, you covertly observe your surroundings, eyes flicking from spot to spot. Grassy. Open areas. Trees. A worn-down building, with a red-tile roof. No sign of human habitation for the past decade. Your eyes widen to saucers and an involuntary gasp escapes your throat as you realize where you are.

The caveman freezes, then turns to you. His face breaks out into a perfect smile, teeth glinting a pristine white despite the amber firelight. "Oh, thank heavens you're up!" he exclaims, his accent quintessentially British. "I was so worried your brain had haemorrhaged. That happens sometimes, you know," he continues, nodding at you meaningfully. You stare at him in mute astonishment. He fidgets uncomfortably, then slaps his forehead. "Oh, where are my manners? My mother – bless her dear heart – would never forgive me. I can almost hear her disappointed voice: 'Bartholomew, is this the way you treat a guest?'" He turns to his side, rummaging in... a suitcase? He pulls out a flask, pours out a steaming cup, and holds it out toward you. "Tea?"

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You're sitting next to the caveman, huddled in a warm blanket, sipping on your hot beverage. It's perfect, just the way you like it. The throbbing in your head finally begins to settle. You glance again at your homicidal companion. He's not really a caveman, no. Well, he is wearing a threadbare orange loincloth with black patches, and yes, he did nearly club you to death. But his accent is as British as they come, and what caveman packs a suitcase with Maggi® noodles and marshmallows? No, this stranger is civilized.

Who is this man? Why did he slam a club into my skull? What is he going to do with me now? A dozen competing thoughts race through your mind as you gaze into the campfire, but only one erupts from your mouth, to uncontrollable giggles from your subconscious.

"What in blazes are we doing in the Centre for Contemporary Studies?!"

The stranger starts, then dabs his forehead with a handkerchief. Where'd the hanky come from, you wonder, eyes flicking suspiciously to his loincloth. "Well, I'm Professor Wickfield, you see," he blurts. "I teach anthropology at Oxford. Dr. Bitasta invited me here to deliver guest lectures on the tribal cultures of Polynesia. Why, I spent years traveling the Polynesian islands! I wrote my doctoral thesis on the Igolti'ii, a fascinating tribe with a culture we could all stand to learn from. In fact, I've adopted some of their practices in my own life. I consider myself an honorary-"

No, no, no, you chant to yourself, tuning out the Professor's ramblings with a practised ease born of your IISc experience. My worst nightmare has come to life.

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"-ritual where they slam a club into a person's head every week!" Your ears prick up, and you rise from your several-minute stupor.

"Wait, what?" you interject. The Professor cuts himself off in the middle of his sentence, glaring at the interruption. He arches a questioning eyebrow.

"What were you saying about hitting people with clubs?" you clarify.

"Ah, the Trial of Joy!" the Professor ejaculates. "The ritual as we observe it today arose from ancient legends of the Igolti'ii's proud ancestors. Let me tell you the tale." The Professor clears his throat, and the silence that follows is punctuated by the crackling of the fire. With a flourish of his arms, he begins...

Our story takes place once upon a blood-red moon, back when the flowing sands of today's deserts stood proud as stately mountains. The winds were favourable, the harvest was bountiful and the people's coffers were full to the brim. They wanted for nothing; every fleeting whim and desire of theirs was fulfilled. They lived on a true paradise on Earth.

But the people of the land were broken in mind and spirit. Nothing could bring them joy: not the sweetest fruits, not the most lavish gifts, not the cool breeze against their skin. For all their advancement, for all their riches, for all their earthly pleasures, they were the saddest people in the land. Despairing, they roamed the land, searching out things that could bring them joy: silks from the West, jewels from the East. Nothing helped. They cursed their fate. Could nothing make them happy?

And then, in a booming flash of lightning and thunder, their God manifested before them as a wizened old man with a cane. Awed, they bowed down, lowering their eyes in respect. A pregnant moment of silence followed, heavy in its gravity.

THWACK, THWACK, THWACK, went God's cane, leaving bloody welts on their backs. They screamed in agony. "Why, O Great Lord, have you punished us? Is our life not suffering enough?" they asked unto Him. He replied, His Voice loud and majestic:

"When you know no suffering, what can you know of joy?"

He disappeared in a column of blinding light, leaving the people to ponder His words. And they understood His meaning. As the stinging faded, they began to smile in relief...

From that day forth, by the will of the Elders, the Trial of Joy was enacted. Every man, woman and child of the tribe was whipped at random every month, and as their wounds

healed, only then did they appreciate their blessings.

The Professor looks at you expectantly. You stare back, unblinking. His expression wavers, his confident beaming smile dissolving into a confused frown. A vein pulses at your temple. Your heart is pumping overtime, and the throbbing in your head rises in tempo. As your blood pressure grows to a fever pitch, you see red.

“Is that... story the reason you swung a club into my skull?” you ask, your voice perfectly flat. You rise from your seat and begin walking around the campsite to cool down. Surely no one could be that insane .

“Well, yes, of course!” the Professor blustered, his voice matter-of-fact. “How else would you appreciate the days you don’t get hit on the head? Why, you should be thanking me for the opportunity. Not everyone gets to experience the Trial of Joy firsthand in today’s day and age. Did you know that getting clubbed in the skull has all sorts of advantages? It teaches you to ignore pain and persevere in the face of adversity; it strengthens your heart and mind; it makes the days you don’t get hit all the more sweet by contrast! Don’t you see? It’s a beautiful custom! Why, I–”

The Professor stops abruptly as you swing the club into his skull with a satisfying, meaty thud. As he collapses bonelessly before the fire, you put on your sunglasses and stare at his unconscious frame.

“Welcome to the club .”

Death

Trigger warning: death. If you have lost a loved one recently, I strongly suggest you refrain from reading the following section.

Do you love your mother? Quick, send her a quick appreciative message on WhatsApp, right now! Why the urgency? Because she is going to die, silly! Not right now, but probably soon. Maybe a car will flatten her while she’s going to pick up the groceries. Maybe she’ll trip and crack her skull on the concrete floor. Maybe she’ll drown in a flash flood.

Don’t worry, even if no accidents get her, she’s sure to die! Maybe she’ll catch the flu and somehow fail to recover, coughing her way to oblivion. Maybe a wild aneurysm will appear in her brain like a terrible Pokémon and burst when she least expects it.

Maybe the encrusted layers of fat clogging her coronary arteries will eventually force her embittered heart to give up on her. Hell, if she manages to live long enough, cancer is sure to get her!

But perhaps your mom is both careful and healthy. Maybe she looks both ways before she crosses the road, eats a balanced diet, and has an über-strong immune system. What a lucky lady! Fret not, because the ravages of age will catch up to her nonetheless. Though far less exciting and dramatic, even that steady physical and mental decline we call ageing has a sort of morbid aesthetic beauty to it.

Have you ever had a grandparent? What am I asking, of course you have. Four, even! How many of them are still alive? One or two? Three? All four? That would be a stroke of luck! How are they now? Doing fine, I hope? Now, dear reader, tell me, when are they going to die? Their time here on Earth is almost up; you know that, right? Soon, your loving grandmothers and grandfathers will be ashes scattered in the sea or corpses buried in the ground, their memories and experiences and trials and tribulations erased from reality forever.

It’s a pity most of us no longer live with our extended families. That way, you could have watched your grandparents decay in real time. The first sign is the greying of the hair. The skin becomes thinner, less supple, more wan. Wrinkles begin to appear, first on the face and soon enough, everywhere. Muscles weaken. Bones turn brittle. The voice begins to tremble. Eyesight and hearing decline. Everyday tasks become a chore, from eating to defecating.

These are the lucky ones, of course. You should be glad if that’s all that happens to your mother.

Things really begin to fall apart when the brain stops working right. Neurodegenerative disease is the umbrella term for this, encompassing a wide array of conditions including the infamous trio: Alzheimer’s disease, Parkinson’s disease and Huntington’s disease. Some of these unlucky souls are better off than others – only their motor functions degrade. That still sucks if you want to maintain any degree of independence as you age, but is far, far better than the alternative.

Those unlucky folks start losing themselves. Their memories. Their personality. Their grip on reality. Bit by bit, their cognitive functions decline and soon, they’re left as a mere husk of their former self. Moments of lucid clarity come and go, but the vibrance that made them more than mere bags of chemical soup is dulled to a dim spark. You’ll have to feed them, clothe them, clean them. Keep them from hurting themselves. Flip them over in bed to make sure they don’t get bedsores. 24/7, they have to be monitored and cared for. Almost like having a baby, except that the baby grows up and eventually becomes self-sufficient. The cognitively-impaired elderly have nothing to look forward

to besides the abyss of Death.

And if all this seems very distant to you, let me bring it closer to home: this will happen to you. This will happen to your mother, your father, your brothers and sisters, your grandparents, your aunts and uncles, your nephews and nieces, your wife and children, your friends and lovers. Death will methodically work its way down your family tree, pruning it branch by branch, from root to leaf.

And Death doesn't stop there. Every single person you know and care about and everyone else you don't. Everyone who made you the person you are, everyone you interact with, everyone you influence over your lifetime. Every. Single. Person. As House M.D. always says, everybody dies.

All those brilliant minds lost. All those memories. All those experiences.

Death is a terrible, terrible thing.

As a society, we don't want people to die. "Everyone has the right to life, liberty and the security of person," reads Article 3 of the Universal Declaration of Human Rights. The United States Constitution similarly coined the phrase "Life, liberty and the pursuit of happiness," referring to the three "inalienable" human rights. Article 3 of the Indian Constitution agrees (mostly). We lock up murderers, sometimes even execute them, despite the irony. We protest against farmer suicides. We rage against female infanticide. In 2017-18, we spent 1.4% of our GDP – US\$ 36 billion – on healthcare, trying to keep our fellow citizens healthy, prolonging their candle of life where nature would have snuffed it out. We combat diseases of all sorts, from typhoid to malaria. We vaccinate our population against polio and measles. We develop incredible medical techniques, from emergency blood transfusions to open-heart surgery. We donate blood when alive and organs when dead, hoping that the fruits of our bodies will nourish another.

All that effort to keep us alive, and we keep dying anyway.

Has someone close to you died? Do you remember what that felt like? Your entire being hurts, knowing that you'll never again spend another moment with them. But as the days go by and weeks become months and then years, the pain fades to a dull edge, memories slowly fading away. It's a coping mechanism. No one can live with grief continuously: after all, the dead are at peace. It's the living who suffer, working 9-to-5 to pay bills, buy a home, and feed children who'll one day grow up to mourn their parents' deaths and keep the vicious cycle going.

Our attitude to Death is somewhere between a desperate attempt to keep it at bay and a resigned acceptance of our inevitable collective fate.

What if I told you we could end it?

Biotechnology

The human body is a machine like any other. It obeys physical laws. It transduces free energy. It has interacting parts. And just like every goddamned machine I've ever owned, it breaks, over and over again. Sometimes it can be repaired, other times it can't. It wears out as the years go by.

Unlike other machines, however, the human body was not designed by humans. In fact, it wasn't designed at all. Through random chance, a bajillion mutations and various selection pressures, a self-replicating molecule somehow evolved into us. Corollary: in the space of all possible designs of bodies, we are not at an optimum. The machine we inhabit – the machine that is us – is inherently flawed, screwed over by evolutionary accidents.

Take the human eye for example. In the retina, photoreceptors – the cells that ultimately respond to light – are placed several layers deep. Light has to travel through these layers, undergoing absorption and scattering, before triggering an impulse in the photoreceptor. Even worse, this information travels back toward the surface of the retina, and then tunnels back through it into the brain via the optic nerve. The consequence of this evolutionary accident: your blind spot, a region of your visual field where you can't see anything.

And yet, the human eye is amazing. It outperforms every single camera ever designed by humans, simply by virtue of its complexity. Yes, it has design flaws no sane human would have ever committed, but millions of years of evolution gives it an incredible edge over intelligently-designed systems. The same holds throughout the human body. As Neil deGrasse Tyson put it, "Down there between our legs, it's like an entertainment complex in the middle of a sewage system. Who designed that?"

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The information required to create a human body is almost entirely contained in the human genome. Three billion letters of a four-letter alphabet. Less than 1 GB of data. A lot of it is repeated. Some of it is entirely irrelevant junk. Some of it is crucial. Other bits are important, but can accommodate some change without breaking the system entirely.

Over the past decades, molecular biologists have developed techniques to play with life's source code. The latest, most famous genome-editing tool is the CRISPR-Cas9

system, hailed by scientists worldwide as a revolutionary method to alter genes in vivo . Today, gene therapy is still in its infancy but is already making incredible strides: recently-approved techniques have led to cures for several inherited diseases from beta-thalassemia to immune disorders.

Genetic Engineering

Cells are tiny meat bags filled with soup that make up your entire body and do a whole bunch of things. You began life as a single cell, when one of your father’s sperms popped into your mother’s egg and decided to stay there. But then you divided, and divided again, and divided again, over and over until you formed a giant mass of about forty trillion cells – that’s you today!

But these cells don’t all do the same thing: otherwise, you’d be a mass of shapeless, formless goop. You have an assortment of cell types, each with its characteristic function. Muscle cells contract and relax and let you move around. Nerve cells conduct electrical signals and make you think. Gland cells secrete all sorts of stuff, from the hormones that make you grow hair in unfortunate places to the digestive juices you use to break down your food into more palatable bits.

How did the single cell you once were – the zygote – encode all these different cell types? In fact, there’s a more fundamental question: how does the cell know to do anything at all? Every cell, regardless of type, must carry out some basic functions, like breaking down glucose to produce energy or receiving signals from neighboring cells and responding accordingly. How does a tiny meat bag filled with soup do any of that?

The answer: DNA, an über-long cassette tape that’s packed tightly into your cells. DNA is a long polymer made up of four repeating units (A, T, C and G) whose order determines what information is encoded, much like the strings of binary digits that comprise your digital music collection.

3 billion bases

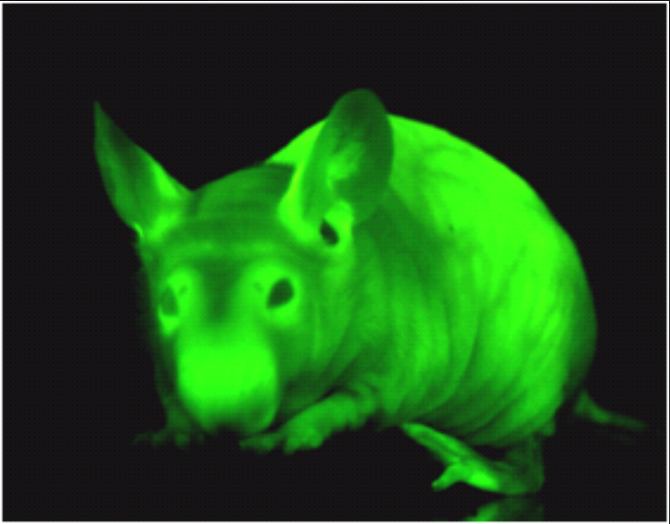
30,000 genes (~1%)

But what do these sequences of DNA do? Simply put, each of these sequences – a gene – instructs the cell to make proteins, fancy-shaped blobs of matter that do a whole lot of grunt work. Every biochemical reaction that takes place in your cell – like the dozens involved in making energy from glucose – is catalyzed by enzymes, which are proteins. Your hair and nails and horns are made of keratin – a tough structural protein. Proteins are the structural and functional workhorses of the cell.

All the cells in your body have the same set of genes. Why do they behave so differently? What makes a nerve cell so different from a muscle cell? The answer: different cells express different sets of genes – some genes will be switched on and others will be switched off. In fact, the human genome is estimated to have more regulatory regions than protein-coding regions. The tremendous complexity of this vast gene-protein-metabolite interactome is what eventually gives rise to such a wonderful thing: you!

Genetic engineering is how scientists play around with the genome – we can change existing regions, remove useless portions and, perhaps most impressively, add cool new bits! Since DNA is the source code for all known living organisms, we can even shuttle genes from one organism to the other – take a look at this glow-in-the-dark mouse!

By cutting a gene that codes for a green fluorescent protein from the DNA of a jellyfish and pasting it into an appropriate region of the DNA of a mouse, we can make the mouse produce the jellyfish protein and glow green! Isn’t that incredible?



Of course, the vast utility of genetic engineering and synthetic biology to mankind should not be understated: from the rice you eat to the insulin injections diabetics use, genetic engineering plays an important role in modern society. The Green Revolution employed far cruder molecular genetics tools to breed semi-dwarf flood-resistant strains of rice that saved billions from starvation and mass famine. Today, genetically-modified crops, despite much controversy, have improved yield, shelf-life and nutritional value.

Diabetics, who cannot produce their own insulin protein, now enjoy the luxury of recombinantly-produced insulin – bacteria modified to express the human insulin gene produce bulk quantities of the protein that can be purified, packaged and distributed to patients!

The promise of genetic engineering doesn’t end there: with new emerging technologies like CRISPR-Cas9, biologists hope to advance gene therapy and ultimately fix the variety of genetic disorders that plague our species.

Vignette #2

You're flying in an aeroplane. Business class. The seats are comfier. Both armrests are yours. There's finally enough legroom. Even the view looks nicer. Things would be perfect, if not for—

"This wine is tepid," whines the man on the other side of the aisle, glaring at the air hostess. "Why do you people never chill it to the right temperature? I'm paying three grand for this flight and the wine is warm! Good heavens!"

The air hostess murmurs apologetically, and takes the tray from him. As she turns away, you catch a flicker of tired disgust on her face. The man has been doing this for the past three hours. First his seat was too warm. Then his seat was too cold. He couldn't get the in-flight entertainment system to work. The windows were too small. His seatbelt strap was chafing. The most trivial of complaints aboard one of mankind's finest marvels of engineering.

It's infuriating. You glance at your watch. Five hours left. Out of the corner of your eye, you see the man lean back in his seat, wearing an eye mask. Thank God, you think to yourself. At least you won't have to listen to his prattling any more. Almost as though Someone Up There had been listening, you hear a sudden explosion from the right side of the plane. Your heart leaps to your throat, and you press your forehead to the window. The engine is on fire. The engine is on fire.

The same air hostess from earlier rushes in frantically, pushing a cart filled with—backpacks? "Attention, business class passengers!" she announces, voice trembling. "As you may have noticed, the plane is on AHHHH—" she cuts off as a secondary explosion rocks the cabin. "—fire," she finishes weakly.

"Nabla Airlines is proud to present the Personalized Protection Package, exclusive to passengers who have purchased a business class ticket. Contents include a monogrammed parachute, a custom-tailored life-jacket and a gold-plated whistle," she states smoothly with practiced ease, handing a backpack to each passenger.

Numb, you strap yours on, following the printed instructions on the accompanying pamphlet. Am I going to die? You glance up and down the aisle, watching the other passengers. Some are crying silently. Others are praying, hands clasped. Some are screaming, though those seem to be coming mostly from Economy Class. I'd scream too, if I were forced to travel in Economy. The one oddity is the man across the aisle.

He's sneering at the backpack, holding it between two fingers like a dirty rag. He notices your gaze, and snaps, "If God wanted this plane to crash, why should I try to avoid it?" You stare mutely. "It's the natural order of things!" he continues. "Why, even if you tried it, it wouldn't work! None of you are experienced skydivers, are you? How are you sure you'll deploy the chute at the right time? What makes you think you'd stick the landing? You're all just fooling yourselves!" he snorts, folding his arms. "Hell, even if you landed, you'll be stuck in the middle of the ocean and get eaten by sharks or something. What's the point?"

One by one, the other passengers drop their parachutes to the floor of the cabin, his insidious words striking a chord of despair in their hearts. There's no point trying. It's all over, they think to themselves. They console each other, finding comfort in their last minutes. The air hostess stares blankly. Nothing in her training manual had prepared her for this.

A wild burst of laughter escapes you. With resolute steps, you walk to the emergency door, which opens easily at your touch.

You look back at the sorry fools who have decided to stay behind, wave, and jump.

Ageing is a complex phenotype. No one is completely sure why we age. The mutation accumulation hypothesis suggests that our cells keep collecting errors in essential genes over time, which ultimately impairs their requisite functions. The pleiotropy theory suggests that genes which grant vitality in youth make you suffer in age, a sort of biological quid pro quo. The rate-of-living theory suggests that highly-active organisms produce more free radicals and other metabolic byproducts that contribute to senescence. None of these theories explains ageing fully.

Ageing is a complex, multifactorial disease. We seem built to break down. Our very genes rebel against us. This is a good thing. Death isn't some mystical force that's sucking away your life essence bit by bit. Ageing is a physical process that can, in principle, be fully understood. And once gerontologists understand the causes of ageing, how it progresses, what molecular players are involved, and every other little detail of our bodies' decline, we can start trying to fix it.

Science fiction called some of it a long time ago: authors have long envisioned miniature robots entering cells and repairing damage at the molecular scale. Large-scale genome editing, molecular nanotechnology, and whatever other revolutionary technologies come along in the next few centuries will all be harnessed to cure ageing, undoing and actively counteracting the deleterious effects of our genetic programming. With advanced biotechnology, perfect health maintained over an indefinite period will no longer be an unattainable Fountain of Youth.

This is the promise of biological immortality. In principle, sometime in the distant future, it can be achieved. In practice, within our lifetimes, no bloody way.

All of you reading this, everyone who is alive now, none of us have any hope of living for eternity. We are all hurtling towards the ground at a thousand miles an hour. Luckily, we might have a parachute.

Cryonics: Our only parachute?

Medical science is magic, in the sense of Arthur C Clarke. Bring Hippocrates to the modern day hospital ward and he'll have a stroke – but don't worry, with today's medicine, we can probably fix him. One of the many miracles of medicine is the organ transplant. Cut open a donor, pluck out a kidney, drop it into the recipient, and presto – the patient can now successfully urinate.

Of course, it's not quite that simple. Everyone has heard of tissue-matching: not all kidneys are interchangeable, even if they're functionally equivalent. Only if two people are immunologically compatible can their organs be swapped without immune rejection. Even if, by a probabilistic miracle, you find a donor, you'll still be placed on immunosuppressants for the rest of your life.

But that's a last-stage problem with organ transplants, one that you only worry about when everything else goes well. One of the earlier problems, one that is easily glossed over, is how to transport a donated kidney from one side of the country to another without it decomposing and falling apart on the way. This logistical issue needs a bioengineering solution: somehow, we need to keep entire organs alive, healthy and functional for days on end – while they're outside a human!

Luckily, we have quite a bit of experience preventing things from rotting. We invented the fridge, dried fruits, jams, pickles, canning, fermenting, pasteurization and irradiation – all to make food last longer. As should be obvious, not all of these methods are applicable to organ biopreservation, sadly.

Cooling the organ (to -4°C) slows down metabolic processes dramatically. Enzymes no longer work well. Reactions come to a standstill. The steady passage of time grinds to a halt for the organ and it decays much more slowly, an excellent outcome when time is at a premium. But cooling has its own destructive effects: it disrupts ion homeostasis, depletes ATP reserves, causes membrane injury, and ultimately leads to cell death by apoptosis and necrosis when the organ is warmed back up.

To alleviate some of these issues, bioengineers invented perfusion-based preservation systems: the moment the organ is removed from the donor, it's connected to a machine that continuously pumps it full of chilled designer preservative solutions that provide nutrients, remove toxic metabolites and maintain pH – artificial homeostasis. This works remarkably well for short-term organ storage, but the Holy Grail of organ preservation – indefinite long-term storage of donated/artificial organs – still remains elusive.

Cryopreservation, as expected, requires ultra-low temperatures on the order of -100°C . The major problem with this method is something seemingly innocuous: water freezes below 0°C . Ice crystals that form during the organ-freezing process irreparably damage cells and prevent successful thawing. Sadly, this is an insurmountable problem. Luckily, it can be circumvented.

Using high concentrations of cryoprotectant solutions prevents ice nucleation by causing vitrification of the entire organ, where instead of freezing into a crystalline state, water drops below its glass transition temperature and retains its disordered molecular arrangement – effectively becoming a glass. Recent advances in vitrification technology have led to the successful cryopreservation and subsequent transplantation of a rabbit kidney, a milestone on the path to cryonics.

Cryonics is cryopreservation taken to its logical limit: instead of preserving mere organs for later retrieval, cryonics aims to preserve an entire human body successfully at ultra-low temperatures. Examples of such successful cryopreservation exist in the animal kingdom – some frogs, caterpillars, turtle hatchlings, lizards and beetles can freeze and thaw without a care in the world. Humans, however, are not adapted for this. When we freeze, we die.

Or rather, when we die, we freeze.

The boundary between Life and Death, surprisingly, is not very well-defined. The medical literature is chock-full of examples where stopped hearts restart for no discernable reason, where patients declared medically dead miraculously sit up and gasp for breath, where brain-dead patients with no hope of recovery spontaneously begin talking. What we call death is a far more gradual process than TV would have you believe. According to cryonicists, true death, in the information-theoretic sense, only occurs when the information in your brain is irrecoverably lost to entropy.

Alcor and the Cryonics Institute are two non-profit organizations that offer cryonics services: for the small price of US\$100,000, they will vitrify your corpse as best as they can and store it indefinitely at -196°C in liquid nitrogen. If that price tag is a bit hefty, you can opt to just have your head cryopreserved for the much more wallet-friendly price of US\$30,000. Through cryonics, cryonicists hope for a miracle: that by preserving as much gross structural information as possible upon your death today,

advanced medical technology from the distant future (read: magic à la Clarke) will be able to resurrect you.

Current science scoffs at this, for good reason. While not literally impossible – the laws of physics do not forbid it – the prospect of resurrection post-cryonics is practically impossible. The number of technical challenges involved, both known unknowns and unknown unknowns, is ludicrously large. There is absolutely no guarantee, even in principle, that the feat can even be accomplished; our current crude methods of cryopreservation are unlikely to preserve the fragile intricacies of the brain that ultimately make us who we are.

Cryonics is a crapshoot, but it is the only parachute we have available to potentially escape from the crashing aeroplane of eternal Death. The probability of your decapitated head vitrified in liquid nitrogen somehow being resurrected in the distant future where biological immortality has been achieved is minuscule, but it's nonetheless better than being eaten by worms in the grave or becoming ashes scattered to the winds.

Ancient Egyptian pharaohs bedecked their tombs with the snazziest of bling in a half-baked attempt to get to the afterlife and spice up the place; perhaps the modern equivalent of canopic jars will be vitrified brains in liquid N2 canisters. Personally, I place the expected value of future immortality above US\$30,000, even accounting for the infinitesimal probabilities involved. After all, what am I going to do with money in the grave?

(De)parting thoughts

After reading all this (before even), you should be thinking I want to be immortal! Why aren't we funding anti-ageing research already? The problem is, as always, humans. For some reason, whenever the topic is brought up, which is rare enough in itself, there is huge opposition to the idea of not dying.

Arguments against defeating Death typically fall in one of two categories: moral and practical. For some reason, people always seem to argue themselves into believing that Death is a natural process that we shouldn't fight against. But if ask them exactly when they want their mother or children to die, they inevitably get mad at you! Malaria, tsunamis and cancer are all as natural as Death is, and people don't ever have problems combating the former. We thank doctors and rescue workers and firefighters for "saving lives".

But many people also claim that Death has all sorts of benefits. You must have heard some of these: "Death gives meaning to life," is probably the most common one. I ask

you, what the hell does that mean? Do you appreciate life only because you contemplate your future nonexistence? Or do you appreciate it because of all the things and the people and the colours and the tastes? Life is worth living independent of the notion of Death.

If you tried to persuade any immortal being to sign up for the whole eventual Death thing to appreciate their existence more, they'd laugh at you. When Professor Bartholomew Wickfield tried to make you appreciate not being hit on the skull by hitting you on the skull, did you not spot the obvious incongruity there?

Why do we romanticize ageing and Death when it's arguably the worst thing that could ever happen to someone? Just because something is natural and has happened to everyone so far doesn't mean it's any good.

"Mama always said dying was a part of life... I just wish it wasn't." — Forrest Gump

Others are not convinced that they personally would want to live for eternity. I give you a proof by induction that you should.

Base case: Today, you want to stay alive.

Inductive hypothesis: On any given day, you want to be alive the next day.

By induction, you want to live forever.

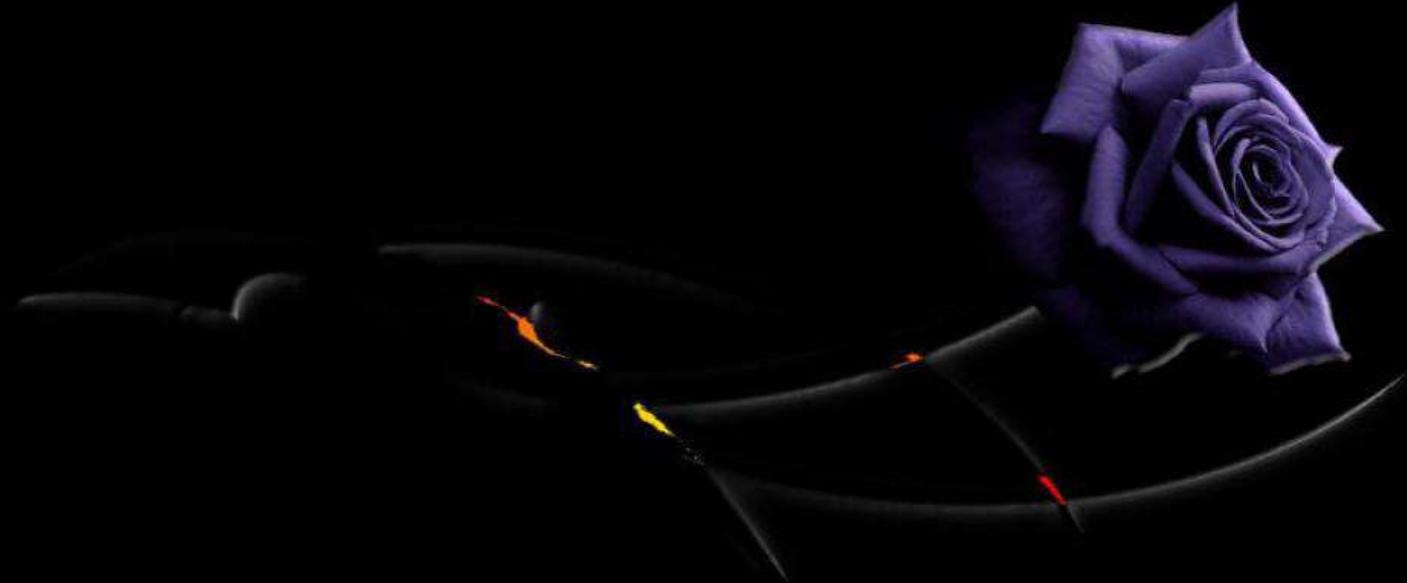
The inductive hypothesis only ever breaks down if you get to a point in your life when you don't want to live one more day. Is it alright to give up on life then, when life seems pointless? We don't tell depressed people it's alright to commit suicide because they don't enjoy life, do we? We give them advice, help and treatment, because we have an innate understanding that life is worth living. The same applies here: if you ever feel that life has nothing to offer you anymore, something is probably wrong with you, and you should seek help, not kill yourself.

If I gave you a chance to resurrect your dead grandmother and bring her back to life, in the pink of health, would you accept it? Even the religious, who believe in souls and afterlives and reincarnation and fate and karma and similar falsities, would jump at the opportunity to speak to their dead parents, to hold them and tell them how much they love them. In fact, they do – that's how mediums make money!

But ironically, a lot of people who believe they wouldn't want to live for eternity are also religious and believe in an afterlife. What the hell (pardon the pun) do they think they'll be doing in the afterlife? If anyone believes that we shouldn't be trying to stop Death because people ought to go to Heaven and Hell or get reincarnated as a donkey, they should by all means go right ahead and enter the next realm with grace. Personally, I would rather put my faith in humanity than God.

The moral arguments against immortality are generally flawed. The practical arguments are not. Ignoring the feasibility of the enterprise itself, societal problems that we could face include resource scarcity, unfairly-restricted access to life extension technologies, impossibly-wide socioeconomic gaps, persistence of dictatorships and a multitude of other problems. Imagine needing a thousand years' experience to apply for an entry-level job!

In the next article, we go several steps further beyond mere immortality and describe changes that could possibly obviate these concerns. See you there!



நெகிழி

~ஜஸ்வர்யா பிரசாத்

நாம் கண்டு நெகிழ்ந்த பசுமை
வயல் வெளி எல்லாம் நெகிழி
மக்கி மண்ணுக்கு வளம் சேர்க்காமல்
கீழே கிடந்து கொல்லும் நெகிழி
பாசியும் சோழியும் ஒதுங்கிய கடற்கரையில்
இன்று குவியல் குவியலாக நெகிழி
இருப்பினும் கிராமத்திலும் பெரு நகரிலும்
மக்கள் கையில் வீற்றிருப்பது நெகிழி
புற்றுநோய் தரும் புகையை பற்றியிருப்பான்போல்
மக்கள் பற்றியிருப்பது மக்கா நெகிழி
மலிவாகவும் சுலபமாகவும் இருப்பதால் தண்ணீர்
புட்டியும் தூக்கும் பெட்டியும் நெகிழி
என்று அனைவரும் அறியாது தெரியாது
விழுந்து கிடக்கும் போதை நெகிழி
இப்போதையை ஒழிக்க முதலடியாக உடனடியாக
குறைப்போம் நெகிழி தவிர்ப்போம் நெகிழி

ಸ್ತ್ರೀವಾದ -ಕಾಲಚಕ್ರದೊಂದಿಗೆ ಬೆಳೆದೊಂದು ಚರಿತೆ

~ಭೂಮಿಕಾ ಅಶೋಕ್ ಭಟ್ಟ

"ಸಮಾನತೆ" - ಶಬ್ದದ ಮಹತ್ವವೇ ಒಂದು ಮಹಿಮೆ. ವ್ಯಕ್ತಿ-ವ್ಯಕ್ತಿಯಿಂದ, ಗುಂಪು-ಗುಂಪಿನಿಂದ, ಅನುಕೂಲ ಮತ್ತು ದೃಷ್ಟಿಕೋನವನ್ನಾಧರಿಸಿ ವಿಭಿನ್ನ ರೂಪ ತಾಳುವ, ಅಪಾರ ಶಕ್ತಿಯುಳ್ಳ ಪದವದು. ನನ್ನ ದೃಷ್ಟಿಕೋನದ ಸಮಾನತೆ ನಿಮ್ಮ ಪ್ರಕಾರ ಘೋರ ಅನ್ಯಾಯವಾಗಿರಬಹುದು. ಇದೇ ನಮ್ಮ ಸಮಾಜದಲ್ಲಿ ಎಷ್ಟೋ ಕಲಹಗಳು, ವಾಗ್ವಾದಗಳನ್ನು ಹುಟ್ಟಿ ಹಾಕಿದೆ, ಹಾಕುತ್ತಲೇ ಇರುತ್ತದೆ. ಆದಿ ಕಾಲದಿಂದಲೂ ಇಂತಹ ಚರ್ಚೆಗೊಳಪಟ್ಟ ವಿಷಯ, ಸ್ತ್ರೀ- ಪುರುಷ ಸಮಾನತೆ. ಹೆಣ್ಣು ಅಬಲೆ ಎಂದು ನೀಡಿದ್ದ ಹಣೆಪಟ್ಟಿಯನ್ನು ಕಾಲ್ಪಕ್ರಮೇಣ ಅನೇಕರು ಪ್ರಶ್ನಿಸುತ್ತ ಬಂದಂತೆ, ತಾನಾಗಿತಾನೆ ಸ್ತ್ರೀವಾದವು ಆಂದೋಲನವಾಗಿ ರೂಪುಗೊಂಡಿತು.

ಅನೇಕ ದೇಶಗಳಲ್ಲಿ ಶತಮಾನಗಳಿಂದ ಇಂದಿನವರೆಗೂ ಸ್ತ್ರೀಯರು ಸಮಾನ ಹಕ್ಕುಗಳಿಂದ ವಂಚಿತರಾಗಿರುವುದು ಕಟು ಸತ್ಯ. ಹತ್ತು ಹಲವು ದೇಶಗಳ ಸ್ತ್ರೀವಾದಿ ಗುಂಪುಗಳ ಒಗಟ್ಟಿನ ಹೋರಾಟದ ಫಲವಾಗಿ ಇಂದು ಕೆಲವು ದೇಶಗಳಲ್ಲಿ ಮಹಿಳೆಯ ಮೇಲೆ ಹೇರಲಾಗಿದ್ದ ಕೆಲವು ಸಾಮಾಜಿಕ ನಿರ್ಬಂಧಗಳನ್ನು ಸಡಿಲಗೊಳಿಸಲಾಗಿದೆ. ಸಂಪ್ರದಾಯದ ಹೆಸರಿನಲ್ಲಿ ಹೆಣ್ಣಿನ ಮೇಲೆ ಹಾಕಿದ್ದ ನಿರ್ಬಂಧಗಳನ್ನು, ಅಂತಹ ಆಚರಣೆಗಳನ್ನು ಹೆಣ್ಣೊಬ್ಬಳು ಧೈರ್ಯದಿಂದ ಪ್ರಶ್ನಿಸಲು ಸ್ತ್ರೀವಾದ ಆಂದೋಲನಗಳು ನೀಡುತ್ತಿರುವ ಪ್ರೋತ್ಸಾಹ ನಿಜಕ್ಕೂ ಶ್ಲಾಘನೀಯ. ಕಾಲ್ಪಕ್ರಮೇಣ ಇಂತಹ ಪ್ರೋತ್ಸಾಹ ಬೆಳೆಯುತ್ತಿದ್ದು ಮಹಿಳೆಯರು ಯಾವ ಅಂಜಿಕೆಯಿಲ್ಲದೆ ತಮ್ಮ ಆಸೆ ಆಕಾಂಕ್ಷೆಗಳನ್ನು ಪೂರೈಸುವತ್ತ ಹೆಚ್ಚಿನ ಸಂಖ್ಯೆಯಲ್ಲಿ ಸಾಗುತ್ತಿರುವುದು ಅಭಿವೃದ್ಧಿಯ ಸಂಕೇತ. ದೇಶಮೊಂದರ ಪ್ರಗತಿಯಲ್ಲಿ ಪುರುಷನ ಪಾತ್ರ ಎಷ್ಟು ಮುಖ್ಯವೋ, ಮಹಿಳಾ ಪಾಲ್ಗೊಳ್ಳುವಿಕೆಯೂ ಅಷ್ಟೇ ಮುಖ್ಯ. ಎಲ್ಲ ನಾಗರಿಕರೂ ದೇಶದ ಏಳಿಗೆಯಲ್ಲಿ ಪಾಲ್ಗೊಂಡಾಗ ಮಾತ್ರವೇ ಅದು ನಿಜವಾದ ಅಭಿವೃದ್ಧಿಯ ಸಂಕೇತ. ಮಹಿಳೆಯೊಬ್ಬಳು ಇಂದು ತನ್ನ ಹಕ್ಕಾಗಿ ಭಯವಿಲ್ಲದೇ ಧ್ವನಿಯೆತ್ತುವ ಧೈರ್ಯ ಹೊಂದಿರುವಳು ಎಂಬುದು ವರ್ಷಾನಂತರಗಳ ಸ್ತ್ರೀವಾದದ ಸಾಧನೆಯ ಸ್ಮಾರಕವಲ್ಲವೇ? ಈ ಸ್ಮಾರಕ ದಿನನಿತ್ಯ ಬೆಳೆದು ನಿಲ್ಲುತ್ತಿರುವುದು ಮನ ಮುದಗೊಳಿಸುವ ಸಂಗತಿಯೇ ಅಲ್ಲವೇ?!

ಇವೆಲ್ಲದರ ನಡುವೆ ಇಂದು ಸ್ತ್ರೀವಾದ ಹಲವು ಬಾರಿ ವಿವಾದಕ್ಕೀಡಾಗುವುದು ಹೊಸ ಸಂಗತಿಯೇನಲ್ಲ. ಸ್ತ್ರೀ ಸಮಾನತೆಗೆ ಹೋರಾಡುವ ಅನೇಕರು ಸ್ತ್ರೀವಾದದ ಭಾವಾರ್ಥವನ್ನೇ ಮರೆತಂತಿದೆ. ಸ್ತ್ರೀ-ಪುರುಷ ಸಮಾನತೆಗಾಗಿನ ಹೋರಾಟ ಅನೇಕ ಬಾರಿ ತೀವ್ರ ಕಚ್ಚಾಟಗಳಿಗೆ ನಾಂದಿಯಾಗುವುದನ್ನು ನಾವೆಲ್ಲರೂ ಕಂಡಿರಬಹುದು. ನಮ್ಮ ಹಕ್ಕನ್ನು ಯಾರೂ ಪ್ರಶ್ನಿಸುವಂತಿಲ್ಲ ಎಂಬ ಸ್ತ್ರೀವಾದಿಯೊಬ್ಬಳ ಹೇಳಿಕೆಯನ್ನು ಜನ ಖಂಡಿಸಿ ಅದಕ್ಕೆ ಕೋಪಗೊಂಡ ಸ್ತ್ರೀವಾದಿಗಳು ಹೋರಾಟಕ್ಕೀಡೆಯುವುದು ವಿರಳವೇನಲ್ಲ. ಅಷ್ಟಕ್ಕೂ ಇದಕ್ಕೆಲ್ಲಾ ಕಾರಣವಾದರೂ ಏನು?

ಸಮಾನತೆಯ ಹೋರಾಟದಲ್ಲಿ ತಲ್ಲೀನರಾದ ಹಲವರು, ತಮ್ಮೆದುರಿನ ವ್ಯಕ್ತಿಯ ಪ್ರತೀ ಮಾತಿನಲ್ಲಿಯೂ ಸ್ತ್ರೀ ಅವಹೇಳನಾಕಾರಿ ತಾತ್ಪರ್ಯವನ್ನು ಹುಡುಕುವ ಯತ್ನ ಮಾಡುತ್ತಾರೆ. ಇದೇ ಮುಂದಿನೆಲ್ಲಾ ಕಾಡ್ಗಿಚ್ಚಿನ ಕಿಡಿಯಾಗುವುದು. ಇಂತಹ ಘಟನೆಗಳು ಮತ್ತೆ ಮತ್ತೆ ಮರುಕಳಿಸಿದಂತೆಲ್ಲಾ ಅನೇಕರು ಸ್ತ್ರೀವಾದದ ತತ್ವವನ್ನೇ ಮೂದಲಿಸುವಂತಾಗುತ್ತಿರುವುದು ನಿಜಕ್ಕೂ ಶೋಚನೀಯ. ಮಹಿಳೆಯರು ತಮ್ಮ ನಿರ್ಧಾರಗಳನ್ನು ಯಾವುದೇ ಬಾಹ್ಯ ಒತ್ತಡ ಅಥವಾ ಇತರರ ಬೆದರಿಕೆಯಿಲ್ಲದೆ ತೆಗೆದುಕೊಳ್ಳುವಂತಿರಬೇಕು ಎನ್ನುವುದು ಸ್ತ್ರೀವಾದದ ಸಿದ್ಧಾಂತ. ಚಳುವಳಿ ನಡೆಯಬೇಕಾಗಿರುವುದು ಈ ನಿಟ್ಟಿನಲ್ಲಿ. ಯಾವಾಗ ಅದನ್ನು ನಾವು ಮರೆತರೆ, ಎಡವಿದೆವು ಎಂದರ್ಥ. ಮಹಿಳೆಯರ ಹಕ್ಕಾಗಿ ಹೋರಾಡುವ ಪಥದಲ್ಲಿ ಸಾಗುತ್ತಿದ್ದಂತೆ, ಪುರುಷರೂ

ದಬ್ಬಾಳಿಕೆಗೆ ಒಳಗಾಗುತ್ತಾರೆ ಎಂಬುದನ್ನು ಮರೆಯಲಾರದು. ಇದರ ಕುರಿತು ಅನೇಕ ಪ್ರಸಿದ್ಧ ಸ್ತ್ರೀವಾದ ಚಳುವಳಿ ನಾಯಕ-ನಾಯಕಿಯರು ಧ್ವನಿಯೆತ್ತಿದ್ದಾರೆ. ಮಾಧ್ಯಮಗಳು ಕೂಡ ಈ ನಿಟ್ಟಿನಲ್ಲಿ ಹೆಜ್ಜೆಯಿಡುವುದು ಬಹಳ ಮುಖ್ಯ. ಹೆಣ್ಣಿನ ಮೇಲಿನ ದೌರ್ಜನ್ಯಕ್ಕೆ ಕಾನೂನಿನಡಿಯಲ್ಲಿ ಸ್ತ್ರೀ ರಕ್ಷಣೆ ನಿಟ್ಟಿನಲ್ಲಿ ನೀತಿ ನಿಯಮಗಳಿವೆ. ಆದರೆ ದಬ್ಬಾಳಿಕೆಗೊಳಗಾದ ಪುರುಷ ಯಾವ ಧ್ವನಿಯನ್ನೂ ಎತ್ತುವಂತಿಲ್ಲ. ಉದಾಹರಣೆಗೆ ಅತ್ಯಾಚಾರ ಆಪಾದಿತ ವ್ಯಕ್ತಿ ನಿರಪರಾಧಿ ಎಂದು ಸಾಬೀತಾದರೂ ಕಳೆದು ಹೋದ ಆತನ ಕುಟುಂಬ, ಕೆಲಸ ಮತ್ತು ಸಮಾಜದಲ್ಲಿನ ಸ್ಥಾನಮಾನವನ್ನು ಯಾರೂ ಕೇಳರು. ಇದರ ಬಗ್ಗೆ ತಮ್ಮ ಅಭಿಪ್ರಾಯ ವ್ಯಕ್ತ ಪಡಿಸಿದವರು ಸ್ತ್ರೀವಾದದ ವಿರೋಧಿಗಳು ಎಂದು ನಾವೆಂದೂ ಯೋಚಿಸಬಾರದು. ಇಂತಹ ನಿರ್ಲಕ್ಷ್ಯ ಸರಿಯಲ್ಲ ಎಂಬುದನ್ನು ನೆನಪಿನಲ್ಲಿಟ್ಟುಕೊಂಡು ಸ್ತ್ರೀ ಸಮಾನಕ್ಕಾಗಿ ಎಲ್ಲಾ ಸ್ತ್ರೀವಾದಿಗಳೂ ಎಚ್ಚೆತ್ತು ಮುನ್ನಡೆಯಬೇಕು. ಸಮಾಜದಲ್ಲಿ ಸ್ತ್ರೀವಾದದ ಬಗ್ಗೆ ಯಾವ ತಪ್ಪು ಕಲ್ಪನೆಯೂ ಮೂಡದಂತೆ ನೋಡಿಕೊಂಡು ಸ್ತ್ರೀ- ಪುರುಷರು ಪರಸ್ಪರ ಗೌರವದಿಂದ ಬಾಳಿ, ದೇಶ ಮುಂದೆ ಸಾಗುವುದು ಮುಖ್ಯ. ಇದನ್ನು ಮನದಾಳದಲ್ಲಿ ಮುಡಿಪಾಗಿಟ್ಟುಕೊಂಡು ನಾವೆಲ್ಲರೂ ಸಮಾನತೆಗಾಗಿ ಹೋರಾಡಬೇಕು. ಏಳಿಗೆಯ ಪಥದಲ್ಲಿ ಕೈಜೋಡಿಸಿ ಮುಂದೆ ಸಾಗಬೇಕು.

TEA PARTY

Sunreeta Bhattacharya



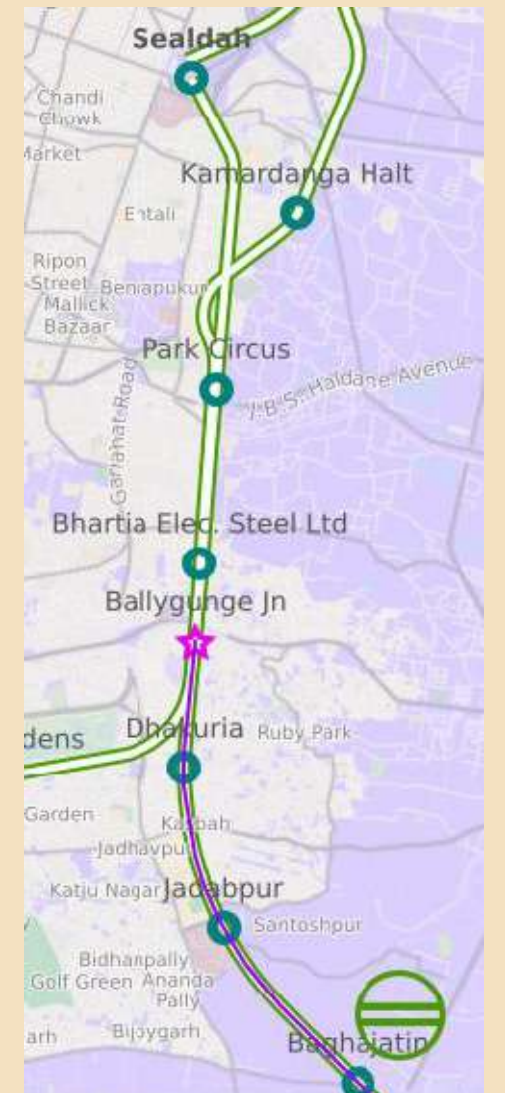
The last Sealdah local leaves at half an hour past midnight. While some hawkers travel daily, some return home once in a week, or maybe two weeks. The railway station is a homely place—there can be no complaints if you are an uncomplaining man. If you are someone like Ramdas, a tea-seller with a sense of responsibility, you can ill-afford to leave the platform grounds, where night and day people shout hurriedly, porters, passengers, beggars, vendors, loiterers, eunuchs, policemen filling the air with action and an odour of trampled flowers.

On a summer night in Sealdah, you might hear an occasional owl hooting, and if you've got any sense of music, you'll know it's just a distant accompaniment to the old baul who sings on the Bhagirathi express. Ramdas either has no sense of music, or some other thought keeps him busy when the owl calls. He waits for the 12.30 am train today, a new Saturday. Today he must go home, for it's not only his little girl, Jini's birthday, but Raju the milkman has given him news that yesterday his second one had been born. With his drum of tea and his bamboo stick, he waits, looking at the disappearing rail track far away like a spine along the earth. Ordinary men like Ramdas have none of your exceptional memory. To them that are busy, there's little time to recount old days anyway. Still, Ramdas fondly remembers a night like this when Jini was born, that an owl had hooted, and a baul had sung. Simple things have simple connections ordinarily.

A sleepy train crept in from the shed; all in all, a hundred people boarded it. An aged, disinterested policewoman checked a few compartments, and signalled for the train to leave. Ramdas, alone in his box, felt exceptionally happy, and couldn't wait to kiss his tiny child with his huge lips. In his excitement he had almost forgotten his bag of money at the magazine shop, where he bought two cigarettes instead of a beedi today. One long smoke this minute, to drown the day's remains, and the train started with an impolite jerk, soon plunging into the darkness with the swift smoothness of a bullet.

The tube lights flickered and faltered as Ramdas felt the wind in his scanty hair, sucking up his sweaty weariness, bringing in the fragrance of some Ramzan feast along with a leather factory's signature stench. Singing a song he couldn't himself hear under the train's heavy progression, Ramdas counted lights from a village so far away that he could easily have been dreaming it.

A prayer on a mic marked the train's entry into Park Circus station. Several people got onto the train here, and the station was left very nearly empty. Abdul, Ramdas's dear friend and his wife's brother, saw Ramdas on the train and rushed to join him in the compartment. Abdul was a shoe and umbrella-repair man, a fortune-teller, a barber, a baker. So highly talented was he that all his many friends had few household worries. He didn't have any rules for himself as such, but he was accustomed to never do the same thing on consecutive days.



‘Ohe Ramdas bhai ! Another daughter in the festival! You should see her—her eyes are so big, looking like a pair of purnima moons— and Jini beti could not stop cuddling the little pari, though the nurses told her off for that. Everybody in Islampur is talking about her, and Hasrat has been waiting for you since afternoon. How long since you were last home, hmm?’ Abdul put his metal instruments and his bunch of leather-straps aside on the bench and appeared to act stern.

‘Er, eh-’, Ramdas put on a meaningless smile, and looked away outside, as he couldn’t help his heart swelling up, because he knew he should have been home by his wife for the last month, as a father expecting a child. Abdul knew well that Ramdas had not been home for a month, working endlessly to earn back the money the rascals stole from his home. Poor man, Ramdas had lost his voter card and had been unable to cast his vote. And how he suffered because of that!

Ramdas wiped his forehead and his face with a corner of his shirt, as Abdul took from Ramdas his bundle of clothes, opened it to fold the two vests, lungis, and tie them up again, with the complete finesse of a royal laundry-man.

The two young men went back to a happy discussion on their favourite sweets and the strange names of famous people, and then how you could describe, or at least correlate them with a sweet dish you knew, and how your favourite celebrity matched your favourite sweet, and so on.

At this point the train stopped at Ballygunj, and a lady of twenty-three chose Abdul and Ramdas’s company over the ladies’ compartment. Moyna looked like a morning that awakened spring birds to sing. She had in her eyes the touch of a mother who had no children, and would never have any, indeed, since she was diseased in her uterus. As she rose from her lamplit seat at the platform, she looked like an angel with her two bags on her back like tumored wings, weighing her down instead of giving her flight. Even if you didn’t know her, with a little imagination, you could fall in love with her at first sight. Ramdas, and everybody else who knew her, was exceedingly affectionate to her, and she knew that.

She smilingly entered the compartment, and the train started to move again. The overhead handles began their usual motion, swaying in concert to a permeant rhyme. Ramdas was looking at her, and Abdul turned back to see her, and both returned a cheerful gaze. Inside, Ramdas felt a little uneasy, because he didn’t feel like giving Moyna the good news.

Prosperity was mostly a predictable outcome. But alas, how ill-fate was blindly scattered, he thought. Like clouds which brought rain, and like clouds that never came. Moyna was not to be told today.

Moyna sat on Abdul’s side, keeping her bags on Ramdas’s bench. Immediately Abdul turned to her, gleaming, and was about to say, ‘Ramdas here is a father again!’ but Ramdas clumsily cut him off, and to his relief, Moyna wasn’t looking at them.

‘Oh, it’s so warm! Why doesn’t it rain? Where has all the water from the jheel gone? And these customers—they’re just heartless and stupid! Look, if you don’t want to buy a lipstick, why try it on? Alright, I don’t have a good variety of underwear. But what do you want with their colour and ‘modern’ design? Nobody looks at them anyway! Sometimes I don’t want to sell all this. People who come buying so much are very, very foolish

people at heart. I tell you, I mean it. Um— do you have something cold to drink, dada?’ Moyna was choking on her new-found disappointment with the idiot-consumers of the big city.

‘Uh,’ Ramdas checked for a bottle of water in his bag, where there was nothing of the kind. ‘Wait a minute,’ and his eyes lit up. He knew he had some tea at the bottom of his drum.

‘Ey Abdul, help me out a bit.’ Ramdas lovingly poured out some tea into three cups as Abdul held them, one by one. A little lemon and ginger to taste. Luckily, he also had a couple of packets of crisp toast biscuits. With the most special cups of tea he had prepared in his career as a travelling tea-man, served at a temperature like a rare delicacy, and a plate of salty ‘Fresh Bangla Toast’, Ramdas drank to life, and in the brief span of time, amused his two guests, Abdul and Moyna, with his graciousness.

‘Ramdas dada! This is fantastic! I’ve never had a cup of tea with such ceremony! What’s with the sugar, but?’ Moyna inquired politely, because indeed, the tea was very sweet. Ramdas laughed out and said expertly, ‘This tea’s remaining from the one I made for the train going down from Sealdah. I have to make it sweeter for the down trains. It’s less sweet when I’m coming up to Sealdah. Plus, we’re having it cold and from the bottom of the container... But... I’ve surprised myself too! It doesn’t taste very bad overall, does it?’

‘Absolutely not! It seems like we’re salesmen in some royal carriage, and we’re being served a strange and fragrant Persian surah.’ Abdul raised the earthen cup and sipped with eyes closed, visualising a ride in a Mughal palanquin, someone playing a pungi nearby, his dear friend sitting before him, and his beloved beside him. It is a plaguing wonder how many desires die right where they’re born. Good Abdul will always be remembered in history as one always amongst the bravest and most fanciful in a gathering.

Moyna rose to gather her belongings as she would alight at Jadabpur. Her shoe was torn and Abdul noticed it. He looked at Moyna and Moyna looked at him. Abdul bent down and quickly with some deftness sealed the shoe to a working state in under a minute. Moyna didn’t say a word to Abdul; she asked Ramdas to help her with one of her bags to the door if he please could. Ramdas took both and they neared the door. Moyna furtively handed him a small glass bottle and looked up into his questioning eyes. Perhaps it was partly that he could guess, or that her eyes through their eloquence could be concise to the limit of a silence, and Ramdas was no longer confused.

‘May no evil ever befall her, may your and Hasrat-di’s nazar always protect little khuki. This kaajal is for her. I couldn’t be happier for all of you.’ The train halted, she smiled with her morning beauty and left. Ramdas dropped the bottle of kohl into his shirt pocket and stretched out his neck. The train picked up speed and left the station, and once into that tunnel of darkness in the bright world of those living, Ramdas could see the darkness rushing past him and the railway tracks far away, going farther and farther away. For a moment he didn’t know any movement, and Abdul came and stood beside him and Ramdas knew all movement was within.

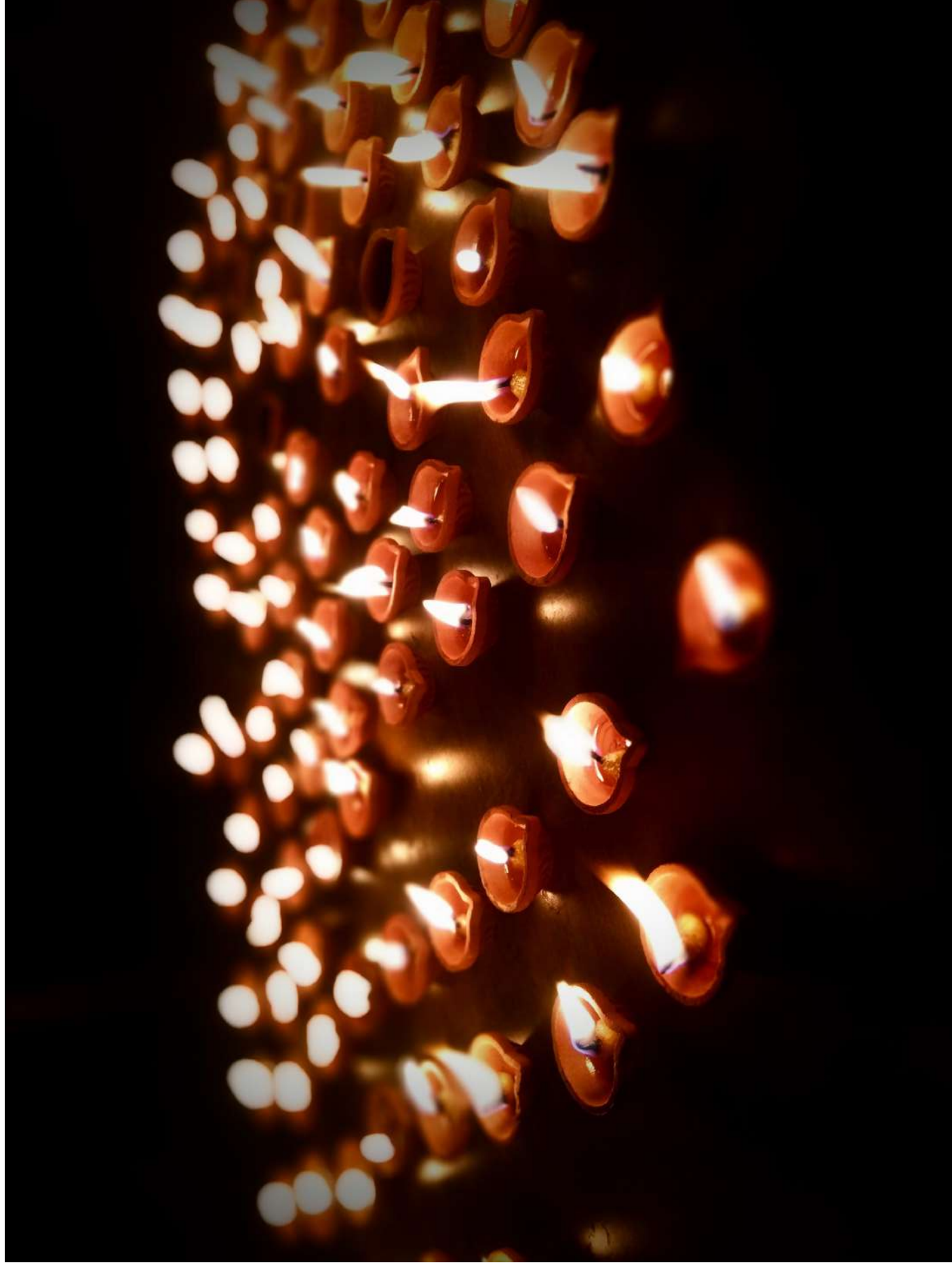
That night with my love

It is three hours past midnight
 The stars are shining bright.
 Away from the distance was heard
 The rumble of the last train
 As darkness snatched it away,
 Leaving the platform
 Bare, empty, vacant.
 Occasionally was heard
 The engine of a car
 Traversing a nearby road.
 And then silence again.
 "I like it here, quiet and peaceful – "
 Whispered a voice in my ear.
 "And me?" I asked
 While my head rested on my hands.
 And the two souls
 Under the canopy of the myriad stars
 Who had made the road their bed,
 Resting flat on their back
 Chuckled softly to themselves,
 Breaking the silence of the night.

"Kiss me," she said,
 And another beautiful chuckle followed.
 I shut my eyes and bent down to kiss,
 Yes, I did kiss,
 I kissed the road
 I kissed the dusty tar
 And my lips were dripping of
 Her cold blood.
 She had died three years ago.
 The same place, the same night.
 Reason penetrated slowly.
 Yes, I had walked in my sleep
 To open my eyes and find myself
 Weeping copiously, like a child,
 Wondering why people die but love doesn't.

-Ratul Biswas

Photograph by:
Ramachandra Bangari
2nd Year



Photograph by:
Anirban Mandal
3rd Year

Photograph by:
Ramachandra Bangari
2nd Year



Photograph by:
Pranshu Gaba
3rd Year

Photograph by:
Samriddhi Thakur
5th Year



Photograph by:
Nijin J
3rd Year

CRESCE NDO



84 Trekking Scenes In Karnataka

-Alistair Lewis

94 তিনটে গল্প

-পৌলমী চক্রবর্তী

97 Lost In Thought

-Preetham V

98 Celibate

-Sunreeta Bhattacharya

99 Miskeen

-Jadeera Abubaker

100 Three Colours

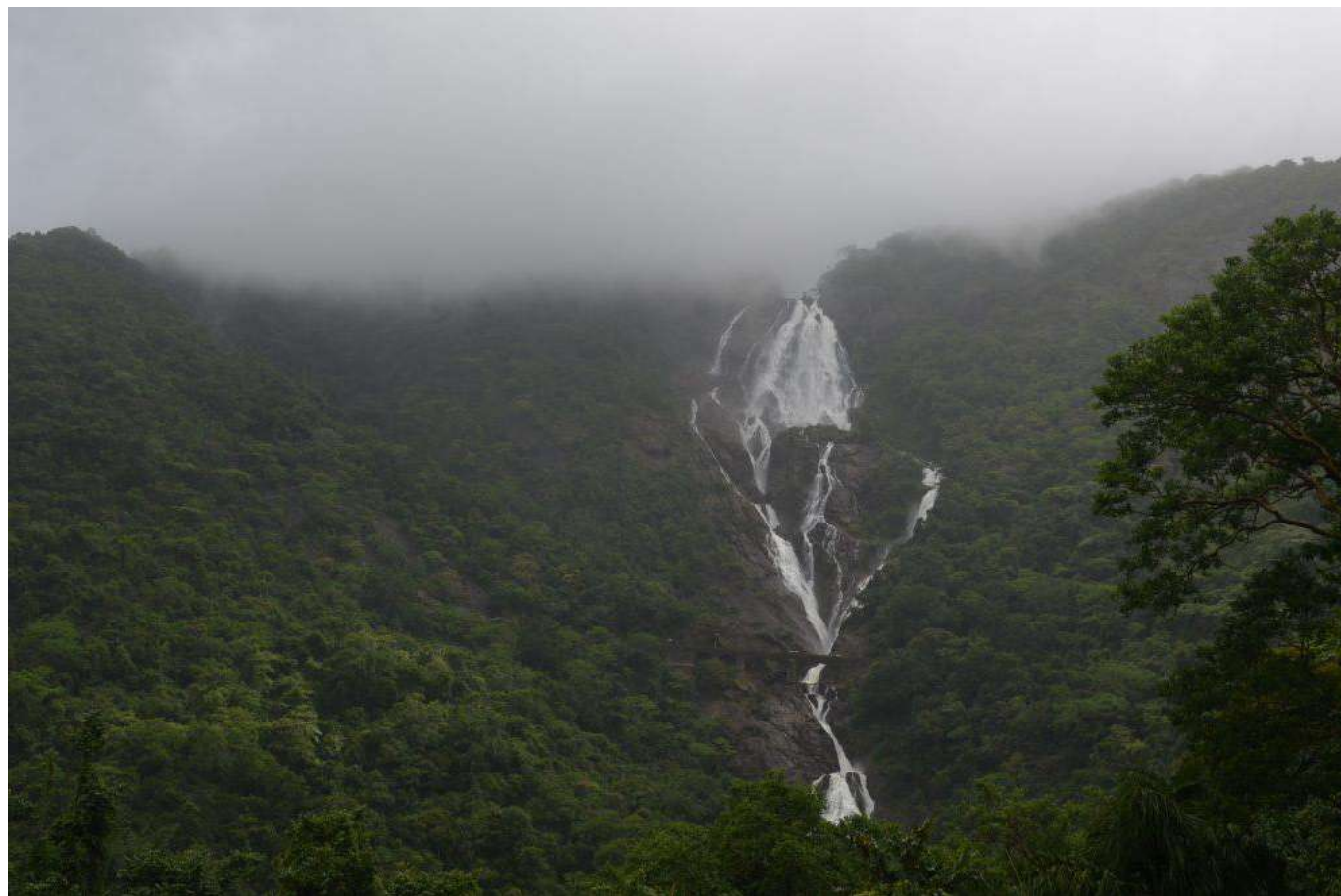
-Sabyasachi Basu

110 Rendezvous At The Office

-Aditi Pujar

TREKKING SCENES IN THE WESTERN GHATS OF KARNATAKA

~Alistair Lewis



Dudhsagar in monsoon (Photo credits: Indiahikes)

The clouds hanging over the lush green Ghats, the trek through the numerous railway tunnels and of course witnessing the Dudhsagar waterfall in all its might is something I will cherish for the rest of my life.

Glancing through the previous editions of Quarks, I noticed that there is no mention of one of the activities that I enjoy doing whenever I get the chance: trekking. My first trek was to the Dudhsagar waterfalls, along the railway tracks of Braganza Ghats, in July 2015. The trek was subsequently banned due to many accidents that took place at the waterfalls (our trek turned out to be one of the last ones). Nestled in the Bhagwan Mahaveer sanctuary on the river Mandovi, it lies right next to the railway tracks that crisscross the Braganza Ghats, connecting Goa to Karnataka. For the record, this is the same waterfall which is seen in the movie Chennai Express. I incidentally

came to know of this trek while returning from a visit to my uncle in Belgaum. There were a bunch of friends who boarded the train and were visibly excited. I struck a conversation with them and came to know that they had trekked to the waterfalls, the very same day. I was instantly hooked on to the idea of completing the trek, and the next year, I manage to coax three of my friends into joining me for the trek. The clouds hanging over the lush green Ghats, the trek through the numerous railway tunnels and of course witnessing the Dudhsagar waterfall in all its might is something I will cherish for the rest of my life. It was an exhilarating experience and I

was left craving for more.

Ever since then, I have been on a good number of treks in the Western Ghats of Karnataka (I really wish I had the time to explore the Ghats in Kerala and Maharashtra!). In this article I would like to list some of the popular treks in the Western Ghats (in order of difficulty) and hopefully inspire some of you to trek these routes. A trek organization called Indiahikes, has catalogued these treks and many more in the Western Ghats. These provide detailed information of the treks.



One of the tunnels on the Dudhsagar route (Photo credits: Ananth Kamath)



View of the Dudhsagar falls from the railway bridge.

NISHANI MOTTE & TADIYANAMOL

Nishani Motte: This is one of the easiest treks in the Western Ghats of Karnataka but offers beautiful views. The highlight of this trek, located in Coorg/Kodagu district, is the walk along a ridge to the peak, offering stunning vistas of the lush green canopy after the monsoon season. From the peak, one gets stunning views of the Bhramagiri range. In monsoon, there are dense clouds obscuring the view, but trekking in the rain is a unique experience.



Great views from Nishanimotte Peak

Photo credits: Indiahikes



Walking along the Nishani Motte ridge in Monsoon
(Photo credits: Harish L)



Final stretch to the Tadiyanamol peak (Photo credits: Aravind B)

Tadiyanamol: This is the highest peak in the Coorg/Kodagu district and third highest in Karnataka. The trek is an easy one except for the last stretch which involves trekking up a steep slope. Before that, there are a series of mild slopes and beginners falsely tend to believe that they have scaled Tadiyanamol, only to realize there is now a higher peak in sight! The views from the Tadiyanamol peak, though, makes all the effort truly worth it.



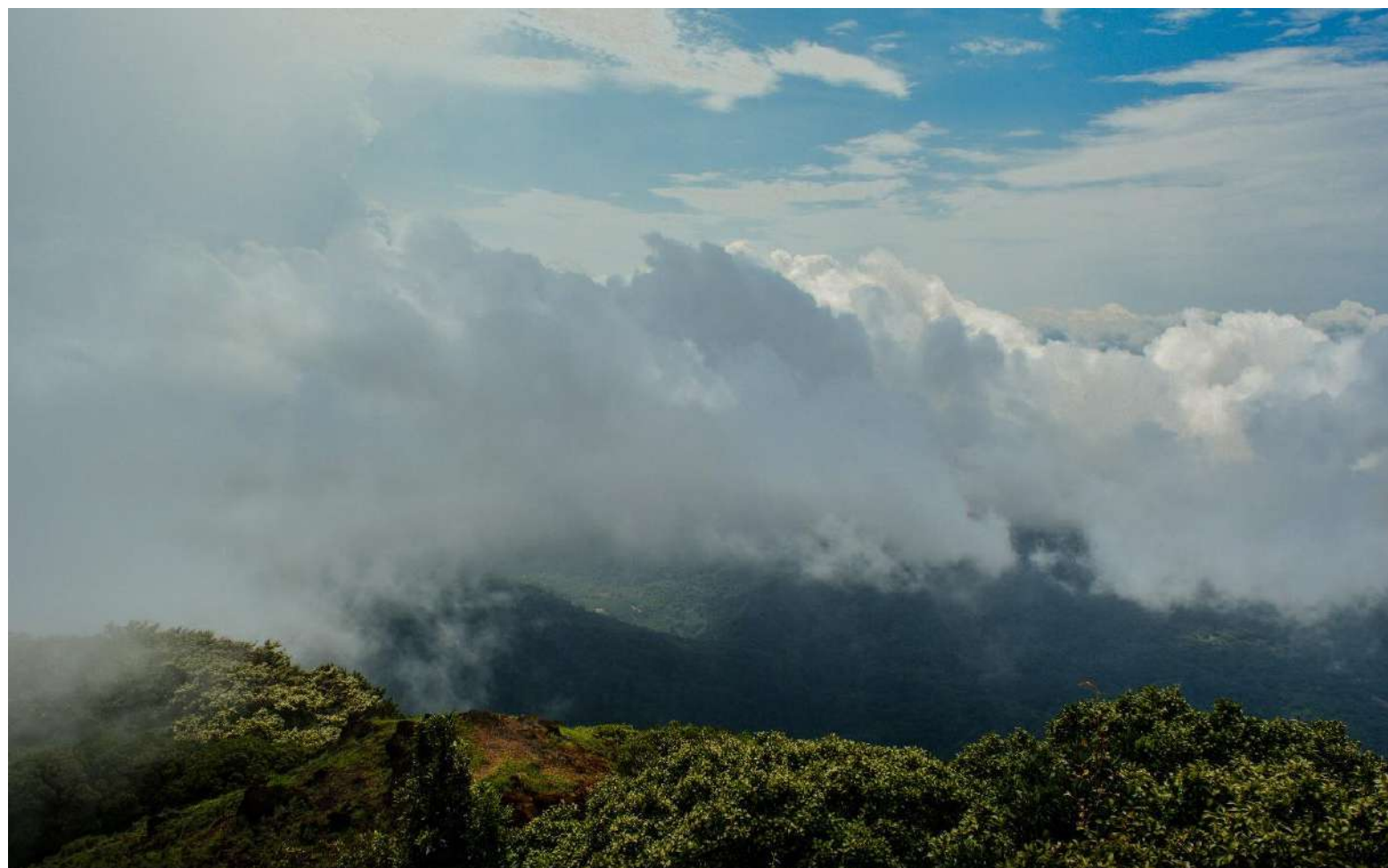
View from the Tadiyanamol peak (Photo credits: Atithi Achrya)

KODACHADRI & KUDREMUKHA



From the top of the grasslands after exiting the forest (Photo credits: Rakesh B)

Kodachadri: Located in Shivamogga district, this peak has an elevation of 1343m. The peak has a temple dedicated to the ancient Goddess Mookambika, which is visited by pilgrims. There is a jeep trail which takes the pilgrims up to a point from where they must complete a thirty-minute hike to the peak. The trek route passes through forests and a waterfall called Hidlumane falls and joins the jeep trail only in the last stretch. The trek would rate as moderate in December to February and just

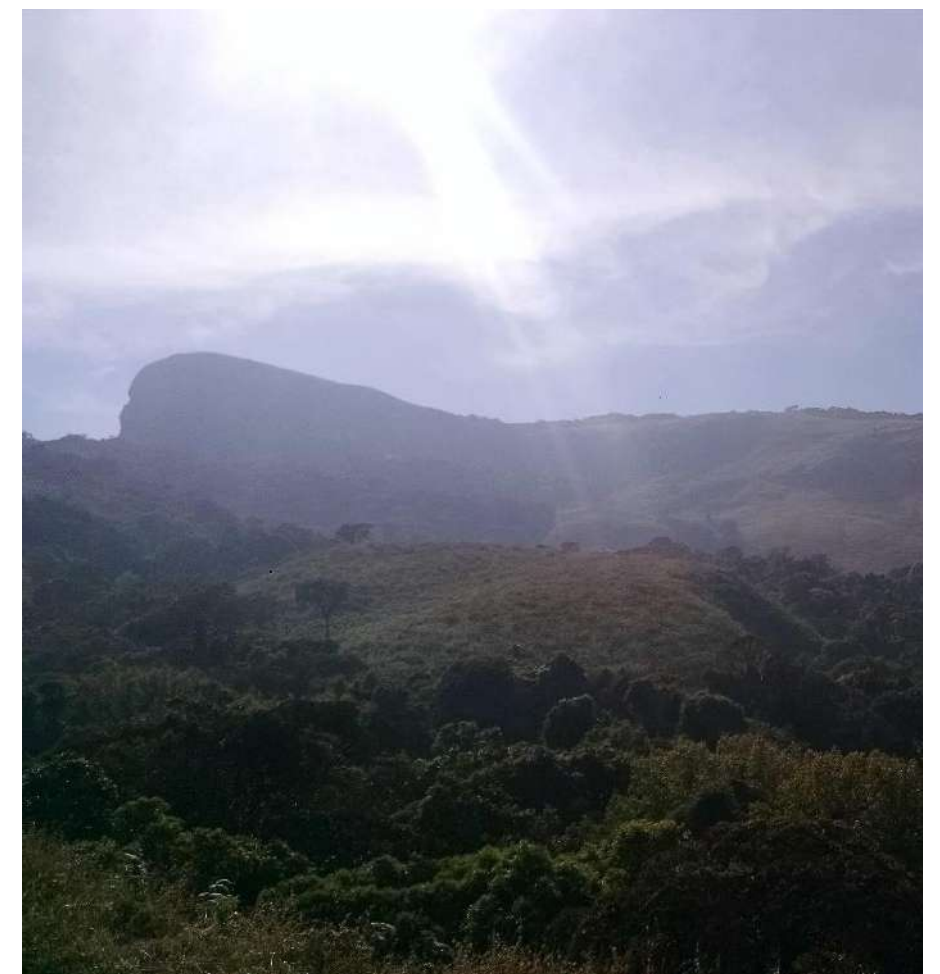


View from the Kodachadri peak (Photo credits: Rakesh B)

after the pre-monsoon rains, but a difficult one immediately after monsoons (mainly due to slippery rocks). The highlights, though, are the green grasslands, which you pass by after exiting the falls and before joining the jeep trail and the peak, which offers spectacular views of the grasslands and forests below.

Kudremukha: Resembling a horse's face (the literal translation from Kannada), the peak is in the Kudremukha national park, in Chickmagalur district. The trail passes through the greenest grasslands in the entire country. This is one trek where the journey is more beautiful than the destination and would easily rate among the most beautiful ones in the entire Western Ghats. The trek is of moderate difficulty, covering twenty-two kilometers

overall. It is only opened post-monsoon and closed starting January. According to seasoned trekkers, each of those months offers a different experience, due to the varying weather conditions - from gusty winds, thick fog and cloud cover to sunny clear skies; the blue skies perfectly complementing the green grasslands. I strongly believe that this trek should be high up on everyone's to-do trek list, simply because of its sheer beauty.



The Kudremukha peak is seen on the left of the photo.

KUMARA PARVATHA

Kumara Parvatha: KP, as it is called in trekking circles, is the hardest trek in Karnataka, testing the limits of your endurance and fitness. Located in the Kodagu district, the trek starts from the famous Kukke Subramanya temple in Dakshina Kannada district. It is a two-day trek and the main challenge lies in ascending the steep slopes, some of which pass through dense forests. Besides challenging your fitness, the trek also offers amazing views as seen in the photographs.



View from Shesaparvatha, a peak before the Kumara Parvatha peak (Photo credits: Indiahikes)

The best time to trek to the Western Ghats is immediately after monsoons, when the Ghats are the greenest. This would be in the months of September to November. Post this, the Ghats begin to dry up and the green hue turns to shades of brown due to drying grass. Also, the routes become too sunny to trek, which leads to you getting tired quicker. It is advisable that you avoid the summer, as the heat and the insufficient greenery are a double whammy. The end of May till the beginning of Monsoon, the Ghats are trekkable due to sufficient amount of pre-monsoon rain that the region receives. Most routes become very slippery, dangerous and heavily leech infested in monsoon and are best avoided. Trekking in the rain though, on some of the easy treks, like Nishani Motte, is an experience to cherish.

If you plan to trek solo, you need to do some thorough planning on travel, stay and the necessity of a guide. Most of the times, this process turns out to be a tedious one. I would instead recommend going with a trekking organization or with voluntary groups which organize these treks, at least for the first time. Typically, one leaves for these treks on a Friday night, reaches the starting point of the trek on Saturday morning, completes the trek by evening,

stays a night at a homestay and leaves for Bangalore the next morning. En route to Bangalore, if time permits, people usually visit popular tourist places for a few hours.

Trekking organizations like Bangalore Mountaineering Club and Get Beyond Limits organize these treks very well. They have two to three trek leaders depending on the group size and provide a comfortable place to stay on Saturday evening, but these turn out to be slightly expensive. On the other hand, voluntary groups like Bangalore Trekking Club (BTC), Bangalore Ascenders (BASc), Bangalore Adventurers (BAT) and Bangalore Hikers have a group size of 12-15 (as opposed to 30-35 with the trek organizations) and are organized and led by seasoned trekkers of the group. The accommodations are not as comfortable as those provided by the trekking organizations but are manageable. The overall cost with these groups is, on average, Rs 600-700 cheaper than trekking with the organizations.

The downside of trekking with the trekking groups is that treks to a particular destination do not happen on a regular basis as they depend on people willing to take up responsibility to organize the trek. Let's say you want to go on the Kudremukha

trek. The trek organizations will have one batch going every weekend in the trekking season, but the individual trek groups may organize just one or at the most two treks in the entire season to Kudremukha. There exists a possibility of you not being free on those weekends and thus not making it. I would thus recommend that if you want to do a particular trek (the Kudremukha in this example), choose a weekend when you would be free and join the trekking organizations rather than wait for someone in the trek groups to organize the trek.

This list of the treks mentioned above is by no means exhaustive. Sometimes the trek groups undertake treks to lesser known places and routes, which is a lot of fun too. I would suggest you join the google groups of these trekking groups to keep yourself updated on the latest treks and other adventure activities that they plan to undertake.

There are many reasons why I like trekking and why I believe one should take up trekking. Firstly, the stunning vistas that one sees cannot be accessed otherwise. Secondly, trekking pushes you out of your comfort zone, both physically and mentally. This helps one grow and come back as a slightly different person. Thirdly, trekking is one thing that one

cannot necessarily do when one is old, unless one has kept himself/herself extremely fit. The mind may be willing, but the body need not necessarily respond when one gets old. Hence, this is one thing that everyone should try out when they are still young.

Another reason why I like going on treks is that you meet interesting people, especially when trekking in groups. As you already have a common interest (here trekking), it is not too difficult to gel together. The groups comprise mainly of techies from the well-established IT industry in Bangalore. In fact, my knowledge of these companies has primarily come from my interactions with my fellow trekkers! I keep in touch with some of them long after the treks are done and, over time, a few of them have ended up becoming good friends. I am also of the opinion that, most of the time, we are so caught up with the work in campus that our world becomes limited to the campus. Trekking and these interactions with other trekkers makes one realize that there is a big, wide world out there!

All in all, I believe trekking provides you with a wholesome experience by challenging you physically and mentally and at the same time developing your

personality and interpersonal skills. It is a great hobby to pursue, and I hope this article has succeeded in sparking the interest in a few of you to pursue the same.

P.S: I have limited myself to only treks in the Western Ghats for this article. The organizations and groups mentioned also undertake day treks to places around Bangalore. Besides this, there are treks of varying difficulty in the mighty Himalayas, and I recommend undertaking at least one during your undergraduate years. It really changes the perspective with which you look at things. The organizations which organize these Himalayan treks are also mentioned in the links below.

Links:

Trek Organizations :

Bangalore Mountaineering Club (<https://www.bmcadventures.com/>)

Get Beyond Limits (<http://www.getbeyondlimits.com/>)

Voluntary groups :

Bangalore trekking club (<http://www.bangaloretrekkingclub.com/>)

Bangalore Ascenders (<https://www.bangaloreascenders.org/>)

Bangalore Adventurers (<http://www.bangaloreadventurers.com/>)

Bangalore Hikers (<http://www.bangalorehikers.com/>)

Himalayan Treks :

Indiahikes (<https://indiahikes.com/>) (They are the market leaders and take very good safety measures. They have a wealth of information on their site about each trek and on the challenges of high-altitude trekking.)

Trek the Himalayas (<https://www.trekthehimalayas.com/>)

Bangalore Mountaineering Club (<https://www.bmcadventures.com/>)



তিনটে গল্প

পৌলমী চক্রবর্তী

গরমের ছুটিতে IISc র বাকি সব বঙ্গসন্তানদের মতো বাড়িতে বসে ল্যাদ খাচ্ছি। মাঝে মাঝে রান্নাঘর থেকে ভেসে আসা কষা মাংসের সুবাসে টেনিদার বন্ধু প্যালায় মতো উদাস হয়ে যাচ্ছি, আর হাতের সামনে পড়ে থাকা পুরোনো ডায়েরিগুলো কেমন যেন নস্টালজিক করে তুলছে। মনে পড়ছে ছোটবেলার অল্পে আনন্দ আর অল্পে দুঃখের দিন, ব্যস্ততাহীন বিকেলগুলোতে মাথায় আসা যত বেকার চিন্তা। এর মধ্যে হঠাৎ করে খুঁজে পাই আমার ক্লাস টেনে লেখা তিনটে গল্প। বিশাল উৎসাহে পড়ে বুঝতে পারলাম, তিনটে গল্পই ভুল। অথচ আমার স্মার্ট ব্লাউজ পরা আর বেণী দুলিয়ে ঝগড়া করার দিনে “আলাউদ্দিন খলজী” আর “রবীন্দ্রনাথের প্রতি” দিয়ে সাজানো বন্ধ ঘরে জানলার ছোট ফাঁক দিয়ে আলোর দিকে ওড়ার স্বপ্ন দেখার সময় এগুলোকেই ঠিক মনে হয়েছিল। তাই ভাবলাম, লিখেই ফেলি- আমার লেখা সেই তিনটে গল্পের সংক্ষিপ্তসার আর তাদের সঠিক সমাপ্তি।

প্রথম গল্পটা ছিল একটা মেয়েকে নিয়ে- একটা সৈনিক মেয়ে- শক্তিশালী- সাহসী- দেশের জন্য প্রাণ দিতে যার কোনো দ্বিধা নেই। তীর বর্ষণ আর ঝড়ঝঞ্ঝার মধ্য দিয়ে মেয়েটা তার বাহিনীর সাথে একটা দুর্গম পাহাড় অতিক্রম করার চেষ্টা করছে আর পাহাড়ের ওপারে থাকা শত্রুপক্ষের বন্দুক থেকে ঝাঁকে ঝাঁকে ভেসে আসছে বুলেট। হঠাৎ এক সহযোদ্ধার সাথে চোখাচোখি হয় মেয়েটার, আর তারপরেই হয় পদস্খলন। মেয়েটা বেঁচে যায়, হাসপাতালে চিকিৎসার পর ওর ব্যাথাও কমে যায়- কিন্তু দাগগুলো, মেগুলো থেকেই যায়। গল্পটার নাম ছিল ‘ক্ষত’। তখন বুঝিইনি, সেই পদস্খলন সঙ্গেও মেয়েটা আবার যুদ্ধে ফিরে যাবে- পেরোবে আরও দুর্গম পাহাড়, শীতল গিরিখাত আর খরস্রোতা নদী - রাতের পর রাত, দিনের পর দিন কাটবে অজস্র আঘাতের পরিচর্যা করে ; আবারও আসবে আরও বড় বড় পদস্খলন। কিন্তু মেয়েটা কিছুতেই থামবে না, এগোতে থাকবে- আঁধার কাটিয়ে- কুয়াশা পেরিয়ে নতুন সূর্য দেখবে বলে।

এই গল্পটা ছিল খুবই সোজাসাপটা, যাকে বলে “মেইনস্ট্রিম”। এবার আসি পরের গল্পটায়। গল্পটার নাম “ভাষাহীন”। হিমাচল প্রদেশে সিমলা থেকে কলপা পেরিয়ে পর্বতের পাদদেশে বসপা নদীর তীরে একটি গ্রামের নাম “ছিটকুল”। সেখানে এক মধ্যবিত্ত বাঙালী পর্মটক পরিবারের ছোট সাত বছরের ছেলে সায়ন মুগ্ধ হয়ে যায় ছোট পাহাড়ি মেয়ে লাল সোয়েটার পড়া অঞ্জলীকে দেখে। ভিডিও গেম নামিয়ে রেখে এক কাঁচের জানলার এক পাশ থেকে অপলক দৃষ্টিতে তাকিয়েছিল সায়ন, কাঁচের উল্টোদিক থেকে একইভাবে তাকিয়েছিল অঞ্জলী। একটা প্লাস্টিকের ফুলও দিয়েছিল ওকে। গল্পটা শেষ হয়েছিল এইভাবে, অনেক বছর পর সায়ন বন্ধুদের নিয়ে আবার একই রাস্তায়- আর হঠাৎ গন্ডগোলে জানা যায় যে স্বামীর অত্যাচারে আত্মহত্যা করেছে অঞ্জলী বলে একটি আঞ্চলিক মেয়ে। নির্বাক হয়েই থেকে যায় সায়ন, আগের মতো। গল্পটার যেটুকু আমি তখন বুঝিনি, সেটা হল- অঞ্জলীর খবর শুনে চমকে ওঠে সায়ন, আর সাথে সাথেই তার ঘুম ভেঙে যায় অপরাধিতার ডাকে “ আরে! নটা বাজে। ব্রেকফাস্ট হয়ে গেছে, খেয়ে তৈরি হয়ে নাও, অফিস যেতে হবে তো!”

তৃতীয় গল্পটা আরেকটু অন্যরকম। প্রকৃতি বলে একটা মেয়ের গল্প- বড়লোকের ঘরের আদুরে মেয়ে- আর বাংলা বা হিন্দি পর্দার যে কোনো টিপিক্যাল নায়িকার মতো নিজের স্বপ্নের রাজকুমারের প্রতীক্ষায় দিন গুনতে ব্যস্ত। মেয়েটার জীবনে আসে তিনটে ছেলে- ধরে নিলাম ওদের নাম সৃঞ্জয়, দেবপ্রিয় আর রণজিৎ। সৃঞ্জয় হল “cool dude play boy”, দেবপ্রিয় গোলগাল কিউট সাধারণ একটা ছেলে আর রণজিৎ সারাফণ পড়াশোনা করা সিরিয়াস চাপা স্বভাবের আনস্মার্ট একটা ছেলে। প্রকৃতির সৃঞ্জয়কেই পছন্দ হয় আর বাকিদের সাথে দুর্ব্যবহার করে তাড়িয়ে দেয়। এরপর একটা সন্ধ্যা প্রকৃতির জীবনে সব কিছু কেমন হঠাৎ করে বদলে দেয়। কলেজের সব বন্ধুদের একটা পার্টিতে সৃঞ্জয় মাতাল অবস্থায় জোর করে প্রকৃতির শরীর পেতে চায়- আর প্রকৃতি বাধা দিলে তাকে আঘাত করে চলে যায়। প্রকৃতির হৃদয়টা হাজার টুকরো হয়ে যায়- যখন তার সামনে আসে সৃঞ্জয়ের আসল রূপ। সেই সময়, যখন তার প্রয়োজন হয়ে ওঠে একটা আশ্বাসের হাত, মাথা রাখার জন্য একটা কাঁধ, দেবপ্রিয় তাকে এড়িয়ে চলে যায়। তারা ভাঙা হৃদয়ের যন্ত্র করতে এগিয়ে আসে একমাত্র রণজিৎ। পরবর্তীকালে, ওদের বিয়ে হয়, আর ব্যালকনিতে দাঁড়িয়ে এসব স্মৃতিচারণ করে প্রকৃতি। গল্পের নাম “অপ্রত্যাশিত”। এটা তখনকার সমাপ্তি ছিল- এর পরে আসল গল্পে প্রকৃতি আর রণজিৎের বিয়েও কবেই ভেঙে গেছে দেবপ্রিয়র সাথে প্রকৃতির পরকীয়ার জন্য। তার পরে দেবপ্রিয়র প্রিয় বন্ধু সাল্লিকের সাথে এক বছরের সম্পর্ক, এবং তাও ভেঙে এখন প্রকৃতি সৃঞ্জয়ের মতোই আরেকজন- আদিত্য সিনহার সাথে বিবাহবন্ধনে আবদ্ধ। সত্যিই, প্রকৃতি প্রথমবার ভুল করেছিল ঠিকই- কিন্তু এত কিছু পর যদি পার্থক্য প্রকৃতিকে “বাজে চরিগ্রহীনা মেয়ে” ভাবেন, লেখিকা হিসেবে আমি খুব বেশি অসম্মতি জানাবো না।

বছর চারেক পর অনেক ঘটনা ঘটে গেছে- বাড়ি ছেড়ে বহুদূর এসে অন্য একটা শহরকে নিজের বানিয়ে নিয়েছি। গল্পগুলোকেও হয়তো মনগড়া, নিজের বানিয়ে নিতে পারতাম। কিন্তু, ঠিক হতো না। আসলে আমাদের শরণ বাবু বলে গেছেন, গল্প কেমন যাবে, তার দায়িত্ব লেখকের নয়, তা একান্তই কর্মীর।

LOST IN THOUGHT

Preetham V

*He was very sad
Office was a pain
Work kept piling up
He was tied to a chain*

*She was very excited
To see her grandson
The little boy she once held
Would hold his own one*

*He was very conflicted
Hostel life was nice
But leaving home was hard
Tears in his mom's eyes*

*She was very restless
The deal was worth a lot
Her startup was struggling
But her resolve was not*

*He was very content
To finally see his God
He'd climb the temple stairs
Old man with a walking rod*

*She was very sad
Her teacher was no more
Who'd taught her to dance
To the count of four*

*Each of them was lost
In the thoughts of their call
"Ticket! Ticket! Ticket!"
The conductor asked them all*

Celibate

-Sunreeta Bhattacharya

*The cherries at my feet
could have only come with a storm bringing this rain;
this rain that dies in the distance to please us once
cannot be more familiar
to someone who's lived in the sky,
watching many clouds die
to no conclusion— yet,
some end is imminent
if you're looking for the rain.*

*The May-born rain gives a name
to all the lands we'll be in
in a language yet unconceived,
but therein simple and assuring,
for nameless names have their own library.*

*The waves that have settled in these meadows
are silent tonight, grateful in the dark—
their wetness is their gratitude.
Now you know what prayer and what incense
it is if you press your face close enough to the earth
on a May-born evening as this.
A yellow, feeble lamplight
lends its blinking eyes
to a surveying wind
so it would know
if some restless moisture
still awaits a pick-up.
Some company, I fear, will soon
be gone with the wind.*

*Time has its own closet for certain May-born evenings,
and a bolt of thunder in late November
might remind the forgetful
what it is like to be a blade of grass
clinging on to a wet dream.*



miskeen

There once lived a man,
who laughed all morning long,
perfectly fine, perfectly good,
the happiest man in town;
but when the withering nights came,
and there was penance to be paid,
for mistakes made long ago,
must in measure be repaid.
And he was left crying,
all the night long;
and in the morning he awoke,
beady eyes and swollen face,
pale and dead with rotting eyes,
he straightened his hair,
put on his coat,
swung open the door,
and began to laugh again,
and all the town knew him,
as the happiest man there ever lived.
-Jadeera Abubaker

Three Colours

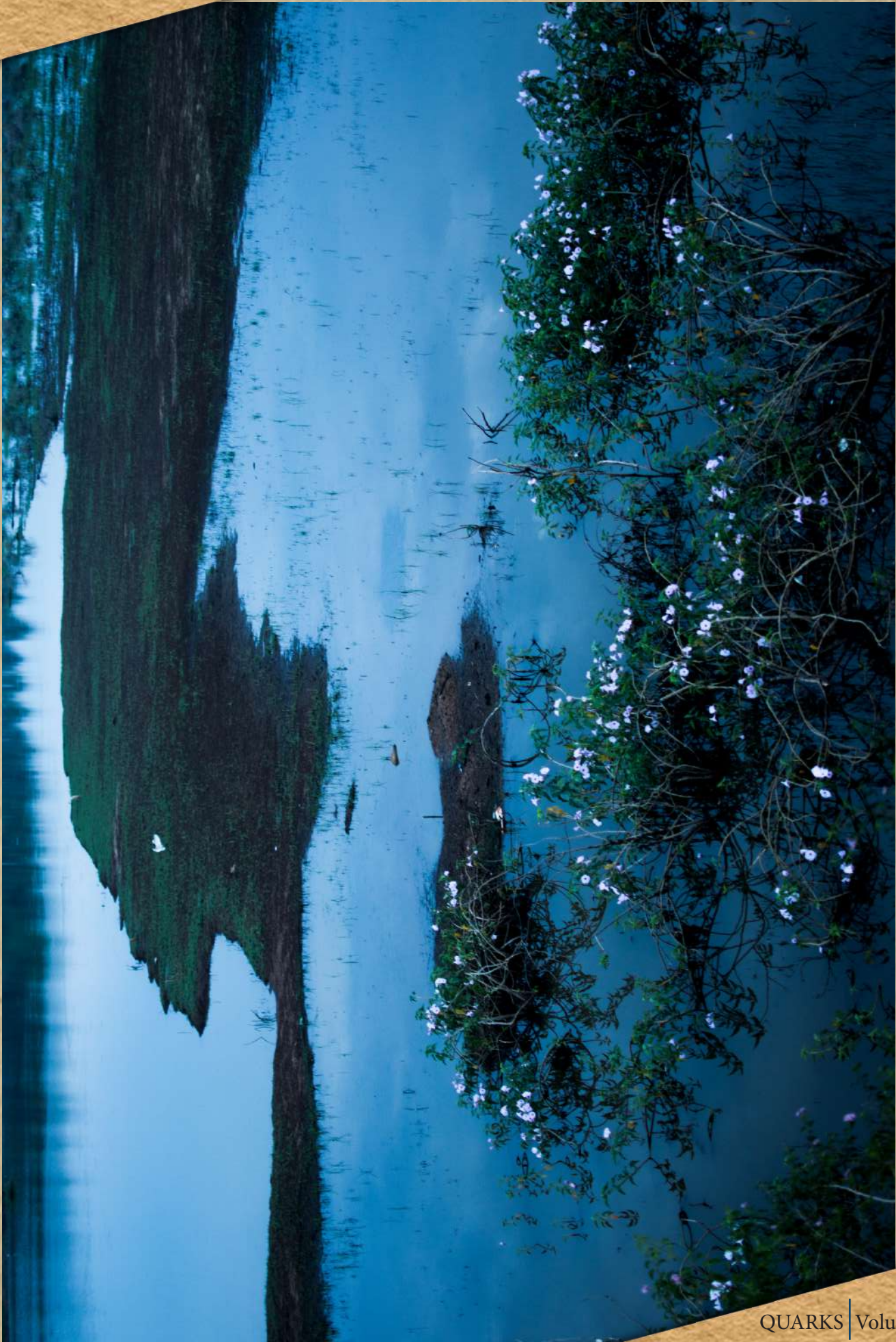
~Sabyasachi Basu

It is perhaps an understatement to say that colours are irreplaceable in human life. For millennia, colours have played a significant role in shaping and moulding human emotion and response; be it due to evolutionary connections that have been there for hundreds of thousands of years, or cultural connotations. To quote the Bauhaus master Paul Klee, “Colour is the place where our brain and the universe meet.”

Needless to say, interpreting colour need not (and almost invariably, will not) follow concurrent paths. Green, which is often associated with jealousy, is the colour of luck for the Irish; at the same time, the Chinese see red as the colour of good luck.

Colour photography has come a long way since the Lumière Autochrome of 1907, and a large part of the credits goes to the pioneers in the second half of the 20th century. Most notable of them was William Eggleston, the laconic photographer from the American south. Often referred to as the ‘Godfather of Color Photography’, Eggleston’s simple images, many of which are of everyday objects, are credited with establishing colour as a tool of the aesthete and not just the prerogative of those dabbling in clichés and banality.

The three primary colours, although often replaced by others in electronic displays and in printing, play an important role in colour theory and photography in general. To me, red is the colour of energy and excitement, yellow of warmth and familiarity, and blue of calmness and tranquillity. In this section, I present a piecemeal portfolio of 9 photographs taken over the last few years, each associated with one of the primary colours.



March 2018, at Hongnur lake close to Ramnagara. The photograph was taken in the early hours of the morning, also referred to as the blue hour.



At Suzhou's Tiger Hill, a UNESCO World Heritage Site, in July 2018.



A late afternoon in July 2018, on the metro connecting Shanghai and its eastern suburb of Zhujiajiao



A narrow lane in South Kolkata during Durga Puja, October 2018.



A performance at Spectrum 2018 in March, at IISc's JN Tata Auditorium.



A meat shop at the Shivajinagar market in the late hours of evening, September 2018.



A band performing on the last day of Durga Puja in North Kolkata in October, 2018.



Rendezvous at the Office

~Aditi A Pujar



It is notorious yet necessary; every undergrad student has passed through the hallowed halls of the UG Office. The beauty of the office lies in how deeply entrenched both its infrastructure as well as its staff are in the beginnings of IISc's most celebrated programme. This year, Quarks decided to be the lens for us undergrads to see the people who make the UG Office what it is.

Nandini :

Nandini ma'am handles bills and finance related matters at the UG Office; she is also the braveheart who has survived the onslaught of the past two years, of demonetisation and GST. While she joined in the September of 2015, post an M.Com and some banking experience, she learnt on the job; at first assisting a Mr. Harish, then taking over the responsibility of finances entirely. Unlike most others she faced no hiccups with increasing digitalisation. Moreover, "even demonetisation did not hit us hard because most of the transactions here are cashless. But when GST hit... we had vendors all over the place, demanding certificates. But, we managed like we must", she smiles. She enjoys antakshari, attending similar competitions when she can take some time off her schedule.

"IISc is a place of learning. Pass on whatever knowledge you have, only then can you grow."



Swati :

Swati ma'am handles student matters: schedule preparations, termination and revoking of letters. She has been here for three years and has "learnt a lot upon coming here, having made the transition from commerce to an administrative position". She shares a great rapport with the students, remembering many by name and face. She actively takes part in the competitions and events organised by the Kannada Sangha and the Tata Memorial Club and enjoys badminton, carrom, and antakshari.

"IISc is heaven in every sense. Appreciate it."



Hema :

Having joined in 2012 when the OPB was inhabited by undergrads for the first time, Hema ma'am has braved through the days of yore when every form was offline. She handles course registration, dropping, and feedback. She has also overseen the processing of every undergraduate degree certificate. She is also in charge of the scholarships, handling KVPY, Inspire and other IISc promotional schemes. While the digitalisation of the said forms has been slow but steady, she has kept abreast of the changing technologies. She nurses an almost maternal affection for the students and takes great pride in working here, saying:

"Every child here is worthy and deserving. Don't be judgemental; include everyone in your midst."

**Shwetha :**

Shwetha ma'am is responsible for student academic records, transcripts and yes, the dreaded attendance criterion. Despite having been here for more than 5 years (she joined in 2013), she maintains zest for the job, saying "I think of myself as a student and that I am still learning here. Student interaction is great". She takes pride in the fact that UG Office handles a large group of students (~400 now, as opposed to the 200-odd students when she joined office). "I make it a point to try and attend the events our talented students organise: be it the UGTS, Pravega or your Convocation", she says, even as she shouts down her involvement in the same ("If you can organise it at such a young age, at this age, can't we at least help you?")

"Self-motivation is the key to success; only it can unlock your true potential"

**Ranganath :**

Ranganath is almost omnipresent around MLH and OPB; not only do we see him ensuring things are fine at 11:00 in the night, we also see him at the crack of dawn (that's when classes start of course, 8:30 is an unearthly early hour). Ranganath has been at IISc for the past 35 years; after joining at the Mechanical Department in 1984 and stints at the Library and the NCSI, he finally joined the UG Office at its conception in 2011.

He has seen a great deal of change: he speaks of the time when the MLH housed Aerospace Labs; the entire Physics Division was in the OPB and the Bioinformatics Department was near the Xerox Centre. He has "seen a lot of new departments come up and old ones get renovated", so much so that he has witnessed "the entire complex of

Chemistry departments developing: MRC, SSCU and so on".

Hilarious as it may seem, there was apparently a time when portions of the campus had to be cleared of bushes and undergrowth because they had grown to a frightening excess.

Ranganath wistfully recounts memories of the beginnings of the UG Programme: "the pioneer batch were a good bunch of kids. Decent, respectful and helpful. There was a lot of give-and-take: the students sometimes helped us physically unload and carry equipment into labs. One memorable time, some material reached at 1:00 in the night and I received panicked calls from the students. I have rushed in here at that hour to sort things through."

Now he handles the students' SR files, that are slowly inching toward digitalisation. However, most other documents: transcripts, transfer certificates and no due certificates remain manual menial labour, he laments.

Now, it is Ranganath's responsibility to open the UG Office and the classrooms at the MLH and the OPB in the mornings and ensure overall smooth running of the classes; this involves regular checks of the ACs, markers, projectors and so on. He often dispatches Xeroxes of various papers and important documents. He is also the caring boss to the five helpers of the UG Complex and they adore him. He also helps run the Placement Cell tests in the OPB; quite a challenge as different companies ask for it to be conducted at differing and often odd hours.

He is also an invaluable asset to every event we organise logistically. Pravega and iGEM India 2018 owe a great debt to this man; we are lucky he has our backs during these endeavours. You can take yours truly's word for it.

"Everything in life can be used and misused. UG is blessed with a lot of facilities. Students should know what to do with them."



Ravi :

Ravi Sir is another pillar of the UG Office, who has been here right from the inception of the Undergraduate Programme, after having joined it in 2011. In fact, when the nucleus of the UG Office started forming, in the March of 2011, the MLH and UG Office premises were getting renovated.

"The First UG Dean, Chandandas Gupta was great, the pioneer batch students were great; I have been enjoying my time here. In fact, the past 8 years seem to have passed rather quickly", he says.

He then reminisces about the initial difficulties they faced, as the programme blossomed: "Initially, the classes were being conducted in the old Biochemistry Department premises. When we shifted here, we had to transfer all the desks and such to the MLH (this being the first year, we hadn't occupied the OPB yet); we also had to set up the labs. So many times, the students themselves helped in the physical ferrying of equipment and material. We have done this night after night, to the extent that for a while I could not sleep after this was completed. Chemistry labs were done on regular tables; in fact they were done on the same tables present in the MLH Wifi Room this instant", he grins. "Speaking of the Wifi room: you ever wonder why it has a sink? It is because it used to be the Biology Lab." The Physics Lab was merely an empty room on the first floor: sans equipmet, sans tables. "Shivanna and I scoured the ends of the earth to source those tables", says Ravi.

Now, much like Ranganath, Ravi's responsibilities consist of ensuring the smooth running of classes,



by routinely checking on the ACs, projectors, mics, markers and chalk pieces. "The deans are so busy, we cannot bother them with every small issue that crops up. So, many times, things depend on our discretion", he says, proudly.

Again, much like Ranganath, yours truly can testify to what a boon this man is, when it comes to the logistics of event organisation. He however, laughs off the praise, and says "The student learns from the teacher; we have been very lucky to have such role models in our deans." He recounts a harrowing incident at the time of admissions, when he stayed up until midnight with the deans as some students had not been allotted proper rooms. "Things are much easier now, software has simplified everything. But to this day, the UG Office cares just as much about every one of its students."

The beauty of the next words he says in Kannada is lost in translation; however, the essence of it is:

"In all my years of service, at the library, at mess and at the Hostel Office, nothing has given me as much joy as working in the UG Office has. It taught me to believe in myself: I went from someone who would be dumbfounded around technology, to someone with the confidence to meddle with mics and projectors and fix them.

To me, working for this institute is akin to working for God; she has been my livelihood, my bread and butter, my second mother."

"Treat people as you wish to be treated; do good to world and the world will do good by you."

Ashwath :

July 1, 2011 was his first day in Office. Ashwath sir, remembers everything about that day very vividly and describes it as such, too: The erstwhile UG Library was in the current UG Office; there were 4 tutorial rooms in the UG Building (with the current UG Library having been a tutorial room) and his cabin was the one next to the current Dean's cabin: a plain room, sans even a table.

From there, Ashwath canters even further down memory lane: "I joined IISc after doing my BA from National College in 1992, and was in the Audit Section. It has been 26 long years since then. I remember the day the Deputy Registrar in the Academic Section, Gayathri sir, called me in and told me about this. The opportunity to set up an office from scratch at an institute of such excellence, that too for a programme the nation takes pride in... I was overwhelmed. This has been a true boon to me, a 'god-gift', if you will.

Auditing is very different from academic matters; up until then, I had only dealt with matters pertaining to the Finance and Purchase section. So I was then shifted to the academic section for 8 months worth of training; learnt things like how to safeguard student files. Even for a relatively inane exercise, I felt that I was safeguarding my students' files."

"While according to the Institute's records, the UG Programme began taking form in April and the term was slated to start from August, for me: from the first of July onward, I was given precisely a month to set up a functional office from scratch." "During this time, meeting our first Dean, Prof. Chandan Dasgupta and the pivotal visionary behind the UG Programme, Prof. Raghavendra Gadagkar are memories I recall with pride."



"Meanwhile, the UG infrastructure was developed with the help of Mr. Umarji. There was also a committee devoted to this, called the Project Management Group. Srinivas Iyer, the erstwhile Section Officer too had an integral role to play." True to the above-mentioned deadline, on the 1st of August, 84 fresh-faced youngsters, who would easily be the youngest students in the campus turned up. "And from there began a different chapter in this story", smiles Ashwath. When the first batch arrived, only the immediate necessities were in place: i.e. only the first

semester labs had been set up, with the keen effort of Mr. Srinivas, Mr. Hegde, Mr. Ramakrishna and Mr. Umarji. Undergrads only moved to occupy OPB in 2012, as the pioneer batch entered their second year.

Amongst his fondest memories of the first year of IISc UG, are fortnightly screenings of documentaries that were organised by a Dr. Kevin, the erstwhile Biology Instructor at the MLH.

Even Ranganath and Ravi recall these with wistfulness. Much like them, he too recalls the days when classes were conducted at the old Biochemistry Department. For the first few batches, English-speaking classes were held for the students' benefit but was discontinued after a while.

Interestingly, "In the academic year 2012-2013, for one year, we as a Programme adopted four animals at the Bannerghatta zoo. One of the instructors worked on apes, so he knew that this was an initiative launched by the zoo. I still remember our students running to tell us about it when it made the news; apparently a plaque had been put up saying students of a National UG Programme had taken this initiative".

Even as the UG Programme grew by leaps and bounds, in April 2015, Prof. Chandan Dasgupta retired as Dean and went on to become an advisor instead; it was then that Prof. Umesh Varshney took over with Prof. PS Anil Kumar and Prof. BR Jagirdar as the Associate Deans. Then in 2016, Mr. Harish, who handled all the Finances and was one of the initial Golden Quintet (of Ashwath, Ravi, Ranganath, Tulasi and himself) retired. In the words of Nandini ma'am, "one of the hands of IISc UG was broken"; however Ashwath persevered. "In time, Prof. Anjali Karande became the Dean and then, only recently, Prof. Anil Kumar took up the mantle", recounts Ashwath. "Thus, this way, I have served under 4 deans so far."

Ashwath has a keen sense of nostalgic value: as mentioned earlier, he did not even have a table on his first day, setting up the UG Office. After

procuring one by precarious measures, he still uses the exact same table to this day. He has a folder containing all the files he created and used on his first day here. To this day, the folder remains on his Desktop.

The conversation then shifts to how the analog-digital revolution has changed matters: while he admits that the pace of change has been slow, it has also been steady. "Course registration and feedback has become an online process now, as has the regular correspondence with the students."

Even as he talks about interaction with the students, he says, "Till date, not a single student has expressed any dissatisfaction with the way the Office is run; not one has ever kicked up a fuss".

"Such a relationship with the students is important; without feedback and cooperation of the students, I would not have been here today." Moreover, "The Deans genuinely care about each and every student. While it is probably inevitable in such a competitive programme, our students have often faced mental health issues. Our Deans have been never brushed the issue under the carpet; they have tried their very best on every level to reach out to their children and help them overcome it". "It is because of this that parents too feel connected with the Programme; there have been countless times when they have distributed sweets to us when celebrating their ward's achievements".

He has a special place in his heart for the students of the first batch; "the kids even helped unload equipment from trucks and put them up". "With every batch, the attitude of the students hasn't changed; they remain just as helpful, just as friendly and just as respectful".

He then talks of all that runs through his busy mind, from maintaining classrooms and housekeeping, to student files to coordinating with the faculty to determine scheduling of classes and exams; he grapples with all of this on a daily basis.

Despite the demands and stress of his work, he says the office environment "is simply the best". "Every Dean I have worked with so far has been extremely gracious; they are humble and calm. I also flatter myself that till date, I have never given any of them an opportunity to be displeased with me". He tries to inculcate the same work ethic in the UG Office too, he says. "Though one's energy and patience is often tested, especially having been in the same rigmarole for 7 years, we try to remain positive".

To unwind, Ashwath enjoys music and movies

and folk arts like dollu kunita. He also used to play lawn tennis but has not been able to lately, because the sedentary nature of his work has taken its toll on him.

He finally rouses himself from the all reminiscing: "This Office which I have nurtured and seen grow is one of the greatest of God's gifts to me in this lifetime."

"Work is worship and IISc, our temple."

Photograph by:
Ramachandra Bangari
2nd Year



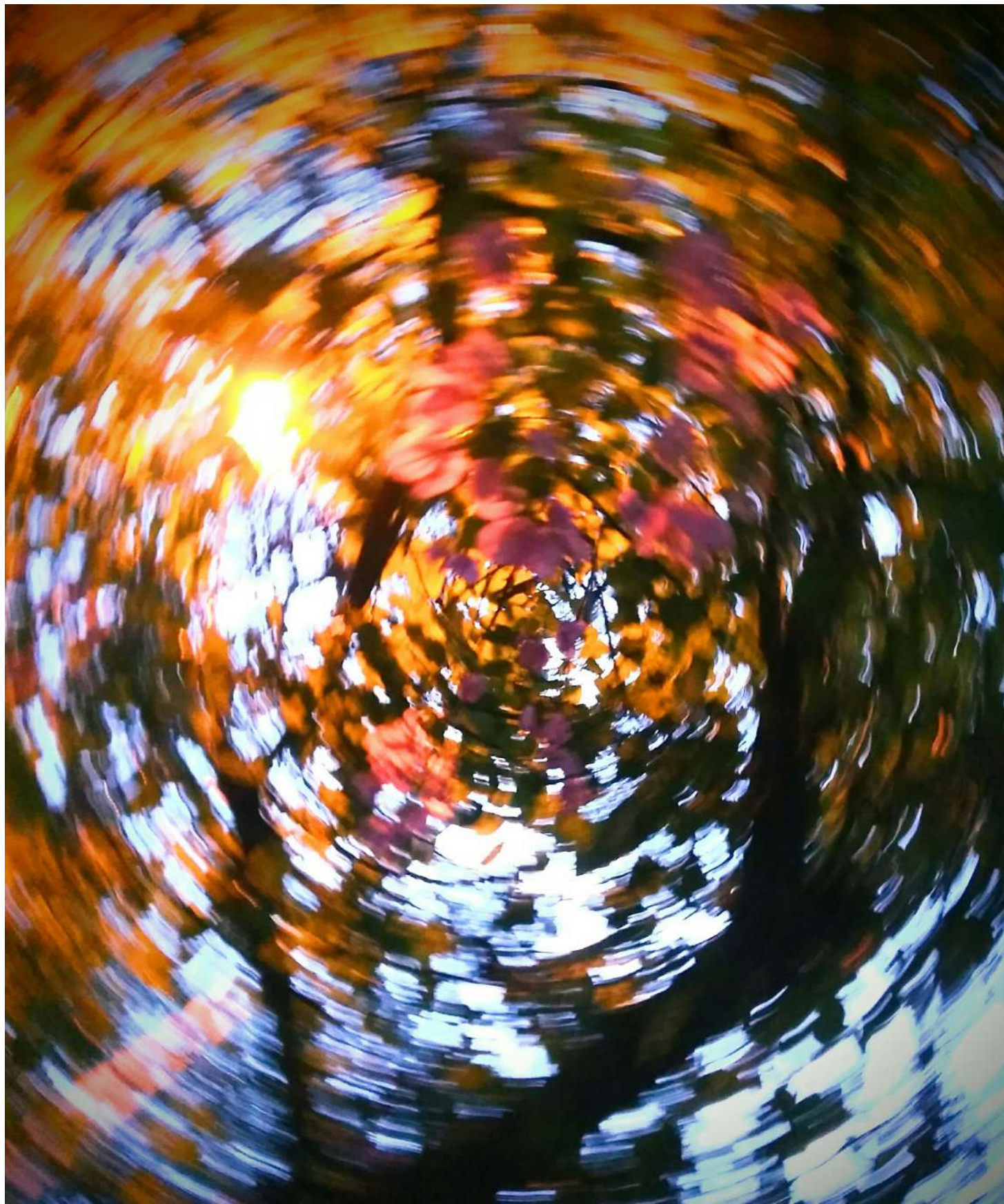
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3rd Year



CATASTROPHE



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ಸಾವಿರ ಮಾತುಗಳನ್ನಾಡಿದರೇನು ?

~ಭೂಮಿಕಾ ಅಶೋಕ್ ಭಟ್ಟ

ಮನದ ಮಾತು ಕಾಗದದ ಮೇಲೆ ಇಳಿಸಿ ಹಗುರಗೊಳಿಸುವ ಸುಖವ ಸವಿದಾತ ಮಾತ್ರ ಬಲ್ಲ. ಋಷಿಯಿರಲಿ, ಕೋಪವಿರಲಿ, ತಿಳಿಯಾದ ಕಾಗದದ ಮೇಲೆ ನೀಲಿ ಶಾಯಿ ಮೂಡಿಸುವ ಅಕ್ಷರದ ಚಿತ್ತಾರ ತಿಳಿದೋ ತಿಳಿಯದೆಯೋ, ಭಾವಗಳ ಕನ್ನಡಿಯಾಗಿ ಅಚ್ಚಾಗುತ್ತದೆ. ಇಂದಲ್ಲ ನಾಳೆ ಮತ್ತೆ ಅದರತ್ತ ಕಣ್ಣು ಹಾಯಿಸಿದಾಗ ಸಿಗುವ ಸುಖಕ್ಕೆ ಪಾರವಿಲ್ಲ. ಅಡಿದ ಮಾತುಗಳು ಕಳೆದುಹೋಗುತ್ತವೆ. ಕಾಲ ಉರುಳುತ್ತದೆ. ಆದರೆ ಈ ಕಾಗದವೆಂಬ ಸುಂದರಿಯು ಬಚ್ಚಿಟ್ಟುಕೊಂಡ ರಹಸ್ಯವ ಬರೆದವ ಬಲ್ಲ. ಮನದ ನೋವು-ನಲಿವ ತಿಳಿಸಿಯೂ ತಿಳಿಸದಿರುವ ಈ ದಿಟ್ಟ ಕಲಮಿಗೆ ನನ್ನಂತ ಅದೆಷ್ಟು ಜನ ಚಿರಋಣಿಯೋ ನಾನರಿಯೆ. ಈ ಮಾಯೆಗೆ ಮರುಳಾದ ನನ್ನ ಮನದಾಳದ ಕೆಲ ಮಾತುಗಳ ನಾನಿಲ್ಲಿ ನುಡಿದೆ.

ಕಣ್ಣ ರೆಪ್ಪೆ ಮುಚ್ಚಿದಂತೆ,
ಅಮ್ಮಾ!
ನಾ ನಿನ್ನ ಕಂಡೆ.
ನಿನ್ನನಪ್ಪಿ ಮಲಗಿರುವೆನೆಂಬ
ಸ್ವಪ್ನವೊಂದ
ಅಮ್ಮಾ!
ನಾ ಕಲ್ಪಿಸಿಕೊಂಡೆ.

ಕೂಸು ಕಣ್ಣೆದುರು ಇರದಿರೇನು ?
ಅದರ ಮೌನವ ಅಮ್ಮ ತಿಳಿಯಲೇ ?
ಹೊತ್ತು, ಹತ್ತು, ಬಾಳ ತೇಯ್ತು
ಕಂಡ ಆಕೆ, ಜಗನ್ನಾತೆಯಾಗಲೇ ?

ಹುಚ್ಚು ಹೃದಯ
ಹೊತ್ತು ಕಳೆಯಲು ಕಂಡ ಮುದಕೆ
ಕೊಚ್ಚಿಹೋಯಿತು;
ಹುಚ್ಚು ಮನ
ತಿಳಿದು ತಿಳಿದು ತನ್ನ ಮಿತ್ರನ ಕಳೆದುಕೊಂಡಿತು.

ಆಡದ ಮಾತುಗಳ ಕಂಗಳು ನುಡಿದವು
ತಿಳಿದಿರದೆಯೇ ಅವು ತಮ್ಮವರ ತಲುಪುವವು;
ಭಾವವಿದು
ಬೇಡಬೇಡೆಂದರೂ ದಡ ತಲುಪುವ
ನಾವೆಯಿದು !



ನುಡಿದಂತೆ ನಡೆವವರ ನೋವ ಕಪಟಗಳೆಂತು
ಬಲ್ಲರು ?
ತಮ್ಮ ನೇರಕ್ಕೆ ಜಗವ ಕಾಣುವವರು,
ನಿನ್ನ ಮನವ ಹೇಗೆ ತಿಳಿವರು ?
ಜಾಣ ಕೇಳು,
ನಿನ್ನ ಪಯಣ ನಿನ್ನದು;
ನಿನ್ನ ಜೊತೆ ನಿಂತೂ ಅವರು ನಿಲ್ಲಲಾರರು.

ಉತ್ತರ ನೀಡದಿರಲು
ದಿನ ಉರುಳಿ, ಜಗ ತಿರುಗಿ
ವರ್ಷ ಕಳೆದು, ದೇಹ ದಣಿಯಿತು.
ಆದರೆ...
ಪ್ರಶ್ನೆ ಮಾತ್ರ, ತೀರಲಾರದು..

ಪುಟ್ಟ ದಿಟ್ಟ ಹೆಜ್ಜೆ ಜಗಕೆ ಒಳಿತ ಮಾಡು ನೀ
ಇಟ್ಟು ಎಲ್ಲರ ಕಣ್ಣಿನಿಯು ಆಗು ನೀ;
ನಿನ್ನ ಕಾರ್ಯ ನಿನ್ನ ಅಂತಸ್ತಾಗಲಿ
ಅದರ ಕಂಡು ಇನ್ನರಡು ಜನ ನಿನ್ನಂತಾಗಲಿ.

FUMBLERULES

P Vasanth

Language is a structure of rules to string together words and make meaningful sentences. So learning a language is to learn as many words, and as many of those rules as possible. And in English, in addition to these rules, as any speaker will know, comes a rich variety of exceptions to each rule. One interesting set of thumb rules in English are called fumblerules. I call them interesting because, as the name suggests, they are thumb rules that are themselves exceptions to the rule. William Safire was an American author and columnist who wrote the weekly column 'On Language' for the New York Times Magazine. In one of his columns, he introduced the concept of fumblerules as "mistakes that call attention to the rule." They have become very popular pedagogical tools. Here are a few fumblerules to amuse you.

No sentence fragments.

IT BEHOVES US TO AVOID ARCHAIISMS.

If I've told you once, I've told you a thousand times, "Resist hyperbole."

Prepositions are not words to end a sentence with.

Proofread carefully to see if you any words out.

Never, ever use repetitive redundancies.

Eschew obfuscation

Also, avoid awkward or affected alliteration.

Avoid commas, that are not necessary.

Place pronouns as close as possible, especially in long sentences, as of 10 words or more, to their antecedents.

Take the bull by the hand, and don't mix metaphors.

Parenthetical remarks (however relevant) are unnecessary.

A Crime

- P Vasanth

"No, that's not what I meant!" Vijay exclaimed. "All I'm saying is that you can't accuse each member of the mob of murder because it was not premeditated."

It was past 9 PM and the mess workers were taking away the food at the counters. At one of the few occupied tables, a group of undergraduates were having a heated dinner table discussion, about a recent incident where a man accused of homosexual activity was lynched.

"But that would still be manslaughter," Amit interjected, "or at the very least abetting of murder, right? It doesn't matter whether he was really gay or not. They killed him, so they should be punished. But they aren't!"

Prashanth retorted, "Yes they are. In many cases, the main perpetrators are identified and charges are filed against them. But culpable homicide is a bailable offence, and so they are not visibly punished."

"And of course," Raghav added, "once the attention of media and social media dies down, either they are cleared of all charges or the victims are bullied into retracting the case. Mob violence won't stop unless you give harsh punishments to the mob. And if the ruling party allows such punishment, they will lose people's support. So, mob violence will never die out."

"That is not true!" Vijay replied, "Politicians do condemn these incidents. At the very least, the PM and other top leaders are trying to stop such violence." Anjana added quietly, "But just like in the Dadri case, the PM did not say anything for a long time. Actually, some local politicians spoke in defense of the mob. Even now in Lucknow, it has been 4 days, and there is no talk of punishing the attackers."

Amit suddenly said, "Why are we discussing mob violence? Maybe the system won't change; it doesn't matter. The point is that a man was killed. He was accused of being gay, and not by any valid authority, by social media. And he was killed for that! No one is doing anything about it. It is a question of a human life, not about whether fifty people are punished or five. It is about how we can prevent people like Anand Bagchi from being killed. And he was not killed for committing a crime, he was killed by the intolerance in society."

"Well," Raghav replied, "I am sure we all agree with you, but there is not much we can do. It is very hard to change people's mindsets. Homosexuality is still a crime in this country for a reason. And more importantly, seeing as Amit is finally done eating, can we leave now?!" On the way back to the hostels, Vijay said, "Don't forget, 11 O'clock, outside E-block. I thought we could watch Aligarh today. Supposed to be really good, and considering what happened last week, I am sure it will be interesting."

It was 10:45 AM on a bright sunny day outside the Main Lecture Hall. The class was nearly empty for most students had left to enjoy their thirty minutes of freedom, some with fresh air, others with a much-needed breakfast. A small group of students stood by the door, talking excitedly.

"It's true! I can't tell you who told me, but, apparently they were having a discussion about that lawyer, Anand something, in Lucknow, and that night, Amit came up to my source and told him that he was gay."

"But Amit is so normal. Are you sure about this?"

"It sort of makes sense, you know. Once, I asked him, and he said that he had no interest in dating and what not. Now we know why."

"Come on guys, what are you doing? Why are you discussing this as if he is abnormal? People like you are the reason why he is not open about it."

"Oh come on, no one here would judge him just because he is gay. Anyway, forget that; what do you say I go up to him and ask him out. Let's see how he reacts. Fifty bucks says he'll agree, not because he wants to but because he has to keep up appearances."

"That's horrible. You are making fun of him. I'll go tell Amit if you don't stop this."

"Sheesh man! Don't be such a spoilsport. We'll apologize to him after. I'll take you up on that bet, Sandhya. Now shush, he is coming this way."

As Amit approached them the group broke off, and a bespectacled girl walked towards him. Reaching into the packet of chips in Amit's hand, she said, "We have Chemistry next right? Boring!". "Yeah," Amit replied, "But a senior told me he'll take a surprise quiz towards the end of September, so we'd better pay attention. Prashanth is bunking again. He'll get screwed if the quiz is today." Laughing, the girl replied, "In that case, where are you sitting? I'll bring my bag. I didn't listen to the last two classes."

It was a lonely October night. The street dogs had fled the road leading to the ABC-block hostel in search of warmth. In a quiet corner of the road, a crying boy was on a video call.

"All the neighbours saw it on Facebook. Do you know how ashamed I was when they asked me if it was really you in the photos? How could you do such a thing?"

"Sorry Ma, I just ..."

"What do you mean sorry! The whole colony is pointing fingers at us. Your father has to go to work everyday in this mess. You've ruined our whole family's name."

"The window was open ... and I didn't think anyone would ..."

"Why were you even doing such a disgusting thing! Is this what we taught you? Are these the values we brought you up with? And even if you were doing it men!? If it was normal, at least we could have said something. How could you do something so unnatural?. Why don't you say anything!"

"But ... Ma ..."

It was a chilly November night. Midnight comes to room ABC-119 quietly. The moonlight was all that kept the darkness away. It shone brightly through the window on a silent room, a table, a bed, a wardrobe, a mirror, and a noose. On the table lay a small note. "I am writing this letter as an apology. When the rumour first began, people were uncomfortable around me. Some even teased me. At first I thought it was a phase that would pass. I told myself things would return to normal, but they didn't. It just escalated. And of course there was the Facebook post. I thought someone would be supportive. But I did not find any help in life or even online. If everyone is against me then maybe it really was a crime to be born this way. This is my apology to the world. Goodbye."

An Ageless Adventurer

~Alistair Lewis

Mr. Santosh Kumar Rout has served as a technical officer at the J.R.D Tata memorial library. A rather mundane life, you would think. He, however, has been living on the edge during his career at IISc, organizing adventure sport activities for the institute community since 1989! A trained mountaineer, Mr. Rout completed his basic and advanced mountaineering course, not just once, (which is gruelling enough) but twice each. Indeed, he obtained the highest grade and a special appreciation from the principal at the Nehru Institute of Mountaineering (NIM), Uttarkashi for the advanced mountaineering course in 2010, when he was 54. Age is clearly no bar for him. Quarks caught up with him to learn about his passion for adventure sports and the activities he organized at the institute.

How did your interest in mountaineering develop? What was the first trek/adventure activity you did?

In my childhood, I used to do long walks from my village in Odisha. I, with my friends, used to roam in the forests and collect black berries. We used to even climb rocks and trees. I always was interested in it without knowing it was trekking or rock climbing. Also, in my class 9 in 1971, I got selected for an NCC camp at Dhenkanal in Odisha. There they selected me for the Basic Mountaineering Course. But my father didn't allow me. He, in fact, got a medical certificate saying that I was unfit for the course! So, I had to wait another 17 years to do the basic mountaineering course. Had I done it in 1971, I would have climbed the Everest by now!

My first formal activity was in 1986 when I saw a notice on the Mess board which said that there would be a night trek starting from Jayanagar till the Turahalli forest. I was excited and joined the group from IISc. I didn't have any idea

about trekking before. In fact, I confused it with tracking! I thought we had to track some object in the night. The trek was organized by a club called SPARK (Society for promotion of Adventure and Rock Climbing, a club founded in the 1980's) which promotes rock climbing among the youth. At Turahalli, we stayed in tents and the next day morning we did bouldering (climbing rock boulders). I did it without any ropes as I wasn't aware of the safety protocol! The instructor told me that I made it look so trivial and easy. He said I should try the basic mountaineering course (BMC) at the Nehru Institute of Mountaineering (NIM) in Uttarakashi, then in Uttar Pradesh (now in Uttarakhand). I had no idea what that course entailed but I registered for it in March 1988.

Tell us something about that course. How did you manage to get leave? How did you fare?

It was difficult to get leave sanctioned (since it was a 28-day course). I even got called by the

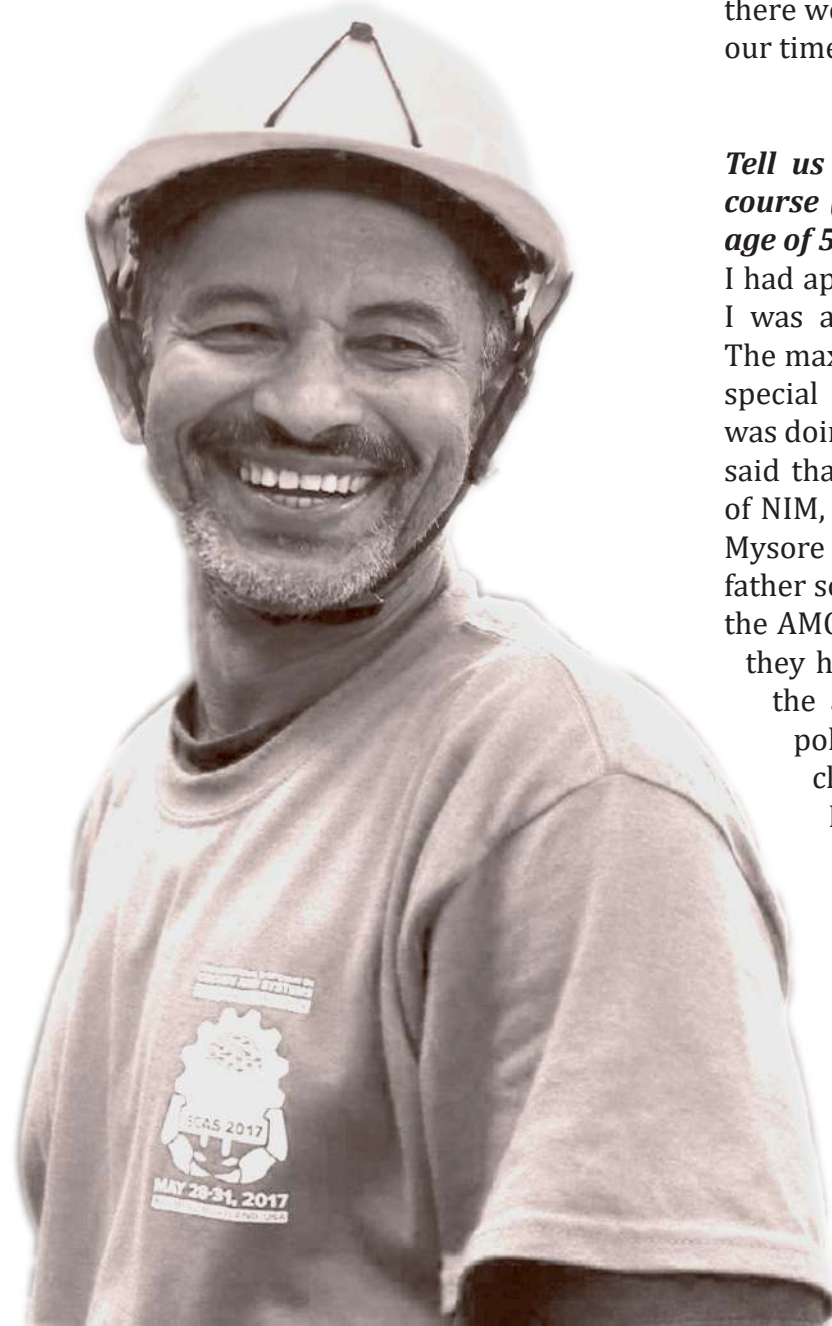
registrar, B.V. Ramakrishna asking me how I could pursue such a course without having sufficient leave. I then asked him to grant me a month of unpaid leave. After reaching Uttarkashi, I got called by the principal of NIM, saying that my leave was sanctioned with full pay. The registrar himself, impressed by my interest, had called the principal to deliver this news! I obtained a 'B' grade in that course.

What was the first adventure activity that you organized at the institute?

While doing my Basic Mountaineering Course (BMC) in 1988 at NIM, the vice-principal was Flight Lt. A.K. Singh. He was so impressed by my climbing skills that he invited me to the mountain guide course at NIM without me having to achieve the required grades in BMC and complete the advanced mountaineering course (AMC). I completed this course in October 1988 and in July 1989, I organized the first adventure course for the institute at Atal Bihari Vajpayee Institute of Mountaineering and Allied Sports (ABVIMAS), Manali. It was a seven-day program. The course fee then was Rs 360. Now it is Rs 7500! It was one of the best programs I organized. The instructors there were very professional, didn't waste any of our time and did their job very well.

Tell us about the advanced mountaineering course (AMC) you did in 2010, at the ripe old age of 54.

I had applied to NIM for the AMC four times but I was always rejected because I was overage. The maximum age for the AMC was 35. I needed special permission. One day my daughter, who was doing her B. Tech. at Mysore, came to me and said that her classmate's dad was the principal of NIM, Col. Mangal Murti Masur. I then went to Mysore and requested her classmate to call her father so that I could place a request for a seat in the AMC. He took my interview. He said till then they hadn't given permission to anyone above the age of 40 to do the AMC. I asked him politely how one could set an age limit to climb mountains. He then asked me where I did my BMC. I told him my last BMC was at Jawahar Institute of Mountaineering and Winter Sports (JIM&WS) in 2001, where I secured an 'A' grade (the highest grade), when Group captain S.S. Puri was the principal. Now, Group Capt. Puri was the leader of two expeditions to mount Everest. He was a world class



mountaineer. After hearing Captain Puri’s name, he granted me permission provided I filled some undertaking forms. The course was to happen in September 2009, but unfortunately my mother passed away in August that year. I requested him for another date, but he said his term was ending and that I would have to request the next principal. The next principal was Col. I.S. Thapa who gave me the seat in September 2010, as a very special case. My instructors, who were from the army, gave a good report about me. The last three days was the wall climbing test. The climbing wall extended to three floors. His office was facing the climbing wall in an adjacent building. He was watching me as I was climbing the required three routes. He was so impressed that he came down from his office and congratulated me saying, “Mr. Rout, I thought you were an old man, but your skills are better than the younger people here.” Not only did I get an ‘A’ grade but also a recommendation for expeditions as well! That was my second AMC. The first one was at Atal Bihari Vajpayee Institute of Mountaineering and Allied Sports (ABVIMAS), Manali in 2003 where I got a ‘C’ grade. After that I did my Method of Instruction course at Jawahar Institute of Mountaineering and Winter Sports (JIM&WS), Pahalgam when I was 55 (in April 2011) and secured an ‘A’ grade. I was then appointed as guest instructor for the BMC at JIM&WS (in 2012), Himalayan Mountaineering Institute (HMI), Darjeeling (2014) and ABVIMAS (in 2016). I have never put a hold on my adventure/ mountaineering activities due to my age.

What are the adventure activities that you have organized in the institute till now?
I have been organizing activities at the institute every year since 1989, except for two years, when I worked at a university in Odisha. We did the activities with an adventure academy

called General Thimayya National Academy of Adventure (GETHNAA, founded by the government of Karnataka in 1989). The then administrative officer, Ragavendra Rao of GETHNAA had told me that he could organize rock climbing and water sports for our students for a minimal fee. Rock climbing was organized in Ramnagara (April 1993). For water sports, we did activities in Gorur dam (in Hassan) (May 1993, November 1995), Sadashivgad (in Karwar district) (November 1992, March 1998, December 2010) and the river Kaveri (from Srirangapatnam to Shivanasamudram in September 1992, September 1994). I was a guest instructor in water sports at GETHNAA from 1995-97 (as I had done two courses in water sports at ABVIMAS: one was a basic water sports course and second one was an Intermediate Kayaking/Canoeing course). We also rafted in the Seetha river from Agumbe (located in Shivamogga district) to Malpe (located in Udupi district)! The last activities with GETHNAA were at Ramnagara and Vani Vilas dam in 2015, before I retired. We have done treks to Kudremukh, Kodachadri and Kumara Parvatha (which was a 10-day trek starting from Sakhleshpur). The course fee for all the activities through GETHNAA, back then, was just Rs 50! This was used for insurance as well. There were other weekend treks and rock climbing activities too. By god’s grace no serious injuries or casualties have occurred in any of the activities I organized.

Could you list out the most memorable trek/ activity that you organized?
All my activities have been memorable. The initial activities from 1989-92, organized by word of mouth to the Western Ghats, were quite memorable. The two adventure courses organized recently at National Institute of Mountaineering and Allied Sports (NIMAS), Dirang in Arunachal Pradesh, in 2016 and 2017, were also memorable.

A not so pleasant memory was in a river rafting course I organized through GETHNAA in 1995. We had four American students who joined us. Unfortunately, at one point, all the rafts toppled as the river was in spate. We lost most of our things which were on the raft. There was no danger though as the spot was shallow. But the American students started panicking and wanted to leave the course then and there. I had a hard time in finding a guide to help them reach the closest road head, and then to Udupi. In 2016, I was nominated by the IISc Nature club as the ‘Most deserving member’ 2015-16. That was like a lifetime achievement award for my efforts. That was memorable too.

Do you have any favorite mountains or treks?
The trek to Gori Chen glacier when we went to the National Institute of Mountaineering and Allied Sports (NIMAS), Dirang is the best trek I have been on. During my AMC in ABVIMAS, the trek to Deo Tibba was a wonderful one too. All mountaineering institutes have wonderful trekking routes. Yuksom to Kanchenjunga Base camp is another wonderful trek I did with the Himalayan Mountaineering Institute (HMI), Darjeeling. Aru to Kolahoi glacier is another beautiful trek which I did with JIM&WS. I could list out at least fifteen more treks which are worth doing!

What motivates you to organize these activities at the institute? Organizing is a very laborious job isn’t it?
While doing my BMC at NIM, A.S. Sangvu was the main instructor. He was impressed by my conduct and performance in the course. He called me and told me to take mountaineering as a ‘seva’ (service) to mankind. He told me to make a point to introduce mountaineering to as many students as possible every year. He told me a few stories. I

was so inspired that I decided that I would bring a group of students with me whenever I came to the Himalayas. I feel that students are initially a bit hesitant to come to the Himalayas on their own. I took it as a mission even though it is not very easy to organize these activities. Travelling to these places in the early activities used to be difficult but I started enjoying it. I got good support from my wife even though my kids were small back then. She was initially hesitant, but after a point she gave me full support. I also had full support from the institute administration who have always granted me leave for these activities.

What changes have you seen in the approach to adventure activities among students in your time at the institute?
There has been no change at all! Students are still as interested and enthusiastic in participating in these adventure programs now as they were back then.

Apart from adventure, what other sports do you follow/pursue? Any other hobbies?
I used to play badminton in the Gymkhana. I participated in the individual category and successfully completed all the three Scienceman (a triathlon organized by the Gymkhana) events organized in 2014, 2015 and 2016. In 2015, I sustained a cramp while swimming, so I did cycling and running. After that I finished swimming. But I was not awarded the certificate as I changed the sequence of events. That was quite unfortunate. I wish the Gymkhana, in the future, will encourage old people like me! I had also participated in mini-marathons (22km run) (twice), cross-country runs (7.5km) and swimming competitions organized by the Gymkhana. Unlike now the Gymkhana used to organize runs outside the campus as well.

I am a trained Yoga instructor too. I have taught it at IISc and I am now teaching it at Centurion University of Technology and Management (CUTM) as well.

All the activities/courses you organized or participated in have been through government organizations. There are many private and voluntary organizations that organize treks nowadays in the Western Ghats as well as in the Himalayas. What is your opinion of them?
I feel they are too costly! In 2008, I remember organizing a 14-day program to Leh via JIM&WS for RRI (Raman Research Institute) and IISc for Rs 2500. When you compare this with private organizations it was at least 8 times cheaper. Throughout my career the fees for these programs were not more than Rs 600-700 per day (which was at the end of my career). I used to request mountaineering institutes to reduce the fees as most of the participants were students. As I mentioned before, the GETHNAA programs cost Rs 50. It was increased to Rs 150 and my last two programs were Rs 700 per day, when they began to commercialize. Also, the trek routes are very crowded nowadays, due to many private organizations.

I have heard that one of your dreams is/was to climb the Everest. Any thoughts on that?
While I was doing my mountain guide course in 1988, Suman Kutiyal, the niece of Chandra Prabha Aitwal (a world class mountaineer and an Arjuna and Padma Shri awardee) was also doing the course with me. She climbed the Everest three years after that course. She asked me why I was conducting adventure courses when I could have done more advanced courses and gone for expeditions (the Everest included). I said I couldn't do any expeditions as it requires a lot of lobbying for getting sponsored and I didn't have

any big contacts. Maybe one day, I will be the oldest man to scale the Everest! (laughs)

Why do you think mountaineering (or any other adventure sports activity) is important for all students today? What would be your message to our undergraduates?
I feel mountaineering helps in character building. It boosts one's confidence. The grandeur of the mountains that one experiences while standing at the edge of a cliff is thrilling. There are no words to express it! I feel mountaineering/trekking in the Himalayas is the ultimate sport. There is no competition. We go as a team and we summit as a team. Everybody is a winner. I can speak at length on why people should do mountaineering/trekking. I could give you a write up on it if I get the time.

Although Mr. Rout has retired from the institute he continues to organize adventure activities for the institute. He recently organized a 10-day adventure program at ABVIMAS, Manali in June (2018?) jointly for IISc and CUTM. So, do keep an eye on your broadcast emails for the next adventure activity!

Out And Proud At IISc

~ Gopika R, Rohith K M S

The decriminalisation of Section 377 of the IPC by the Supreme Court has been a revolutionary step in the ongoing battle for LGBTQIA+ rights in our country. The Supreme Court's verdict has gotten everybody talking. This, coupled with the fact that, as of 2014, homosexuality and deviant gender identities are no longer considered mental health disorders as per the Indian Psychiatric Society (IPS), shows the amount of progress that has been made regarding this issue. However, these victories on paper are only the first step and mean very little without societal acceptance and respect. To respect the queer community, society should first understand them; and a lot about the queer community is misunderstood or not understood at all. Here's some stuff to help you understand the queer community and the vast number of people that fall under it.

Sex, Gender, and Sexual Orientation

A lot of people get confused by these terms and some use them interchangeably. These are different, distinct concepts and all of them contribute to what makes up an individual. Let's try and understand them.

Sex :
Sex is a biological division assigned based on anatomical/genetic differences in individuals. For example, people who have features such as the male reproductive organs, testosterone in their hormonal makeup, and one X and one Y chromosome are assigned the sex "male" at birth. Some people do not have these clear distinctive anatomical features or have features corresponding to both sexes. These people are termed Intersex , which is what the "I" in LGBTQIA+ stands for.

Gender :

Gender is a social construct, and can refer to the set of social roles an individual is expected to follow (gender roles) or an individual’s concept of themselves (gender identity). Traditionally, people are assigned the gender of either man or woman based on their biologically assigned sex, but an individual can identify as any gender. As Saniya Sood said in her talk on Gender Sensitisation (more on that later), “Sex is what’s in between your pants, Gender is what’s in your head”. People whose biological sex does not align with their gender identity are called transgender; people whose biological sex aligns with their gender identity are called cisgender. Traditionally, gender is also classified into male and female, and this is a gender binary system of classification. People who do not conform to a gender binary system come under the umbrella terms non-binary or genderqueer.

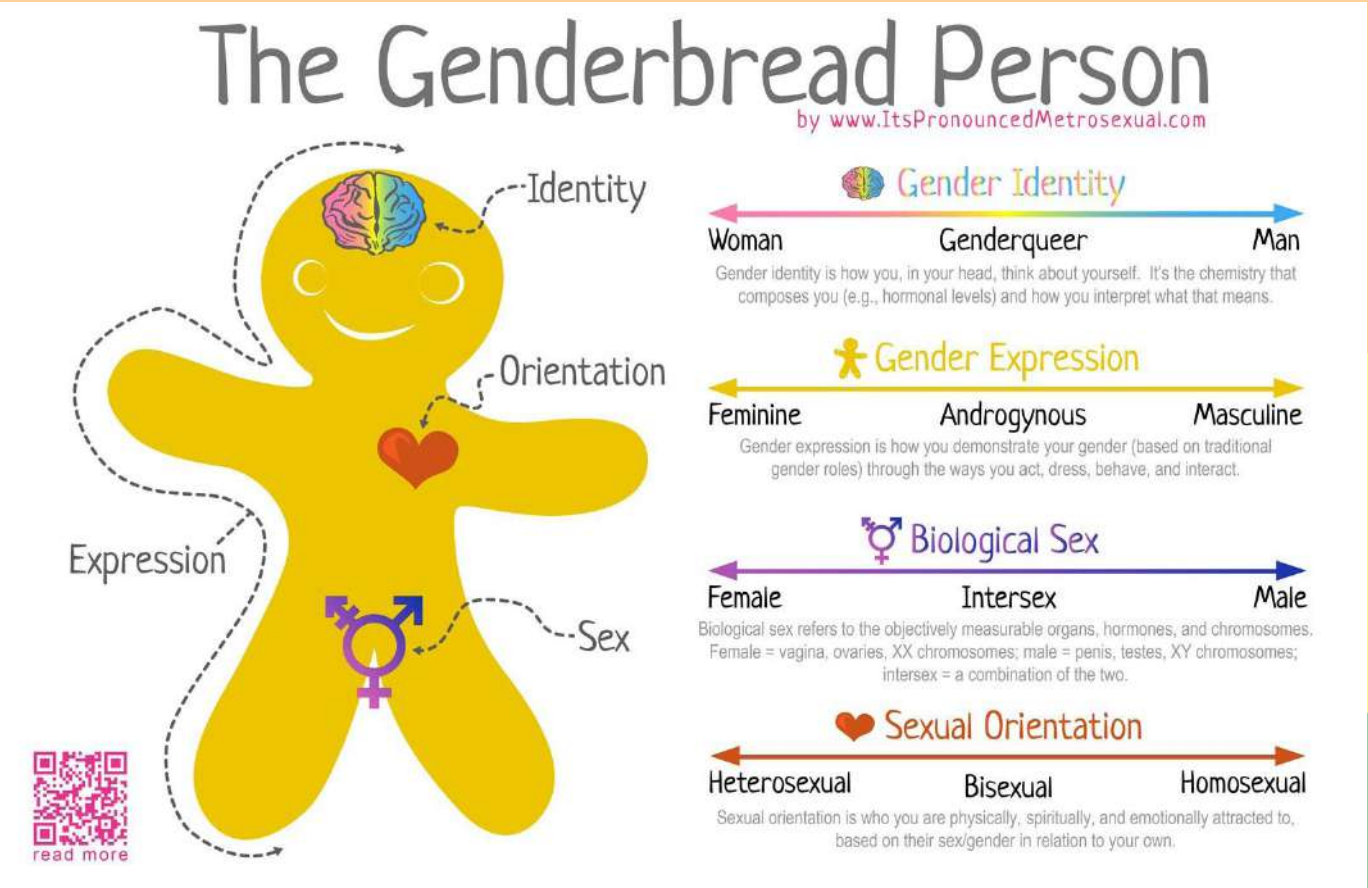
Sexual orientation :

Sexual orientation refers to which gender an individual is romantically or sexually attracted to, with respect to their own gender. People who are attracted to individuals of the same gender identity as theirs are termed homosexual; people who are attracted to individuals of the “opposite” gender identity as theirs are termed heterosexual; people who are attracted to individuals of their own and other genders are termed bisexual. Note that “opposite” is inside quotes. That’s because the concept of an opposite gender assumes a strict binary classification of gender and ignores the whole genderqueer part of the spectrum. People who are attracted to individuals irrespective of their gender identity are called pansexual . People who are not sexually attracted to others are termed asexual.

Some helpful tips:

- Try not to assume a person’s gender identity or sexual orientation because of the way they present themselves, or because you know one of the two. Gender identity and sexual orientation are distinct and decoupled.
- Respect preferred gender pronouns. You wouldn’t want people to call you by something other than your preferred pronoun, and that’s an important consideration to extend to other people.
- Queer is an umbrella term that any non-cis/non-heterosexual person can identify by. This can be helpful in a lot of situations - for example, if you’re confused or questioning your gender identity or sexual orientation (The Q in LGBTQIA+ stands for both Queer and Questioning).
- Asking people about their sex lives just because they’re queer and you’re curious might be considered rude. Instead, Google it.
- Assuming that the person is going to hit on you just because they are attracted to your gender would definitely be a no-no.
- Remember, it’s okay to make mistakes as long as you keep trying to avoid them. If you end up offending someone unintentionally, apologise and ask them how you can prevent it from happening again.

Here’s The Genderbread Person to help you:



Love is love

Alright, now that we’ve got the necessities out of the way, let’s talk about some of the activities of the queer community in the IISc campus and in Bangalore, in general:

Queer and Straight at IISc (QUASI):

QUASI is a coalition of queer individuals and allies (anyone who supports the queer community) at IISc and its sister institutes, like NCBS and JNCASR. It acts as a forum for discussions between the queer community and straight allies in these institutes. QUASI works to prevent discrimination and harassment of queer individuals in the IISc campus. QUASI recently conducted a talk on “Gender and Sexual Sensitization and Body Positivity” by Saniya Sood, the runner-up of the Miss Transqueen India pageant. The Main Lecture Hall in the undergraduate building was packed, and it was a proud day for the queer community and the allies as the rainbow flag flew on the undergraduate building. QUASI can be contacted through its Facebook page or email and will cater to anyone in IISc who needs counselling, support and help in terms of their sexuality or any related problems. QUASI is an extension of Queer-IISc which is an LGBTQI+ exclusive safe space on campus.



Members of QUASI and Pravega with Saniya Sood after the talk on “Gender and Sexual Sensitization and Body Positivity”

Queer Campus (QC):

Queer Campus is a safe space for the queer community of Bangalore. Queer Campus meets once a week, usually on Saturday afternoons, in neutral spaces around Bangalore. QC is aimed at providing a judgement, discrimination, and harassment-free space for (primarily adolescent and young adult) queer individuals in the city to interact, socialise, or just be comfortably themselves in. QC also welcomes allies.

Swabhava:

Swabhava is a Bangalore-based NGO working to provide access to support services for people of the LGBTQIA+ community. As one of Bangalore’s few NGOs working with and exploring intersections between sexuality, gender, health and mental health, ethics, masculinity concerns and much more, Swabhava has offered counselling to hundreds of individuals as well as trained hundreds of counsellors, doctors, lawyers, outreach workers, HIV-work NGOs, mainstream development NGOs and so on.

Namma Pride:

Pride marches are parades held to protest against the lack of human rights for the LGBTQIA+ community and to celebrate the community and its culture. The first Karnataka Pride was held in the year 2008, in Bangalore. The pride event is called the Namma Pride and Karnataka Queer Habba and the Namma Pride March is one of the biggest Pride marches in the country. The Namma Pride March will be held on 25th November, this year.

Is humanities worth it?

~Anonymous

Humanities has an interesting position in the hierarchy of subjects at IISc. Almost universally deemed useless and a waste of time, it ends up being the least serious of all courses we take. Most students meet their instructor just a few weeks before the end semester examinations, only to submit their assignments.

I am a part of the minority that believes humanities is worth it. I am by no means the biggest fan of the course and have severely criticized some of the modules in the past. Yet, I find that I enjoy going to most of the classes. It is a welcome change from other courses. I just have to sit, listen, and debate.

The uniqueness of the humanities class is the presence of intriguing conversation. Many interesting debates have originated there, and many of them continued far beyond the class timings. I enjoyed these debates. I enjoyed the arguments. I enjoyed learning about art, about tribal music, a few things about economics, a small bit about law. It was in humanities class that I caught glimpses of the work of artists such as Jackson Pollock and Zaha Hadid. It was here that I watched excellent movies like Court and Inside Job. It was in humanities assignments that a bunch of my friends got together to paint, to sing, to have a good time. Humanities was interesting for me.

Looking at it from a different perspective, after two years, a batch usually fragments into multiple factions. Students have different hostels, different majors and different interests. Humanities is the only course where the entire batch can get together and have a good time.

Having said that, I have been a vocal critic of many humanities modules, especially the ones where I felt improvement was possible. For instance, the economics module, where the professor mainly taught us some complicated mathematics, was quite boring. Instead, it would have been much more interesting and useful, to talk about the 2008 financial crisis, or the Great Depression, or the stocks and bonds market, or Demonetisation. There were a few other modules that were similar but as most of the assignments took up very less time, it wasn't a huge problem.

After weighing the pros and cons, I have arrived at the conclusion that I have no problem with humanities so long as the officials in charge are willing to try and improve on it. In their defence, they have asked for feedback quite frequently in the past. There is hope that they will act on it.

Another question, one that has been stuck in my head for a few months, is the one raised by Dr. Bitasta Das. The question is very simple. “How is humanities useful to IISc students?”. Well, the short answer, in my opinion, is that it's not (or rather, it depends on what your goals are). If your only goal in life is to be a great mathematician or biologist, learning about literature, music, art and politics is utterly useless for that goal. There is no point in sugar-coating it. There have been perfectly good scientists with zero interest in any subject of humanities. However, if you are curious about things, if you like to read novels, paint, follow politics, listen to music, sing, then you might find Humanities fun. I enjoy Humanities not because it is useful to me, but because it is interesting. I loved the documentaries we watched. I enjoyed the arts module and was motivated to start sketching again. I liked the group assignments. I liked looking up exotic scales and rhythms that tribal music uses. None of this was useful to my career. It was merely interesting, and that is good enough.

International Genetically Engineered Machine (iGEM) competition

~Bhaskar Kumawat

iGEM is a worldwide synthetic biology competition that celebrates this field with students from all parts of their career - be it high school, undergraduate or overgraduate - coming together to create projects that aim to solve both global and local critical problems. IISc as an institute has now been participating in the competition for three years, bagging a bronze medal once and a gold medal twice at the International Jamboree. Every year of the competition has acted as a platform for multiple startups and companies that are now big names in the field of synthetic biology. Some of the well known success stories include those of PVP Biologics, Ginkgo Bioworks and Hyasynth Bio.

Synthetic biology as a field of study is very recent and builds upon areas of molecular biology, genetic engineering and applied design to come up with projects that utilise interchangeable biological parts to ease certain processes. All this work is done in the ‘confines’ of a biological machine, or a chassis, like *E. coli*, which is probably the most widely used organism for the competition.

Over the years, iGEM has come to be one of the few extra-academic activities undertaken by students of the UG program. The first step is obviously to come up with an idea that can be taken forward. One of the biggest problems that plagues most iGEM teams is that of coming up with something very ambitious that cannot possibly be accomplished in the duration of a single competition season. As such, the problem and solution must be suitable for complete execution in an ideal duration of three months. The second biggest problem is the finances of the team that were previously being taken care of by the DBT iBEC grant. In 2018, DBT decided to divert the grant to newer college teams and the director’s office appropriately agreed to fund us with a sum of 10 lacs for the competition. Hopefully, this decision will carry forward for teams in the future. Work in an iGEM team is divided into multiple interdisciplinary fields, each equally important. The



problem statement needs to be figured out through inquiry into problems faced by both the general public and professionals in multiple fields. Following this, a solution needs to be formulated; the implications of which need to be worked out with these ‘stakeholders’ who will be affected by the project. iGEM labels these activities as human practices, and they are necessary for any useful project to be realised.

The technical aspects of the solution are designed keeping the human practices as well as engineering principles in mind. Engineering here involves keeping in mind the modularity and adaptability of the components of the project to other projects in future, which is the gist of synthetic biology. Every BioBrick made by a team is inherently modular owing to standards set by the iGEM community. Similarly, the project itself needs to be well documented and adaptable to new workflows.

Modelling comes into the picture when a real life system associated with the project cannot be realised directly or if a part of the project suffers from an unknown fundamental problem. Mathematical models are used to understand and calculate parameters for both a realistic version of the system and to verify that there are no fundamental flaws in the design of the project.

All of these aspects come together at the final Giant Jamboree where teams from all over the world present their projects and are judged on multiple criteria. Along with the medals, which any number of teams can get, there are multiple special prizes that award the best teams in each area like human practices, modelling, etc. The road to iGEM is not easy but it is indeed rewarding in terms of the things learned over the duration of the competition by every member of the team.



గమ్మం పది?

~డాకర రోహిత్



నేను టాటా ఇన్స్టిట్యూట్ లో చేరి ఐదు సంవత్సరాలయింది. ఐదు తెలుగుతోట పుస్తకాలు, ఐదు క్వార్క్స్ మ్యాగజిన్లు, వాటిల్లో నా తోడ్పాటు సున్నా. క్వార్క్స్ వచ్చినప్పుడల్లా ఇది తప్ప, అది తప్ప అని స్పేహితులతో గోలపెట్టడం తప్ప నేను చేసింది ఏమీ లేదు. కనీసం ఈ సారైనా - వెళ్లేముందు ఒక్కసారైనా - ఏదోకటి రాయాలని నిర్ణయించుకున్నా. కానీ దేని గురించి రాయాలి? క్వార్క్స్ కదా, ఐ.ఐ.ఎస్సీ. లో నా అనుభవాల గురించి రాయాలి. ఎంత తోచినా ఒక మంచి "ప్లా" తట్టట్లేదు. ఏదబడితే అది రాయాలనుంది. నా రీసర్చ్ కరీర్ లాగ, నా జీవితం లాగ, ఈ వ్యాసానికి కూడా ఒక గమ్మం ఉండదని అర్థమయ్యింది. ఆలోచించడం మాని రాయడం మొదలుపెట్టా. ఇక నా వాగాడంబరము మొదలు.

ఐ.ఐ.టి. సీటు వదులుకొని వస్తుంటే మా డీ.ఆర్.డి.ఓ. సైంటిస్టు మామయ్య అన్నాడు, "వద్దురా, ఈ డిగ్రీ తో నీకు ఉద్యోగాలు రావు" అని. ఉద్యోగం తో నాకేం ఏని, డాక్టరేటు సదువులకి యే ఎం.ఐ.టి. ఓ స్టాన్డర్డ్ పాఠానని అనుకొని లైట్ తీసుకున్నా. నేను చదివే తీరుకి ఇది కరక్ట్ కాదని తెలుసుకోడానికి రెండేళ్లు పట్టింది. ఇంటర్ లో లాగ క్లాసులు మాత్రమే వని, ఏదో పూర్తిచెయ్యాలి కదా అని హోంవర్కులు అవ్వగొడితే ఐ.ఐ.ఎస్సీ. లో తేలడం కష్టం. మా బ్యాచ్ లో పాటీ మరీను. దెబ్బకి మొదటి రెండేళ్లు కలిపి నా గ్రేడ్ 5.6/8. మరీ చెత్త గ్రేడ్ ఐతే కాదు గానీ, రీసర్చ్ కి మాత్రం ఏనికీరాని గ్రేడ్ అని నన్ను నమ్మించారు. ఫిసిక్స్ డిపార్ట్మెంట్ లో యే ప్రొఫెసర్ దగ్గరకు వెళ్లినా, "యువర్ గ్రేడ్ ఇస్ ఎ బట్ లెస్" అనో, "ఐ డోంట్ హావ్ ఎనీ ప్రాజెక్ట్" అనో అనేవాల్లు.

జరిగిందేదో జరిగింది, ఇప్పుడైనా కష్టపడడం మొదలెట్టాలని మెల్లమెల్లగా చదువులకి ఎక్కువ సాతం సమయం కేటాయించాను. గ్రేడ్స్ కూడా అలాగే పెరిగాయి - చివరి మూడేళ్లలో గ్రేడ్ 6.7/8. కానీ ఏం లాభం, ఒక్క అమెరికన్ యూనివర్సిటీ కూడా నాకు అడ్మిషన్ ఇవ్వలేదు. మూడేళ్ల క్రితం ఎక్కడున్నానో అక్కడికే మళ్లి వచ్చా. ఈ మూడేళ్లు వృధా ఏనా?

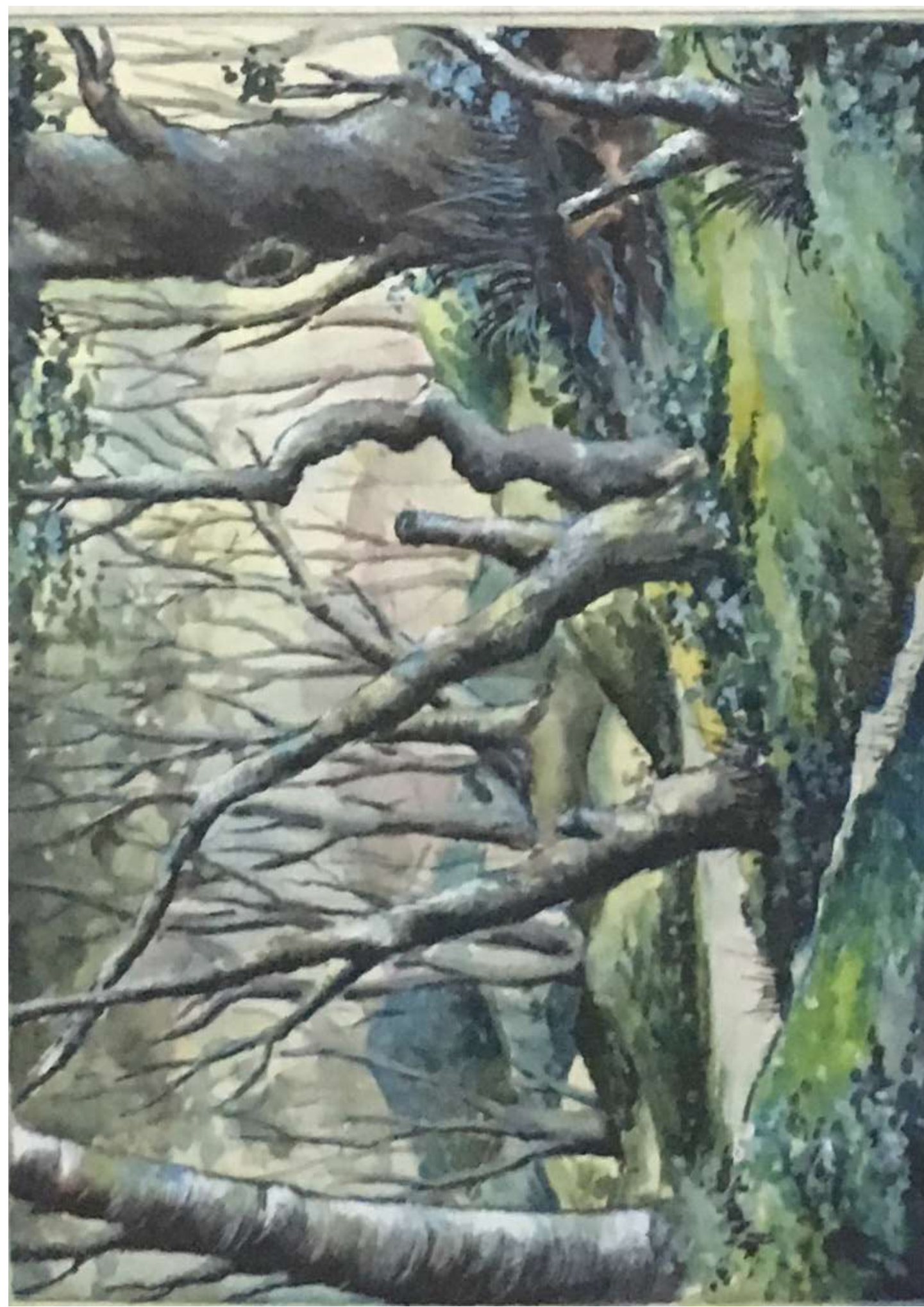
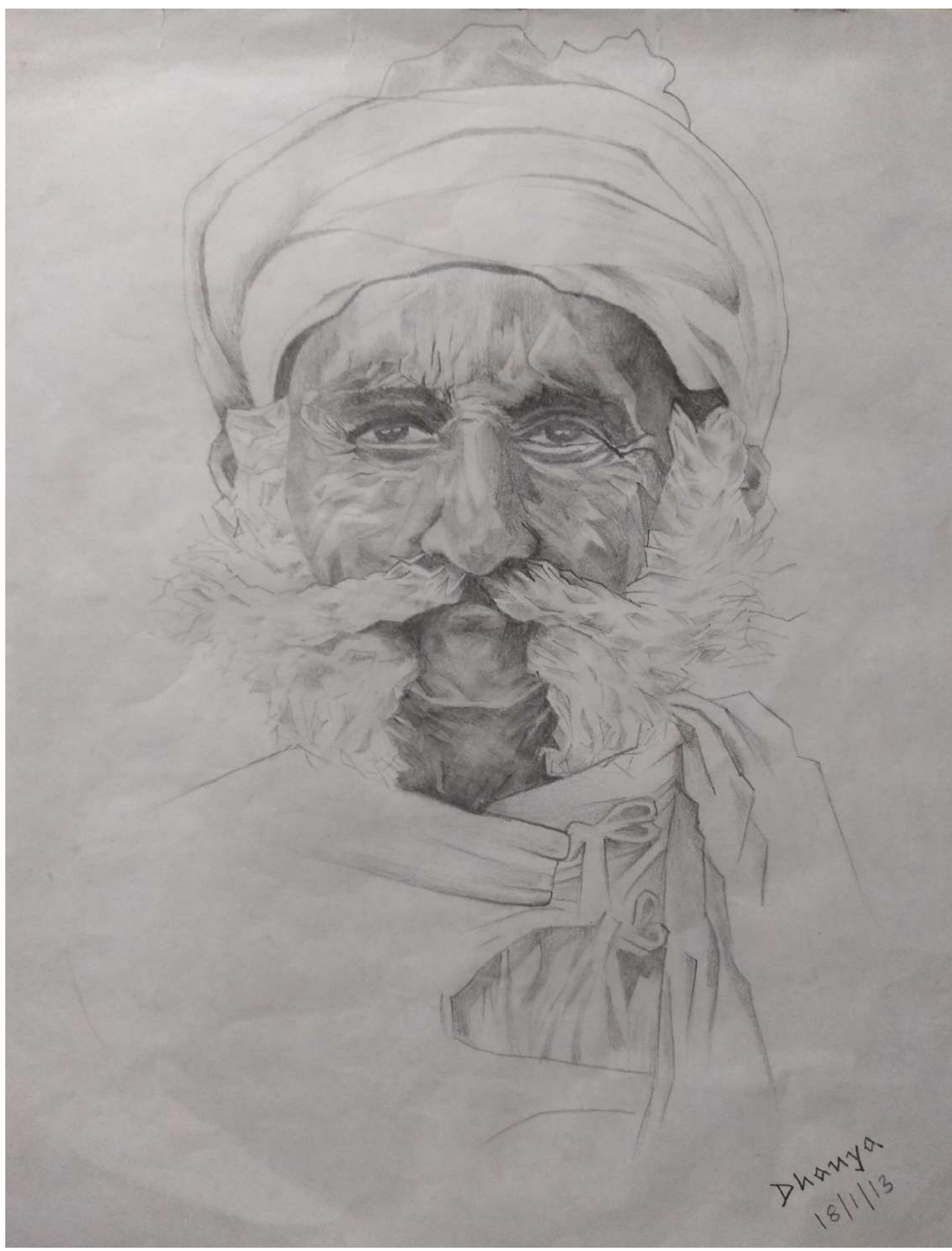
1. మగ - ఆడ. చాలా జంతువుల్లో ఇలా రెండే సెక్సులు ఎందుకున్నాయి? మంచి మ్యుటేషన్స్ ని సులువుగా వ్యాపించేలా చేసి, చెడు చేసే మ్యుటేషన్స్ ని త్వరగా అరికట్టడం లో 2-సెక్స్ ఉండడమే నయమని చూపించాం.
2. స్పైన్ ఫ్లేట్ డైనమిక్స్ లో శాటిలైట్ ఆర్బిట్స్, రాకెట్ సైన్స్ బేసిక్స్ గురించి చదువుకున్నా.
3. బల్క్ కెమికల్ సెంటసిస్ తో వచ్చే గ్రాఫీన్ నాణ్యత ఎంత తక్కువో తెలుసుకున్నా.

4. మన గలాక్సీ లో ఉన్న సూపర్నోవా రెమ్నెంట్స్ కేవలం 300 మాత్రమే. ఈ లిస్ట్ కి నా రీసర్చ్ వల్ల ఇంకొక రెండు ఆడి చేస్తారు.

వీటన్నింటికి మధ్యలో నా క్రికెట్ పిచ్చి కూడా బాగానే ముదిరింది. తెలుగు సమితి కి కొన్ని వందల మ్యాచులు ఆడి, వందల వికెట్లు తీసా. టీ.ఎస్.ఎస్. కి కెప్టెన్ అయ్యి ఇంకా ఎక్కువ మ్యాచులు ఆడించా. అబః, అసలు సెలవురోజున ఉదయాన్నే లేచి తెలుగోళ్లతో క్రికెట్ ఆడితే ఆ ఆనందమే వేరు. రీసర్చ్ వల్ల పిచ్చోడినవ్వలేదంటే దానికి కారణం వీకెండ్ క్రికెట్టే.

ఏయిన చెప్పిన నాలుగంటి వల్ల రెండు పేపర్స్ రాసా. ఫస్ట్ ఆథర్ గా. రివ్యూ లో ఉన్నాయి రెండూను. ఐ.ఐ.ఎస్సీ. లో గ్రాడ్యువేట్ చదువులకి దరఖాస్తు చేసా. ఇది వచ్చినా రాకపోయినా యూరప్, ఆస్ట్రేలియాలలో యూనివర్సిటీస్ కి కూడా చేస్తా. నా వయసు ఇంకా ఇరవయ్యే-క్క ఏళ్లే. ఐ.ఐ.ఎస్సీ. నుంచి ఒక బ్యాచిలర్స్, ఒక మాస్టర్స్ పట్టాలు పొందాను ఫస్ట్ క్లాస్ లో. కలాం గారికి ఫిసిక్స్ మాస్టర్స్ పూర్తయ్యేసరికి వయసు 23. నాకేం తొందర సెటిల్ అవ్వడానికి?

Art by:
Dhanya Bharath
3rd Year



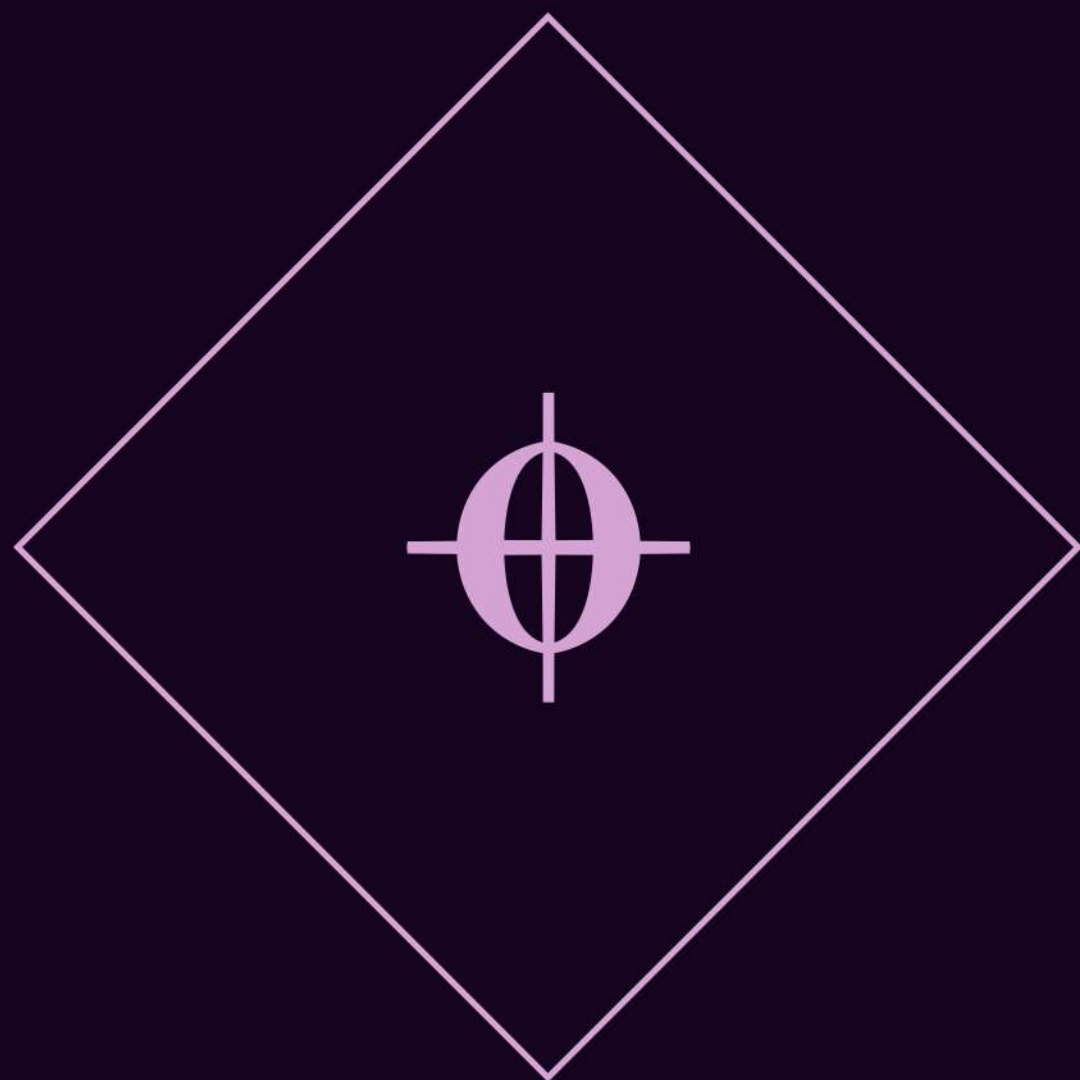
Art by:
Bhoomika Bhat
2nd Year

Art by:
Dhanya Bharath
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Art by:
Kalyani Ingale
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পল্লবী মালো

আমাদের অজান্তেই আমাদের নিয়ে কোথাও না কোথাও গল্প লেখা হয়। আমার-তোমার জীবন-ই এভাবে গল্প হয়ে জেগে ওঠে অন্য কারোর কলমে। জমে থাকা অভিমান, বাকি থাকা স্বপ্ন আর বুকোর ভেতর পচতে থাকা দীর্ঘশ্বাসেরা স্মৃতির পাহাড় ডিঙ্গিয়ে একদিন ঠিক চলে আসে প্রেমের কালো অক্ষরের ভিড়ে।

আজ আমার এই এলোমেলো শব্দের জট পাকানো সুতো দিয়েও বোনা হবে একটা গল্প; যার সূচনা বা সমাপ্তি কোনটারই দায়িত্ব আমার নয়।

যেমনভাবে প্রেম রোমাঞ্চ নিয়ে আসে, ভালোবাসা নিয়ে আসে বিশ্বাস-অস্বীকার আর বাঁধনছাড়া স্বপ্ন, নিশার জীবনেও তেমনভাবে হঠাৎ-ই এসেছিল কেউ; আর যেমনভাবে অবহেলা, অশ্রু, প্রতারণা আর স্বপ্নভঙ্গের যন্ত্রণা উপহার দিয়ে চেনা মানুষ হয়ে যায় অচেনা তেমনভাবেই হঠাৎ চলেও গিয়েছিল সে।

তারপর যা হয়-সেই বালিশভেজা কান্না, হীনমন্যতা, মনমরা বিকেল, আবেগের কাছে নালিশ, সম্পর্ক-ভালোবাসার প্রতি অশ্রু... একবস্তা ব্যক্তিগত কষ্ট; নিতান্তই ব্যক্তিগত। “যাক যা গেছে তা যাক”। ওইসব কাহিনী আমি শোনাবো না। একদম না। শোনাবো তার পরের কাহিনী।

কারণ আমার সঙ্গে নিশার পরিচয় তার অনেক পরে... যখন ও ওর কষ্টের উপাখ্যান শেষ করে দুমড়ে-মুচড়ে যাওয়া হৃদয়ের টুকরো গুলোকে তুলে নিয়ে জোড়া লাগাতে শুরু করেছে আর ওর জীবনের উপর, নিজের আবেগের উপর আর ‘যাতনাময়’ ভালোবাসার উপর নিতান্তই ছেলেমানুষি অভিমান দেখিয়ে সেই জোড়া লাগানো হৃদয় থেকে উপড়ে ফেলছে ভালোবাসা-প্রেম-ভাললাগার অনুভূতিগুলোকে; ঠিক তখনই আমি চিনেছি ওকে। ওর অতীত ওর মুখ থেকেই শুনছি। ও আমাকে চেনেনা তখনও।

নিশা বদলে নিয়েছিল নিজেকে; ভেবে নিয়েছিল শাস্ত্র প্রেম, প্লেটোনিক রোম্যান্টিকতা শুধুই উপন্যাসের পাতা বাড়ায়; ভালোবাসার কোমলতা যান্ত্রিক দুনিয়ার ব্যস্ততায় তো কেবলই দুর্বলতা। নির্মল হাসি, আন্তরিক ভালোবাসা খুব সহজে চাপা পড়ে যায় ফিল্টার দুনিয়ার মেকি দেখনদারিতে। তাইতো ও হেরে গিয়েছে সহজ-সরলভাবে সত্যিকারের ভালোবেসে।

দিন কাটতে থাকল এখন যেমন কাটে।

এরপর...

একদিন ট্রাফিকের ভিড়ে জানলার কাচ নামিয়ে বাইরের বাতাস বুক ভরে নিতে গিয়ে থমকে গেল নিশা।

ঘটনা খুবই সাধারণ। ফুটপাথের উপর অবলম্বিত পড়ে থাকা একটা পাইপ থেকে জল ছিটছে অনবরত। দুটো হাড়গিলগিলে বাচ্চা ছেলে এ ওর গায়ে জল ছিটিয়ে মেতে উঠছে আনন্দে! কিসের এত আনন্দ? দেখে তো বোঝাই যায়-পেটে ভাত পড়েনি কতদিন, মাথার উপরও তো শুধুই খোলা আকাশ। শিশুশ্রমের রুটিনের ফাঁকে এই কি তবে ওদের শৈশব চেখে দেখা! হ্যাঁ, হয়ত সেদিনই প্রথম ও দেখতে পেল আমাকে ওই বাচ্চাদুটোর হলদে দাঁতের হাসিতে।

এখন নিশা আমাকে দেখতে পায় প্রায় সবখানে, প্রায় সবসময়ে।

“এই মেঘলা দিনে একলা” থাকার মাঝে ও যখন চোখ রাখে আকাশে, মেঘদের কাল্পনিক শেষ হলে যখন আকাশ জুড়ে দৌড়ে বেড়ায় সাতটা রঙ— ও দেখতে পায় আমাকে ওই রঙিন আকাশের মাঝে। ওর ইচ্ছে করে তক্ষুনি দৌড়ে গিয়ে হাজারো রংপেন্সিলের আঁকিবুঁকিতে ভরিয়ে দিতে ছোটবেলার ড্রয়িংখাতাটাকে।

আটতলার যে ছাদে দাঁড়িয়ে একদিন নিচের পৃথিবীর গভীরতা মেপে কেঁপে উঠত ওর বুক, প্রলম্ব জাগত জন্মমৃত্যুর এই সীমানায় ও বেছে নিতে চায় কাকে? আজ সেই আটতলার ছাদে দাঁড়িয়ে ও দেখতে থাকে আকাশের নীল গায়ে মেখে ডানা মেলে উড়তে থাকা পাখিদের। স্বাধীনতা আর আত্মবিশ্বাস শ্বাস নিতে শুরু করে ওর বুকের ভিতর আবার এতদিন পরে। অন্যের ইচ্ছে নিজের ভিতরে নিজেকে ঘুম পাড়িয়ে রেখেছিল যে নিশা আজ তাকেই টেনে বের করে এনে ছুঁড়ে দেয় আকাশে।

ব্যালকনির রেলিঙে বসে পায়রাদের একঘেষে বকমবকম, হাত ফস্কে উড়ে যাওয়া বেগুনের দল, পায়ের নিচে সবুজ শিশিরের ঠাণ্ডা সুডসুড়ি, গাছে গাছে বসে থাকা পাখিদের কথা কাটাকাটি, সেই স্কুলবেলার অবুঝ ঝগড়া, আড়ি-ভাবের খুনসুটি, সেই ঠাকুমার ঝুলি ভরা দতিয়াদানব, রিমঝিম বৃষ্টির গান, সূর্যওঠা সাত-সকাল, দিনরাত্রির লুকোচুরি, আবিহুমাখা বিকেল... এই তো ভালোবাসা। সব ছোটোখাটো ঘটনাই এখন ভালোবাসার গল্প হয়ে ধরা দেয় নিশার জীবনে। এই তো জীবন কত সহজ—“সারে জাঁহাসে আচ্ছা”।

ঝমঝম বৃষ্টির ছন্দে নাচতে থাকে ও। মেন্ডেল-মেন্ডেলিফও রূপকথা লিখতে থাকেন ব্ল্যাকবোর্ডের গম্ভীর মুখে। ওর প্রাণখোলা সেই অবাধ্য হাসি ফিরে আসে আবার। বাঁধনছাড়া সেই হাসি ছড়িয়ে পরে ওই অনাথ, দরিদ্র শিশুদের অগোছালো শৈশব জুড়ে। ইচ্ছে আর অনুভূতিগুলো সব জোরালো, দামাল হয়ে ওঠে।

এখন রাতের আকাশের তারাদের গুনতে পারে ও। সারাদিনের গল্প রাত্তিরে এসে শোনাতে পারে চরকা কাটা চাঁদের বুড়িকে। গোলাপকে দেখে ও আবার বলে উঠতে পারে ‘সুন্দর’। রজনীগন্ধার গন্ধসুধায় খুঁজে পেতে পারে স্বর্গসুখ। এখন আবার বলতে পারে, “মরিতে চাহিনা আমি সুন্দর ভুবনে”—বেঁচে আছি এই তো সুখ। আর কি

চাই? এখন আবার ভালবাসতে পারে ও...। ভালবাসতে পারে আমাকে, তোমাকে বা ওই দিনশেষের ধুলোমাখা সূর্যকে, নির্জন দুপুরের স্তব্ধ চিলেকোঠাকে বা বুকশেলের রবি-শরৎ-সুকান্ত-নজরুলকে।

সব শব্দ হঠাৎ করে যেন গান হয়ে ধরা দেয় ওর মনের তারে। দুপুর রোদে ঘামতে থাকা শরীর যখন আখের রসে খাঁজে পরিতৃপ্তি, আখের ছিবড়ে গুলোর মেশিন থেকে দুমড়ে-মুচড়ে বেড়িয়ে আসার শব্দ ঝংকার হয়ে দোলা দেয় ওর হৃদয়ে। বন্ধুদের হইহল্লা, একলা সমুদ্রের ঢেউয়ের গর্জন, শনশন হাওয়ার কানাঘুসো, ট্রাফিকের ব্যস্ততায় আটকে পড়া শহরের বিশ্রী আওয়াজ, পাথর ভেঙ্গে ঝাঁপিয়ে পড়া পাহাড়ি ঝর্ণা, মন্দিরের ঢাক-কাঁসর-ঘণ্টারাও গান শোনায় ওকে। আমার গান... ভালোবাসার গান।

হ্যাঁ, আমিই সেই আদিম অনুভূতি... ভালোবাসা। যে ভালোবাসার মরীচিকা দেখিয়ে একদিন কেউ এসেছিল নিশার জীবনে আর ভেঙ্গে দিয়েছিল ওর স্বপ্ন আর বিশ্বাস। তারপরেই ও খুঁজে পেয়েছে আমাকে ওর গল্পে, ওর জীবনে। আমি তো মিশে রয়েছি জীবনের সব গানে, সব রঙে, সবখানে। নিশাও সব হারিয়ে আজ আবার ফিরে পেয়ে গেল নিজেকে। শেষমেশ ও আবারো ভালবাসল। ভালবাসল জীবনকে। ভালবাসল আমাকে, আদিম সেই আবেগ—সেই ভালবাসাকে।।

Breaking The Walls

~The Silent Observer

India has had a glorious past in scientific developments, of highly intellectual philosophers and great leaders. But if we peek into the past, just one attitude has been both the weakness and the strength of India. It's accepting people who are different from us, be it in language, religion or colour. 'Divide and Rule' is a policy which has been used at all levels by destructive forces. The situation is persistent even now.

The politics of language is a nationwide phenomenon. The Nation is being deliberately divided into 2-3 parts just to gain votes and power. What is even more sad is the hatred it is nurturing in people's hearts. Love for one's mother tongue is very natural and is a must. But that does not justify an obsession with it or looking down on any other language. Being in a top-notch science institute, IIScians are expected to be rational and sensible in this. But it's no better here.

'South Indians' don't like 'North Indians' because they possibly think that all of them just want to impose Hindi everywhere. Those from the north may also carry similar notions. However, it is important to clarify that there is no 'South Indian' or 'North Indian' perspective here; in fact, the very purpose of putting these generalisations in single quotes is to show just how artificial a divide this is. Groups from different linguistic backgrounds show different degrees of mobilisation and exclusivity.

The above ethos ends up spewing out in various ways. While most of the people keep it to themselves, some of them have been abusive on confessional forums, intoxicated with the power of anonymity. Also, many people pass judgements on the basis of some stereotype, rooting in the stigma further.

All of us know that learning a new language is always beneficial. It not only helps build intelligence but also broadens one's mind. We can all learn one another's language instead of baseless antagonising. One will also experience the fun of learning it and laughing at oneself. Also, the person at the other end of the stick feels really proud. But most importantly, in this process, maybe, the metaphorical stick may just shorten, bringing the two individuals, the two cultures, just a bit closer, as one.

To lessen the sobriety I hope this has brought about, and to leave with the proverbial last laugh (pun intended), here I present a comedic opinion: those from the South sound cute when they speak Hindi or any North Indian language. The same goes for North Indians speaking South Indian languages (or so I kid myself). Native speakers cannot fake that cute accent when speaking their own tongue!

LATCH

~Anonymous

Andrew sat awkwardly on the edge of the bed. He squinted his eyes. A vaguely familiar silhouette manifested before his eyes. The silhouette gradually became more discernible as the fog cleared. Andrew rubbed his eyes and squinted harder. The effect of the drugs was not wearing off as fast as they had claimed it would.

His limbs felt numb, probably because those muscles had not been used for days now. How many days had passed? He tried to recollect. Was it a week, a month, or a year ago that he stepped into the institution? His head was aching. Even the faint so-called 'soft' light emanating from the fluorescent bulbs was hurting his eyes as his pupils contracted and dilated in rapid succession.

Andrew closed his eyes and took a deep breath. His ribs hurt, but that was not bad news at all. Sensation was returning to his body. His body was breaking down the cocktail of godforsaken drugs. He was already regretting his decision. Often, in his empty hours, which for the past couple of years implied all his waking hours, he would reflect on his life; and regret, he would melancholically point out to himself, was a recurring factor in his life. Rolling his hand over his bald head, he let out a sigh of resignation. What were those papers he had signed so blindly? He should have perused those legal documents. He should have verified the legality of these experiments. Common sense dictated it, but two years of unemployment and depression had obliterated all instincts of self-preservation. There was no point in regret now.

Opening his eyes, he looked up. The silhouette was not hazy anymore. It was draped in a pale blue patient's gown and wore a strangely sanguine countenance. He had been viewing his reflection the whole time. He could hear a faint buzz which was steadily growing louder. "Sit down, calm down," said a deep, hoarse voice with a heavy British accent. Andrew swiftly turned around but couldn't detect the source of the voice. It sounded as though someone had spoken right into his ears but there was no one around. Now, he could hear multiple voices: someone was shouting, "Get me out of here," repeatedly. He suddenly heard a loud thud followed by an abrupt silence.

Andrew's heart was racing. He was feeling nauseous and light headed. He tried standing but his knees felt weak. He stumbled forward and hit his head against the metal handle of the door. He waited for the sharp pain to shoot up, but he felt nothing. His body was deprived of sensation as though he had been anaesthetized. Were those drugs acting up again?

But this felt different. His body felt weightless, like he was floating. A train of images flashed before his eyes. Before his brain could process the image, his vision was occupied by a wall of whiteness. Clouds...they were clouds, he realized. He was soaring high in the sky. He could see an entire city below him. He was in Manhattan; the Statue of Liberty was a good enough landmark, but he had been in a claustrophobic room in Sacramento moments earlier.

What was happening? He had not signed up for this. Neurex was controlling portions of his brain according to its whims and fancies. Was his consciousness being juxtaposed with that of others? How many others had been tricked by this shady organization into becoming guinea pigs for these so-called neurophysiological experiments? He was in a vacuum now. Manhattan had dissolved into oblivion as abruptly as it had popped up beneath him. He was surrounded by emptiness. No colour, no form, just plain vacuum; as if his

consciousness was flailing its metaphorical arms to hold onto something; but there was nothing. He felt all emotion draining out of him. This experience felt natural to him.

He felt a ripple of interference in this void. It was a voice... no two voices barely audible. “We seem to have lost him. I told you it was too early to physio-neurite both hemispheres with the eagle’s. We should have limited it to the test subject in Manchester.” “Are you sure he is brain dead? I do not want to lose one more subject. It is the thirteenth this month.” The voices grew louder. He was being engulfed by something. It was distorted and assuming random forms. It was fear... mortal fear.

The voices became louder still, like a train approaching the station. “If it is floating out there, we will have to latch it to a physiologically similar brain from one of those bodies in the morgue before it voluntarily latches onto someone.” “You are being paranoid, John. You know that voluntary latchment is only a theory.” “A very plausible theory, Dr. Ethan. Besides, there was that one case in Vladivostok nine months ago.” “I don’t trust the data presented by Dr. Vsevolod. He has fudged data in the past. I would tell you all about it; but first, send for Harvey. Tell him to increase the dosage of aconite-toxin. It will take more than 4 mg to stop this big guy’s heart.”

The voices became distant and faint again. He was moving fast; as if consciousness was gliding in some sort of ether, towards something as bright as a thousand suns. He opened his eyes. A six feet tall man in a pale blue patient’s gown was lying on the floor, his head resting against the door handle. He was looking at... himself but this time it was no reflection. “Harvey! Why are you standing there like an idiot? Inject the aconite into his arm. You know the drill.” Someone was shouting over the walkie-talkie. Sure enough, there was a syringe in his, or rather Harvey’s hand. The plunger pushed out the toxin into the forearm. He tried to escape but failed. Only two minutes until Harvey’s heart stopped beating. He tried harder but to no avail. He was trapped. Apparently, unlatching was harder than latching. He should have read those papers before signing them.

Too late.



THE RUNAWAY

Jadeera Abubaker

He looked at the clock. 3 o’clock, in the evening. The family had gone shopping. They would only return at around 8.

He had five hours.
Five hours to disappear.

He climbed the stairs to his bedroom.

All his clothes were already neatly packed and carefully stuffed into a shoulder bag.

He made his bed, and then dusted and cleaned his room. He took out all the books that he owned, tore away his name from their pages and piled the books into a duffel bag.

He pressed the buttons hidden behind the shelf carefully, swung open the safe and gathered all his certificates. His birth. His A levels. His college. The IT course in the summer. A second prize in a drawing competition. A third in something else. Every single one of them.

Then he went to the living room, and one by one cut himself out of all the photos kept on the mantelpiece, then from the albums in the bookshelf. Some of them would be hard to burn, so he put them in the paper shredder.

They came out as tiny bits of paper which flew in the breeze.
Shredded paper had never looked so good before.

He took the rest and stuffed it down the woodstove, poured a little kerosene and set it on fire. Little blue, green and red flames shot up as they consumed all his life, written in ink and paper. He watched as each turned into grey ash and fell on the ground. He swept the ashes and dumped them under a tree.

Then incense was burnt. It smoked in his room. He didn’t want his scent to linger any longer after he was gone.

Next, he had to take care of the duffel bag filled with books. There was a charity box down the street, where one could dispose of stuff one no longer needed. He dragged the duffel bag there.

Returning, he walked around the house, checking to see if he had left anything out.
No; everything had been cleared. There was no proof left that he had ever lived in that house.

He locked the front door from inside and hung the key near the fireplace in its usual place. He peeped into his room one last time, made sure everything looked fine; no evidence that he existed. He sighed and closed the

door to his room.

He took out a piece of string from his pocket and tied it on the lock of the window facing the garden; then he slowly opened it, threw his shoulder bag out the window first, and soon followed it.

Once in the garden, he tugged at the string. The glass window slowly closed. With another firm tug, the lock latched itself and the string came off in his hand.
He picked up his bag and ran to the front of the gate. No one was around.

No one saw him jump out the window. No one saw him close the gate. No one saw him walk down that street in the twilight.
No one saw him disappear into the dark.
No one saw him ever again.

The family came back at eight. They sat around the fireplace. Someone asked, looking around, ‘Did we leave anyone behind?’
Somebody said, ‘What are you talking about?’
The reply came, ‘Hmm... I don’t know. Ah, forget it, nothing important.’

But then... how did he remove himself even from their memories?
I wish he would tell me.

Saffron and Green

Composed in the backwash of the Muzaffarnagar riots

A velvet fabric, the blessed land I see,
A fine tailor's masterpiece,
Woven from threads of saffron and green,
Shades of two faiths but one creed,
What a splendid fabric indeed!
A man of music is this tailor,
Divine words from Arab oasis born,
With hymns from the Ganges by archaic
sages drawn,
He sings and sings and with him sing,
The worshippers of two faiths but one creed,
What a beautiful symphony indeed!

This craftsman, a man of revelry he is,
In every carnival, with the jolly cavalry he
revels,
With colours in the festival of colours, he
shades the marble walls,
Across which the Quran and the Hadis dwells.
When in the sacred month of fasting, glows
the moon with luminous grace,
He, in white clad, greets the golden shrines
with a loving embrace.

And then follow the merry cavalry from two
faiths yet one creed,
What a joyous fiesta indeed!

Each other they hug no more, love no more,
They live apart in conclaves of melancholic
serenity,
Into the hearts of fellow beings parted by
faiths,
They thrust the daggers of inhumanity,
Followers of two faiths...but one creed?

Every innocent to death bled,
For them, he weeps, weeps as a child in
dread,
In grief he cries, his masterpiece ruined,
'The fabric has torn, the threads have un-
bound.'
The cry, it echoes in the plight of those who
bleed,
With them he drops, drops dead to the
ground.
In books that profess eternal humanity,
The tailor remains an entity,
Mourns his demise, the world grieved.

His name glorified in every peace symphony,
His name, a sweet name called Harmony.

-Anonymous

Of IIScian Hostel Rooms and Memory Lanes

~ Aditi A Pujar



Mr Sheshachala has been the Superintendent of Hostel Office, a calm, smiling presence at the flurry of admissions, for the past forty years! This is the saga of a life spent at IISc, toiling for its benefit.

As constant a sight as he has been, be it at his desk at the Hostel Office or overseeing the allotment of rooms on everyone's first day here, this grand old soul is retiring next year.

While we only approached with the intent of unearthing some interesting anecdotes, we soon realised that as students and residents of IISc hostels, we owe a great debt to this man, and the least we could do, was to give a voice to what he has to say, after a lifetime spent here.

He recounts his decades-long association with IISc with the same benign smile and twinkle in eye:

"I've been here for 40 years, after joining in 1979. I've seen many, many students. In fact, many of them are now faculty today - including the previous associate director, Dr. Balakrishnan. I was here when he was a student, I was here when he became the Deputy Director and I was here when he retired."

"There are students who became faculty, took over administrative positions and worked with me as wardens and officers. When I got a promotion some 5 years back, there was a committee of 10 formed, of which 8 people had previously been



my students." So, one of them, the Chairman said, "Mr Sheshachala, when I was a student, you took care of my food and clothing, so I'm not going to ask you anything. Just take care of whatever facilities are required, the way I have seen you do." "None of them asked anything of me, not one of the eight."

"Their trust in me was the fruit of my work when they were students. They remember that Shesha used to help them out to the best of his abilities", he says, reiterating that the students' faith in him as a result of his work ethic is at the core of his happiest memories in office.

The conversation then turns to the massive changes he has seen and overseen: "When I joined, there were 800 rooms. Now, it has gone to 3500 rooms. Computerisation has been both, a

boon and a bane. It has helped reduce workforce. There used to be 14 people for the 800 rooms, and now there are 3 for 3500 rooms. Even though the digitalisation isn't yet adequate, we make do. I try my best to avoid taking a student's time, but if I ask a student to physically come to the Office more than once, I personally ensure that her work gets done."

He then speaks of how the erstwhile 800 rooms expanded to 3500: "(Contrary to popular perception), E-Block is the oldest hostel building in campus. I know it does not seem so; it has been renovated. We did not want to demolish it and hence decided to renovate it instead."



"At any rate, E-Block is the oldest; Krithika, Bharani, A-Block, B-Block, and so on were all constructed after I came. Only the old blocks in place of NBH and NGH were there, of about 320 rooms. Kaveri apartment was also the only one in that entire region."

"Everything else was built later. I have visited every hostel from the time the foundations were laid to when people started living in them."

From hostel rooms, the conversation naturally progresses to messes: "Before, there were only 2 messes, the vegetarian A Mess (where you now have Nesara) and the non-vegetarian B Mess (currently Kabini). Later, when the strength

increased, we opened C mess, near Sarvam Complex, right where the Juice Center now stands. Then eventually new buildings were constructed; along with the arrival of NGH and NBH, we shifted C Mess and started D Mess at their present location. This happened barely 4-5 years ago."

From the fact that there used to be messes where Kabini and Nesara now stand, one can gather that the college canteens are fairly new: "All four eateries (including Prakruthi and Nisarga) are new.

While the infrastructure at Prakruthi is old, the contract with those who run the place keep changing.

(Before Prakruthi, the canteen was called the Indian Café). Those days, we even used to have a mobile canteen come into campus."

In the matter of departments, Mr. Sheshachala was not actively a part of their development and so, he does not have a comprehensive account. But, "There has been tremendous growth; when I first came here, there were only 18 departmental buildings. There are so many new ones now. I merely think of them as testimony to the years I have spent here."

Despite such a busy schedule, Mr Sheshachala finds time to be involved in IIScian activities outside the office too: a proud Kannadiga, he is a pivotal part of the Kannada Sangha (the Kannada Association) that takes great pride, not only in organising an annual celebration and numerous events, but also Kannada speaking classes that have been notoriously popular. "If one speaks in Kannada to the office staff here, your work gets done faster, simply because they understand what you are trying to say", he laughs.

As a consequence of all his commitments at IISc, even though he lives in Malleswaram, he stays in campus most of the time. His workday begins from 9:00AM and he usually stays in till 6:00PM. He outright says he prefers to be in campus, ("it's a lovely place, a lovely atmosphere"); so much so that on weekends, "I wonder why I need a holiday". Rather than pass time at home, he enjoys "talking to people and learning something from everyone I meet here". He would much rather have the glory days when it used to be a 6-day week for him. If only we could show similar zest for our work!

Sheshachala too turns his train of thought to us millennials: "Before, most students were from a middle class background. Accustomed to sharing, they were easily satisfied with the facilities available. But now, even as the standard of living has risen; the students seem more and more pampered. They often do not have siblings or have very few and are thus not used to the general

nature of the facilities here: the bathrooms and TV are all common. They have to make do with fans, not air conditioners. What is more saddening and ludicrous is that parents continue to indulge them and ask us to provide those exorbitant luxuries. I clearly remember a parent once asking me for permission to fit an AC in E-Block for his precious son."

With an air of resignation, he says, "I do not react to such requests anymore, I do not get agitated by them. Being the SI, my patience has grown. Working sincerely here, over the years, has also given me confidence in my work ethic and track record. So, even if anyone tries to intimidate me, by even invoking the director, I say "Go ahead. I've seen many directors, and you've only seen one." Sheshachala shares a great rapport with all those in his office, most especially with a Mrs. Jayashree and Mr. Gouda who has also been here for almost 30 years. (He recently got transferred to the CCMD). He has wonderful camaraderie with his staff and gives them a lot of credit, saying "My work is made so much easier because of them".

He ends his reminiscences with "Never has there been an implosion of complaints we couldn't deal with, and so I have remained in this post, rendering service."

"There have been a fair few times in the past when I've wanted to quit, but IISc didn't let go of me", he chuckles. "Only now, IISc, after the years I have worshipped her as my annadatha will have to let go of me soon.."

*

The debt we owe Sheshachala Sir for his long years of dedicated service, for his approachable demeanour and mild-mannered humour is insurmountable. We can only wish him all the best for the next phase of his life and express our gratitude:

Dear Sheshachala sir,
Thank you. Thank you. Thank you.

*

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Babusha Singh
3rd Year



Art by:
Pratyusha Madhnure
3rd Year

Art by:
Kalyani Ingale
2nd Year



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