Nurturing talent, promoting excellence

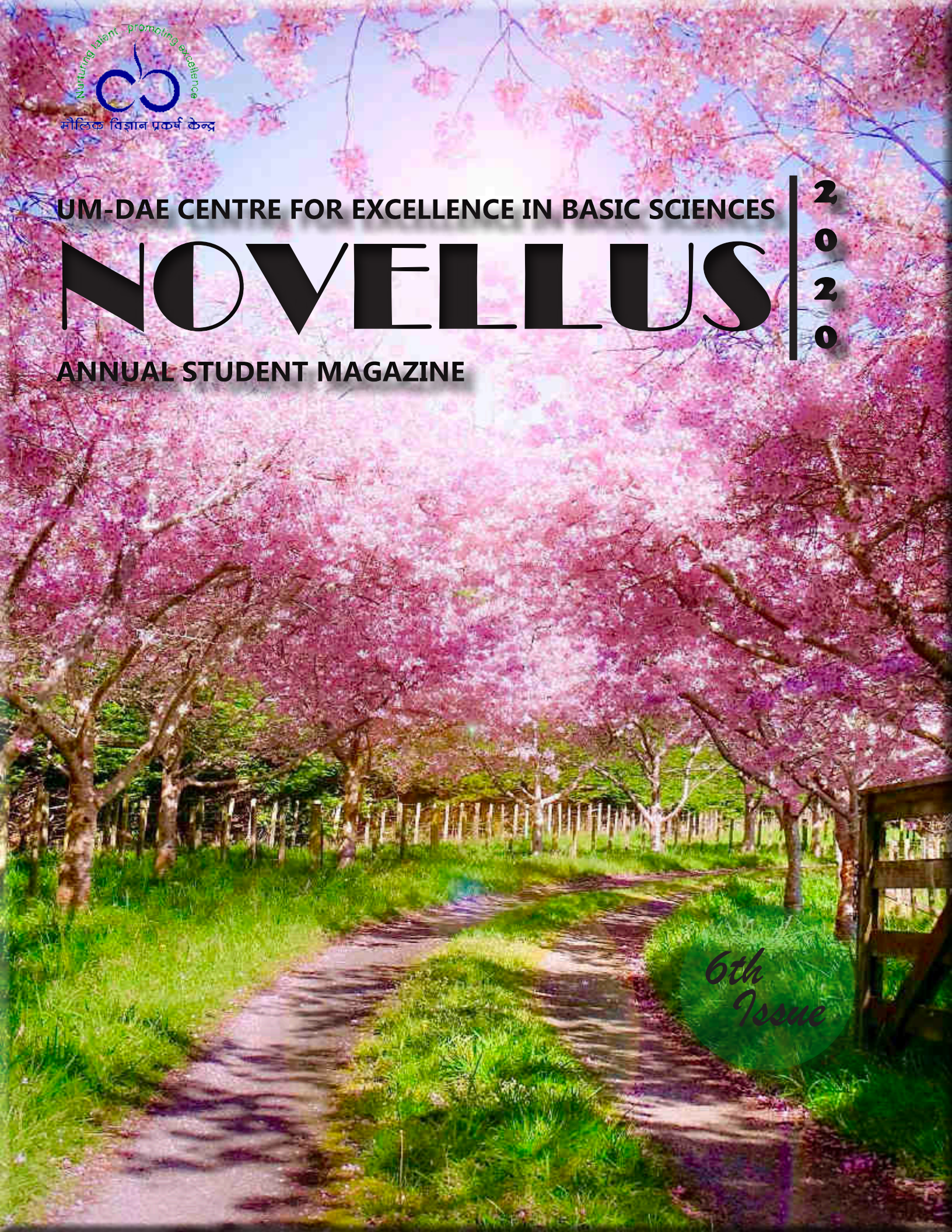
मौलिक विज्ञान प्रकर्ष केन्द्र

UM-DAE CENTRE FOR EXCELLENCE IN BASIC SCIENCES

NOVELLUS

2020

ANNUAL STUDENT MAGAZINE



6th Issue

Acknowledgements

We are grateful to CEBS family, including the Director, Dr V.K. Jain, for their support and encouragement. We are thankful to Dr V.L. Sirisha and Mr Kishore Menon, who have been supporters of the magazine and integral for the publication process. We also wish to thank the faculty, students and administrative staff for their wonderful contributions, and for making CEBS conducive for such expressions of creativity.

~Team Novellus

DIRECTOR'S MESSAGE

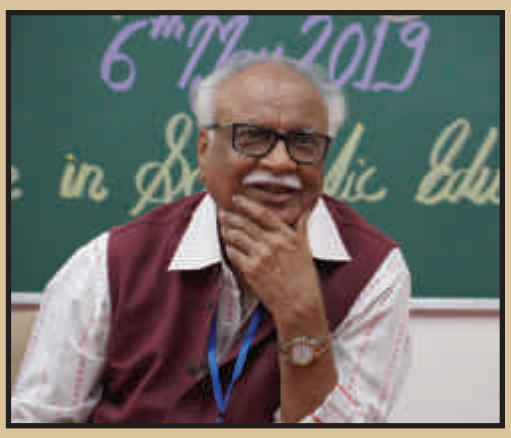
I am happy to learn that the students of UM-DAE-CEBS are bringing out the 6th issue of Novellus for the academic year 2018-2020. The magazine is an excellent portrayal of all the events that take place in CEBS, which create a culture in which both students and faculty alike can flourish.

It is indeed a matter of great pride to have hard-working, inquisitive, and talented students coming from all over India. CEBS has been committed to imparting value-based education and fostering scientific temperament in our students who are mentored by well-renowned faculty. Besides classroom teaching, lab instruction, and research activities through projects, students are encouraged to participate in other socio-scientific activities. Non-curricular activities like ORIS (an event by art club), Dhwani (by music club), Stylus (literary club), Replay (E-Games club), etc. are organized with a lot of enthusiasm. Such activities help students with the overall development of well-rounded personality and leadership qualities. We feel proud of our students' academic accomplishments and the development they have undergone and hope that these traditions continue with as much enthusiasm and support in the future.

I take this opportunity to compliment all the students for their efforts in bringing out this issue of Novellus and wish them the very best for the future.

V. K. Jain
Director
UM-DAE-CEBS

CHAIRMAN'S MESSAGE



Centre for Excellence in Basic Sciences (CEBS) has been conceptualized as a place to learn and teach Science in a "WHY? Mode". Students learn and experience the fun of doing Science and the curiosity is expected to be kindled by enquiring more and more about the secrets of Nature and the role of faculty is to satisfy their curiosity. We hope that in this model we are preparing the students to become better students of Science.

Towards this endeavor, excellent written and spoken communication skills are also very essential for the scientist to share their findings with their colleagues and peers by publishing their results and conclusions in scientific journals and seminars. Besides, students should also be able to explain their work to their colleagues and the common man and those who are not working in the same field. This quality of a successful scientist is well reflected through the publication of Novellus in addition to their ability to work as a team. The publication of Novellus would have improved their interpersonal skills and I congratulate the students who have worked very hard to bring out this issue.
I am sure this effort would have enhanced their all-round personality.

I wish all the students of CEBS for a very rewarding and exciting career in Science and towards bringing out another issue of Novellus in the year 2020.

Prof. (Dr.) JAI PAL MITTAL
Chairman, Academic Board
UM-DAE-CEBS

Editorial

If we were asked for one word to describe the past academic year, we would pick the word ‘change’. The global COVID-19 pandemic has altered the way we live and breathe, quite literally. Every aspect of our lives- be it working, shopping, learning, entertainment has undergone a sea of changes. Life as we knew it before 2020 does not exist anymore and the pandemic has put people around the globe in various levels of discomfort. People say that we are all in the same boat, but we are not. We are in the same stormy tumultuous ocean, but we are on very different boats. Some of us are on a safe and luxurious cruise but others are on a sinking, shabby raft held together by flimsy ropes. Few of us have been very lucky and privileged to have the safety of our homes and not worry about our meals but unfortunately, many people don’t. There has been no time better than this to introspect about our privilege and be kind to one another.

Unfortunate times did come to us, but we made our way towards the light the only way we know how: together.

These past two academic years bore witness to a host of new developments at CEBS. The labs shifted from Prefabs and the Health Centre to Nalanda building. On the student front, the implementation of better sports facilities, competitive sports performances and the advent of cultural clubs that brought people and their skills together to create magic from their common interests.

The student life in CEBS has always been moving and changing: lilting at times, and yet whizzing past our collective ears. We find ourselves looking at this picture of an institute walking with its head held high as its age progresses into the double digits. Our institute is no longer an “infant”, but a teenager, with its own identity. It is a feeling of delightful awe that grips us, as the excellence of CEBS spills into realms outside academics. Open Mic sessions from the Music Club, inter and intra- college sports and cultural events, Rendezvous and talks from the Science Club, Oris from the Art Club, and the freshly minted E-games Club: students brought forth their talents in all possible directions.

This is a tradition that Novellus intends to uphold: capturing the details of the ups and downs of this student life in something slightly more permanent than memories. We are sorry to say we could not put forth an edition in the year 2018-2019. In the light of all the recent developments, this is one tradition worth cultivating. We would request you all to come forth and contribute to future editions of Novellus, for it’s a magazine curating YOUR experiences in CEBS.

As it goes with the previous issues, Novellus also documents the creative endeavours of people associated with CEBS. The literary prowess of our students, staff and researchers is etched in the pages to come. Alongside, one finds a serving of our lives, deep reflections, a punch of comedy, and the internship experiences.

Without revealing any further details, we invite you to turn the pages and witness glimpses of the topsy-turvy details of the student life at CEBS. If you look closely, you can almost find details of the year that was, and probably a hint of the promises the next year holds!

Here’s hoping that we all return to CEBS soon, together, as a family. We hope that you have a great time reading the fruits of our labours. We would love to receive feedback from your side.

~Team Novellus
(novellus@cbs.ac.in)

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The Buffalo and the Broom

- Prithwitosh Dey and Chayansudha Biswas

The time has come, to write the song
Of The Buffalo and the Broom
The story begins with The Buffalo
Ignorant of his doom
(At this point a man but a
buffalo under the moon)
His shirt tucked in, his bow straightened out
His hair, he starts to groom,
An innocent drink in the Three Broomsticks
But his eyes land on the Broom.

There it stood, tall and sleek
And his legs grew so weak
For a moment, unable to speak
The moment ends, the broom he seeks

He reaches out a greedy hand
Unlawful but not deterred
In a moment's flash, he has the broom
This art he has well mastered
Halfway to his den, he's reached,
And sniggering to his self
This Broom so nice, so sleek and tall
I'll add it to my shelf

Rosie the bartender, his movements brief
Lets out a shout, "Stop, damn thief
This is the Broom I use to sweep
My collection of golden leaves"

The Buffalo stops in his tracks
His eyes glinting with malice
"GOLDEN LEAVES, YOU SAY?"
he asks
As he reaches his palace
"Er... No way" says poor Rosie
As he knocks over a chalice
"My leaves are brown, like shitty brown
Not golden like your palace."

"I think I'll be the judge of that"
And not an eyelid does he bat
As he kicks a passing cat
"Your leaves, I say, where are they at?"

But hardened over the years, our Rosie
Gets his wits back soon
For he knows the night tonight
Is the night of the full moon
And the dratted, cursed, crooked buff
Everything he might steal,
But when the moon comes shining up,
His flesh will turn to veal

So let's fast forward into the night
Where a full moon, and a were-buffalo bite
Are almost always sure to cause a fight
And the downfall of the greatest might

Off to test his flying skills
Out the buffalo goes
Blinded by his happiness
Ignores the hairy toes
Feels the rush of wind around
Seems like a fairytale
From behind his butt, he sprouts
A long and hairy tail

Rosie smiles at the shining moon
Knowing that this big buffoon
Will surely fall off the broom
And that won't be a moment too soon

Once The Buffalo is dead and gone
His throat I'll slit, no doubt
And in case his friends find out
I'll leave the ugly snout

Not that he has friends any
Smirks Rosie to himself
But I still don't want this ugly snout
Sitting on my shelf

Surprised at his own spite
His head starts to feel light
He starts to go back to work
But he can't wipe off that evil smirk

Meanwhile our friend high up in the air
Is now more bull than man
The broom is reaching its dying breath
It's doing all it can
Another flash of blinding light
Now from up ahead
Now he's blind and losing his mind
And he knows he'll be dead

Now things take a gory turn
The weak at heart may now return
To Daffodils and happy things
And places where pigs fly with wings

Those wishing to know the end
I do hope you have the courage to spend
For The Buffalo rams into the tree
Of golden leaves and angry bees

If you are still reading on
We hope you can withstand
The dreadful things that happened where
The Buffalo had to land
If you remember the golden leaves
And how that's what Buff wanted
You see they came from this one tree
And the moonlight they rebounded
(This was the source of the blinding light
About which we had recounted)

A dreadful crash and a dreadful scream
His pants have torn along the seam
A shower of leaves upon his head
One last breath and the buffalo's dead
The crash brings footsteps all around
Rosie bringing up the front
Of this tragic full moon night
The tree has borne the brunt

Golden leaves all around
People are overjoyed
One reaches out a delighted hand
But his happiness is destroyed

For it's not a leaf that's in his hand
He slowly begins to understand
That he's grabbed on to a hairy tail
Recognizing it, he starts to wail

"Eww... I touched The Buffalo man"
Screamed the poor man sadly
"Does that mean he's finally dead?"
Said another gladly
"I do hope so" exclaimed a third
"For he's wronged me more than once"
"He used to scare away all my chicks,
With them, he tried to dance"

Everyone had a story to tell
Of how The Buffalo, before he fell
Had driven them all down the well
Of sadness and sorrow, not unlike hell

Rosie clears his throat and says
"Friends, Romans, Countrymen
Many of your possessions you'll find
Inside this bull's den"
"Yes, we know" the people screamed
"We know that he's the thief"
"As compensation let us make
His funeral ceremony brief"

So this was the story of The Buffalo's fall
Of how driving people up the wall
Will make you learn, for once and all
The bigger they are, the harder they fall

Twenty years hence Rosie points
At the horns on the mantle
"From the bloody bruised bull
These we had to dismantle
I guess we just all got lucky
The Buffalo raised no calves
And that is how I named the bar
Two broomsticks and two halves".

Freshers' 2019

Freshers' is an event organized in colleges all over the country to formally introduce and welcome the new batch. Freshers'-2019, titled 'Gratissimum' was organized on 10th September 2019, at Marathi Bhasha Bhavan Auditorium, in the Mumbai University, Kalina campus. Quanta 12 helped the new and bubbling students of Quanta 13 to prepare performances for the big day.

Curtains down!! (finally)

The event started with a speech from our director, Dr. V.K. Jain, in the presence of the Dean, Prof. Swapan Ghosh, Prof. S.M. Chitre, and Prof. J.P Mittal. Lighting of the lamps marked the inauguration of the programme. The programme started off with the first year students dressed as fictional characters participating in "Walk-The-Ramp". Following that, there were various song and dance performances. For the first time ever in CEBS, a magic show was organized on stage. A first-year student, Arnab Chowhan, performed magic tricks and illusions with the help of his father (a magician). The audience was awed and spellbound with the performance. Quanta 13 students performed a hilarious parody of the reality TV show 'Big Boss'. In addition to a rocking band performance by Quanta 10, there was also an amazing band performance by Quanta 13. Quanta 13 students also performed a "lazy dance" and it was exactly what it was named: a dance performance with very easy and minimum movement. The programme ended with a group dance performance by almost all of Quanta 12. The cultural programme was followed by a buffet dinner organized for the faculty and the students in the Nalanda building. The event ended with Dance Night in the mess area of the Takshashila building.

Power Rangers CEBS

This event brought the new students out of their comfort zone and to make friends. More importantly, it helped them in overcoming their homesickness and to start considering the college and hostel as their home for the next five years.

Laddu ka shaukeen!

Yo boys I'm singin' saang

Abraca-dayum!!

Imhotep's freshers' party

Is that a KIDNAPPING!? Oh wait... They're just playing dandiya...

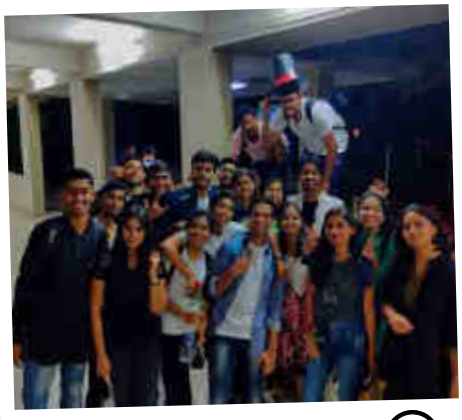
Hi Ken!!! ♡

The new seniors with their brand new juniors!

Would you like to invest in the "Bottle of Sadness"?

I would like to indulge in it, please...

Is this CEBS or Mars???



As if they nailed it 😉

The night we realized that this was only the beginning...

Bleed

Prabhu Prasad Swain

The phonograph played the Iron & Wine while he was looking at the sky and was wondering how beautiful the vibrant moon appeared amongst the twinkling stars of the dark night sky. Nights of monsoon do rarely furnish such picturesque.

Amazed by how aesthetically the tinted moon carried the reflection of the sun, allowing him to perceive it as a reality and often helping him cascade a series of joyous thoughts, he deliberates how his smile can just be the reflection of the happiness and the smiles he brought to someone by his words or actions. A thin grey cloud swiftly passes by, just like the night did when he was riddled by his own abstraction.

Chirpy birds and the supposed alarm broke his cogitation. Yet another day was about to begin. The reflection had to be let go of. The sun with all its crimsonness would eventually take over. And somewhere in the corner, the moon will still shine in vain waiting to be someone's reason for happiness in the otherwise dark, lonely night. He perceives this red sky during the rising sun as the bleeding of the forgotten moon, where instead of his lips reverberating the same smiles and giggles of this world, his eyes take over. They lacerate producing those tiny drops. The drops that demand to be forgotten or wiped aside just as the moon in a day sky.

Smirking at how the sun hides all his flaws amongst those bright rays, he appreciated the moon for being unashamed at flaunting all its flaws, the everlasting dark spots in its otherwise purloin appearance. In the moon, he found a companion that not only consorts him during his most deep insights but never gives false hopes for being there always, leaving him each fortnight such that he learns to live alone.

Amidst all the shine and beginnings, he chose to be the reflection in the dark night, realising that the sun may be the basis for all the processes that help live a life, the moon will always give him a reason to survive.

10 THINGS TO DO IN MUMBAI. . . AFTER THE PANDEMIC

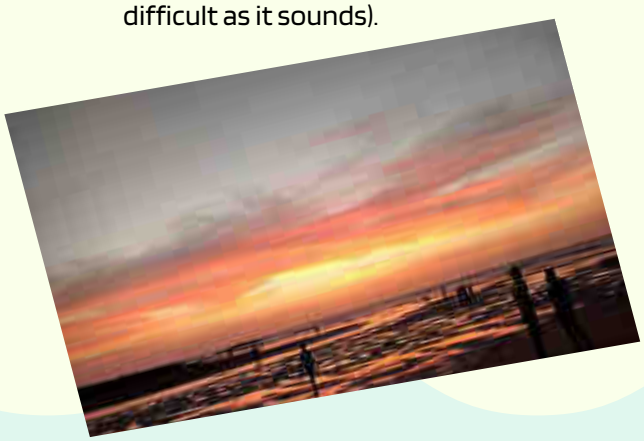
Visit Pancham Puriwala: There are so many great restaurants in South Bombay but this one stands out because of its delicious yet affordable Thalis as well as its interesting history. It is the oldest dining restaurant in south Bombay. In the British era, public hangings used to happen near CST and a crowd would gather to watch (yeah, people are weird!). A man started selling puris for the onlookers on the roadside and the rest is history.

Take a stroll through Colaba: This alone calls for another article but let us take you through one of the favourite routes. Get down at marine lines station and walk to Kayani cafe. Indulge yourself in delectable pastries and Irani chai. Then walk through the fashion street to the Flora fountain. Explore some great street-side book shops and Kitab Khana. Visit the St. Thomas Cathedral (oldest in Mumbai) or go to the Starbucks (the first outlet in India) just across the street. If you feel like reading in peace, then visit the Asiatic library, On your way back to Churchgate station visit Keneseth Eliyahoo Synagogue and get wowed by its amazing architecture.

Watch a play at Prithvi theatre: If you want to watch a play and enjoy a happening evening then Prithvi theatre is the place to go. Head to the Prithvi café for great food and ambiance. Afterwards, walk to the Juhu beach nearby and enjoy the sound of crashing waves and the refreshing sea breeze.

Go on a small trek at Kalwa: Do you also get only one day free in the whole week in the name of weekends? Do you also want to go on trek with your friends but don't want to travel too far from Mumbai or can't hike on difficult treks? Well, worry not my friends. Kalwa is a one-day and fairly easy trek just on the outskirts of the Mumbai. So, pack your bags (mostly with food and water) and reach the summit to get an awesome view of Mumbai. If you are lucky enough to go during the rainy season, you will see amazing waterfall.

Go to free concert in BKC: Let's come back to our own strategically well-located university. The two concert arenas, MMRDA grounds and Jio garden., are close to the BKC gate. These arenas have hosted performances by Coldplay, Ed Sheeran, Bryan Adams, Kygo etc. You could enjoy them well from the outside (being a broke student) also but if you are feeling a bit brave and lucky, you could try to sneak in (not recommended, but to be honest it's not as difficult as it sounds).



Watch a sunset at Carter Road: This is a great sunset spot near our college. While you are there, enjoy a wrap from Ataeria or try Activated Charcoal mint coffee (Caution: It will be either be the best or the worst coffee of your life) at KCROASTERS.

A Good ol' "evening" out: You know what it means. This is one of the clichés of student life here but with good company it's completely worth it. You could go to marine drive. Eat and hang out at Chowpatty or try fries from "The J" . Or if you are a fan of astrophysics, consider going to a stargazing session with your friends.

Visit Aksa beach: It's really hard to find a clean beach in or around Mumbai. I would highly recommend Aksa beach if you looking for a beach to swim and enjoy. So, plan your next outing around there.

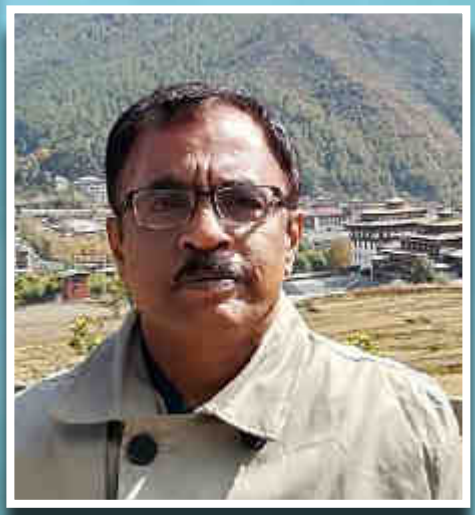
Go cycling at night up to Colaba: After going to Colaba so many times, you might assume that you have seen almost everything., but taking a cycle tour to Colaba might surprise you. You would be truly dazzled by the hustle and beauty of the city, looking at it that close. (Tip: If you feel too tired to cycle back, then simply take a train from the Churchgate station with your cycle in luggage compartment).

Travel in a Virar local at peak times (only after everyone is vaccinated): Last "agni pariksha" in order to become a true Mumbaikar. Experiencing that will surely make you stronger and also teach you the true meaning of "survival of the fittest".

-Rakesh Saini, Quanta 9
Srishti Priya, Quanta 9

An Anecdotal Account

- Kishore Menon



I was associated with CEBS (then known as CBS) sometime in early September 2007. The only other non-academic person other than me was Ms. Swati Kolekar. The main administrative work functioned mostly from the Physics Department of the Mumbai University. CEBS also had its offices on the first floor of the Health Centre Building of the Mumbai University.

Conceived as a teaching-cum-research institute, the Centre began its academic activities on 17th September 2007. Dr. R. Chidambaram, who was then the Principal Scientific Adviser to the Government of India, was invited to address the students. Apart from students, some parents were also present. There was no fanfare or gala atmosphere to this event which was held in a lecture room of the WRIC, Mumbai University. It was very informal with the students and parents milling around and freely mixing with the Chief Guest.

I vividly remember my first visit to CEBS on 14th September 2007. It was to ensure that the hostel block, Annabhau Sathe Bhavan, was spruced up and ready to receive the first batch. All students were to be housed there. We planned to receive the students in the well-spruced up ABS on 16th September – the date given to them for arriving at the Centre. However, that plan was a disaster; the students started arriving on the 15th while the cleaning work was going on.
With brooms, mops, and brushes, it was a wet welcome for the students!

In the first two years, the Centre was able to offer only Physics as the major stream. There was one student from the first batch who wanted to pursue Chemistry as his principal subject. It is difficult to start a stream for just one student, and so he decided to leave the Centre to join another University. His colleagues were distraught at this. A group of 21 students, all away from their home, naturally forms a close relationship. One of their colleagues leaving mid-way evoked deep emotions. They decided to accompany him to the CST station from where he was scheduled to board a train. The plan was to be with him till Dadar station, bid him farewell, and return to Kalina. However, they were in for a shock. The train was not scheduled to halt at Dadar! Adding to their horror, they saw the ticket examiner entering the compartment. None of them had valid tickets to board the train. Panic-stricken, the students, comprising a group of few boys and girls rushed to the nearest toilet cubicle and shut the door. After a long wait, they slowly peered out to see if the coast was clear. The coast was indeed clear. They slowly ventured one by one, much to the horror and surprise of some people who were standing just outside the cubicle. A group of boys and girls all coming out of a toilet cubicle must have been a sight they had never seen! Fortunately, the ticket examiner had left by then. They finally got off the train at Kalyan station and returned to Kalina. This is an experience none of them will forget. We came to know about this incident when a student wrote about this in the slam book that was given to all students after their graduation. You can read this and a few other amusing incidents in the slam book here.

Handling student-related matters were not my forte.
My work profile was completely different in TIFR. As a small organization, CEBS had no strict division of work profile. The limited staff was expected to handle several matters. Gradually, I came to be involved more and more in matters related to students. By and large, I believe the transition from administrative work to handling student-related matters was a smooth affair. During those years, since the student strength was small, we could maintain a personal rapport with students and their parents. The parents would contact us occasionally to enquire about the academic and general well-being of their wards.

The parents knew that I kept in touch with the students, and the students knew that their parents occasionally talked to me. I confess to having taken advantage of this. Whenever a student indulged in some mischief, I would tell him/her about the last call that I received from their parent. This usually resulted in good behavior from the student.

From a batch of 21 students, today the student strength of the Centre is 192, not counting Ph.D. students. The Centre has taken 13 batches of students so far. The fresh intake in 2020 will be the 14th batch.

I have also seen many changes in my 12 years of association with CEBS. On the teaching front, the Centre has started all four principal streams in basic sciences and a Ph.D. program. More hostels have been constructed. Permanent office and hostel blocks have come up, new faculty members recruited, and several more. On the student front, the Centre has introduced many more non-academic and social activities: IISM, Movie Club, Literature Club, Art Club, and a few more. While at the Centre, I was administratively associated with almost all the social and extracurricular activities of the students.

The intake of students to the Centre is based on a nation-wide examination called NEST – the National Entrance Screening. I was involved in this exercise from the first year. During the admission process, intimation is sent to admitted students via email. To make sure that they have received the mail, it is usually followed up with a phone call. I had called up one of the students to inform him that he was selected which was picked up by his father. He talked at length on the importance of education and how he finds that girls are better than boys when it comes to studies. Profusely praising his daughter and daughter-in-law, he bitterly complained about his son's attitude to education. The talk then shifted to philosophy.
Those were the days when STD calls very expensive. The unlimited free class from mobile service providers is a recent phenomenon. I was fidgeting and looking at my watch. My phone bill was shooting up but the parent was in no hurry to cut the conversation! In yet another incident, a student turned up in my office with his previous year's NEST Score Card and insisted that since he has performed very well in the previous year, he must be admitted based on his last year's score! It took a great deal of effort to convince him that his request cannot be acceded to.
These and many other small and big events are permanently etched in my memory.

I carry these and several other memories – mostly pleasant – with me. It is also gratifying to note that quite a few of our past students still keep in touch with me. With email and social media like Facebook and WhatsApp, it is always possible, if both parties are interested in maintaining contact.

Foundation Day 2019

On Tuesday, 17th September 2019, CEBS celebrated its 12th Foundation Day. The preparations for the day had begun two days prior on a large scale and included the refurbishment of the AG area of Prefabs. The celebrations started off with a lavish lunch organized in the mess (Takshashila) followed by a talk by Dr. R. Chidambaram (former Principal Scientific Advisor to the Govt. of India and former Chairman of Atomic Energy Commission) who was the chief guest for the occasion, in AG14.

Before the talk, Dr. Chidambaram was honored with a shawl, a coconut, and a bouquet of flowers by the Director followed by a few words of gratitude by Dr. J.P. Mittal. The talk was attended by the staff and students of CEBS. In the talk titled "Technology is Power", Dr. Chidambaram spoke about how India solemnly rose as a nuclear power without any foreign help and also about the challenges it overcame in doing so. He also inspired the young scientists to take initiatives for the better future of India. The talk ended with a short interactive session between the speaker and the students followed by tea and snacks.

CALCULATED RISK

- Bhushan Deshpande

Whether a person works in a group or individually, clarity of thought and individuality in terms of ideology and viewpoints are very important to help him achieve success. Keeping one's mind focused, calm and disciplined, and the ability and readiness to take action are other important prerequisites for progress, whether in jobs or the world of business.

The most important focus area for progress in today's world is **risk**. Risk-taking involves a delicate balance of timing and foresight. In the past, with lack of capital, awareness about the possibilities and their rights, and back-up income options, businesses were far less popular and relied-upon than jobs. As a result, even today, the older generation encourages the youth to get jobs and avoid risk, but an increase in people's knowledge, improvement in technology and the globalization of markets have made it easier and less potentially damaging in case a strategy fails. Rather, it has become almost essential to take risks in today's world. The younger generation wants to succeed fast – and now has the right opportunities to do so. They are no longer satisfied with monotonous jobs where they don't have the freedom to act as per their opinions and desires, they don't want to be forced to follow the instructions from someone at a higher post; the young want to increase their productivity and reach their maximum potential.

The mindsets of societies change with time, and the older generation has to understand that jobs are not enough today. The younger generation needs to remember to keep up their enthusiasm and focus, be ready to take risks, think with open minds and develop their marketing skills. Risk, technology, ideas, opportunities and implementation work together, and the word 'risk' has the power to turn anyone's life into a life of achievement.

The people of the younger generation should learn how to calculate risk at different levels and at different points in time, depending upon the circumstances. Further, self-discipline is required in every profession, whether in a job or a business, and while practising self-discipline, a person must work out his idea by upholding his decided strategy while making sure to follow the planned timelines, which prevent delays and missed opportunities, and bring positive results.

If one is intent on getting ahead in life, a job and a business can be managed simultaneously, one just has to have the right mentality. When we are mentally prepared to handle challenging situations, we can get success in both fields. Calculated risk is a major part of the lives of today's generation, and one should not limit themselves because of hesitation or unnecessary fear. Rather, he should develop the promptness to seize opportunities when they present themselves.

CELEBRATIONS @ CBS

Diwali

ONAM

PONGAL

HOLI

PhD Placements

Arujash Mohanty –	Weizmann Institute of Science, Israel
Charu Shardul -	University of Bordeaux, France
Gaurav Singh –	University of Massachusetts, Amherst, USA
Ishan Verma –	Johannes Gutenberg-Universitat, Germany
Neha Srivastava –	University of New Hampshire, USA
Prabhu Prasad Swain –	Ecole Polytechnique Fédérale Lausanne (EPFL), Switzerland in both the Doctoral Schools of Physics and Bioengineering (independent selections)
	Max Planck Institute for Polymer Research, Germany (Marie Curie ITN fellow)
	Max Planck Institute for Dynamics and Self-organization, Germany
	Weizmann Institute of Science, Israel
	University of Leipzig, Germany
	Paul Scherrer Institute, ETH, Zurich, Switzerland
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Eternal Bliss

- Indranil Das

I kept staring at the blank paper in front of me. I had been staring at it for the last half an hour. The cappuccino had turned cold. The waitress came over to me and politely asked with a smile whether I would like to order something else. I ordered a cheesecake. I recall that I had ordered a cappuccino and a cheesecake the first time I visited the cafe. They seemed a perfect fit to be the last things that I would eat and drink. The cafe boasted that its cheesecake and cappuccino were the best in the town. They didn't disappoint me in that aspect, but that's not why I visited the cafe regularly.

It has been a long time since I have felt any emotion. I have wanted to be like that since I was a kid. No, I guess I was like that since I was a kid. The cafe provided me with an atmosphere and space to sit without anyone interrupting my thoughts. Maybe that's why I visited it regularly; to be like a ghost, phantom or shadow. I looked outside through the window. Fall was peaking around the trees. The leaves have turned yellow, red and into other dazzling colours. But there was a sadness in the air along with happiness. This was my favourite season.

A gust of wind blew my hair. The Final Masquerade by Linkin Park was playing in the background. Again, a perfect fit for my departure. I took a deep breath and scribbled on the paper, "I enjoyed my time here", knowing very well that no one would read it. I finished my cheesecake and left a ten-dollar bill as a tip for the waitress. She had been kind to me the entire time. Besides, I won't need any money from now on.

It was twilight. The sun and the leaves created a brilliant hue of colours. The piled leaves dancing in the wind seemed so beautiful. Has the world always been so colourful and bright? It doesn't matter anymore. Unlike the leaf desperately clinging to the branch, my will to live has extinguished. The strongest of all the emotions is the desire to live. I don't remember the last time I felt truly alive. Time flies by when we stop living and become empty from the inside. My psychiatrist had often asked me if I wonder about my dreams. I was never ambitious.

I started walking towards the building. Fall had decorated my path with yellow maple leaves. I climbed up twenty-five flights of stairs to the roof. The view was spectacular from up here. I left the note at the door and stood at the edge of the roof and took one last view of the breath-taking picture of the city. It was exhilarating. The sun had almost set just like my life was about to now. What perfect timing! Somewhere someone was playing Iridescent by Linkin Park and the lyrics hit the deepest core of my heart, "Do you feel cold and lost in desperation?/You build up hope but failure's all you've known/ Remember all the sadness and frustration/And let it go/Let it go".

Then I leapt. The air rushing past my face and the adrenaline rushing through my body kind of made me feel alive. I was glad that I got to feel these emotions for the last time before dying. I was not afraid or anxious. Strangely, I was calm. I closed my eyes. Relativity says that the closer you move with the speed of light, the slower time passes by for you. I wasn't falling with the speed of light but yet time was moving so slowly for me. All the sweet memories from my childhood and adulthood flashed before me. I had forgotten that there were moments when my existence mattered to someone and I wasn't numb to feelings. However, all these things seemed to happen ages ago and I couldn't help but think that they were dreams- anything but the reality. My childhood dreams and ambitions flashed before my eyes. I wanted to become a pilot or an astronaut and claimed to be an eagle. At least I am flying now, even though it would be my last flight. And I was relieved.

Numerous songs kept playing inside my head. Chester's lyrics "when my time comes forget the wrongs that I have done.." seems to be the perfect fit for this moment. I hope nobody resents me. I didn't change the world or revolutionize it but I am happy that I was able to make certain people smile and bring joy and happiness to their life. I wish nobody would cry for me. I wish that I would simply remain the "shadow" that I have been throughout my life. I was glad that I got to feel these emotions for the last time before dying. If there is one regret that I have is that I should have fought for making euthanasia legal conduct, but it doesn't matter anymore. I am going to get what I wanted. This is my happy ending, my fairy tale and my happily ever after. At last after what seemed to be an eternity, came the fall, followed by darkness and silence, and I went to my eternal, peaceful, long-awaited slumber.

Dear younger me...

I know it's still too early,
And your memory is a little fuzzy,
But,
I have written a letter,
So that your life could be a little better.
Your spirited thoughts...
Remember people are ghosts.
Never lie,
A penalty your soul would have to buy.
Cut the rope of that guilt,
For the things people do as filth.
Don't belong to the group of those of buts,
And stick with the feeling of your gut.
Dare to fight for what you think is spiritually right.
People come and go away;
Learn that only the real ones will stay.
So boy, just you slay.
Oh, and have a great day!

- Anonymous

My First Few Faltering Steps Towards "On-Line" Teaching

I shall be brief.

"*Talking to a Vacuum*"
Let me begin with an anecdote. It is said that when K. Asif was making the legendary movie *Mughal-e-Azam* he wanted another legendary persona Padma Bhushan Bade Ghulam Ali Khan to sing in it. Khan Saheb was averse to singing in a studio and much less so for a movie. The glass walls of the recording studio made him claustrophobic. There was no audience. No feedback, good or bad – a *kabrestan* like ambience. One day K. Asif landed at his house. Khan Saheb consulted a friend – how do I get rid of this pest? The friend, a man of the world advised, "The going rate for singing a song is Rs 500/-, that is what Rafi and Lata Mangeshkar charge. Ask for 5000/-. "You will be rid of K. Asif forever." So Khan Saheb had tea and snacks served to K. Asif, like you fatten a sacrificial goat. And then he said, "My charges are **Rs 5000/-**" K. Asif kept quiet for a minute. Then smiling, he pulled a cheque out of his pocket. It had Bade Ghulam Ali Khan written on it with '**Rs. 25000/-**' ! Asif Saheb had come prepared to honour Bade Ghulam Ali Khan. We now have two gem-like songs sung by Khan Saheb in *Mughal-e-Azam*.

My first few experiences with on-line teaching was like talking to a vacuum. Like being out in deep space and speaking – to no one. Where were the students, their puzzled or appreciative expressions, their interruption or even their dozing off while I hectored and lectured? I could empathize with Bade Ghulam Ali Khan. But I pulled myself up and decided to try.

Himmate Marda, Maddathe Khuda (Do your best and providence shall do the rest)!
Saddled with a class of 47 students, I was dismayed when I learnt that the lockdown would be continued after April 14. Things were looking grim. How was I to do justice to the syllabus for these first year students? I called up some students to help set a trial online class. I was surprised by the support I received from the students. I had expected them to make excuses, feign corona and dodge. Instead two of them helped set up a Zoom video session for me, gave me some pre lecture training. And I was ready to roll. The first lecture had an attendance of over 40 out of 47 students.
Emboldened, I held another lecture, and another... Altogether over 12 sessions and I had covered 2 topics and two assignments in a space of 6 weeks. I am currently doing a Project viva with three students at a time, so I will have another 15 sessions.

Hiccups...
All was not smooth. Far from it. In my third video session students complained of static noise. They could not hear me. I was advised to hold a microphone near me and speak – simple. At another point while sharing the screen, my cursor hung up. Like an obstinate ass, it refused to budge. I had to close the session and start again, and again it hung up. It turned out to be a bandwidth problem – too many students on video. Then one day my laptop crashed. Students rushed in with good help. Set Zoom on your smartphone, they advised. So I did and the class continued. I had an old laptop. I set up Zoom and Google Meet on it. Recently while holding a Project Viva for 3 students, my laptop discharged. No problem – with 3 students we had a multi-caller phone session. So it was not all smooth sailing – but Jugaad (Improvisation) runs in our veins. The show must go on.

What we need.
At some point soon most educational institutions including CEBS should hold training sessions for faculty and staff – orienting them to a couple of video conferencing apps both on Windows and Linux platforms. We need to invest in these apps – I understand that the cost is modest. We should also begin with a makeshift recording room where lectures could be pre-recorded. It need not cost a ton. Our own students can help out in some cases. For the coming semester my ideal methodology in these difficult times of Corona is
(I will be having a much smaller class of 14 I think)

(i) Hold a 30 minute video session orienting a topic – say second quantization.
(ii) Send my lecture note on this topic immediately after the session.
(iii) After the students have had time to read the lecture note, hold a longer video session on this topic.
(iv) Meet half the students in a class maintaining social distance to discuss and clear doubts.
(v) Meet remaining half of the students in a class maintaining social distance to discuss and clear doubts.
(vi) Send home assignment .
And continue in this fashion.

All is not rosy

Say what you will, the human, humane touch is missing and for me on-line stands notches below actual classroom teaching. Given the fact that 4 or 5 students could not attend my dozen sessions because they did not have a smart device, or were not able to master this video technology or simply did not have internet access – it implies that in India the digital divide between the haves and the have-nots will increase. The issue of using software and platforms which have low security and are not indigineous is also a consideration.

Finally..

I would like to dedicate this article to the large number of students of P201 class. Their support, patience and encouragement kept me going and teaching in the last two months. Thanks to all the students and special thanks to Vishal Kaleeswaran, Ashwini Babu and Naman Mishra.

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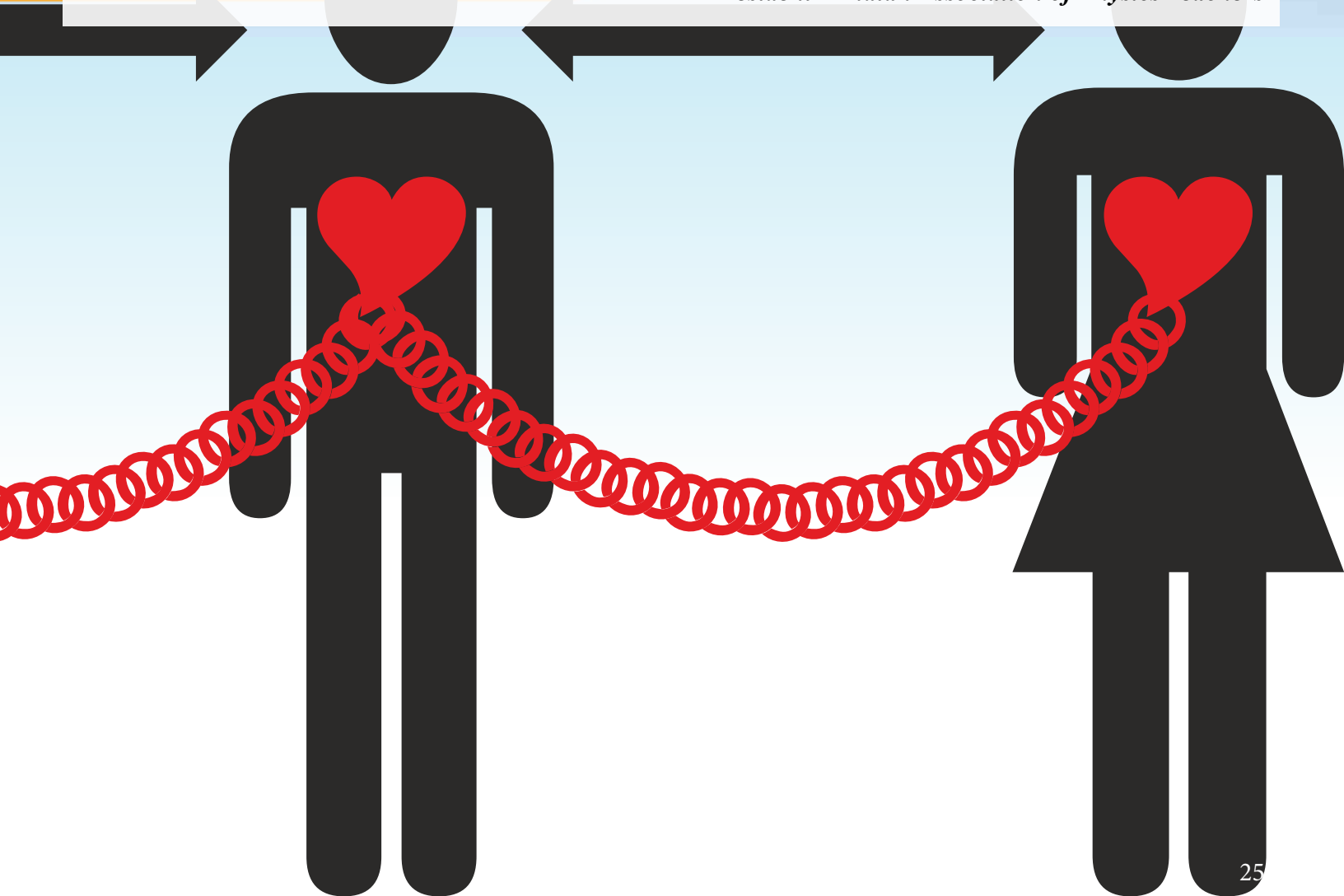

Corona – *AAaaa! se ahaa tak!* …my experiences with truth

Before it all began: We had been hearing about this distant viral outbreak at a wet-market in Wuhan province, since its revelation by the Chinese on 31st Dec 2019. In January, we came to classify it as the Novel Coronavirus (nCoV2) similar to the earlier SARS epidemic of 2002, also incidentally from China. Thanks to today's genomic technologies, we got to decipher the complete RNA genome of the isolated virus within a record span of 2 months. By comparing the letters of its genetic code, we realized that it is closely related to Coronaviruses found in bats and pangolins. Even until the turn of the millennium, it would be considered lucky if a doctor would get to treat a new disease - never encountered by mankind before. Yet, within a span of two decades now, this was the third major coronavirus jump from animals to humans; first SARS, then MERS and now COVID-19. *What had changed so suddenly?*

Early beginning in India: By February, the media had started catching the gravity of the situation, intimating us of the rapid spread across Europe. By then, I had already flown to Delhi to attend a much-anticipated meeting with scientists from America and India. I still remember that crisp mid-March winter morning… panic struck when the Delhi government started talking of city-wide lockdown. Luckily that very evening I was fortunate to watch the lights of the nation's capital fade into the distant horizon, as my flight inched back home to Mumbai. From what seemed like the epicenter of the disease in India, with a pattern of being transmitted by air-travelers from abroad "by contact": *I had checked all the red boxes!*

Bullied by the un-informed: Being the geek that I was, I had already spent a good deal of my time since mid-February, reading all sorts of publications that had been buzzing on PubMed, WHO-CDC and social media. Having been aware of the developing situation, I used to wear a Face-Mask whenever I interacted with everyone, and maintained physical distance from my American colleagues, who were obviously understanding of the gesture. Although I tried convincing others to do the same, I got that telling look – *'here comes the hypochondriac'*! By then, I had already been warning my friends on Social Media, trying to empower them with the same knowledge that were my epiphanies from literature. Several 'well-meaning' friends showed me down, *"You are creating unnecessary panic with this mask suggestion – even WHO doesn't say that"*. Growing up different, I was used to ridicule from my peers. So I chose to remain true to my learnings from Biology and Epidemiology, as to how the virus can spread – still trying to convince those who would listen.

Woh saat din (×2)**:** Having been at the epicenter, I was at a high risk of bringing home the infection. Wearing the mask not only reduced the chances of the virus getting in, but also prevented aerosols from my breath to infect other people, lest I was positive. But the guillotine on my neck, were the two people I loved most – my nearly octogenarian parents, who were highly susceptible due to co-morbid pre-existing conditions. As I landed, Mumbai was going into lockdown. By 25th April, Hon. PM Modi had declared a nationwide lockdown. For the next 14 days, gathering all the information at hand, I did three things to protect my parents: Physical distancing and isolation, regular hand-washing routines and ensuring that everyone wore a mask, even at home. Luckily, for the entire incubation period of two weeks, I was free of symptoms. Finally, I emerged from my masked cocoon triumphant that I did not pass it to my parents. There could always have been the possibility that *I was positive, but asymptomatic!*

The AAaaa!! moment: The first week of lockdown was completely alien to me. I became entrenched in online spaces - the only way to stay connected with my students, colleagues and friends - *social media!* That's when the *tsunami* of misinformation hit me. Media feeds and family-school WhatsApp groups were in overdrive, flooded with astrological 'predictions' of the apocalypse, why it would not spread in India, the many 'Miracle cures' we were already aware of from traditional medicine, and the indignant stigmatization of the infected, some even justifying it as ancestral wisdom of "*Why untouchability*": 'Stay away from them'! Wired for dooms day scenarios, our conservative brains had woken up! '*Protect yourself first*'! No one seemed to really know what was going on. Yet a few clicks online made each of us an expert. In convincing others about these, if it drove us a step forward, arguing drove us two steps back. NO! These messages are JUST NOT TRUE!!!

The improbability of beliefs: That initial week on social media was enough to make many of us realize how harmful misinformation can be. In the face of an infection, that was spreading fast – without the protection of accurate information - people put their faith in what is easily available, "if it is on the internet, it must be true". One early instance was "*Arsenicum Album D30 will build your immunity against the COVID-19*". Simple math showed the irony of the extent of this homeopathic dilution. D30 was equivalent to putting one drop of the original compound into the Arabian sea (allow it to mix completely) and then claiming that water from anywhere on earth can make you immune!!! The evidence? …I'm still looking for it! Not to say that all homeopathic medicines *must be* bogus, but once you get to know this fallacy, it did seem a stretch too far; to claim protection against a new disease that mankind had only just encountered. While medical researchers were busy building double-blinded randomized-controlled clinical trials as the gold standard to test efficacy of promising medications, *social media already had the cure.*

ISRC – Indian Scientists' Response to COVID-19: It has been months since Arsenicum Album D30 was announced on social media, and even after being widely distributed in Mumbai, the city had the highest number of cases in the country; even bureaucrats who propagated alternative therapies were turning positive. India stands as the only one among the top three worst affected nations, where the disease was still rising. It was after the initial week of battling alone, when the phone rang: "We should do something about this!" – I joined hands with Aniket Sule (HBCSE), and Sandhya Kaushika (TIFR) to do what seemed like the need of the hour – *Hoaxbusting*. As the ball rolled on, about 500+ scientists pan India and some even scattered across the globe came together: faculties, post-docs, PhD students from all walks of science voluntarily joined the ISRC, each extracting different kinds of hoaxes being circulated. The group sifted through scientific literature to provide sound advice to the layman, so that informed decisions could be taken. The common lab-rat scientist was forced to step out of that cocoon and metamorphose overnight, into an effective science communicator. We learnt …and within the first four weeks busted 18 hoaxes, with detailed rationality in English along with infographics in 15 Indian languages (adding 2 others later).

How did we do it? In an attempt to solve this pandemic together, all scientific literature that is corona related, had been made freely available. Besides the huge number of unpublished pre-prints being churned out, about 41000+ scientific publications in seven months – *is a mountain of data*. Sifting through this to make the information palatable to the general public was a humongous task. With help from CEBS students both ex- and current, Rohini Karandikar (ex-HBCSE) and I nucleated a country-wide group called the *ISRC Lit-Combers*. Joined by Deepa Agashe (NCBS) and Dibyendu Nandi (IISER Pune), we would gather and screen all forms of media for information, hoax or not, and filter

the reads through 40 – 70 members. This reiterative process of discussion and arguments with Reeteka Sud (NIMHANS) and Sonali Sengupta (Delhi Univ) covered more than 2000 odd reports, and helped us discern good information from the bad. Data that survived the critique were streamlined into summarized information and systematically used by the ISRC for Busting Hoaxes and developing COVID-19 QnA. The website provides an additional platform for social outreach, data modelers and weekly Symposia.

Learning from the Pandemic-Infodemic: While knowledge can set you free, curiosity and scientific temper keeps you alive! Climate change and ever-growing human populations have disturbed the balance of worldwide ecosystems. Each day, we are encroaching further into nature and appropriating wild spaces by domesticating them. Not only is human-human interaction at a historical peak but human-animal overlap is also hitting that critical limit. Will zoonotic jumps like Mad-cow disease, Bird Flu, Swine Flu, Nipah virus, SARS, MERS, COVID-19 and more, become commonplace in the days of our lives? Is this nature's way of fighting back? Will viruses re-claim the evolutionary balance, or will medical science be able to stop them? At the end of the day, *we will still be playing catch up*. It is therefore prudent, that we wake up to these realities; learn to preserve ecosystems – preserve biodiversity, so that viruses like SARS-CoV2 are better contained within their natural evolutionary niches. It is time, that we become conscious of the limited resources we have, and how to use them sustainably. COVID-19 is nature's wake-up call to humanity.

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Long-range nuclear interactions locked down

An account of online classes during the pandemic

A new element with an exotic isotope was discovered during May 2020. It was named Quanta Undecimum (Quanta Eleven), and its nucleus was found to have some remarkable properties. The constituent nucleons exhibited long-range interactions spanning thousands of kilometres, as illustrated below, quite different from the typically observed femtometre range. These interactions were found to be mediated, not by the exchange of pions, but by means of optical fibres and satellites. I am referring to my online interactions with Physics students of Quanta Eleven at CEBS as part of the Nuclear Physics course which I instructed, during the lockdown period. The locations on the map roughly indicate the hometown of each participant nucleon. Nerdiness aside, the pan-India nature of the CEBS student community was particularly evident during the online classes since each student in the class was connecting from a different corner of the country.

I was glad to see the students close to two months after their abrupt departure around mid-March, and I thought the feeling was reciprocated. Though the mode of interaction was quite different from the usual, some things remained unchanged. Most students appeared to turn out much like they do to class at CEBS after hurriedly getting out of bed. For my part, it was the first time I delivered lectures wearing casual attire. One aspect was common to all boys, except one, in the class: they were in desperate need of a haircut. The one exception appeared to have taken the easy way out by shaving his head. This was the first occasion in my two-decade teaching career that a student commented on my personal appearance, and with good reason, since I had grown a French beard during this time. Some of my collaborators had also commented on my transformed appearance during our discussions over video conference. The lockdown was a once-in-a-lifetime experience, with both good and bad aspects, and provided an opportunity to do something offbeat.

The online instructions, conducted using Google Meet, proceeded quite smoothly for the most part since we decided the parameters of the interaction in advance, keeping in mind bandwidth limitations. Since video from the students' end was turned off to conserve bandwidth, the most difficult part for me was delivering the lecture to a screen. I tend to feed off the response from students, even non-verbal, when in class. With that missing, it took some extra effort to keep up the motivation by imagining that the students were present, which they were, but virtually. The classes were quite interactive and many questions were asked using audio or chat. It was perhaps appropriate that one of the lectures dealt with elementary particles and their interactions. In addition to my lectures, each of the students delivered seminars on selected topics highlighting contemporary research in specific areas of Nuclear Physics.

All these interactions spanned around fifteen hours, which I enjoyed. The novel mode of interaction led to a few more unprecedented incidents. I mentioned in one of my lectures that I would be giving a homework assignment the next day and then forgot to send it. I was actually reminded by a couple of students to send the assignment; this was the first occasion when students eagerly asked for homework! Finally, one more first was that I could introduce my son to my class who were thrilled to see him. My son is also taking online classes and wanted to see how things looked from the teacher's side. On the whole, despite my initial reservations, I enjoyed the experience, and it was possible to establish a rapport with the students, similar to that in the classroom.

S.K. Tandel
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MY EXPERIMENT WITH ONLINE TEACHING

It is said that the Spanish Flu of 1918 was one of the deadliest pandemic in recent history. In India, it was known as the Bombay Fever. It is now estimated that around 50 million people were killed all over the world which included around 15 million Indians. Historians blame the then colonial government for their state of unpreparedness in dealing with this human misery. However, those were the pre-antibiotic days. According to what little information is available in the archives today, the only advice that the experts could give was summarized in a cartoon published in the Daily Mirror which said, “Don’t talk to anyone, don’t go near anyone and you are safe”. Public gatherings were banned, the schools remained closed for a long time and the well-to-do wore masks. It would seem that a hundred years later, we are in a similar situation, except that now there is also a fervent race for developing a vaccine.

Not much is known about what the students were expected to do when the schools closed down, except that they probably received some homework to be done during this period. However, the situation has changed in the past century and today, one can continue to deliver instruction to students at home through various online teaching platforms. When we had to halt our academic session in March this year, we were faced with the challenge of having to maintain some continuity of this process. I will be talking about my experience during this period and the lessons that we have learnt in the process. Hopefully, my next attempt at online teaching will not be as dismal as my preceding one and I will emerge all the better for the experience.

I had already taken several online courses under NPTEL platform of the IITs. That was a totally different experience because there was no live audience then. The lectures were recorded in the studio using fancy audio-video equipment like a document camera for taking videos as one writes. The lectures were then edited by the NPTEL team before being released on an online platform. In terms of video conferencing facilities, I had used Skype for making calls. However, I found myself not equipped to take a live interactive lecture. Gaurav, a student in my class, lent me a helping hand. What I did was to prepare the lecture slides which I made available to my class in advance and I provided a commentary on the slides on Skype. While we managed to survive these lectures, the experience was not satisfactory either to myself as a teacher or to the students. Some of the problems I faced are there to stay and some could be overcome because of better preparation. For the last two months, IIT Bombay has been organizing training sessions for their faculty to prepare them for the online teaching that they will be undertaking next semester. This is an important step as the teachers need to have an appreciation for the problems they would be facing in delivering lectures in a virtual classroom. It goes without saying that howsoever well-prepared we might be, a virtual classroom is not a substitute for contact-based classroom instruction.

The first problem starts at the teachers’ end. Even though we are in a city like Mumbai, many teachers do not have high speed internet connectivity required for live video streaming of their lectures. I was fortunate on that count as I have such a facility. A way around this problem could be to record the lectures and make them available through a server at the CEBS website. This creates another problem. The videos have to be edited and compressed by technically competent people and that requires creation of a facility that we do not have at the Centre. There is another issue that will come up when we start online lectures for five to six hours a day in the following semesters. Since I was one of the few teachers engaging online class, I agreed with the students’ suggestion of taking the classes at night. Imagine a family has to set aside one room for exclusive use of one member of the family for the whole day. This is not feasible except in a few cases. In fact, the problem is worse in big cities like Mumbai where most middle-class families have a two-bedroom apartment.

The situation at the learners' end is much worse. Most students do not have WiFi connectivity at home and they depend on the data connectivity of their smartphones. This results in a financial drain on students. Even many of those who have internet connectivity at home have to bear the brunt in case power-cuts and load shedding interrupt the lectures. In my class, three students were permanently absent because of connectivity problems. Another problem that I faced, which was totally unanticipated, was with respect to the amount of material which was covered in a one-hour lecture. As the lecture was mostly a monologue, I found that the material covered was twice as much as that in the real class room. I was not equipped with the knowledge of enabling interaction with the students in a virtual class.

Most teachers like to use chalk boards in a classroom. While this, in principle is possible in a virtual classroom, use of a whiteboard to write long equations is not very practical. A way around could be to use either a document camera or a fancy iPad like an iPad Pro with an Apple pencil. Most teachers do not own either of these. The alternative is to prepare slides of each lecture in advance and share these while delivering the lecture.

Giving online lectures does not come naturally to most of the teachers. They need to be trained for it by experienced people. An important aspect that I have not touched upon is the problem of conducting evaluation. A lot of thought has to go into this. I hope educational technologists associated with the Centre will be able to find an acceptable solution to this problem.

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No lab-withdrawal symptoms!

I still vividly recall the announcement made by the CEBS administration regarding the complete lockdown and asking all its students, staff and faculty to 'stay' at home. This was around mid-March when several Indian states also sprung into action to 'contain' the spread of Coronavirus and their first step in this direction was to shut down schools and colleges. Being a parent of a school-going child, this experience was overwhelming and exhaustive altogether! This meant keeping my child engaged in activities – some creative, some interesting, some not so interesting (studies) and some mundane (tiny house chores. It also meant reducing screen time as well. My first challenge was to keep her stuck indoors for the first 5 weeks and then which extended to 2 months! But, now with online school re-opening on 15th June 2020, life 'seems' to be coming back to normalcy to some extent.

In retrospect, the country-wise lockdown came across to me as a precautionary measure of curtailing the spread of the virus. While some among us did not take it seriously, the Biologist in me took to explaining this situation in layman terms to family, friends and others. I took to reading a lot of material that was published. I read about the epidemic in Wuhan, the city in China and read about the virus itself, the disease, and the epidemiology; realizing little, that a serious pandemic was round the corner! And countries in the West had already been under a lockdown. Just around the time, SPINCO Biotech Pvt. Ltd. invited me to review the pandemic and I pounced excitedly on this opportunity-this meant reading and gathering a lot of related information, especially scientific. To my amazement, Google had come up with a lot of related information and a Pubmed search showed 330 original publications on Coronavirus, especially in Medical journals of repute. I noticed that the peer-review process was placed on a 'fast-track' mode. My second challenge manifested slowly while I wrote the review-to decipher information that was correct (true) and discard the fake ones. This was very difficult, but I used my sense of scientific discretion and experience to steer clear of the articles published by those who made tall claims.

The April issue of SPINCO's monthly magazine, 'CuttingEdge' published the article (1). A journalist from Hindustan Times approached me with some queries and doubts related to Coronavirus and COVID-19. I gladly accepted to answer those doubts and in particular, the lingering yet fearful doubt of Coronavirus spread by asymptomatic carriers (2). My scientific inclination towards understanding what was published in the literature correlated well with the turn of events and the facts gathered. The virus' mode of entry into host cells, the specific antibodies produced by the immune system, the virulence and the rapid spread infecting a huge number of the human population made sense. For me as a Ciliary Scientist, equally interesting and exciting was a publication from Garry Nolan's laboratory at Staford on the, 'Robust ACE2 protein expression localizes to the motile cilia of the respiratory tract epithelia and is not increased by ACE inhibitors or angiotensin receptor blockers'.

I also observed that the world had become a laboratory and humans the guinea pigs! There was news all-around of repurposing of drugs, rush to get the correct vaccine and discovery of a cheap and the best diagnostic kit. Added to this, the precautionary measures used by doctors, nurses

and healthcare professionals through masks, gloves, face shields, sanitizers, PPE and what not! It was just like how I would instruct my students to gear-up before entering a Class 2/3 animal tissue culture laboratory/animal house.

In the background, the disconnect with my students was bothering me. As the government decided to continue with the strategy of containing the spread of the virus by announcing a nationwide lockdown 2.0, this disconnect with students also seemed long-drawn. I discovered Google meet and Google classroom as user-friendly tools for connecting with people and plunged directly into holding both laboratory meetings and faculty meetings, giving me further confidence to conduct online classes. The latter meant that I had to prepare power-point presentations, something that I'd never resorted to while conducting classroom teaching at CEBS. I did some preparation for online classes and had some serious doubts-will the students listen to me? Or fall asleep? Or they will actually not be in front of the camera and will be pseudo-attending with their camera and microphone in the off-mode? I did connect with my students, but still felt disconnected! But I must finish the topics that I had decided to teach for semesters 1, 5 and 10. That was the 3rd challenge...

The rest of my quality time was spent reading publications on cilia and techniques related to my research work, participating in online seminars, conferences and finding appropriate, yet careful 'time and space' to visit the laboratory for transferring our bacterial and Chlamydomonas cultures. I think this was the best part of the lockdown and there was not an iota of challenge. Must confess, it was one of the most pleasant and enriching phenomena that I have realized and experienced in response to social distancing rules of this lockdown.

And, in some ways, amid the horrors of the COVID-19 pandemic, I have experienced new ways to connect with students, the much needed time to keep pace reading on ciliary research, connecting with Scientists working on ciliary science, my own way of being 'a part of this global social psychological experiment' and fulfilling my biological need of forming bonds and co-operating with family, friends, and folks from CEBS...and, continuing to keep me engaged with my science. No lab-withdrawal symptoms at all!

Jacinta S. D'Souza
Professor
Chairperson, School of Biological Sciences
UM DAE CEBS

1. Jacinta S. D'Souza, The 2020 Pandemic of COVID-19 (2020) Spinco Biotech Cutting Edge, April issue: pgs 16-20.

2. 'Asymptomatic people are going undiagnosed' Jacinta D'Souza, Professor and Chairperson, School of Biological Sciences at UM-DAE Centre for Excellence in Basic Sciences, Kalina, talks about the city turning into an epicentre of the outbreak in the state, the need for extensive testing, testing mechanisms and more. Published in Hindustan Times (17th April 2020).

Online classes:
A Reality of Virtual Education in the 'New Normal'

……"So, this is how electrical conduction in the heart takes place. I hope you understood. Do you have any query?"…….(*and then, a long pause of about 10 seconds, and Usain bolt has already touched the finish line of 100 mt sprint*)

"Hello…… Am I audible?.... Are you guys still with me?" Now I am puzzled! Have they just logged in and left to have lunch, or may be watching an online series on another device?

Myriads of challenges are waiting for us, the poor teachers, left at the mercy of technology! Especially teachers like me, who adore chalk-n-board teaching.

Challenge # 01: I need to make sure that I am not talking to a blank screen! Luckily, I had a small class of only nine students, and devised a protocol to check on the students- ASKING QUESTIONS. Sometimes the question may be a silly one, but who cares. The problem is that I can't tell everyone to switch on their cameras throughout the duration of the lecture to monitor whether they are present and attentive or not. In fact, one boy one day by mistake switched the video on and……. he justified the situation saying that it's too warm at his place, and switched off.

Challenge # 02: Connectivity! I am into a serious discussion. Suddenly the chat box beeps, "Sir, we can't hear you. Your voice is breaking". It leaves me wondering till what point I was audible. So, as a responsible teacher I go back to start all over again. Albeit, we need to acknowledge the 'positives' of lost connectivity. If I don't feel like taking a class, or any student does not want to attend a class, the poor 'connectivity' fellow is to be blamed, and we can get away with that.

Challenge # 03: Mindset: In a 'normal' scenario most of us are comfortable with chalk-n-board, power-point presentation and that's it! But the 'new normal' situation has compelled us to use various online portals, ….urgh…. that several of us are finding it difficult to cope with, at least at this initial stage. On top of that, the constant buzz of 'blended learning' is deafening. Unless all the ingredients are added in the right proportion for 'blending', it might spoil the taste. Therefore, it is a '*testing time*' for teachers, while '*tasting time*' for students.

One of the biggest 'side effects' of the panacea called 'online learning' is a tsunami of webinars, and we teachers are falling prey to that. Everybody has jumped into the race of teaching zillions of 'online tools' without even measuring the practicality of their actual usage.

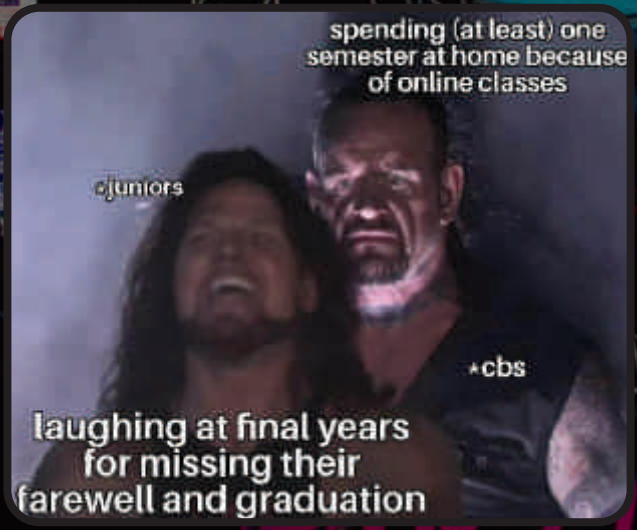
Amidst all these cacophonies, I started my journey of 'online classes' with a meagre number of nine students at CEBS. These poor chaps were kind of 'experimental guinea pigs' with whom I was trying out my luck in perfecting the '*art of online teaching*'. We all experienced various odds that I have penned at the beginning; however, the overall experience was quite encouraging. We all realized that there is a liberty in time management as we were not bound by a certain routine. We, the teachers do not need to wear formals….*hail online classes*. And now, I am quite a 'pro' at using online classrooms, whiteboards, making annotations. I am quite surprised and wonder how a nanoscale virus can instil motivation into a person who is otherwise quite complacent with blackboard teaching!

For me, online classes with CEBS students was a preparatory test, and I guess, I passed the test with distinction (*I won't mind if you ask them to confirm*). It indeed helped me plan my journey of online classes at my college. I am now equipped with various weapons in my armour: the Google classroom LMS, Google meet, Zoom and many more. I am happy to be able to share knowledge with young students from the comfort of my home using these tools but I miss being with them in a classroom. There is an untold bonding in a 'physical' class, which is lost in the 'virtual' class.

I am eagerly waiting to walk into the classroom, pick up a chalk and scribble on the board.

Dr Bhaskar Saha
Assistant Professor
St Xavier's College, Mumbai

Meme (lit) Section




PCMB MEMES
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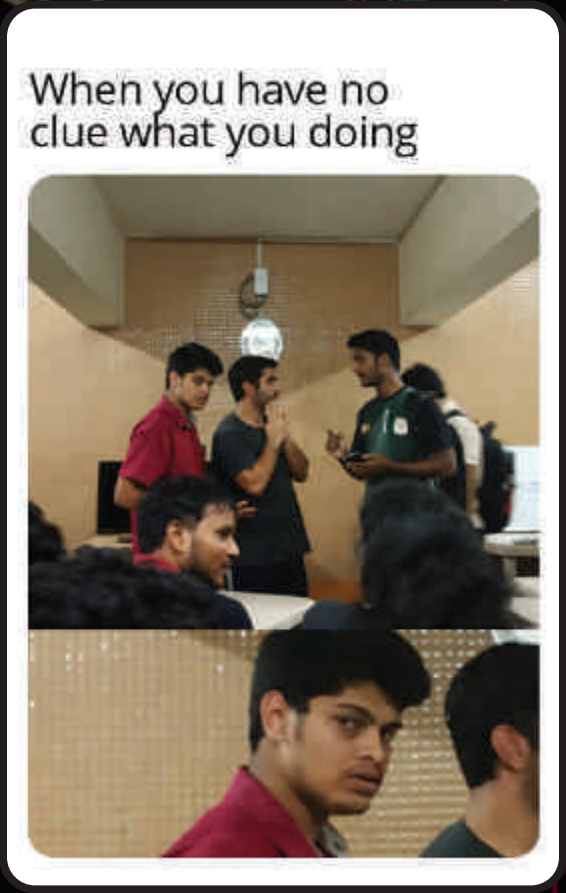
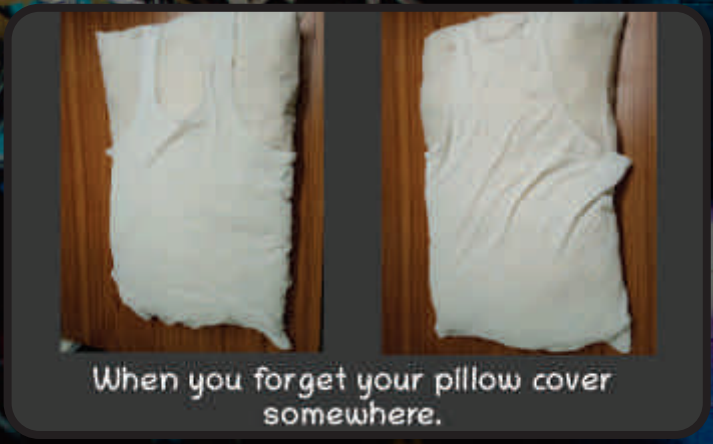
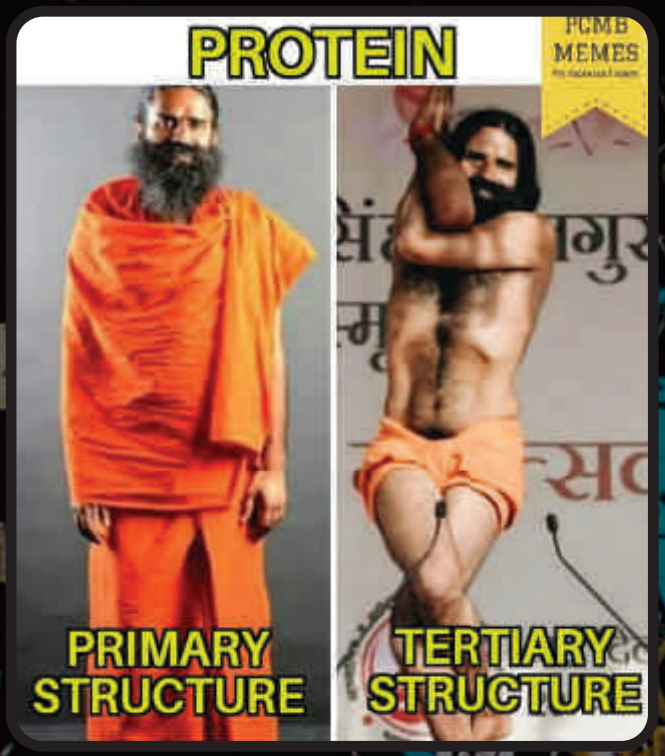
Final year students interacting with first years:
- You're very good, and you're only six years old?
Kids Meet a 101 Year Old | Kids Meet | HiHo Kids
1 crore views · 2 years ago


When you have no clue what you doing


When you forget your pillow cover somewhere.


is this a diplomat?


CEBS final year students when other college students post about missing their graduation ceremony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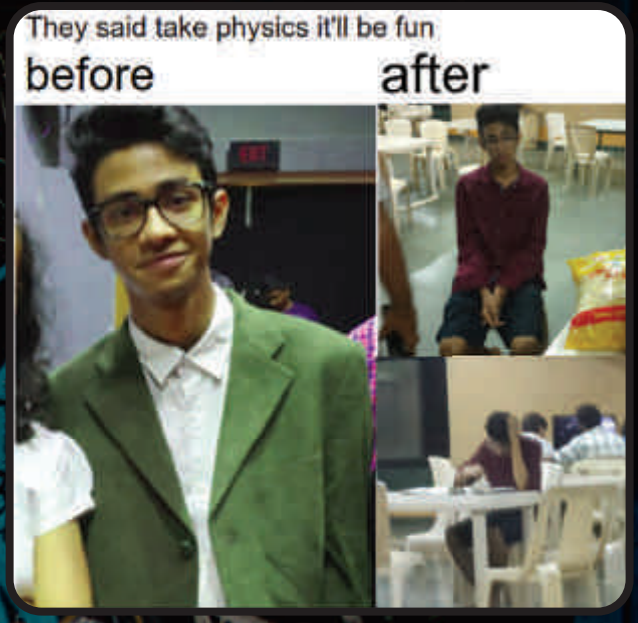
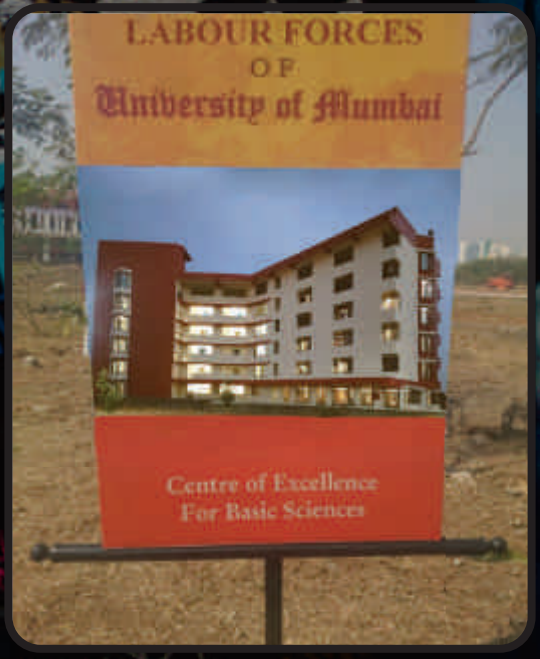
PRIMARY STRUCTURE
TERTIARY STRUCTURE


They said take physics it'll be fun
before
after


LABOUR FORCES
OF
University of Mumbai
Centre of Excellence
For Basic Sciences


SHOW ME AN EGYPTIAN GODESS
I SAID EGYPTIAN
PERFECT


Ye hai
Aam zindagi
YE HAI
MENTOS
ZINDAGI

STEPPING into the SHOES of the FARTHER and the FURTHER

Ironically, while writing something about the future, we travel back to a time where handshakes and hugs weren't lethal and meet someone by the name of Eleone.
Eleone is an undergraduate student who works part-time at a nearby McDonalds, just to make some extra bucks. Eleone manages to do pretty well, both in college and in work. Those extra bucks that are earned, are spent on movies and other fun activities just like any college student would do. Everything is going well for Eleone until the pandemic strikes. A lockdown is announced with only a few cases around. Eleone is pissed. Being stuck in the dorm, with very limited supplies, there is nothing Eleone could do but to wait out the pandemic. Like a lot of people, Eleone takes the virus lightly, constantly underplaying the risks related to the virus, and not following precautionary measures meticulously.

Two months into the lockdown, people are burning through their savings, losing their jobs while for some people their messy, overgrown hair is the biggest problem. Eleone also starts to feel the heat of this crisis. With the crumbling economy, the government relaxes the restrictions, and Eleone is one of the first people to get back to work while not taking the pandemic seriously despite being repeatedly made aware of the dangers of this virus. One morning, Eleone wakes up to a phone call from the manager.

"Are you awake Eleone?"
"Yes, sir. Do you want me to come in early?"
"No, actually Oiz has been infected with the virus. Good that he didn't come into work, but we still need to help him. Can you get some supplies to him? He's been held at the facility near your place. Collect the money and some of the supplies from the office I have kept for him."
"Sir, is it safe for me to go there? Sir, to be honest, I am a little concerned."
"You have been disobeying safety measures, and now suddenly you are concerned? No one is asking you to go inside the facility. There is a deposit box far outside. Just write Oiz's name on the stuff and drop it off while taking the necessary precautions."

Reluctantly agreeing to run the errand, Eleone reaches the facility. After dropping off the supplies in the deposit box, Eleone notices an unmonitored window, realising the inefficiency of the monitored facility. Peaked by curiosity, Eleone violates the facility restrictions and manages to take a peek into the facility's window. People are sick, coughing and struggling to breathe, and the sight is horrible to look at. The doctors are struggling to keep patients alive, putting them on ventilators as the last resort, while some nurses are busy packing patients' dead bodies, dragging them from the middle of the room. Eleone spots Oiz in the corner, coughing, and actually thinks about the possibility of losing a good friend and a co-worker.

For the first time, after reaching home, Eleone feels the fear that a lot of people have felt. Filled with regret, for violating safety restrictions at the facility, Eleone is very uncomfortable during the first two days after visiting Oiz. Eleone keeps checking temperatures constantly and starts suspecting small coughs to be a symptom of the virus. Around the 5th day, while Eleone is still feeling fine, the phone rings ...

"Eleone, I am sorry to inform you that Oiz has passed away due to the virus. I just wanted to check on you."
"I am still fine, boss. I can't believe he is gone. I just saw him a few days ago."
"Well, that's how it is, for now. One day, you might see someone smiling, and a few days later that person might be dead. I have to go Eleone. Take care of yourself!"

This news destroys Eleone. All of a sudden, all the times when they used to chat and do dishes together, flashes in Eleone's memories. Now, that the person is just gone due to the virus, Eleone can't even see Oiz's body. Eleone is heart-broken, at the same time fearful and anxious, too. Realising, Eleone stops going out unnecessarily and starts observing physical distancing, while ordering in supplies to manage finances to get through the lockdown.

On the surface, this is a very generic short story (if it can be called so) with a very simple arc for Eleone. However, what's interesting to look into is the reason behind the transformation. It, obviously, is the death of Oiz. Actually, this also gives us an insight on how we comprehend and empathise with the people around us, and how our actions are influenced by empathy. Empathy as we know it, is our ability to share, understand and care about others' experiences. The very reason, why we cry at tragedies in movies or why we cheer up at someone's success or a simple relatability to many characters in a story, is empathy.

(The idea is to make this story relatable to everyone through Eleone. If it didn't, apologies. This story is just a sad attempt to start exploring the idea of this article through a gender-neutral character. Yes, if you haven't noticed, there aren't any pronouns for Eleone!)

However, our caring instincts are short-sighted, and it dissolves across space and time, making it harder for us to relate with things that haven't happened to us or to anyone we know. The closer you are to one, the better you empathise with them. A lot of people tend to attribute empathy to everything, which maybe, brings out the best of humanity, and is always regarded as the foundation of morality and kindness in our society. It is actually not as simple as that, for empathy which is very complex, works differently in different individuals. Some people even argue against the conventional idea of empathy.

One way to look at empathy, is as something that evolved as the North star to our moral compass. When someone else's pain feels like our own, we have a reason not to harm them. Much as we did when we were hunter-gatherers, we still find it easier to care for people who look or think alike, who belong to our social or cultural group, who speak our language, who are familiar to us, and who are right in front of us, more importantly with us.

That's one of the reasons why we feel so sad when we listen to someone telling a sad story about their losses in a calamity, as opposed to being told about the overall death toll, because by listening to that story we form a connection with that person, a certain someone with whom we can associate ourselves.

A lot of our choices and actions towards ourselves and others around us are dictated by empathy. We are biased towards people we can easily empathise with. This makes it hard to be rational in certain situations. Like, how we tend to support our friends even when we know that they are doing wrong. In his book, "Against Empathy", psychologist Paul Bloom, argues that we are not natural born egalitarians, and those parochial desires to care for people related to us won't go away easily. He goes as far as to say that our prejudices that lead to elements like racism and discrimination based on social sects can be attributed to an extreme form of empathetical bias.

Before going any further, this isn't to say that empathy is all bad. A lack of empathy in relationships can actually be detrimental. We start to stray away from friends and relatives who are only concerned about their own path, not making efforts to understand us and are unwilling to share a bit of our pain.

Empathy, in a personal relationship, can make that relationship, a loving and understanding one. Empathy can help us understand a personal problem that our friend or a relative might be going through, at least partially if not fully, and support them emotionally. However, most of the time, we are not even aware of our parochialisms.

Develop some empathy, people! Maybe, take some time off your own little world and put in some efforts into understanding other people's problems and sharing their pain, then maybe, one day, someone will do the same for you. Also, put efforts into helping others win something and celebrate with them, then maybe, one day, someone will celebrate your success, too. Now, let's get back.

Let us look at our Eleone. Oiz wasn't someone who was very close to Eleone, but Oiz's death did change Eleone's approach towards pandemic. One could very well argue that this change in approach was because of the relationship they shared. Would the response have been the same if Eleone had witnessed a stranger's sufferings? Maybe. Of course, there are people who are naturally more empathetic, so they can empathise with someone they might not know personally. All this sounds good, right? But this can easily be turned the other way around. Consider the same Eleone, except that in this case Oiz is a friend, not just a coworker, and is an owner of a big, but at the same time, debt-ridden hair salon. With the lockdown, he has to lay off employees and due to the debt, he also has to shut down the salon. Now, he doesn't have an income and struggles to get supplies. One day, he tells Eleone about the time where he had to go without food for days. With Eleone having been exposed to Oiz's struggles now, the notion of a nation-wide lockdown and implementation of physical distancing measures, which directly caused the economic hardships for Oiz, despite, it being good for everyone in the long run, will seem too harsh to Eleone, and Eleone speaks up against it. However, Eleone is not alone in this. There are a lot of such people, who speak up against such measures. Hearing this, an incompetent government might open up the country because they don't want to lose their voters. Government's role in this is a structural problem, but that problem is complemented by the voices that the people raise, which are rooted in the empathetic concerns for their fellow peoples' sufferings. We may not realize that this is due to empathy, but if you look at empathy as something that lets us experience others' pain and sufferings among other things, it was empathy that let Eleone experience the sufferings of Oiz in both the cases. This creates a bias, and biases are something that actually feeds our empathy. As mentioned earlier, we tend to be more empathetic to someone who we are biased towards, and this empathy can add to our biases which creates a cycle that keeps repeating until we no longer have an open mind to analyse our stance. Biases can make us less open-minded, and when people with extreme opposing biases are tasked with creating solutions to problems, they, unsurprisingly, don't do a good job. This, in a simple way is what happens in incompetent democracies, where there are almost equal representations of such opposing biases. Paul Bloom argues about how the groups in the left-right wing politics in certain countries gain the support of people, heavily relying on such empathetic biases. However, let's keep that aside. We have something more important to discuss here.

One important type of bias that empathy creates when we look at society as a whole, is that we tend to care towards the people that are here, now. Distance and time diminish empathy. We tend to care more towards the people we know, who exist now, around us, whose struggles exist now, as opposed to the millions or billions of people who in future or thousands of kilometres away might be affected by our actions and inactions. This is the bias that Eleone had in the second case. The struggles and priorities of people that Eleone holds close and tends to interact with on a daily basis are what would come first for Eleone over the safety of the society in the upcoming months, even though that safety is also for the aforementioned people that we talked about. This bias has a major effect in one of the most important existential problems knocking humanity's door. It's Tik Tok!!

Psyche!! Got you there, obviously not. It's climate change, but there is a pretty good case to be made for Tik Tok. Climate change scientists are giving us new data and models that show us that we are slowly carbon-poisoning our Earth which eventually will make it uninhabitable in the future. So, as an individual or as a society, why do we refuse to do anything significant about it? It is because the concept of future generation is abstract to us. It is hard to empathise with the sufferings of future generations because of our inactions towards curbing green-house emissions. Forget generations, a lot of us tend to view our future selves as strangers. That's why, a lot of us tend to make short sighted choices that are concerned with our present selves but not our future ones.

The uncertainty associated with the future also doesn't help. Jamil Zaki, a psychologist at Harvard, in his article, "Caring about Tomorrow" from The Washington Post, argues about how people don't care much about climate change because they either think that some form of technology could change our current climate course, or they fear that maybe the sacrifices we have to make, is not worth it, as war and social injustices might make it irrelevant. If we do act, many identifiable victims —real people who we can feel empathy for, like Ram who can't pay for petrol for his delivery business and Kamala, who can't buy gas for her vada stall— will not be harmed by increased gas prices, business closures, increased taxes, and so on. Not only that, the people who contribute vastly to climate change aren't the ones that are affected by it. It is the marginalized people who contribute much less and are affected the most. Obviously, the governments don't want to act on something that the people are already unhappy about. At the same time, empathy can also be turned against us. An example of this is the fossil fuel industry fuelling anti-climate change propagandas by conspiracy theories, targeted to act on this idea that it is a ploy to dismantle society and strip people of their freedom and money, among a lot of other things. These theories, to put it lightly, are obviously, complete garbage. So how do we deal with this? Is our failure to recognize our subtle and unconscious empathetic biases contributing to the problems of our world?

The answer to this lies in two ideas which are subtly inter-connected. First, is to be aware of the fact that empathy is a choice and being aware of how we make our choices. Second, is about understanding that morality is not mere empathy as it can be attributed to reason as well. Trying to explain these two points in an already long essay is very difficult, and discussing the intricacies of morality and empathy is a very complicated job. Frankly, this article cannot do justice to it. However, it is still being given a shot because it is worth igniting these thoughts in our heads. Let's get to the first idea. Jamil argues that empathy, with the right tools, can be made to expand to the future. He argues that people can be taught to choose how and where to direct their empathy. But how do we make such a choice, especially, how to know if it's a good or a bad choice? That leads us to the second idea for the answer, reason. Psychologists have always argued about this a lot, about our fundamental nature of our psyche- rational or emotional. However, there is a case to be made for a balance between the two. Had we always given into our natural gut feelings, we wouldn't have come this far. We have the ability to override our emotional side, which overrides our biases. We don't hurt or kill someone because we feel the same pain, but because we have built a society where these acts are punishable by law and hurting someone would definitely have repercussions. Obviously, not everyone can reason as effectively as some others, but the very fact that reasoning is possible is something that could be a glimmer of hope. Sometimes, many of us do it without even realising. It's this ability to critically assess our limitations —with regard to our social behaviour, reasoning, and morality— that makes all sorts of things possible by humanity. For some of us, we don't need as much empathy as others to care about our future, and can solely rely on reason. We should understand the fact that not caring about the environment now, will definitely end up affecting our lives before it does for the future generations. If not, for some, this can be done by making them realise that the future generations are worth empathising for. Jamil suggests some ways, like, by making people hear and see stories about people who have lost their loved ones in a calamity and telling people that this will be the case for everyone, or by showing people the beauty of our earth with all the people living on it. However, the best way to do this is through a balance of both empathy and reason. We, as a budding community of science, have a responsibility to play a major role in educating others, the seriousness of any kind of natural crisis that has a non-sensical opposition, be it a pandemic or the climate change.

We need to understand that though, these problems are mostly due to structural problems that exist in our establishment, yet it doesn't mean we individuals don't matter. Our behaviour creates norms, leading to social movements and build political pressure. Will it work, even if you start changing the way you view these issues and start acting on it, now? We don't know, but that shouldn't stop us from trying. The article is titled stepping into the shoes of the farther and the further, which is about empathising with people who are farther from us and who are further from us, so that we as a society can ensure their living. But what the article actually tries to argue is – Is this the only way to achieve that?

- Anonymous

Rendezvous

With the aim to inform us students about the recent developments in science in the most interactive and engaging way, CEBS Science Club has been arranging Rendezvous sessions every fortnight in the semester, inviting scientists and researchers from various disciplines, to discuss their journey, achievements and failures, allowing us to connect the dots in their research to take home inspiration and enthusiasm to keep contributing to science, research and scientific communication, while not forgetting to enjoy life. The sessions are very student friendly and interdisciplinary, and always end up encouraging students to immerse their ideas and curiosity to their research etiquette, allowing them to cultivate their own way of research, emerging as one of a kind.

2019-20

1. Friday, 23rd August 2019,
"A Cartoonist's perspective of the India we live in…"
Prof. Phani Tetali, School of Design, Industrial Design Centre, IIT Bombay, Mumbai.

2. Friday, 30th August 2019,
"From Zero to Infinity and Somewhere in Between"
Prof. Prasanna Venkatraman, Deputy Director, Advanced Centre for Treatment, Research and Education in Cancer (ACTREC)

3. Friday, 13th September 2019,
"Learning New Physics: One Grain at a Time"
Prof. Shankar Ghosh, Department of Physical Sciences, Tata Institute of Fundamental Research, Mumbai.

4. Friday, 20th September 2019
"Chaos and Unpredictability"
Prof. Stefano Luzzatto, The Abdus Salam International Centre for Theoretical Physics (ICTP), Trieste, Italy

ence Club

5. Friday, 4th October 2019
"Excitement in Cellular Neurobiology: What can be learnt using C. elegans"
Prof. Sandhya Koushika, Department of Biological Sciences, Tata Institute of Fundamental Research, Mumbai.

6. Friday 25th October, 2019
"String Theory and its Origins in Particle Physics"
Prof. Sunil Mukhi, Department of Physics, IISER Pune.

7. Saturday, 4 January 2020
"Importance of sleep"
Prof. Leslie Griffith, Nancy Lurie Marks Professor of Neuroscience and Director of the Volen National Center for Complex Systems, Brandeis University, USA

8.Monday, 6 January 2020
"Entropy, Order and Fluctuations"
Prof. Mustansir Barma, Professor Emeritus and DAE-Homi Bhabha Chair Professor, TIFR Centre for Interdisciplinary Sciences, Hyderabad

9. Thursday, 16th January 2020.
"Optical and physical mixing of colours"
Mr. Sukant Saran, Tata Institute of Fundamental Research, Mumbai

10. Monday, 10th Feb 2020.
Kolar, the Gold Field of Indian High Energy Physics
Dr. Satyanarayana Bheesette, Tata Institute of Fundamental Research, Mumbai.

2018-19

1. Thursday, 9th August 2018,
"The Physics of Living Systems"
Dr. Vijaykumar Krishnamurthy, Faculty, International Centre for Theoretical Sciences, TIFR, Bangalore.

2. Friday, 17th August 2018,
"Newton, Einstein and ???"
Prof. Shankaranarayanan S, Faculty, Department of Physics, IIT Bombay.

3. 10th September 2018
"Fuel for a Green Future"
Prof. Deepa Khushalani, Dept. of Chemical Sciences, TIFR, Mumbai.

4. 5th October 2018
"How Google Works"
Prof. Ravi Raghunathan, Dept. of Mathematics, IIT Bombay.

5. 25th October 2018
"Regulation of Polarity and Patterns in Developing Embryos"
Prof. Mahendra Sonawane, Dept. of Biological Sciences, TIFR, Mumbai.

6. 23rd January 2019
"Magnetic Fields in Spiral Galaxies"
Amit Seta, Ph.D. student, School of Mathematics, Statistics and Physics, Newcastle University, UK.

7. 1st February, 2019
"From LSD to HIV and beyond."
Dr. Vainav Patel, Department of Biochemistry, NIRRH, Mumbai.

8. 13th February, 2019
"Universal Results in Probability and Physics"
Prof. Christopher Hoffman, Dept. of Mathematics, University of Washington.

9. 16th February 2018,
"Cells, Tissues and Engineering Structures"
Prof. Mandar Inamdar, Dept. of Civil Engineering, IIT Bombay.

10. 7th March 2019
"From Spacetime to Light"
Prof. Robert de Mello Koch, South African Research Chair in Fundamental Physics and String Theory, Mandelstam Institute of Theoretical Physics, University of Witwatersrand, Johannesburg.

11. 14th March, 2019
"Electronic Charge Flow Through Organic Molecules"
Prof. Ravi Venkatramani, Department of Chemical Sciences, Tata Institute of Fundamental Research, Mumbai.

12. 5th April 2019
"Getting Around in a Networked World"
Prof. Vivek S. Borkar, Institute Chair Professor, Department of Electrical Engineering, Indian Institute of Technology Bombay, Mumbai.

13. 12th April 2019
"Legacy of The Rudra Veena"
Ustad Mohi Baha'ud-din Dagar

Informal Interactions

1. Sunday, 15th September 2019
Dr. Vineeta Bal, IISER Pune, "Science as a Career: Personal, Social and Political Context"

2. Friday, 4th October 2019
Prof. Upendra Kulkarni, Chennai Mathematical Institute, Chennai

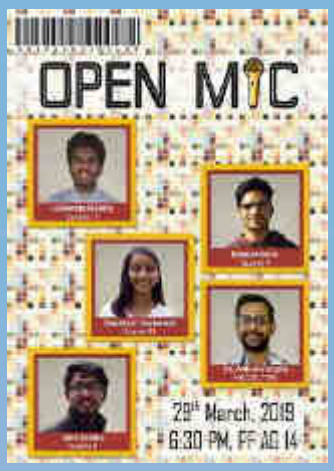
3. Friday, 31st January, 2020
Prof. Shrinivas Kulkarni, Principal Investigator, Zwicky Transient Facility and the George Ellery Hale Professor of Astronomy and Planetary Science, California Institute of Technology, USA.

Open Mic

Encouraging our students to participate in public speaking and scientific communication, CEBS Science Club organizes Open Mic sessions every month where students take the stage to discuss cutting edge research, participate in stimulating discussions and encourage fellow students to contribute to scientific communication. These sessions prove to be inspiring for students with a zeal to communicate and contribute to science, while connecting to a scientific network, helping their fellow mates to be aware of recent developments in their respective fields of research.

2019-20

2018-19

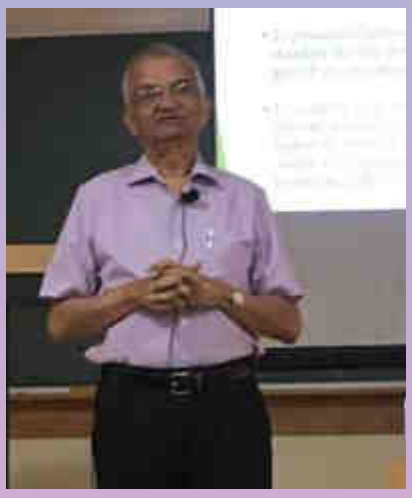


Building a Scientist 2019-20

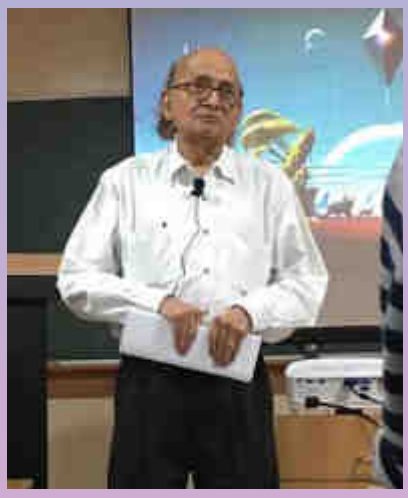
The Science Club organized a series of welcome week talks, called 'Building a Scientist', for the new additions to the college. These talks were intended to help the students of the new batch to help orient themselves not only to the college, but also to introduce them to the adventurous field of science, by sharing their perspectives on what builds a scientist. Highly esteemed scientists and professors in association with the institute were invited to speak, and the talks were attended by several dignitaries of the college.

August 5: Origins of CEBS & Thinking Inside the Box

Dr. Anil Kakodkar



Prof. S.M. Chitre



Dr. J.P. Mittal

August 6: Aesthetics and Science & Creativity in Music, Math, and Physics

Prof. M.S. Raghunathan

Dr. Sudhir R. Jain

August 7: In Pursuit of Excellence

Prof. R.V. Hosur

August 8: Reasoning Modes in Modern Science

Prof. Arvind Kumar

CEBS Baithak 2019-20

On November 8, 2019, the Science Club organized a session that presented to the students of CEBS an open platform to share their own and listen to thoughts, stories, or other creations within the community. The audience gathered in a circle around the speakers in the NMR room, who shared everything ranging from touching poetry to ideas on the effects of content curation by social sites. The speakers were as follows:

Babli Adhikary – Used the painting Girl Before a Mirror by Picasso to talk about how paintings are a reflection of the painter's inner self, and are used as a language to communicate with the world.

Rishabh Kaurav – Shared an engrossing semi-fictional story about a man revisiting a city after a long time and, in the process, also the moments he shared with the love of his life.

Remulla Sujith – Talked about how content sorting algorithms for social sites, online retail sites, etc. affect our opinions and thoughts in such a manner that they become more polarized.

Rohit Somanchi – Recited some of his poetry with diverse themes touching upon states of mind, nature and a letter to children.

Kiran Barma – Shared an anecdote to convey the idea that social media is weakening human bonds and people's observational skills, but an upside is that it can be used to express one's thoughts and feelings anonymously if one is not comfortable enough to do it in person.

The talk, organized in a dimly lit room with mattresses on the floor and chairs in a circle surrounding them, had a homely environment, where the sounds of 'more of these poems and stories!', cheering, and questions for the speakers from the audience made it evident that those present were comfortable and mentally absorbed.

Such talks not only provide respite from the pressures of an intensive coursework of a premiere research institution, but also help the people of the community connect with each-other. It is such events when the hierarchy is breached, and the whole college comes together as a family. Such frequent events make us more social, more creative, and develop more understanding for other people, and in the process, helps us be better versions of ourselves.

"Soft kitty, warm kitty
Little ball of fur!

Happy kitty, sleepy kitty, purr purr purr!"

Alumni Section

AISHWARYA MISHRA

King's College London and Imperial College London

Everything looked familiar when I disembarked the plane, the similar hordes of people moving with intent and busy with their lives. It might be 9 at night but this place looks far from ready to sleep. Fairly so, it is one of the busiest airports in the world. However, you can feel the warm embracing welcome to the country, but I could have done with a shorter queue at the immigration. A bit tired from all the travel and jet lag, I set out from the airport to my accommodation which was a student hall at King's College London which made me as I had never left CBS: the same warmth in the city and the accommodation.

It has been three years since that night and I can say without hesitation that I feel at home here. It might be the city that always keeps you on your toes, social life which offers so much to learn from experiences, researchers, and the supporting work culture around me and free pizza and beer every alternate weekend.

The Centre for Doctoral Training in Smart Imaging has been phenomenal to kick start my new endeavor in my journey to pursue academia. The feeling of having a small cohort of batch mates helped me build that comfort level among peers and create a pool of friends you could depend on. Over the past three years, we have created loads of memories: going on trips, conferences, weddings, and essentially every crazy experience together. Organizing various summer schools, social events and Friday social helped foster a feeling of community allowing supervisors, postdocs, Ph.D. students to interact with each other. These events also allow researchers from different fields such as clinicians, chemists, physicists, biologists, and engineers to interact and build up collaborations.

The program has also combined the best of two universities: King's College London and Imperial College London. The supervisors at each university have made me appreciate the interdisciplinary nature of the interface of research in chemistry and engineering. The training and development opportunities available through the program have helped me understand the importance of soft skills in academia, the importance of public engagement, and the ways you can give back to society. During this program, I have developed critical skills for research and got involved with professional societies effortlessly in different capacities. The support for public engagement and teaching was the highlight for me at my time here where I have been involved in Science festivals and fairs, podcast, patient focus sessions and STEM engagement for Black, Asian and minority ethnic.

In the end, after the above boring story, I want to end by saying that moving to a new country, the institute might be outside the comfort zone and daunting for anyone. However, the possibilities of opening up to different working environments and diverse teams prepare you for a career in academia and industry. I learned to enjoy this experience by making the most of the opportunities that have come my way. Hopefully, this will make sense: "Research is what I'm doing when I don't know what I am doing even though I love doing it".

PRANEEL SAMANTA

University of Iowa

I am currently pursuing my Ph.D. in mathematics at the University of Iowa. Located in a UNESCO City of Literature and listed among the Big Ten colleges, the University of Iowa is known for its academics, hospital system, football, and literature, and offers one of the biggest campuses in Midwest USA. UIowa's mathematics Ph.D. program is divided into 2 distinct sub-programs, one for pure math and an interdisciplinary program called AMCS (applied mathematical and computational sciences).

One usually joins the university pre-specifying their program, but I know someone who changed his program from pure math to AMCS after his 1st year. I joined UIowa's pure math program in the fall of 2017. The first year included taking 3 graduate courses in algebra, analysis, and topology, at the end of which there were 3 qualifying exams which I passed in summer 2018. Then I started attending number theory and algebra seminars in the department while reading local Langlands conjectures with Prof. Muthu Krishnamurthy and automorphic representations on general linear groups with Prof. Yangbo Ye. After a year of reading, in summer 2019, I started formally working with Yangbo on Rankin-Selberg L-functions. Iowa's graduate program requires one to pass at least 3 Ph.D. qualifying exams in the first 2 years, as already mentioned, and to pass a Ph.D. comprehensive exam by the end of 3.5 years. The idea of the comprehensive exam is to present the work outside courses that one has done that will pave the way to their thesis project. I passed my comprehensive exam in spring 2020 and now I am working on my Ph.D. problem.

My Ph.D. problem is a specific case of a celebrated problem called the sub convexity of L-functions. The Riemann zeta function is an elementary example of an L-function. When the generalized Riemann hypothesis conjectures the roots of the corresponding L-functions will lie on the Re(s)=1/2 line, the sub convexity problem is concerned with finding bounds of the functions on the said line. Elementary complex analysis (Phragmen–Lindelof theorem) gives a bound that is referred to as the trivial "convexity" bound. Any stronger bound will be referred to as the subconvexity bound. Depending on the L-function under consideration, even the simplest improvement in the convexity bound might require a lot of higher techniques and new tools from analysis and analytic number theory.

Maintaining a constant, healthy outlook towards life and work is genuinely difficult during graduate school. Keeping yourself constantly motivated, developing a work-life balance to not get burnt out in your program requires discipline and a strong support system. For some people, their supervisors play a big part in the support system, but if your supervisor isn't someone like that, you need to make use of the resources available on campus, by yourself. All major US universities offer a variety of resources, in terms of mental/physical health services, outreach programs, writing, and teaching centers, to support students on campus. I work as a teaching assistant alongside my research which takes up a big part of my time as a graduate student. Irrespective of whether one wants to be in a teaching profession later in life, the teaching experiences one gains as a grad student are helpful to develop communication skills, aptitude, and academic outlook.

Academia, by design, is supposed to be a stringent institution and can get toxic easily if you're not treading with care. As opposed to many other institutions, the amount of one's engagement with their work that academia demands can be oftentimes overwhelming. Thus, for students who are looking for a Ph.D. program to apply to, my suggestion will be to not just look for an institution with a prominent stature, but also to ensure there are enough people in your target department, and that the university culture or the city offers a healthy lifestyle.

ANIRUDDHA VENKATA

Stony Brook University

Nearly two years after my graduation from UM-DAE CBS, it is a great pleasure to write an article for Novellus about my Ph.D. experience. So far, my experience here at Stony Brook University has been overwhelmingly positive. It is my strong belief that, akin to a jigsaw puzzle, a lot of pieces need to mesh together, in making a doctoral program the right fit for any individual. In this article, I would like to offer my perspective: What kind of doctoral programs would have been a good fit for me, how my life at Stony Brook compares to my expectations, and if grad school was a good decision for me.

I started at Stony Brook in the fall of 2018, bright-eyed and bushy-tailed. I had my sights set on learning as much physics as I possibly could and doing some extraordinarily original work. Although one reads about challenges people face in graduate school, one is almost always predisposed into thinking that these are challenges that other, less fortunate people, would face. How could I possibly find it hard to work with an advisor of a particular personality type? I am the most accommodating person I know. Surely, I can work independently, without receiving the advice and guidance that every Ph.D. student needs. I can be the exception to the norm, can't I? All the people in academia, that I know of, were extremely successful in grad school. There can't possibly be a sample bias there.

Sure enough, one year into graduate school, I was no closer to finding an advisor than I was on the first day. However, a lot of support structures that I was able to erect around myself enabled me to remain optimistic about my success in my Ph.D. I had a wonderful set of friends, who knew me both as a person and a physicist and encouraged me throughout the multiple failed attempts at talking to potential advisors. I also had the opportunity to socialize with people who were not grad students and build my identity outside of being a physics researcher. I was able to build connections with people from all walks of life, appreciate other ways of life, and see that I am not an outsider in my program. The department offered many stimulating courses, each taught by an extremely insightful professor. Suffice to say, my learning curve was fantastic. These courses helped me decide what I wanted to do, and how my naïve understanding of what entailed good research was. I realized that I wanted to study Quantum Field Theories (QFT) and feature of strong coupling in QFT's for my Ph.D. Sanity was lost to the ongoings of the week: teaching, reading and homework and regained when talking to my parents, watching Bollywood movies, or going out to the local pub. I discovered that I liked rock climbing as a sport and that I had a flexible, calm headed climber inside of me.

The teaching experience at Stony Brook deserves a special mention. As is customary, I was assigned a teaching position in the introductory Labs, meant for all STEM majors. I went into the program, hoping to educate and engage with younglings who have a keen interest in physics. Here too, I quickly realized, that there was a disconnect in my expectations from students, and their ability to devote time to physics. Week after week, I would assign a large set of interesting questions, and every week, I would see very little work turned in. At some point, an erudite friend asked me "Have you never taken a class you had no interest in? How much time did you put into it?" Almost immediately, I was taken back to earth science at CBS and I felt a wave of empathy for my students. I learned how to condense the lab session to convey the main point of the lab and to state my expectations clearly. I went from trying to teach all the physics I know to teach only what students are expected to know. Teaching became an extremely pleasant experience after a minor adjustment to my outlook.

By November of 2019, I was still without an advisor and seriously lacking in a direction as far as research was concerned. Help came to me at a very unexpected time, from an unexpected direction. Peter Van Nieuwenhuizen, a senior professor in the department, and the inventor of supergravity spoke to me at the annual department holiday party. He enquired about what I was doing and what I wanted to work on. After a brief conversation, he suggested that I work with my current advisor, George Sterman, and immediately spoke to George on my behalf. Research with George has since worked extremely well and I immediately found a problem I could make headway upon and enjoyed the advising style that George employed.

Upon reflection, many things worked very well for me at Stony Brook: a learning-intensive phase that the program offers in the initial stages, the opportunities it offers for developing meaningful friendships, other graduate students who are experts in anything you may want to learn and faculty with varied advising styles. Possibly the biggest issue with an Indian living in suburban America is that it can get deeply isolating if one does not invest time and effort into traveling and meeting people. I have had the good fortune of having friends to travel with and the means to do so. As some parting advice for the reader, I would recommend flexibility and openness in approaching research (or anything else) in grad school and factoring in the possibility of having a social life while applying for and accepting graduate schools.

TEJAS SINGAR

University of Geneva, Switzerland

Tejas Singer was a student of Quanta 8 at CBS and at present is in his second year of doctoral studies in Physics at the University of Geneva, Switzerland in experimental condensed matter physics focusing on magnetic and electronic properties of materials.

Benefits and prospects as a CBS Student:
Students securing a cumulative grade point (CGPA) of 7.5 on a scale of 10 at the end of the five years will be considered for the admission interview at Bhabha Atomic Research Center (BARC) training school and will be exempted from the written test. Many of the students at CEBS decide to pursue Ph.D. (both in India and abroad) as their immediate career option after finishing their 5-year Integrated course. If you are already sure that you want to do a Ph.D., in that case, CEBS might be just the ideal place for you.

Yet, for other people, who do not have a clue of what a career in science resembles, I can promise you that you will get enough exposure during your coursework to settle on this choice. One must understand that being in science is quite different from other fields. There won't be any campus placements toward the finish of your 5-year course, so kindly don't expect the institute to organize any formal campus placement program (I am not discussing a Ph.D. program but a standard job). Please understand that CEBS wasn't established to cultivate young minds for doing a regular job after five years of advanced science coursework. Having said that, you can always approach faculties at CEBS who will help you to explore other opportunities if you do not want to pursue a Ph.D. as a career, there shouldn't be any disgrace or guilt in doing that. Some people chose not to go for a Ph.D. and changed to some other fields, so yes, it is not impossible.

There is always an option to change to something else but I will propose to you to make an informed choice before joining not just CEBS but any other college (be it an engineering college or any other college for that matter).
There are prospects for joining industrial jobs in fields like Chemistry or Biology. For Physicists and Mathematicians, getting the hang of coding can make a way for industrial and corporate jobs.
Now, coming back to careers in research, there are both pros and cons of being in this field. I let you choose what you want to do.

Pros:

- Sense of satisfaction and accomplishment- You will be contributing to the knowledge that will benefit the entirety of humankind.
- Independence- Being in research will make you autonomous from others to a large extent
- Interest- You can pursue your career in the field of your interest
- Opportunity to travel- You will get to travel to different places around the globe through internships, conferences, seminars which you probably won't do otherwise
- Free working hours– Unlike numerous different fields, there won't be any fixed schedule
- Development of other personal and academic skills that will help you throughout your life. Be it time management, punctuality, logical reasoning, or problem-solving skills.
- Prestige and honor of being a scientist

Cons:

- Doing pure science is different from what is being shown in science fiction movies. It requires a lot of patience and demands hard work from you. It is important to understand different aspects of it and then make a proper choice.
- Financial aspects- Scientists and researchers do not get extraordinarily high average salaries like some of the corporate jobs. In any case, it is good enough to have a well-balanced life.
- Travel- Some individuals may not like to travel from place to place and may want to do a secured job in one place. For other people, it may very well be an ideal job with frequent voyaging. Being in science, you may need to travel during your Ph.D., Postdoc, or for conferences, seminars, and different things.
- Long study span- Doing a Ph.D. (3-5 years usually, but varies from country to country) after Bachelors + Masters (total 5 years) will take quite a while. Additionally, conceivably 2 or 3 years for Post-Doc. Along these lines, if you want to continue in this field, there is no escaping from studying and working in the labs for a considerable length of time (That's actually why many people join this field since they appreciate being curious and working with various difficulties).

I am certain this list of Pros and Cons will continue forever if I do not stop.

"Nobody ever figures out what life is all about, and it doesn't matter. Explore the world. Nearly everything is really interesting if you go into it deeply enough."

- Richard P. Feynman

Cheers, I hope this will help you in whatever choice you are making for yourself or for your sister, brother, sibling, cousin, nephew, or one of those friends who are at that point in life where they need to settle on a choice about their profession and future.

This article is an extract. The complete article can be read here.

Interns Talk

Vidhi Chauhan worked in Professor Jacinta D'Souza's lab on the generation of molecular tools and resources for characterizing the FAP174-AKAP240 complex in the central pair of Chlamydomonas reinhardtii flagella and Bayaan Sarang worked in Professor Manu Lopus' lab on the evaluation of the anti-proliferative potential of the gold bhasma on the MDA-MB231 cell line. They were students of St. Xavier's College, Mumbai, and came to CBS to finish their masters' dissertation thesis. And this is their experience at CBS:

To begin with, this article is a fusion of thoughts of two girls who are always spotted together. Hence, one can think of it as a combined article. Also, because we're lazy.
Two questions that we're frequently asked about: How did you come to know about CBS? What are your plans after M.Sc?
Our response to the first one is that we came to know about it through our college teachers. And as for the second one - can we not be asked?
Initially while applying at CBS we wondered whether it was worth doing an internship here but since we had each other's company we thought that we'd manage. Once we were here our perceptions changed.
Also, a note to all of you reading this article, we've judged every one of you. You probably think of us as mean girls even though we're sure it was us who received some judgmental looks on our very first day. I know we've come across as clingy girls but we do have individual opinions. People in CBS are generally very welcoming, especially our lab mates.
In these four months, I don't know how punctual we've been with our work, but we've been religiously punctual about our food intake. I'm sure we've gained some pounds over these months.

This is one of the rare instances when the CEBS mess has been praised! As was the case with everything and everyone else, COVID-19 thwarted their thesis plan midway and they had to stop with half-finished results, much to their disappointment. It also put a stop to their religiously punctual intake of food and gaining pounds! To those who are reading this - be less judgemental from the next time please!

Book of life

- Indranil Das

Sorrows and pain
Laughter and smiles
Walk hand in hand
Mile after miles.
They never leave our lives
And come in heaps and piles
Sort and kept with care
Separated in files.
And as the time flies
Counting lows and highs,
Sure consult those files
For a lifetime of supplies.
Pick a pen, write a book
With the ink of grins and cries,
You'll find in your heart
The greatest story lies.

ANOTHER LOVE STORY

He finally made the only wish, "Please resurrect her." A selfless act. No, a selfish one, as the prey finally fell in love with the predator.

A beautiful girl was born in a small village. Looking at the child, her grandmother uttered "Nakshita" and thus, that was how she was named. She was beautiful with perfect features as the name suggested. Since her birth, her family's business grew faster than ever and all glory and happiness was bestowed upon her family. She grew in the serene beauty of the village with her grandmother doting upon her. But unfortunately, it was for a short time. Growing business forced her parents to move to the city. They decided to take along Nakshita too. Grandmother was stubborn against their leaving and so was Nakshita, but her parents convinced her to leave. Before leaving, Nakshita planted a willow tree and said to her grandmother, "I can't stay Grandma, but please, let all of my memories live in this tree. Every day when you will water it, it will remind you of me." Those were the last words she spoke to her grandmother before she left the village.

The lady did not feel Nakshita's absence, for she saw her grow in the willow tree. She took care of the tree as she felt in it her own granddaughter, with memories of her childhood spent in the village. With every passing year, the willow tree grew to become stronger and more beautiful under her care. One fine day, an orphan boy came at her door for food. Realizing that both didn't have anyone, the lady adopted him. His name was Ahar. She gave food and shelter to Ahar and took good care of him. Even while she took care of him, she would never forget her granddaughter in the willow tree, and she would water the tree every day. He noticed her affection towards the willow tree and one day he asked her, "Why do you always take care of that tree?" She replied, "It has my granddaughter's memories. It has my Nakshi's memories." Years passed and she grew old and so weak that Ahar had to take care of her. Soon, her final day arrived. With her last breath, pointing at the tree, she uttered, "She is still….young and….careless... but please….take care….of….my....Nakshi." After the lady passed away, the willow tree was the only hope left for Ahar to stay alive. He took good care of the willow tree, waiting for Nakshi to return. He talked to it every day, sharing his happiness and sorrows. With each day and each year, his love for the tree grew stronger and deeper.

One day, thugs broke into the house. During the break-in, they stabbed Ahar and disappeared into the woods. He watered the tree one last time with his blood that was gushing out of his chest. He died under the tree, remembering his one and only love. His soul united with the tree. After that, nature nurtured the tree. The rains quenched the tree's thirst and soil provided it with nutrients. With time, the tree grew big and older. So did Nakshita. Nakshita was now the head of her own construction company. Her dream to conquer the world didn't allow her to see the devastation she had done to nature. She cleared forests recklessly and destroyed wildlife. Little did she know that the next project would take her to her village.

She reached the site of forest clearance and gave directions for clearing. Her willow tree was the first to cut. Seeing her approaching, Ahar's soul inside the tree cried, as he finally got to see her. The one he was waiting so eagerly to meet. The Nakshi about whom the old lady told him. With every cut, the tree was weeping with happiness at watching the love of his life so nearby. Ahar's soul tried to reach Nakshita, but no voice pierced through her heart. Finally, with the last blow of the axe, two souls died. When the huge willow tree fell on her, all her past memories surfaced, and she realized what evil she had done. A part of her died in that very trauma, and rest of her, under the weight of the tree.

Ahar's soul was sent to heaven and Nakshita's to hell. One day, God saw Ahar crying and asked, "Heaven has everything. What else do you seek, Dear? Why do you weep?" Ahar said, "I waited my whole life to meet her and when the time came, I fell in love and you took her away." Consoling him, God offered him one wish. He made the only wish, "Please resurrect her." A selfless act. No, a selfish one, as he was in love with her and her happiness is what he wanted. Impressed by the purity of his heart, God resurrected Nakshita in her human body and him as a bird in their second lives. Again, they united, but as a human and a bird. Nakshita planted a willow tree in memory of her dead grandmother and watered it everyday. She promised herself that she will never cut another tree in future. Ahar was still there, watching over her, from a nest in the willow tree.

- Anonymous

चाय...

तू इश्क़ तो मैं आशिक़ हूं,
तू सागर तो मैं कश्ती हूं,
तू सहरा तो मैं रेत हूं,
मेरी रगों में खून नहीं, तू बहती है,
दुनिया तुझे चाय कहती है।

मेरे खयालों को पंख मिल जाते हैं,
मेरे दिल को सुकून,
क्या ज़रूरत है शराब की जब ज़िंदगी में है तू
तेरे एक प्याले में ढेरों ख़ुशियाँ समाईं हैं,
तू ना हो तो मानो तबाही है।

चिकने कपों को तूने कुल्हड़ से फोड़ा है,
तेरी तारीफ में हर ग्रंथ थोड़ा है,
ना कोई रुआब ना कोई दिखावा,
तूने अपनी सादगी से हर दिल को जोड़ा है।

कई और आए पर उनमें वो बात नहीं थी,
प्याले से जज़्बात तक जाने की उनकी मजाल नहीं थी,
वक़्त की धार भी ये सौ बार कहेगी,
चाय कल थी, आज है और सालों-साल रहेगी।

-नमन मिश्रा
Quanta 13

आत्मा

मैं हवा सा एहसास हूं, हर एक की तलाश हूं

होकर सबके पास, मैं नहीं किसी के पास हूं।

मैं हूं अंदर, वो बाहर है ढूंढ़ते,

बस एक आवाज़ की दूरी, मुलाकात होगी पूरी।

रुह हूं मैं तेरी, मिलने में न कर मुझसे देरी।

कैद हूं तुझमे, पर तेरे बिन आजाद भी नहीं।

आजाद न करना कहकर अजनबी,

हिस्सा हूं तेरा, मैं कोई मुसाफ़िर नहीं।

तेरे हर आँसू से सहम जाता हूं,

जब तारों में बस रहे तेरे अपनों से मिल के आता हूं।

प्यार करते थे तुझे बहुत,

चला न जाए तू मुझे छोड़कर, बस ये सोच घबराता हूं।

घना अंधेरा हो या हो अकेलेपन का साया,

बस आँख मूंद मुझे याद कर लेना,

मुझे गलती से भी पराया मत कर देना,

आख़िरी आवाज़ तक तेरे साथ हूं, मैं तेरी आत्मा, तेरा विश्वास हूं।

-अज्ञात

Happy Birthday

- Swarnava Mitra

I was reading the birthday wishes that my friends sent on my phone. Suddenly I heard the voice of Mumpi. I rushed to the entrance where I found Mumpi was talking to my Mom,
"Hello aunty. How are you?"
"I am fine. Hope you and your parents are well also."
"Yeah, we all are good."
"By the way, you are Mumpi, right?"
"Yeah."
"I heard many things about you. He usually talks about you. By the way, I liked your dance very much, which you performed in last year's Annual Program."
I worked at a multinational company in Mumbai. Mumpi was my colleague. Due to the pandemic, our office had closed and we all went home. The lockdown had started. It was the 14th day of Lockdown. All the buses, trains, flights were cancelled. I was quite surprised how Mumpi had come to Kolkata from Pune. I never heard of any relatives of her who lived in Kolkata.
Suddenly I found that Mumpi was calling me, "Sukanta, why are you standing there? Come here". I saw that she had brought a birthday cake for me. We celebrated my birthday by cutting the cake. Then she helped my mom with cooking. We enjoyed the whole day. In the evening upon my Mom's request, she presented the dance which she had performed last year. Then suddenly after dinner, she said, "Now I am going, aunty".
I asked, "Where will you go so late at night? You won't get any transportation at such an hour in this lockdown". But she left my house saying that she was going very far from here and didn't need any transportation.
The next morning I woke up at 7 am hearing my alarm. I thought that it was a dream. I picked up my phone and saw that many friends of mine had wished me on my birthday - Anumita from Delhi, Henry from Haryana, Gita from Mumbai, Abhishek from Odisha, Anjali from Kerala. But Kuntal's and Mumpi's were missing. Then I got a call from an unknown number,
"Hello."
"Hello, is it Mr. Sukanta Mitra?"
"Yeah, but who is there?"
"I am calling from the Pune Police Department. Probably you know Ms. Mumpi. Yesterday night, she committed suicide. I got your number from Mr. Kuntal. She had written a message for you in her suicide note - 'Happy Birthday'."

Internship Stories

Almighty transforms into the Wiseman in the Holy Land

- Prabhu Prasad Swain

Shalom! A confused *atma*, that's me, with immense love for interdisciplinary science, when arrived at the Ben Gurion Airport, Tel Aviv, for my Master's Thesis at Weizmann Institute of Science, was astounded by how thoroughly the instructions at the security checks are to be followed for a successful venturing into the State of Israel. Often confused and popular for not so popular reasons, Israel is one of the leading contributors to the field of medicine and technology. Settling into a new country where Sundays are working days and Fridays are off days, confusing dialects are common, and the calligraphy of Hebrew is beautiful yet demanding for comprehension, needs time. However, I couldn't afford any. An international pub crawl following a musical beach volleyball in Tel Aviv on the night of the first weekend promised me a lot of excitement and fun, and a learning curve. My project was carried under the supervision of Prof. Michael Elbaum, at the Department of Chemical and Biological Physics, where I developed a technique of correlative microscopy, combining super-resolution microscopy with cryo-electron microscopy, to study the chromatin architecture of *P. falciparum*, to study the progression of malaria. The guidance was often friendly due to fellow Ph.D. student in the lab, Debakshi. I was also lucky to have Arujash, my dear friend, sharing the same hostel residence to pursue his internship at WIS. Having him around, at least poor jokes and proper Odia cuisines, accompanied by immense carelessness had been taken care of.

The campus of Weizmann brims with greenery, unparalleled equipment, and history. My walks around the campus had the company of many familiar Indian faces along with mates from across the globe. While getting used to big bulky microscopes and rigorous coding for my academic venture, organized potluck dinners, pool parties, fun trips, and round table dinner conversations were giving me a macroscopic view on various fronts of mankind. Rich lobby conversations with residents, or frequent casual talks with people on sidewalks while getting groceries from the *shuk*, instilled how small we are and how big our perspectives must be. Babysitting Tooky, Debakshi's pet parrot, and listening to her adventures with Amit brought laughter at times of home-sickness. Frequent road trips helped me explore the country. Plunging into the Sea of Galilee and the Jordan river, visiting Nazareth and the old city of Jaffa, getting bitten by Portuguese man o' war, and finally striking off the bucket list, the Baha'i Gardens of Haifa, rounded off my summer in Israel. The archaeologically rich sites with overwhelming history brought a wealth of knowledge, no history book can ever provide.

Attending numerous lectures and symposia which covered all important works in these interdisciplinary sciences, while personally interacting with many leading scientists and researchers from MIT, Oxford and Rockefeller, brought me novel ideas and successes followed. The success in my work with microtubular networks allowed me to give an oral presentation at Tel Aviv University, where my preliminary nervous stutters vanished looking at Michael's confident eyes and inspired me to thrive. With our first careful attempt at the protocol being applied to the parasite being a success, allowed me to be selected for a poster presentation at LMU, Munich, Germany. The visa arrangements were followed with the itinerary made with caution. After celebrating the *Rosh Hashanah*, the day I had to leave for Germany, was filled with a sense of accomplishment yet anxiety, as I presented to Michael, the first image from our successful implementation of the correlative protocol where we saw the chromosomes in the intact parasite, inside a ruptured erythrocyte, arranged as a bowl of *spaghetti*. His words that day shall always remain an inspiration. Unprepared for the rain and winters in Germany, it was a sense of warmth to meet a familiar face, Poonam (from Q8). Walking across the Berlin Wall, visiting the Berlin Tower and Rat Haus painted a vivid memory to cherish. Witnessing Oktoberfest in Munich and indulging in priceless conversations with biophysicists across the globe, and getting praised for my work, inspired me to continue my efforts once I returned to Israel.

As the date for submission of my report closed in, things got busy. A timely solo dance performance on romantic Bollywood songs on Diwali celebration brought a sense of belongingness, helping me not to miss home. This, along with consistent results and promising interpretations allowed me to accept a generous extension of two months to interpret the large amounts of data accumulated.

While working relentlessly, however, a surprise visit and a string of holidays did allow me a week's travel to the old city of Jerusalem. As historic as it can be, the streets oozed with stories spanning across 3000 years. Visiting the Western Wall across the city of David, the Holocaust Memorial, the Jewish museum and the Temple Mount during Christmas and Hannukah, the holy walk to Bethlehem on the Christmas eve, brought me closer to the Almighty. The other side of the new Wall built to separate the Palestinian territories was filled with graffiti of resilience, consistently marked with security posts and checks as a daily routine still shows the pain and suffering the Holy Land and its people had to endure across centuries. Enjoying the ritual of *BarMitzvah* with a delicious *Sufganiyot*, at the Jewish Quarter was the highlight of the trip, witnessing Jewish culture at its best. I will keep the 00:00 eve celebration at Kuli Alma, Tel Aviv as a secret from the last decade.

Presenting my work at a mini-symposium at Weizmann with cheering applause from a distinguished audience and submitting the thesis for evaluation, marked the completion of a successful project, a high point. Following this, a trip to the lowest point on Earth, the dead sea at -413 m below sea level, where witnessing buoyancy at work and cleansing the body with the mineral-laden mud, a serene sunset brought a sense of closure to this wonderful journey. Meeting lovely people, strengthening the love for culture, science, and technology, developing a thirst for learning while accumulating memories for a lifetime, Almighty transformed into the Wiseman in the Holy Land. *Lehitraot, Shalom!*

Internship Diaries

- Srishti Priya

I did my Master's thesis under the supervision of Daniel StJohnston at The Gurdon Institute, University of Cambridge. My classmate, Dhanlakshmi worked in the same lab too and we were roommates for the six months we stayed in Cambridge. We used to cycle to our lab daily, like most people in Cambridge do (which is very great for the health and the environment). My co-supervisors were Edward Allgeyer and Vivien Tsang, who were very kind and helpful and taught me the nitty-gritty of super-resolution microscopy. The lab was full of wonderful colleagues who made my stay even more enjoyable. I liked the open nature of communication among all the lab members with the supervisors and a balanced work culture, which is very different from what I had experienced before. I got to work in a great scientific environment where everyone's discussions, ideas and opinions were welcome. On top of that, I got to attend talks from many great researchers in the field of Biology in various seminars and conferences. Infact, it was a nerve-wracking experience to present my own work in one of these conferences in front of an audience consisting of professors from Oxford, Cambridge and Yale, including the Nobel Laureate, James Rothman.

I spent most of my weekends exploring Cambridge. It is one of the most beautiful towns in the UK, with a great history and heritage. I fell in love with the place from day one. Imagine living in a 800-year-old university town where people like Issac Newton, Charles Darwin, Stephen Hawking, and Rosalind Franklin studied or worked. You get to experience a part of the history at every step you take in the central part of the town, which has gorgeous old buildings which vaguely remind you of the Harry Potter universe. There is a famous pub called "The Eagle" known as the favourite hang-out place for Watson and Crick where they announced that they had discovered the structure of the DNA. The bar has now very aptly put a placard acknowledging the contribution of Rosalind Franklin in the discovery. When you stand on the street leading to the bar, on the left is the oldest church in the city built during the Norman invasion of England in the eleventh century and on the right in the Cavendish Lab where the likes of Maxwell, Rutherford, Rayleigh and Thomson worked.

It's wonderful to think that such a small part of the city encapsulates so much of history. Punting (rowing a boat using a long pole) on the river Cam is one of the greatest ways to explore Cambridge as you get to see all the major colleges on the banks of the river and pass under various beautiful bridges, including the famous "Mathematical Bridge". As a book-lover, it was a delight to visit the oldest bookshop in the UK owned by the Cambridge University Press and the great Wren Library which houses the original editions of the Principia Mathematica and On the Origins of Species.
Dhanlakshmi and I also got a chance to visit other cities in England like London, Bath, Brighton and Norwich, each of which are very unique and different in terms of their demography, architecture and terrain. We also had an opportunity to visit the Stonehenge on the Salisbury plains and the Seven Sisters National Park on the southern coast of England. The Seven Sisters is actually a series of white chalk cliffs by the sea which is a sight to behold. We visited London and did all the predictable and touristy things you can imagine- visiting the Platform 9¾ , the Tower Bridge, the tower of London, Greenwich Observatory, Westminster Abbey and the Museum showcasing all the "borrowed items" from other countries including India. We had a great time in London, thanks to lovely Sunitha aunty, who is our classmate Sujith's aunt and was our family away from home. I can safely say for both Dhanlakshmi and myself, that the time we spent in the UK was a great academic and cultural experience for us and will live in our memories forever.

It Still calls me Back

– Mausam Rana

Singapore is one of the most beautiful countries in the world with a rich culture and a clean, simple lifestyle. I was fortunate to have got an opportunity to visit this amazing country for my internship for a period of six months. Right from the moment I landed at the Changi International Airport, the atmosphere felt delightful. Nowhere in the world could you find a place so organized and sophisticated. I was surprised to see my luggage sorted and kept ready with my name tag on it while I came out of the immigration office. Needless to say, I could find my apartment in Clementi without any trouble, even though I landed nearly at midnight. I did my research internship under the guidance of Dr. Chin at Skin Research Institute, Singapore. Dr. Fathima Rifkhana (Postdoc), was my co-guide. SRIS is funded by A*STAR (Agency for Science, Technology and Research), which is the statutory board under the Ministry of Trade and Industry of Singapore and supports major research and development projects. On my way to the first day at the institute, it was exciting to experience the busy day life of Singapore, especially the bus and metro ride that I took to reach there. Buildings in Singapore are a delight for the eyes. They can hardly skip one's attention and make us wonder about the zenith of development we have reached. Skyscrapers, bridges, Metro tracks, huge street lights; they all set a picture in your mind that stays put as a hallmark for this great city.I entered my institute with great excitement and a bit of nervousness for what lies ahead.

Chin welcomed me in her lab by giving a delicious lunch treat (which was my favourite part). I had to work on a molecule BAZ2A (an epigenetic modifier), to elucidate its potential role in Skin cancer progression using nucleolin protein as a positive control for comparing its effects with BA2A in keratinocytes cell culture. Both Chin and Rif detailed me about the project and discussed in depths what all needs to be done. Even though I was talking to highly qualified PIs and postdocs, I never felt uncomfortable in discussing my ideas and they were equally patient in explaining concepts and correcting my mistakes. It was a very comfortable and friendly atmosphere at the lab and everyone's ideas and opinions were respected and considered seriously. The labs in SRIS have great infrastructure and are equipped with the finest of the instruments available for biological research. Also, the freedom for doing any experiments related to the project was one thing that fascinated me the most. Science is celebrated there more than just being taught or talked about. There used to be seminars and journal club sessions every week with great talks and research presentations. A smart way to ensure full attendance was to provide free pizza. I also got an opportunity to visit the National University of Singapore (NUS). Its vast campus had mesmerizing views, exhibiting great infrastructures and calm surroundings that support a great learning experience. I visited the UG and PG labs there and also interacted with the students. The scientific atmosphere and the temperament of research were very different from what I had experienced before.

I visited various places in Singapore with my housemates and it all made me fall in love with this country all over again. The fireworks on 9th August (National Day of Singapore) at Marina Bay Sands is a celebration of colors in the background of a dark sky, creating a dome of sparks which encloses all the observers to a different world away from the world outside it, distancing you from yourself and transfixing you to those moments. The water light and sound show which follows is one of its kind. We visited The Universal Studios, one of the major adventure destinations with all kinds of rides, scary thrilling roller coasters to relaxing water rides. Interestingly they also have a special place called "Little India" where you can experience typical Indian culture, cuisines, and atmosphere (was actually a great place to visit when you feel homesick). We visited museums, botanical gardens, zoos, and even experienced a cruise ride. Bintan Islands in Indonesia is a perfect destination to spend a weekend. A refreshing breezy ferry ride, warm hospitalities at homestays, beach benches to bathe in sun rays, and sightseeing are some of the refreshments you can enjoy there.

During all these, I learnt so much about their culture and beliefs. In this six month period, I got really familiar with Chinese culture. The main Singaporean cuisine is Chinese, majorly seafood and meat. My favourite dish was their traditional, "Mala hot pot", a mix of super- spiced broth and super-spiced oil, which is mixed together in a hot pot for cooking the raw ingredients at the table itself. Indian food was also available, and actually was in high demand. I used to make different Indian dishes for my neighbours in exchange for their homely Chinese dishes. My parents also visited Singapore for about a week during my internship and they share the same enthusiasm I have while talking about Singapore.

Life in Singapore was a thrilling experience, from day one and it was very valuable in all aspects. I had a first-hand experience in the career I chose to embark on. I always walked back from the metro station till my apartment. It's the one thing I miss the most these days. There was a charm in the atmosphere there, which eluded all worries of the day and refreshed any mental weariness. Never have I ever experienced such an ostentatious lifestyle which gives a boost to complete our work rather than sit back and relax. People in Singapore were always dedicated and helpful. They believe in their role as a citizen to their country by acting responsible and setting an example rather than simply talking about what they must be doing.
I will surely visit Singapore again and again and again.

Thesis Stories

- Shubham Gupta

I did my master's thesis at the Scuola Internazionale Superiore di Studi Avanzati (SISSA), Trieste, Italy, under the supervision of Prof. Paolo Salucci. My flight from India landed in the beautiful city of Milan. I had booked my train tickets from Milan to Trieste beforehand, keeping a sufficient time gap between my landing and the train departure. However, little did I know about the enormous time it was going to take in immigration. Hence, I ended up missing my train and had to wait at the Milan train station for 2 hours with my entire luggage, for the next train. At SISSA, I studied various aspects of Dark Matter, from the rotation curves of numerous galaxies to the predictions of its fundamental nature. The work was majorly computational involving a fair amount of data analysis and reconstruction. I used to follow a routine of getting up at 8 am every morning and catching the bus to the institute at 9:10 am. Returning hours used to be quite flexible, ranging from 5 pm to 9 pm, via buses plying every 20 minutes.

Trieste is a port city situated on the Slovenian and Croatian border of Italy. The city exhibits a hillside terrain with the major urban territory lying at the foot of the hill adjacent to the sea. The balcony of my house was directed towards the sea on the west, creating the most beautiful sunsets ever experienced. On a clear sky during the sunsets, the Italian Alps covered in a snow bed would also become apparent. SISSA was located on the uphill side of the city, providing a very calm and soothing environment to work in. Surprisingly, SISSA and ICTP had a huge Indian community with most welcoming and supportive people. Quite occasionally, I used to meet up with my colleagues and friends in the evening at the central area of Trieste near Piazza Unita and discuss varying topics over dinner. We also used to play football a couple of times in a week.

Unfortunately, during my last game, I suffered a knee injury (yet again), had to rest for 3 days and then stagger my way back to India.

I visited Venice, which is two hours from Trieste. Visiting St. Mark's basilica and Gondola ride through the Venetian canals are things one cannot miss in Venice. A simple walk through the streets of Venice is in itself a completely different experience. In one of my last weekends in Italy, I also visited the Fashion capital of the country i.e. Milan. With the streets covered in stores of almost all the possible brands, Milan was indeed one of the most happening cities in the country. I paid a visit to the Milan cathedral, which is the largest cathedral in Italy whose construction started in the 14 th century.

Few of my weekends were spent in Switzerland, where I visited Zurich, Lucerne, Engelberg, Mt. Titlis and Mt. Pilatus. I spent my birthday weekend in the alpine village of Engelberg, which was undoubtedly the most beautiful village I have ever seen. The village was surrounded by Alps and clouds all around. A lake situated in the centre of the village just adds the cherry on top. From Engelberg, I took a cable car to reach Mt. Titlis, which is covered in a snow bed throughout the year. Surprisingly enough, a cardboard cutout of Shahrukh Khan and Kajol Devgan from Dilwale Dulhania Le Jayenge is placed on top of Mt. Titlis to celebrate the success of the movie. On one of the weekends, I trekked on Mt. Pilatus near the Alpnach village. Trekking between the vast grazing fields with the background of wind blowing and bells ringing from the cattle's collars was an unforgettable experience.

Looking back on my experiences, I did nothing but enjoy each second of the internship, be it the scariest times or the happiest ones. I learnt about different cultures and languages from people at SISSA coming from all over the world. My master's thesis really taught me how to live independently, maintain the work and personal life balance and make the most out of every opportunity. Cheers!

Project Experience: Master's Thesis

- Rakesh Saini

The 9th semester of an Integrated MSc course is the first time when a student is required by the college to undertake a full-time research project, and is truly exposed to the scientific world. I did my research project at Bhabha Atomic Research Centre (BARC) under the guidance of Prof. Sudhir R. Jain. In fact, I had been fortunate enough to have previously worked with him on a couple of summer projects out of interest. My project experience was full of twists and turns like an Indian daily soap. I wanted to work in 'quantum computing and information', but my supervisor was not working in the field. Luckily, the beginning of my project almost coincided with the genesis of the Quantum Computation department at BARC (mostly due to my guide's effort). I learnt a lot from the project. I learnt that most of the great research work does not happen in labs or offices as we used to imagine, but in the informal discussions during tea- or snack-breaks; that solving a well-formed and founded problem is rather easy but creating one is the challenging task. I also learnt what and how to read, especially when it comes to research papers. This is especially important in this era when we are flooded with loads of information. Moreover, I learnt to collaborate with and respect people from various disciplines. I met with some amazing people in various professions, and really enjoyed the entire experience.

However, this semester was not j ust about academics, it was the first time we got the weekends off. Therefore, I snatched this opportunity to explore and enjoy my time as I had always desired. I went on treks, watched plays, discovered new places to eat and chill, and so on. Basically, I could write an article on "Top 10 things to do" by the end of the project. To my juniors and others looking to do a project or dissertation, I would suggest that choose a guide, and not an institution, because it is him or her that you'd be spending most of your time with. The most important thing is to not forget to have fun in whatever you do.

जैश है हम

– अनन्या सचदेव

तुम्हीं में तुम्हीं से तुम्हीं के,
बारूद भी हम, चिंगारी भी हम।
धुआँ-लपटें जिसकी सब तरफ,
उस आग की काली राख भी हम।

पाक सोच के पाक अनुयायी,
पराकाष्ठा–पीड़ा प्रेमी हम।
वो सीमा जो हमने लाँघी थी,
उस सरहद की हद, 'जिहाद' हम।

अपने दिल के टुकड़े के
टुकड़े-टुकड़े जिसने देखे थे,
उस विचलित माँ की चीख से तेज़,
पतन की आवाज़ हैं हम।

हाथ और हथियारों का
बार-बार झूठा इंकार हैं हम।
बूंद-बूंद भरे रक्त सागर की
लहर, जो तोड़े बाँध, भी हम।

जवान हिंदुस्तान के थे,
अब हिंदुस्तानियों के हाथ में हम।
वह गलतफहमी ही थी जो लगा हमें
शह भी हम और मात भी हम।

हिंद देश की एकात्मकता से रौशन
इतिहास की किताब हैं हम।
आकाशवाणी के इंसाफ से आतंकित,
आतंकियों की लाश हैं हम।

सफ़र

ज़िंदगी के सफ़र में सबकी अपनी अलग रफ़्तार है
कोई तेज़, कोई धीमा, तो कोई माज़ी में गिरफ्तार है
किसी ने भविष्य के गर्भ में छुपी मंज़िल के लिए बढ़ा दी अपनी चाल है
और किसी को वर्तमान में भी अतीत का मलाल है
इस सफ़र के रस से वही मुखातिब होता है
जिसके दिल-ओ-दिमाग के दरमियान सामंजस्य होता है
इस सफ़र में भी अनेक मुसाफ़िर मिलते हैं
कई अच्छी-बुरी यादें दे जाते हैं
कुछ हमारा तो कुछ का हम साथ छोड़ जाते हैं
वो बहुत ख़ुशनसीब होते हैं जिन्हें हमसफ़र मिल जाते हैं।

- पुष्पेन्द्र यादव
Quanta 9

Ragnarok
- Feel the rush

Ragnarok 2020 started with the whole CEBS crowd cheering passionately for Tug-of-War on the streets of Takshashila. The energetic night filled with team spirit and zeal set the right atmosphere in CEBS for the other events to take place. All the events were well organized by the first years with the support of the sports club. Active participation was received in all events but in carrom, it was so enormous that it seemed like a tournament of its own! The graduate students and the staff of CEBS also participated along with the undergraduates. The crowd of CEBS might be small but their screams of encouragement for their friends are certainly not. Unbelievable sportsman spirit was displayed when two friends had to face each other and only one could be the winner. From the early morning football matches to the late-night volleyball-matches and the timely first aid services were handled enthusiastically by the first years. They displayed commendable teamwork and team spirit in managing the event smoothly.

IISM 2019

The Inter IISER Sports Meet (IISM), 2019 was held in IISER, Pune from 9th to 15th December, where UM-DAE CEBS sent a contingent of 43 athletes. The students participated in both individual and team events. The various sports where CEBS participated included cricket, football, volleyball, basketball, table tennis, badminton, chess, and athletics. In athletics, Manush M. of 4th year won two silver medals. One of the medals was in the 5000 m race and the other one in the 10000 m race. Our teams were unable to secure a medal position in any event even though their performances were respectable and won the hearts of other participating institutes.

IICM

Twenty five students of UM-DAE CEBS participated in Inter IISER Culture Meet (IICM) – 2019, organized by IISER, Trivandrum from 20 - 22nd December 2019. CEBS students participated in music, dance, story writing, poetry writing, quiz, debate, and personality contests. The team secured the second position in the Mudra-Group Dance competition.

कला का क्या काम?

मन, रूह, चित्त, चाहे जो भी नाम दें, उसके अर्थ से अज्ञात कोई नहीं है। मन मेरी आंतरिक क्षमता का असली स्रोत, मेरी आधार-भूत पहचान और मेरी व्यक्तिगत संस्कृति है। मन संसार व उसमें विद्यमान सभी जीवों व वस्तुओं का मूल है। परन्तु मन को दुनिया से बहुत डर लगता है। बचपन से ही मन दुनिया के सामने खुद को दुर्बल और नश्वर समझने लगता है और फिर उम्र के साथ मेरे किसी ऐसे गहरे, अंधेरे कोने में बैठ गया है, जहाँ मैं न उसे देख सकती हूँ, न सुन सकती हूँ, और न ही महसूस कर सकती हूँ। कला और मन की एक अनोखी, गहरी मैत्री है। वह मन ही है जिसने कहा था कि सब कुछ एक कला है और विज्ञान ही सबसे बड़ी कला है। पर विडम्बना यह है कि काम मन से नहीं करे जाते, उस पर विश्वास नहीं किया जाता और वह फिर कहीं जा के छिप जाता है क्योंकि वह मरने से डरता है। ख़ैर, जब मन अपनी गुफा के बाहर कुछ हलचल अनुभव करता है तब वो झाँक कर देखता है और जब उसे घनी रचनाओं की मधुर घंटी सुनाई देती है तब वो लपक कर अपनी गुफा से बाहर आ जाता है। फिर वह इस रचना के बहाव से ऐसा मंत्रमुग्ध हो जाता है कि वह किसी की नहीं सुनता। तब वह मेरा मन नहीं होता, मैं उसकी हो जाती हूँ । एक बेसुध मन की बेकार पात्र । तब मेरी सीमाओं को लाँघ कर वह शहद की तरह मेरे बहार सब तरफ रिसने लगता है। मैं पूर्ण रूप से उसमें भीग जाती हूँ । उसी में आवृत्त हो जाती हूँ और धीरे-धीरे उसी में लुप्त हो जाती हूँ। यह कला की शक्ति है जो सभी सांसारिक 'मैं' ने महसूस की है पर फिर भी वो पूछते हैं, “कला का क्या काम?”

-अज्ञात













Oris

Unfortunately, we could not have an Oris in 2020 due to the COVID-19 pandemic, but the memories of Oris 2019 still are fresh within us! It was the first time that the event was held in Takshashila building. The theme was Magic and CBScientists showed their whimsical creative colours with great enthusiasm. The CEBS Art Club and the Music Club collaborated to organize a karaoke night on the final day of the event. Besides the regular activities like canvas painting, sketching and crafts, students dabbled into glass-painting. The end result was a collection of great masterpieces by CBScientists!

We are hoping to have a colourful Oris 2021 in CEBS!

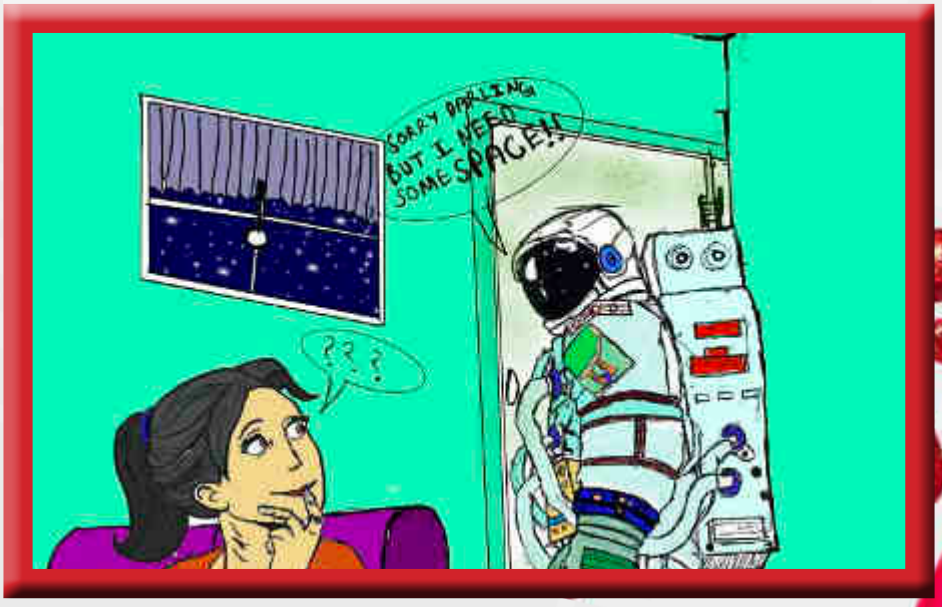

Life's a struggle when you're a Muggle
जिन्दगी झंडा जब तू मगलुवा

Sketches and Doodles

Aditi Singh

Aditi Singh

Sneha



Lokendra Meena

Lokendra Meena

Aditi Singh

Lokendra Meena

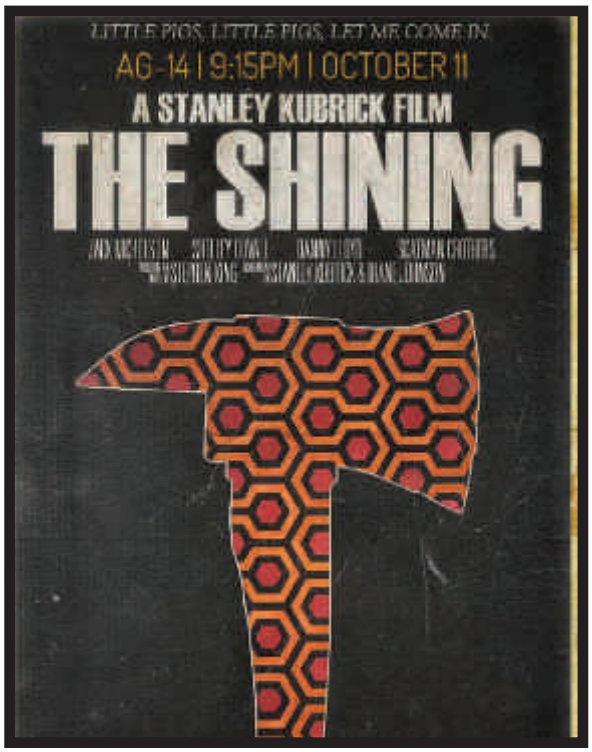
Symphonia

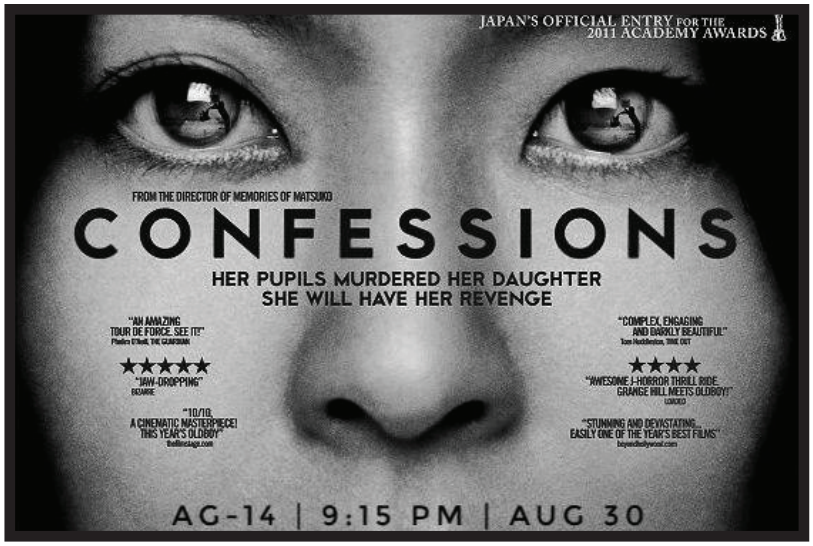
CEBS Music Club organizes 'Symphonia' from time to time to keep the enthusiasm for music, shayari, poetry, and comedy performances in the students alive. Scheduled in the months of August, October, November, and February were open mic nights where the CBScients orchestrated musical notes and words, instead of equations, filling the evening with melody and harmony.

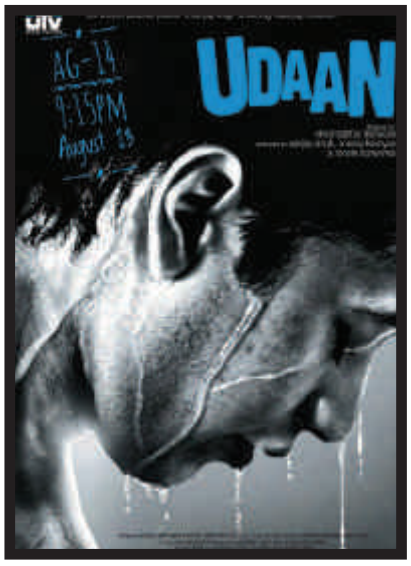
Dhwani

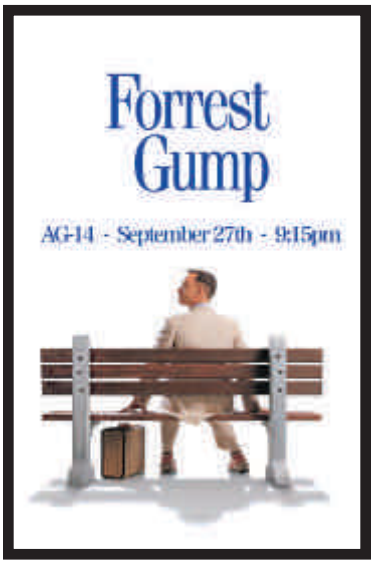
For a first, the CEBS music and dance club came together to organize Dhwani, this year's CEBS music and dance fest, making 19th March 2019 a memorable occasion. The exhilarating show, with musical melodies and electrifying dance moves, spanned from classical Carnatic music to contemporary Bollywood, where the performances by talented musicians and dancers exhibited variety with exuberance.

CEBS MOVIE CLUB

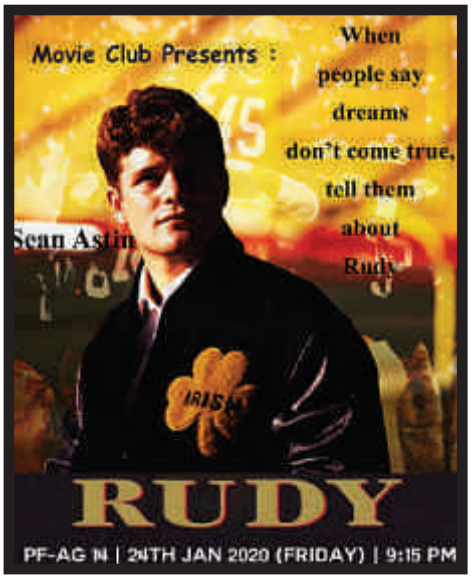






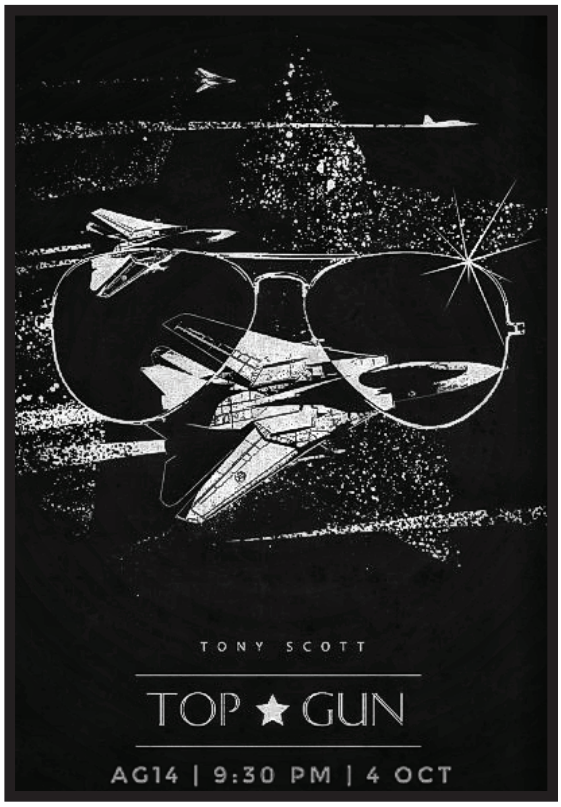



SICARIO
AG-14 | NOVEMBER 8 | 9:15PM

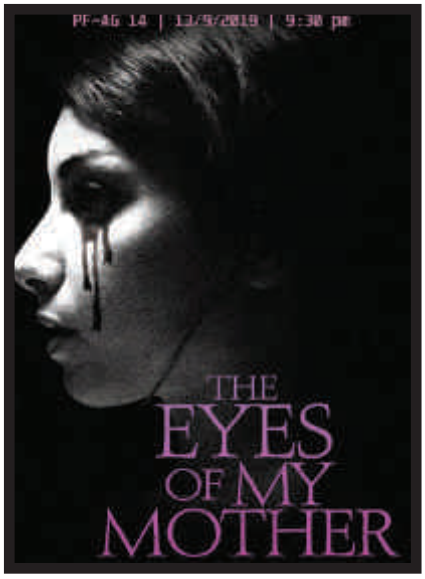

Movie Club Presents :
When people say dreams don't come true, tell them about Rudy
Sean Astin
RUDY
PF-AG 14 | 24TH JAN 2020 (FRIDAY) | 9:15 PM


PREDESTINATION
AG-14 | 9:15 PM | AUG 2


MOVIE CLUB PRESENTS :
THE RAID
REDEMPTION
PF AG-14 | 7TH JAN 2020 | 9:15 PM

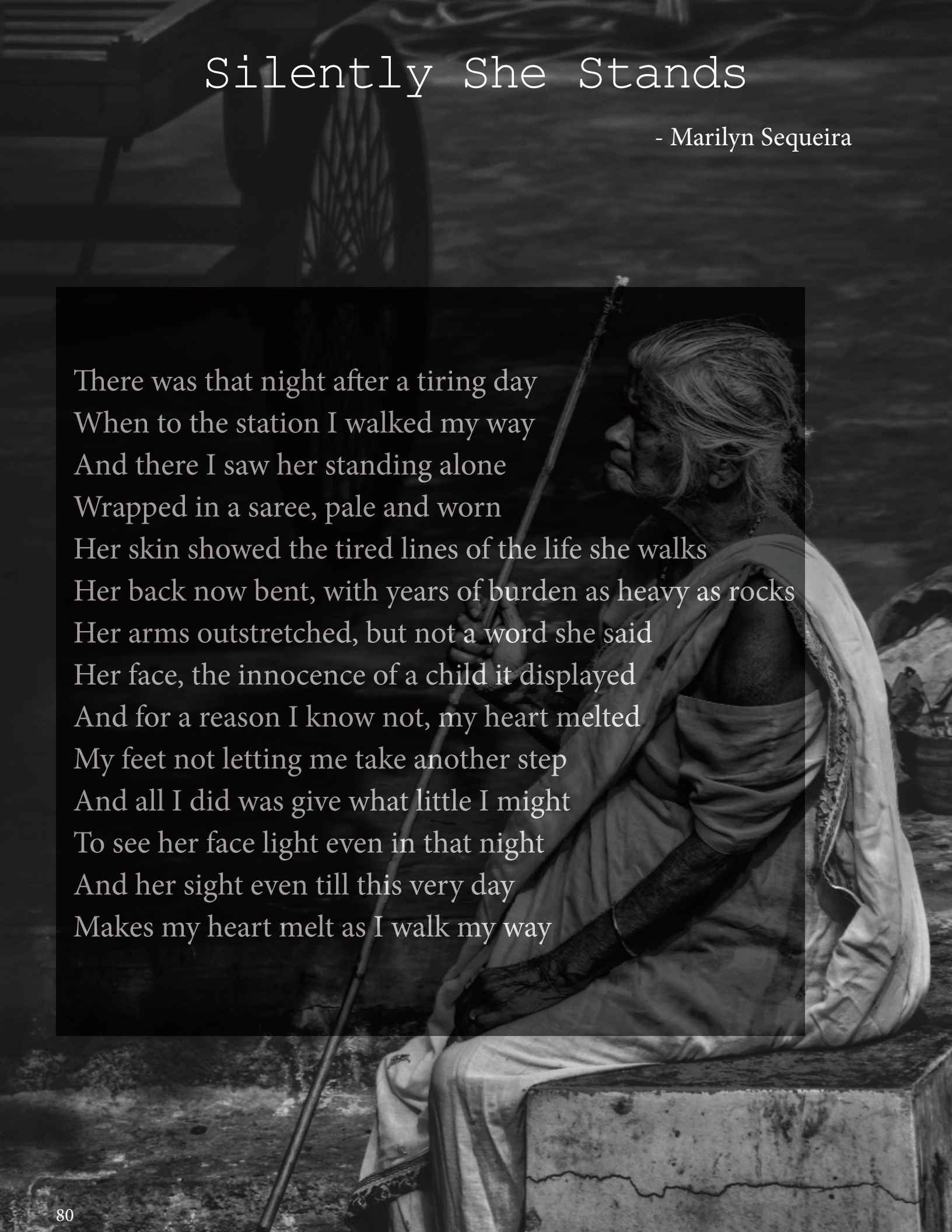

TONY SCOTT
TOP ★ GUN
AG14 | 9:30 PM | 4 OCT


"ENIVRANT, À VOIR ABSOLUMENT."
THE RIOT CLUB
AG-14 | 9:00PM | JAN 17


PF-AG 14 | 13/9/2019 | 9:30 pm
THE EYES OF MY MOTHER

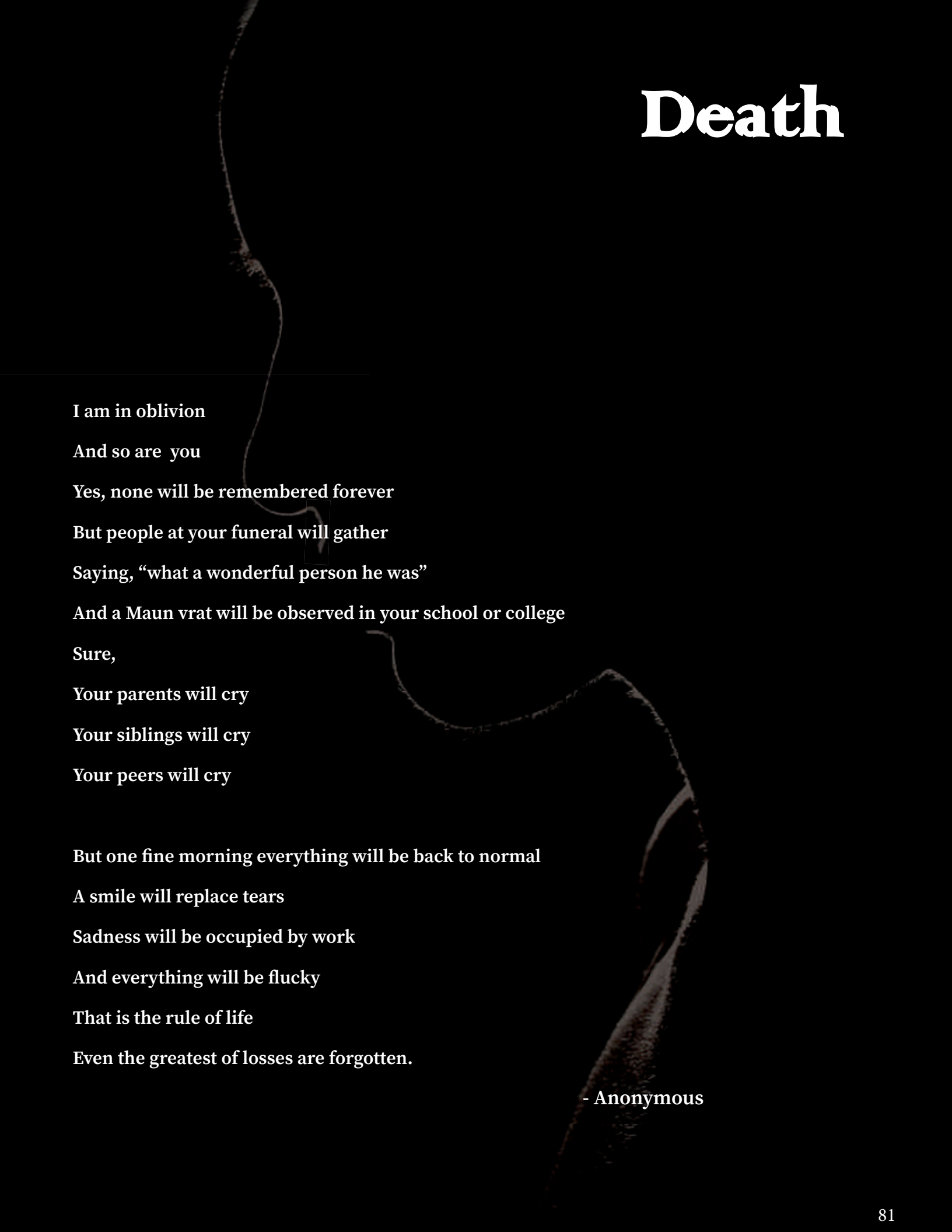
Silently She Stands

- Marilyn Sequeira



There was that night after a tiring day
When to the station I walked my way
And there I saw her standing alone
Wrapped in a saree, pale and worn
Her skin showed the tired lines of the life she walks
Her back now bent, with years of burden as heavy as rocks
Her arms outstretched, but not a word she said
Her face, the innocence of a child it displayed
And for a reason I know not, my heart melted
My feet not letting me take another step
And all I did was give what little I might
To see her face light even in that night
And her sight even till this very day
Makes my heart melt as I walk my way

Death



I am in oblivion

And so are you

Yes, none will be remembered forever

But people at your funeral will gather

Saying, “what a wonderful person he was”

And a Maun vrat will be observed in your school or college

Sure,

Your parents will cry

Your siblings will cry

Your peers will cry

But one fine morning everything will be back to normal

A smile will replace tears

Sadness will be occupied by work

And everything will be flucky

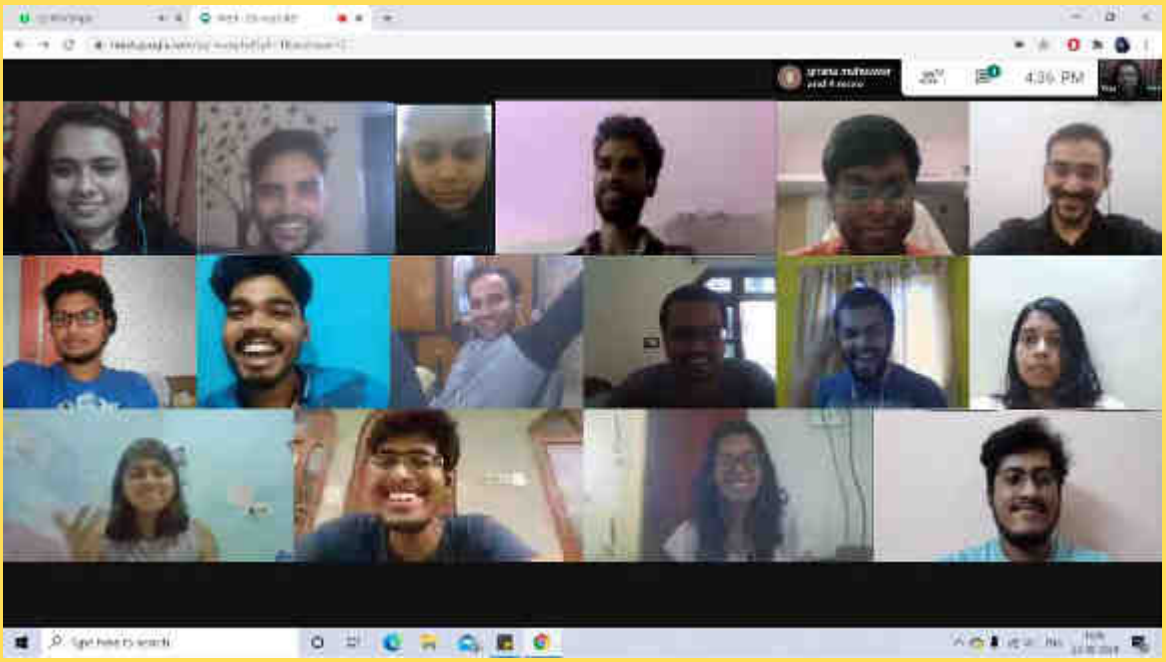
That is the rule of life

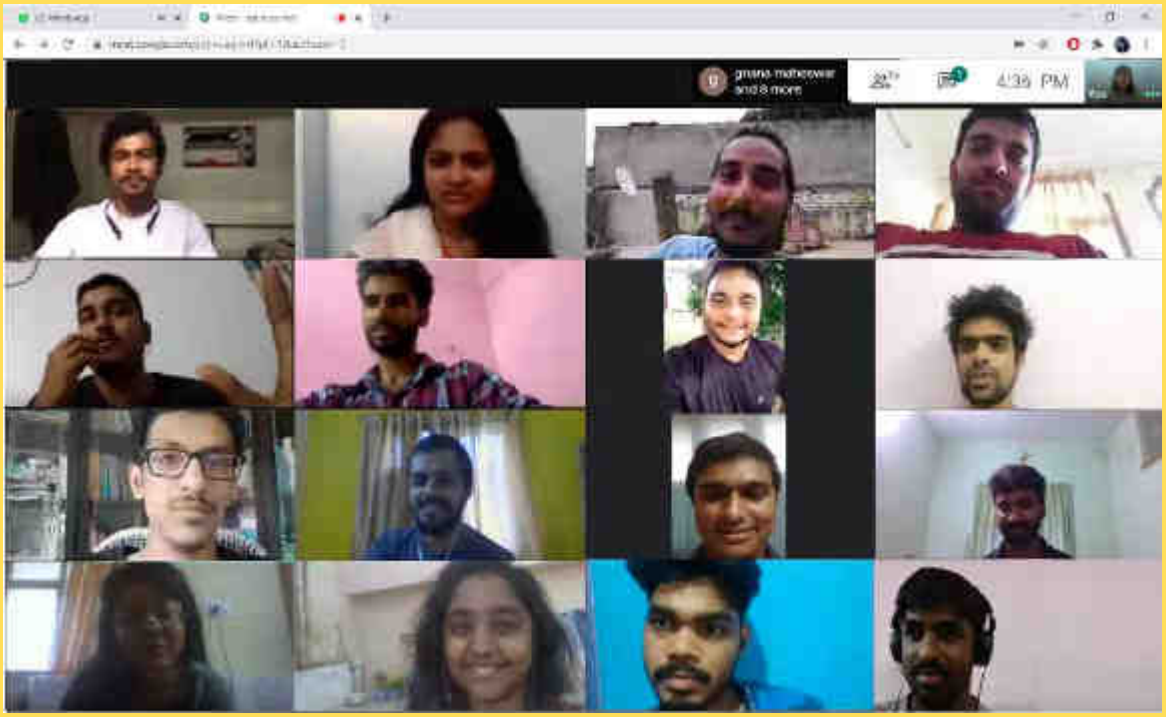
Even the greatest of losses are forgotten.

- Anonymous

Farewell Quanta 8!

Farewell Quanta 9!





SRISHTI PRIYA, Q9

S DHANLAKSHMI, Q9

SRISHTI PRIYA, Q9

ARYADEEP PAUL, Q12

PRABHU P SWAIN, Q9

SHOT AT SIGHT

PUSHPENDRA YADAV, Q9

S DHANLAKSHMI, Q9

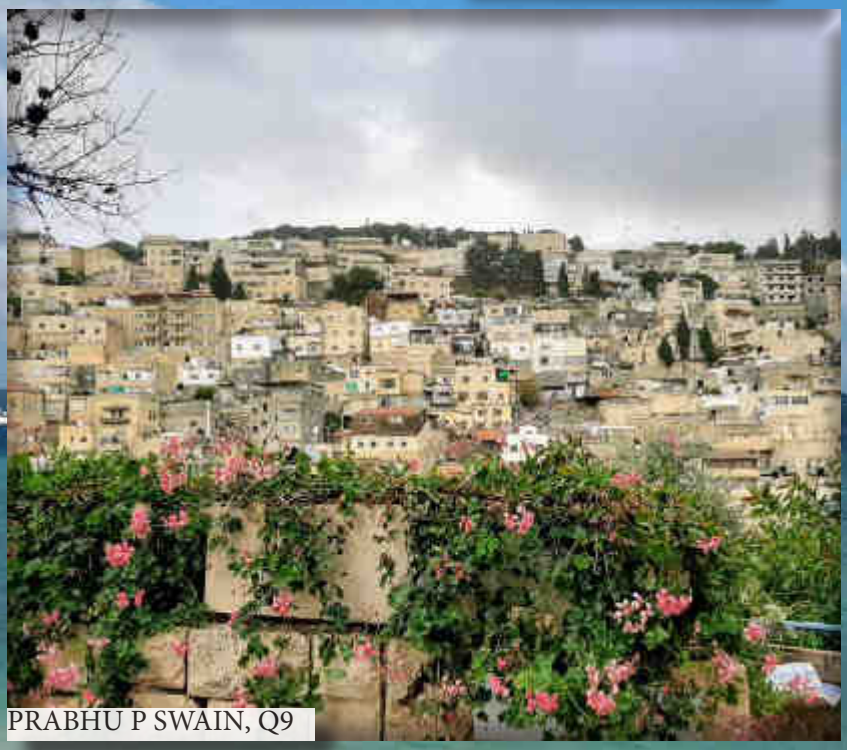
SRISHTI PRIYA, Q9

MAITHREYI R, Q8

PROF. SK TANDEL

SHUBHAM GUPTA, Q9

INDRANIL DAS, Q10



PRABHU P SWAIN, Q9

PUSHPENDRA YADAV, Q9

INDRANIL DAS, Q10

Best shots of Campus

THE YEAR THAT WAS

A brief summary of events (good or bad, but surely memorable) at CEBS in the academic years 2018-19 and 2019-20 (not in any particular order)

Official Inauguration of **Takshashila** and **Nalanda** Buildings

Laboratories finally shift to the Nalanda building!

Takshashila and Nalanda buildings get beautiful **gardens**

CEBS gets a new **mess**! Again!

CEBS **library** shifts to the Nalanda building! Students missing the naps on old comfy sofas. ;(

We have our own **chandan** garden now.

Dr Mahendra Patil becomes the **Warden**.

Ms Swati Kolekar appointed as the new girls' **Warden**. **Dr Swagata** will be missed.

CBScients have fun learning **fire safety** and participating in "Swachhta Pakhwada"

Snakes become overactive after 11 pm, resulting in a brief curfew for CEBS students.

Jigyasa: 404 not found. AGAIN.

INSPIRE scholars finally receive their **stipends**.

Gratitude and farewell, Mr Kishore Menon.

Cats claim their dominion over NH after ABS.

Dahi Handi '19 cancelled. Students find solace in flying kites for the first time at Makar Sankranti

Yoga classes start at CEBS.

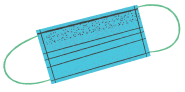
Mumbai rains bring a **Jaundice outbreak** to CEBS.

Prof Narlikar spends a week at CEBS taking lectures. A delight for CBScients!

CEBS starts the intake of **PhD** students!

No Oris, Dhwani, or "Mega Cultural Fest" in 2020! COVID-19 spoils the plans

Students sent home due to the **pandemic**. Classes go **online**!



Thesis plans of Quanta 10 gets thwarted.

Quanta 9 bids **farewell** without a proper farewell!

Team Novellus

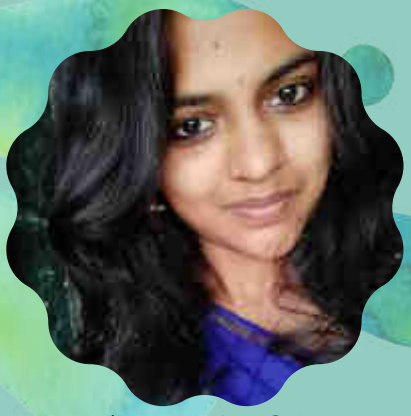
Ananya Sachdev, Q13

Srishti Priya, Q9

Manila Boipai, Q13

Prabhu Prasad Swain, Q9

V.S. Gayathri, Q12

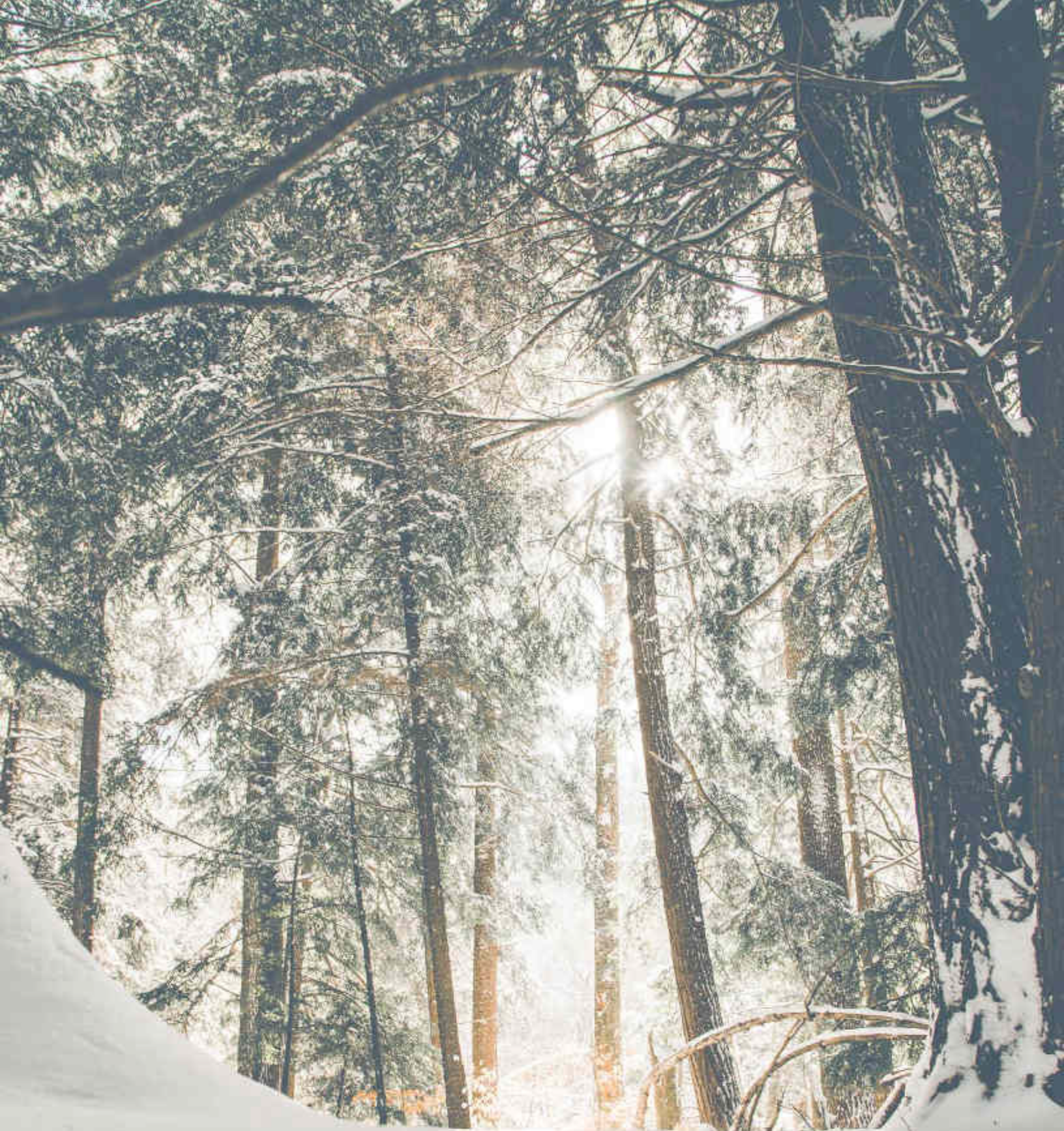


Amrita P, Q9

Naman Mishra, Q13

Ashwini Babu, Q13

Indranil Das, Q10



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