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A CMI MAGAZINE
ISSUE #2

SPHERES OF LIFE

*FROM THE EDITORS
February 2024*



tringing together the
different facets of the fleeting
years of college in just a few
pages is a lofty ambition.

We did not set out to do this. We sought simply to give you a glimpse of the glittering symphony of these facets reflecting off each other- via a tradition which, post covid, it really is high time to return to.

The life of CMI is in its beautiful, ordered, geometric structure. In the annals of the three-quarter circle where excited, curious people intermingle every single day; people who have been bold in choosing and unapologetic in making the choice to join CMI worth their while.

The soul of CMI resides in the hearts of the very same people, dazzling yet personal, hidden but tumultuous, overflowing with emotion and passion. An ethereal tune that guides us in all that we undertake, uniting us as each one of us tries to knit together the aspects that make us human; the flickering notes that permeate our minds and still only deign to manifest briefly, intermittently, bashfully.

Even if we cannot show you the spheres, we hope you can hear their music.

Cover edited from:
Music of the Spheres,
Parvathi Nayar



Spheres Of LYRICITY

"A poem is never finished, only abandoned."

*Paul Valéry,
French symbolist*

THE DEAD SHALL RISE AGAIN...

*Aniruddha
Bhattacharjee,
M.Sc. M II*

A solitary cot, by the open window,
A solitary cadaver, by the closed porthole;
A solitary statuette, of the fallen Lord,
And a solitary *diya*, for the fallen Lord.

A dark horde of shattered wishes,
A dark eyesore of defiled handiwork;
A dark quagmire of convoluted judgments,
And a darkness too convoluted for the *diya* to endure.

The moon shines in, illuming the dingy dungeon,
The mind moons out, over the morrow that could've
been.

The stork takes wing, pining for his pipe-dream,
And the *diya* dies, at long last, as the prickly pine
swears in blaspheme.

Yet in subliminal death takes birth an aphrodisia—
A lust to reclaim what is one's own; and lo and behold,
To the dismay of the Reaper, the carcass rises!
To the chagrin of the mongrels, the *diya* is rekindled,
As the hollowed eyes look up at the hallowed remains,
For carved on the wall, the bloodshot rut runs:

*Wake up, ye naysayer! The Gods above decree:
Raise thou sword, and cut them to the knee;
Set 'em ablaze, slip in an ember,
Yet slay them not, for thee must remember—
Rich blood adorns the most valiant of blades,
Taint it not, with the slaughter of the crippled.*

KISS ME, WON'T YOU?

*Naman Kumar,
Alum.*

Sometimes it snows, Annie.
It snows hard and fast, and I'm wondering
if we got five inches last winter, and if we did
when it melted, and where it went
because I look around and I can't see any.
I guess it washed away into the ground.
And I guess there are earthworms in there,
crawling, like they do, I guess.
It's all alright, isn't it?
Yes, he's alright, last I heard—
he had something funny to drink
and they put him in the hospital for a few days,
but they said it was nothing serious, and that
one of these days it was bound to happen.
His heart's alright, you know that?
It's all normal;
they got him a little card that he uses as a saucer,
a little playing card: the ace of spades, of course,
it's always the ace of spades.
I've got a couple more years around here, if
you're wondering
although I know you're too busy for that
and if you weren't, I'd wish you were.
Stay busy for a while, I guess.
I've got a couple more years around here.
I went to my parents' in the winter, and missed it,
I missed the snow.
What next, I'm thinking.
Maybe someplace hot, someplace hotter.
Where it doesn't snow
and I can go out in a jet-black jeep
and finally get those powered sunglasses made
to see the lions roaring, up close.

And after that? Maybe the ocean?
We could go on a boat to the middle
of the sea.
See the humpback whales.
Fuck, I can't even think any more.
My eyes are a bit heavy... well, no,
they're very heavy.
It's rising, bubbling at the surface, even.
There's an eclipse next afternoon,
we're going to put on those powered sunglasses I keep talking about
till I see the sky go all dark and cloudy.
A long mask in the middle, a long night in the day.
They'll cover my eyes, no one will see them any more.
Just me and the sun and moon.
I'll see your face there, up against the fiery ring,
complacent, almost, plain and expressionless
like it never was, but that's the platitude I remember.
Don't be that face for me. And when I see you next summer
kiss me, won't you?
Hard and fast.
I got your card last fall, and it was a very pretty card.
I loved it, very much,
and I'll send you another, maybe this Christmas
since I know you'll be busy before that, and you won't open it
and you won't read it,
and you won't even check your mailbox,
and it'll lie there for a long time until you find it
all wet, because when the snow melts
it has to go somewhere.

COLOURS' GOSSIPS

*Suhita Hazra,
Ph.D. M*

When the colours
Talk to each other,
In the language of
Optical chemistry;
The conversation makes
A colourful picture,
Portraying a glimpse of
Aesthetic beauty!
The very silent gossips
With various expressions
Soothe our eyes
In inevitable way!
The lonely mind
Becomes beguiled
Witnessing the
Colourful colloquy.

LOVING THE OTHER PERSPECTIVE... THROUGH AND THROUGH

*T.R. Shyam Sundar,
Alum.*

Who are you, whom I'm writing to? Please tell me all about you.

Who are your parents? And who were their parents?

Where and when were you born? And where are you now?

What is your gender? And what was the nature with which you were born?

What all have you gone through in life? In my mind, bring it alive.

Oh, please tell me, so I can stop suffocating myself with this blinding speck of a perspective. A perspective so bright that I'm ignorant of every other.

Oh, please tell me, so I am rid of this unforgiving hand that forces me to prioritise myself over you. A prioritisation that makes me hurt you.

Oh, please tell me, so I can see reality as it is. So I can awaken from this insane nightmare into that unspeakable truth and stick with it.

Oh no, don't. Don't tell me. For it can only go so far.

Give me your eyes and your ears and all that you're made of. So I can see and hear and be just as you are.

Give me your likes and your dislikes and all your emotions. So I can feel and react just as you do.

Give me your thoughts and your behavior and all that you remember. So I can think and respond just as you do.

Take mine if you please, but please, oh please, let me be you through and through. So I crawl out of this unrelenting slumber.

Wait, oh wait. Isn't this just wishful thinking?
Is there no way out after all?

Wait, oh wait. Can't I just simply love the idea
of being you without knowing what it's like?

I love you, oh I love you, no less than myself.

I love you, oh I love you, for it'll be insane not
to.

Are you my father, my mother, or my sister?
Are you my wife, my son, or my daughter?

Are you my batchmate, my senior, or my
junior? Or are you an ever loving professor?

There is competition all around. With
opposition knowing no bound.

Be it nations or corporations. Be it politics or
academics.

Are you alike or someone unlike? Whatever
be it, I can't dislike!

For I love you, oh I love you.

For I see no difference between you and me.

DETANGLES

*Sulagna Barat,
M.Sc. DS II*

Words are poised in a queue
like the ants climbing down the wall, -
As overwhelmed as their existence is;
in search of some granules & whatever,
nail of coffin, of a volatile fairytale.

No, mistaken!
Unlike the moving mess
in a relentless effort of Matching the track.
Again, Words are frozen,
more of a handful commas & maybe nothing else?

Had it not been done in case,
Let's make peace.
Let's get over the shackles of symbol
Let's embrace the unrest
& kiss on the debris
With an insane urge of loosing afresh,
Voilà, when I finally leave'em behind
As a broken glass of bitter gin-
textured lips drenched in blood, lest seen.
Beware of the motif!

Amen
I swear, I won't regret.

সাঁকো

Sulagna Barat,
M.Sc. DS II

শোনো এই বৃষ্টিমুখর রাতের প্রহর,
নিঝুম অজস্র শহরগলি
ঘড়ির কাঁটা উপেক্ষা করে তুমি আমায় শোনো জীবন।

শুরুতে শুরুতে খালি হাতেপায়ে এসে জুড়ে বসেছিলাম
সত্যি বলতে কেউ মাথার দিব্যি দেয়নি -
Law of chance বললে শুনতে বেজায় বিজ্ঞ লাগছে,
কিন্তু বাজারে বেশ চলবে, কি বলো?
তবে তাই থাক নাকি? *Rebel at my right.*
এবার আসল কথায় আসি।
সেটাও কিন্তু প্রলাপই হতে পারে;
তবে তুমি ভগবান নও, শয়তানও নও -
মোদ্দা কথা তুমি বাধা দেওয়ার কেউ নও বুঝলে?
...এবার সত্যিই আসল কথায় আসি।

তো আমি সেই এলাম, কিন্তু আমি এলাম কই?
আমার নামে কেউ একটা এলো, যাকে আমি চিনিনা
'চেনা' নামক কোনো স্থান-কাল-পাত্রের সাথে পরিচিতি নেই
তুমি দেখলে, শুধু প্রাণপণে নিজের অস্তিত্ব জানান দেওয়ার
নিতান্ত অবচেতন কিছু প্রচেষ্টার একপিণ্ড সমষ্টি মাত্র।

বিধাতা বা বিবর্তনে সৌজন্যে প্রথম আমার শব্দ পেলাম
আর অল্প স্বল্প তার অর্থ পেলাম, আর পেলাম বেসুর।
কিন্তু বেঁচে থাকার লড়াই আর শ্রেষ্ঠত্বের প্রতিযোগিতা
কবেই বা 'আমি বেশ আছি' কে থিতু হতে দিয়েছে?
এবার আমি তড়িঘড়ি করে লিখতে শিখবো..
তারপর বেশ অনেকবছর পরে মনে হলো,
অনেক অক্ষরের *jigsaw solve* করতে পটু আমি
এখন এতো বৃথা বাক্যব্যয় করে হবেটা কি?
সমাজেরও প্রশ্ন বা প্ররোচনা ছিল, ধ্বনির বদলে বর্ণ!
আমি অসাধারণ নির্লজ্জ, নির্বাক হতে শিখলাম।
মুখের কুলুপ ঠাঁটে রেখে সেই যখন বোবা হওয়ার জোগাড়,

মৌনব্রত আর শব্দছক ভেঙে সেদিন আমি মুখরা হলাম।
তখনও কথা আর লেখার মধ্যে ভাবসাব জমেনি
এর মাঝে হাওয়া বদল করতে শিল্প এসেছিল বটে
কিন্তু সে বাবুঘরের সন্তান,
তার কি চালচুলোহীন থাকা সাজে! সে বিদায় নিল।..
তারপর একদিন, এরকমই একটা ঝড়ঝঞ্ঝার দিনে
সকল জাগতিক মহাজাগতিক অভিব্যক্তির বিনিময়ে
সুর এলো
অদ্ভুত নরম পদার্পণ তার, বুঝতেও দেয়নি সে এসেছে
কিন্তু বর্ষার মেঘ কেটে যাওয়ার আগেভাগেই
সেই একইভাবে চৌকাঠ পেরিয়ে পা টিপে টিপে পালাল।

আজ কতকাল হয়ে গেছে কেউ আসেনি, খোঁজও নেয়নি
কোন পথে কে এসেছিল সব এলোমেলো হয়ে গেছে,
ডাক দেবো কীকরে? খুঁজে পাবো আদৌ?

হঠাৎ একদিন একটা ঠিকানাবিহীন চিঠি পেলাম - লিখেছে
কোথাও যাইনি, মিথ্যে হয়রান হও, তুমি চাইলে ফিরে আসব
শব্দ খত লিখেছে আমায়!
সে তো নিজেই এসেছে আমার দরজায়!
আগল খুলল।
একদিন কথা জানান দিল প্রলাপে, তারও একই দাবি
সুর আর রং তো বেশ মগজ খেলায়,
ওরা এলো তত্ত্বে, কিন্তু ওরাই শেষে থাকলো জীবনবোধে
একে একে সবাই এলো।

এক সমুদ্র অনুভবের গোপন পরাকাষ্ঠায়
আজও অঙ্গাঙ্গি ওদের অস্তিত্ব জানান দেয় -
তালনবর্মীর রাতে,
তিতাসের ভাঙা বালুচরে,
বা যখন আকাশ চুঁইয়ে জ্যোৎস্না গলে পড়ে
রবির বিমূর্তায়নের পৃষ্ঠায়
সুফি বাউলের দোতারায় তখনও এক সুতোর সুর বেজে চলে।

তিলোত্তমা

Deepro Sarkar,
M.Sc. CS I

কয়েক হাজার শীত পেরিয়ে
কলকাকলির শহরতল,
কয়েদ হওয়া বাষ্প মেঘের
কহন শোনে, অনর্গল...

ললাট ছুঁয়ে আগুন সূর্য
লড়তে শেখায়, ত্যক্ত ভয় ।
লখিন্দরের ভেলায় ভেসে
লক্ষ্য আজও মৃত্যুজয়....

কাজল পরায় মেঘের সারি ।
কাশের বনে, শেষ রাতে
কাজ ফুরোলে উপুড় বালিশ
কান্না যাদের বাংলাতে,

তারাই চষে মানবজমিন,
তারাই বোনে খোয়াবনামা,
তাই এখনও দিব্যি হাসে
তারার মতো, তিলোত্তমা ।

ছুরি

*Sourav Das,
Postdoc.*

শান দিয়ে রাখি দুই বেলা
হরেক রকম ছুরি,
কখন কোথায় কাজে লেগে যায়
বড়োই দরকারি।

কোনটা যাবে আল্টো ছুঁয়ে
কোনটা কেটে মাংস,
কোনটা সোজা হাড়ের ভিতর
তীক্ষ্ণ দুর্ধর্ষ।

শুধু তাই নয়
জেনে রাখা চাই
কার চামড়া কত শক্ত,
কোন গভীরে প্রাণ ভোমরা
কোন ধমনীতে বেশি রক্ত।

দারুন মজা রক্ত খেলায়
তাই দেয়া নেয়া করি দ্বন্দ্ব,
মালাকারেদের গলায় মালা
বাজারে দোকান বন্ধ।



Spheres Of VIBRANCY

*"Photography takes an instant out of time,
altering life by holding it still."*

*Dorothea Lange,
U.S. Depression-era photojournalist*



Spotted Owlet

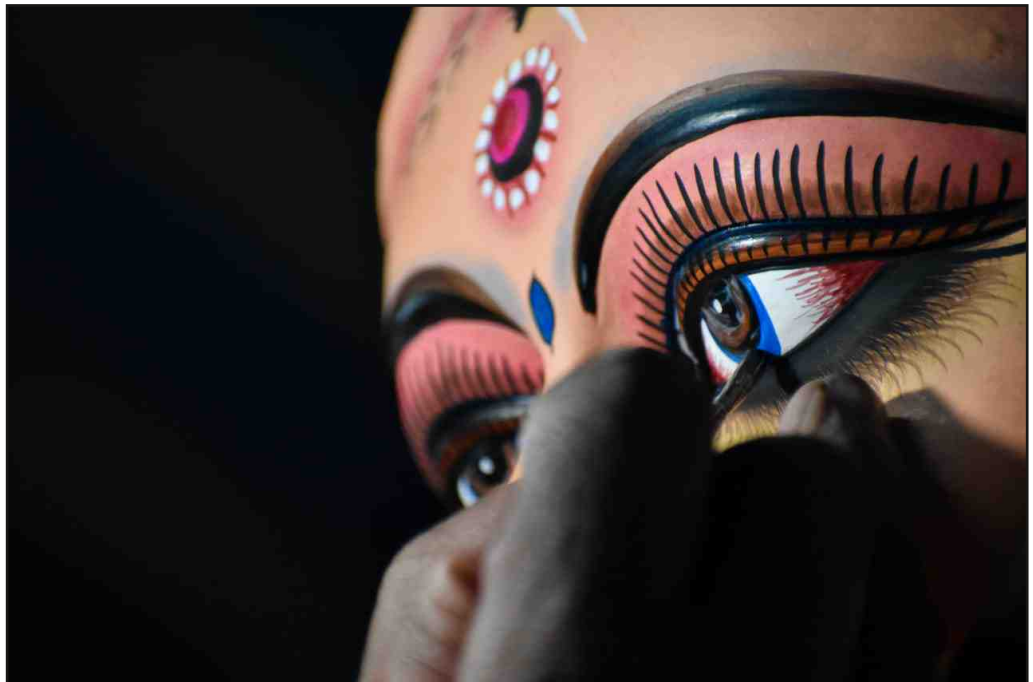


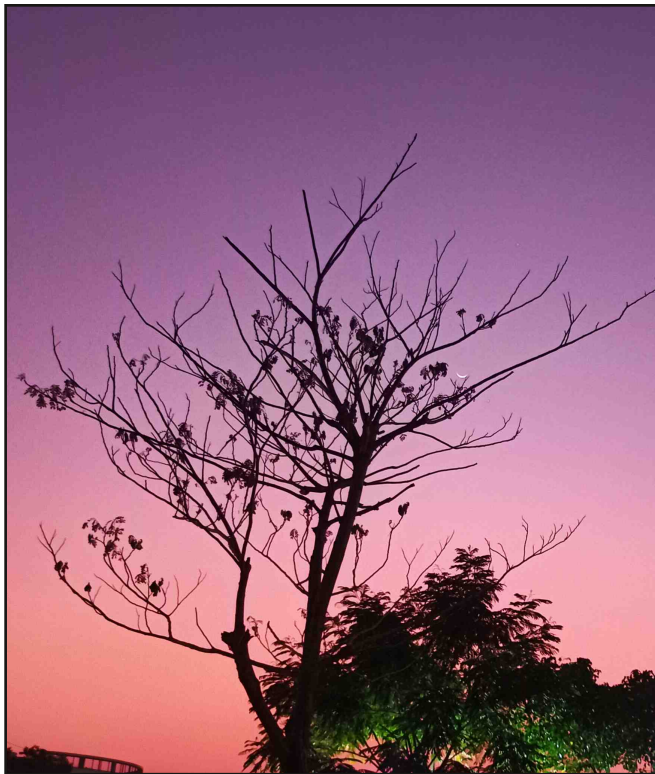
*Blue-tailed
Bee-eater*

Amitabh Virmani, Fac. Phys.



Satyaki Mullick, M.Sc. DS I





Saptarshi Sahoo,
M.Sc. CS II

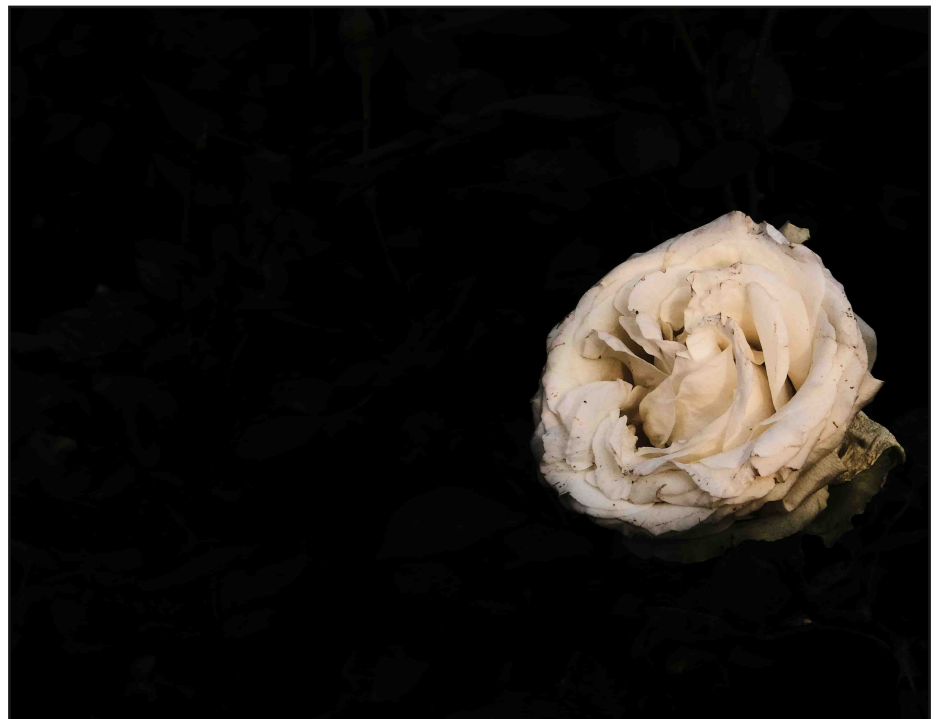


Abhinandan Saha, B.Sc. I





Abhinandan Saha, B.Sc. I

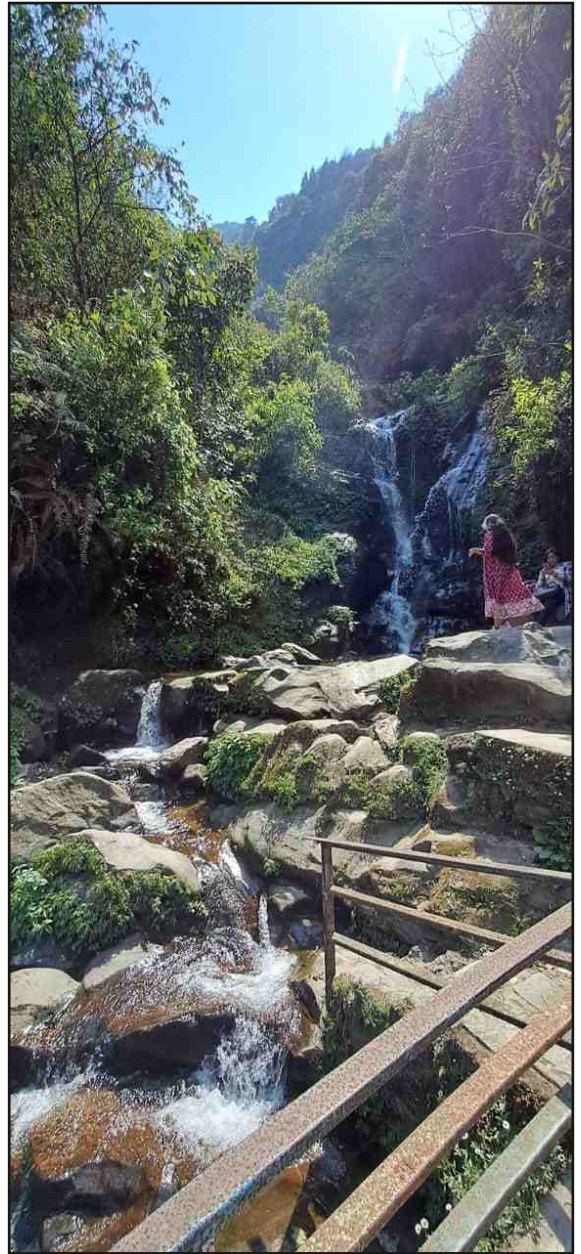




Saptarshi Sadhukhan, B.Sc. III

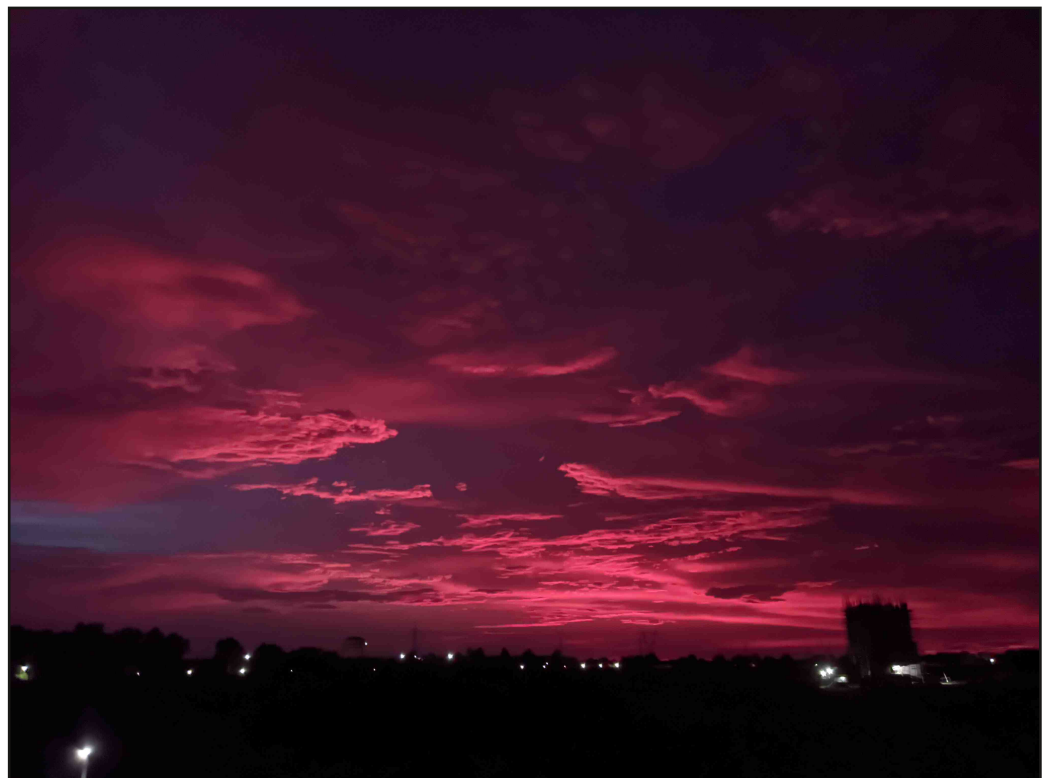


Deeptaru Das,
B.Sc. I





Soham Chatterjee,
B.Sc. III



Naveensurya V, B.Sc. III





Prateek Karandikar,
Alum.



Adhvik Jagannathan, B.Sc. III



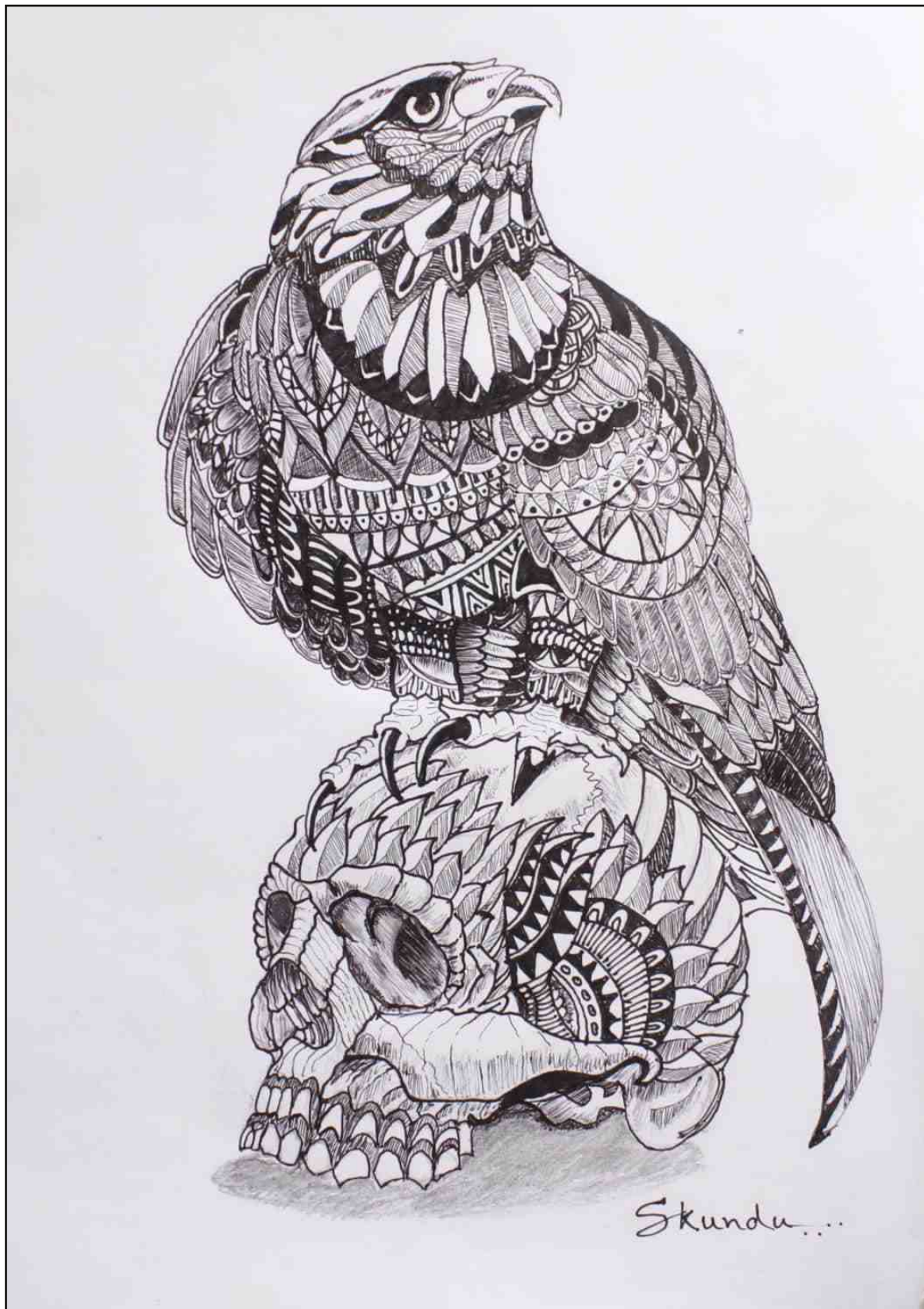
*Spot-billed
Pelican*



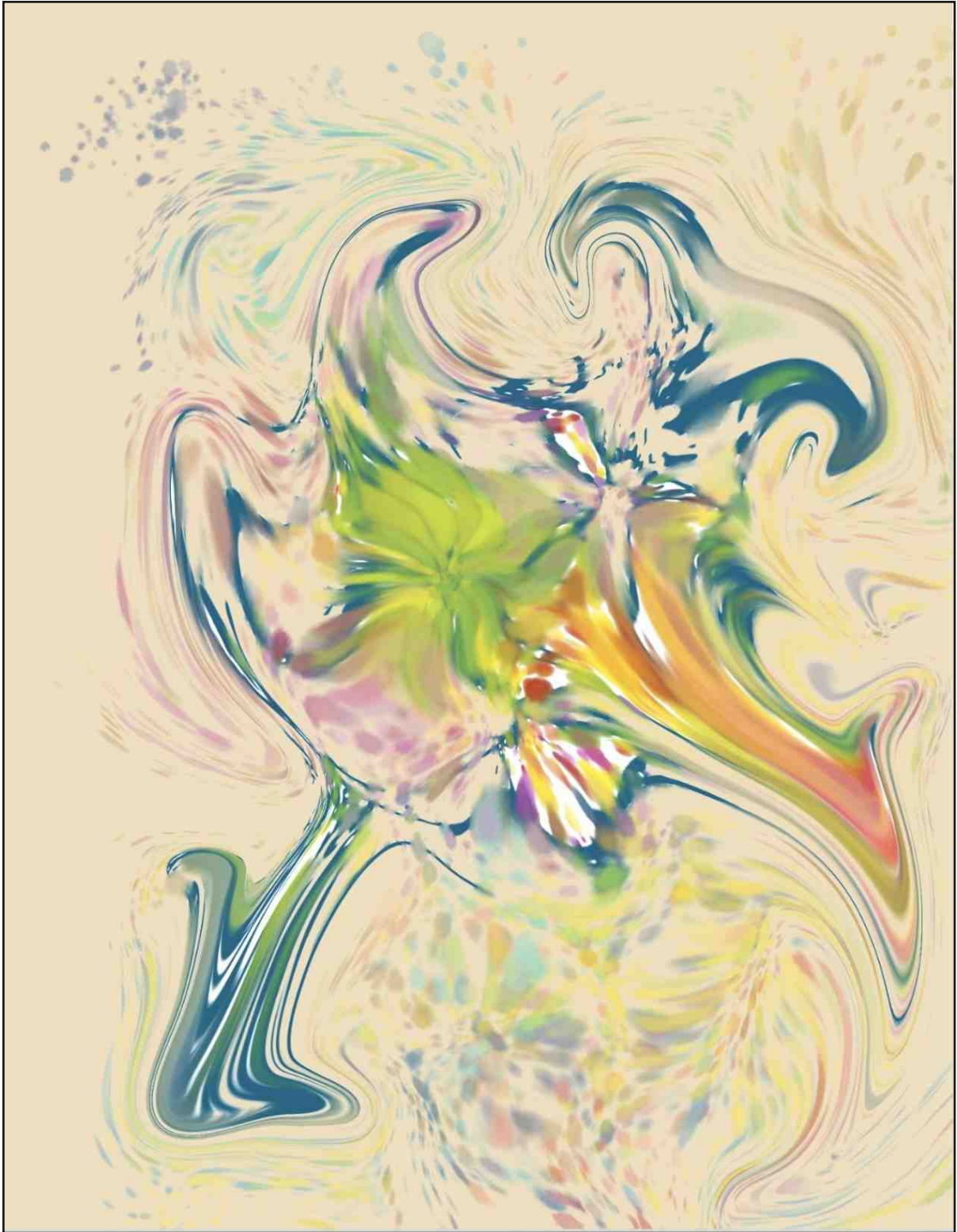
Spheres Of VIVIDITY

"Do you know why we have the sunflowers? It's not because Vincent van Gogh suffered. It's because Vincent van Gogh had a brother who loved him."

*Hannah Gadsby,
c contemporary Australian comedian*



Soumyajoy Kundu, M.Sc. DS I



Suhita Hazra, Ph.D. M



Suhita Hazra, Ph.D. M



Aisha Negi, Ph.D. M



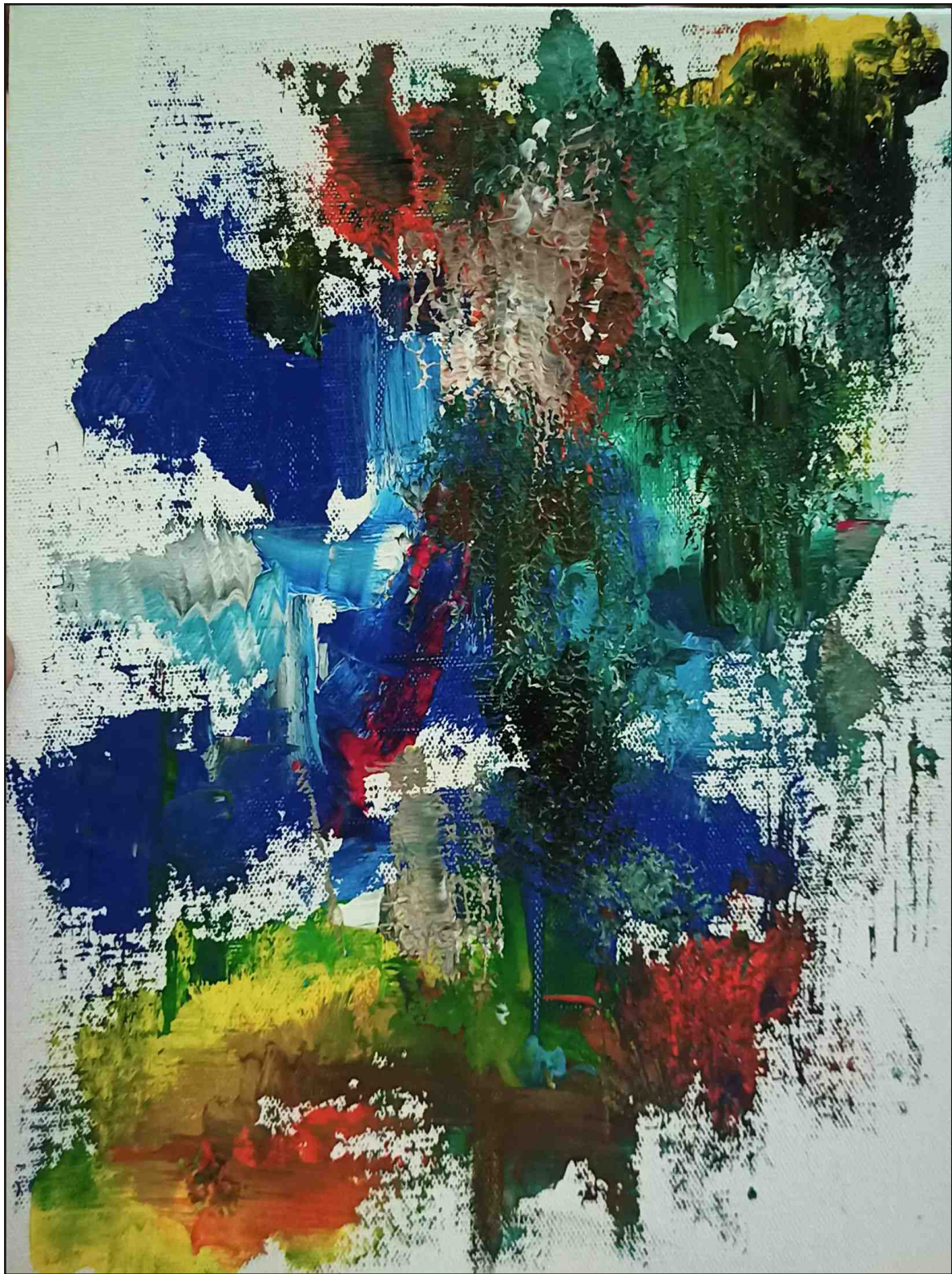
Anwasha Paul, M.Sc. DS II



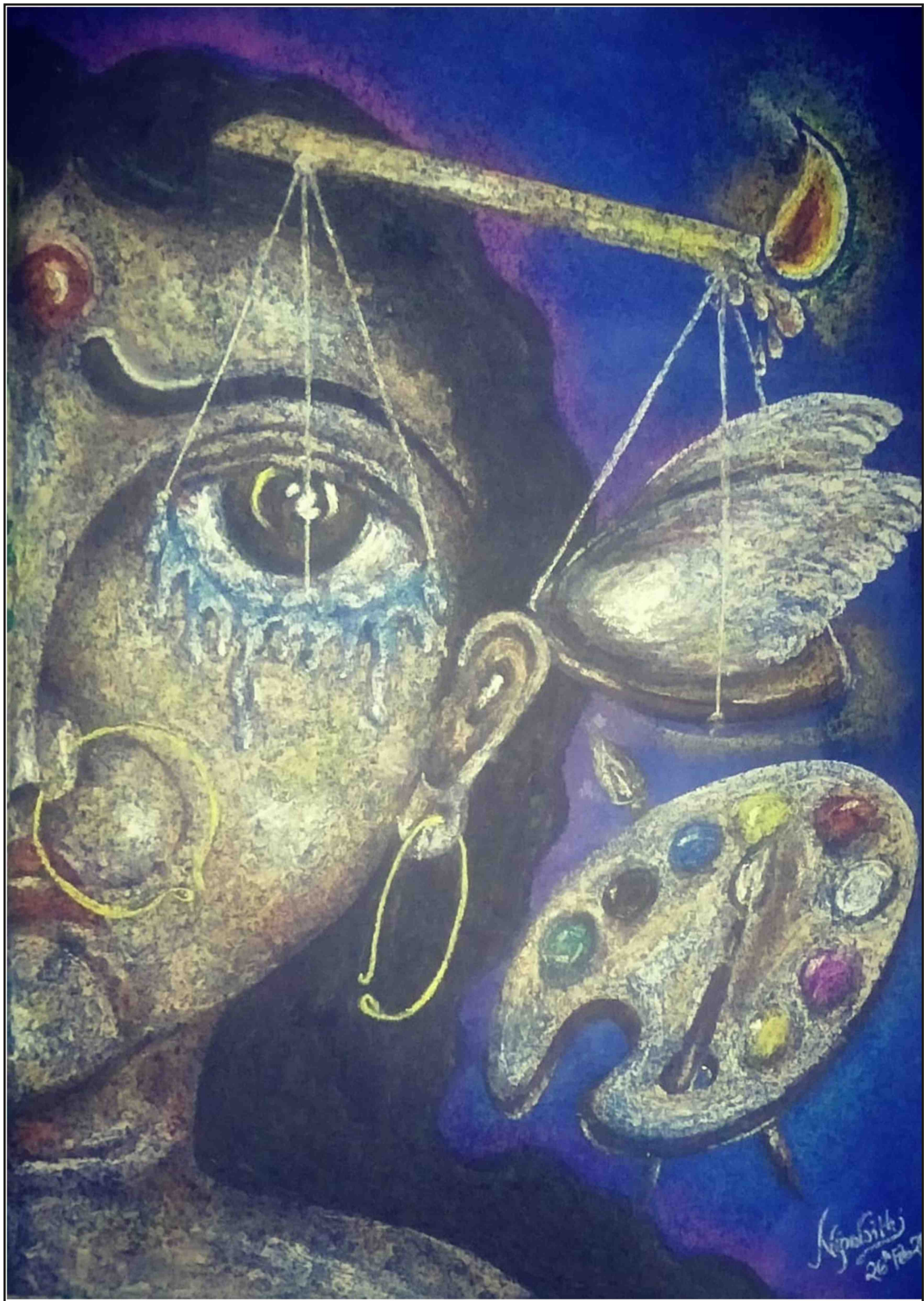
Srijan Chakraborty, B.Sc. III



Sulagna Barat, M.Sc. DS II



Sulagna Barat, M.Sc. DS II



Sulagna Barat, M.Sc. DS II



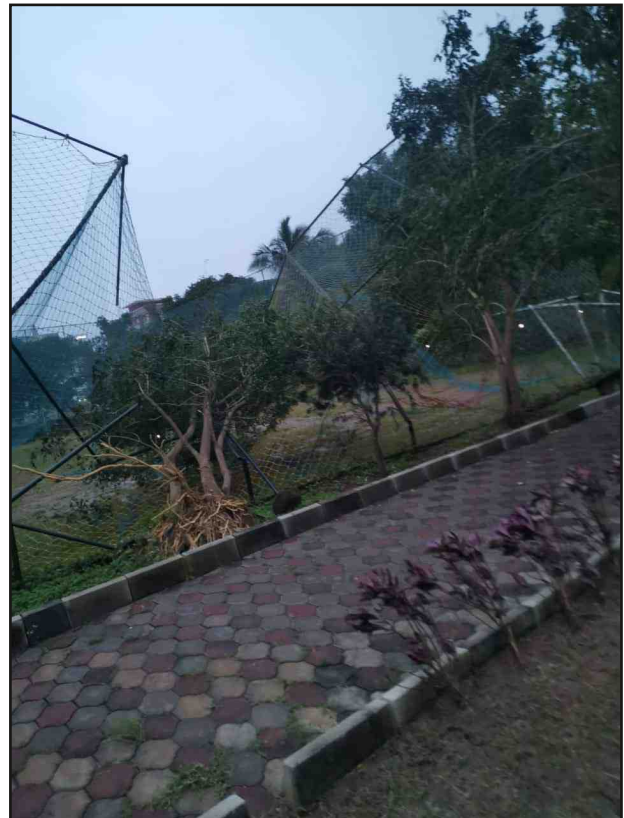
Spheres Of HARMONY

"Thus then a single harmony orders the composition of the whole...by the mingling of the most contrary principles."

*Aristotle,
ancient Greek philosopher*

A RESCUE OPERATION

Every year around November/December this structure used to fall victim to the high cyclonic winds that batter the eastern coast. The metal poles will bend/fall bringing down the nets with it. In the following months the whole contraption used to be rebuilt. On 23 November, 2020 cyclone Nivar did the honours once again, the metal poles came down along with the nylon nets. Needless to mention it also uprooted several trees.



*Rajeshwari Nair,
Registrar*

Back then, up to late 2020, the perimeter of the football ground was enclosed with nylon nets instead of the metal chain link mesh that you see now.

To fix the issue permanently (not the cyclone, the netting!) the idea of the chain link mesh netting came about.

While the nylon nets were piled up on the ground at several places, the workers found a rat snake trapped inside one such nylon net pile. The snake while struggling to get out got even more tangled in the net. The thin nylon threads had tightened around it at several places digging into its flesh hurting it. It was in great distress.




The workers decided to leave it to its destiny, but our System Administrator, Mr. Sankaranarayanan noticed the commotion and reported the matter to me. With the help of Mr. Sankaranarayanan and gardeners (Mr. Nagappan, Mr. Babu) we carried out a rescue operation with several onlookers. One person held its head down gently, few others held down its body at several places so that it does not struggle and get entangled even more while I cut the nylon threads one by one ensuring that the scissors do not hurt the snake.

It took us about one and a half hours to cut all the nylon ropes and set it free. While escaping from the human beings it rushed towards another pile of nylon rope but was diverted quickly.

We all do hope that the rat snake is alive and kicking somewhere.

SOMETIMES...

*Aniruddha Bhattacharjee,
M.Sc. M II*

 think of you sometimes. You. Us. An archaic idea, one that holds no bearing for me now. Except that, sometimes, it feels like it does.

I finally returned to the familiarity of the mic-and-stage, but in a new avatar — one that I had no business donning. All for a giggle here, a wiggle there. Madhuri could wait, it was my night to rule. And rule I did. Oh, what a triumph, glowing in the limelight!

But I did see Madhuri up there. A vignette of her, fading into the canvas — the canvas that was once painted in my colours; a silhouette that was once mine to fill in, now fading into the defeated umbra...

Tonight was a sometime. Maybe because it brought back that purity of accomplishment, which I used to attach to you. Maybe because I longed to witness Madhuri's pristine glory with my own eyes; but the invite never arrived, the tryst too tense to transpire.

Maybe it was you I saw, up there. Not you, but you. Not Madhuri, but Madhuri. My you, my Madhuri — an image as dated as the bark of the tree I lean against, yet as fresh as this dew-bathed grass I waddle on.

I stayed up till the break of dawn. The moon tonight resembles a clipped toenail, out of place amongst the twinkling stars. In a while, their big brother will rise, outshining the toenail into obscurity.

Maybe I am the clipped toenail. Wings clipped, ill at ease in this pasture, unbecfitting of this pedestal I find myself perched on.

Unlike that heron that just landed by the pond. Drives the point home with stinging beaut. Oh Dame Nature, thou art a heartless bitch.

ACADEMIC PUBLISHING?

Shobhit Singh,
M.Sc. CS I



While scientists are often depicted in Hollywood as lone geniuses working in isolated labs, concocting groundbreaking discoveries in solitude, the reality is much different. Science is an inherently collaborative process with breakthroughs often resulting from

shared knowledge. Yet academic journals can legally put research funded by tax-payer money behind paywalls and expect the often underpaid - underfunded academicians and institutions exorbitant amounts of money to access it.

For a field as niche as this, readers might be surprised that the profit margins of these publishing houses rival that of tech giants. In the past decade, Elsevier's scientific publishing arm has reported profit margins approaching 40% which is higher than Apple, Google, Amazon, Coca-Cola or Netflix. Despite all this, usually a total of \$0 is given to the author of the research. The prices only have increased despite the cost involved in going down with the internet boom.

On Elsevier, accessing just the introduction of a book or a single paper for 24 hours costs \$31.50, purchasing one article from a mathematics journal from 1982 costs me \$55.20, buying a subscription to a full journal in India can cost anywhere from \$5000 to \$40,000[2] and accessing the whole Elsevier library can cost up to \$9M per year with the clear being the California state university which pays ~\$11M for the access. Scholars, academics, and institutions are forced to pay this staggering price if they want to keep up with a field of research.

With skyrocketing prices, even big affluent universities like Harvard can't afford to foot the million dollar bill put on their library every year by these large publishers. The only solution is to not subscribe to a bunch of journals which creates a huge access gap for the patrons of the library and hinders research. These access gaps are worse in developing or poor nations. In 2008, Harvard subscribed to 98,900 serials and Yale to 73,900. The best-funded research library in India, at the Indian Institute of Science, subscribed to 10,600.* Several sub-Saharan African university libraries subscribed to zero, offering their patrons access to no conventional journals except those donated by publishers.

This has led Indian scholars and academicians to turn to supposed illegal means like Sci-Hub. It is found that Indian researchers have made more than 13 million downloads during the year 2017, averaging to a daily download of about 39,952 research papers. Publishing houses Elsevier, Wiley and American Chemical Society filed a lawsuit against Sci-Hub and Libgen in countries around the world including India. If a large number of researchers become unable to access scientific literature, it is bound to impact their research and productivity.

Some argue that publishing houses have to pay for editors, peer reviewers and maintain the logistics of distribution. However, the peer review process is largely volunteer based and with the advent of the internet, companies can duck all distribution costs as all they have to do is upload it onto the internet. With no printing cost, and distribution infinitesimally cheap, one would think that the cost of these papers and journals would have dropped down after the internet boom but with an effective monopoly over the market lobbying, they have managed to keep the prices up, even increasing exponentially. A quick look at numbers shows that the subscription prices have risen by about 145% in the last 6 years.

The recent Covid crises exposed a lot of flaws of the capitalist system. One of those was the academic publishing system. All the Covid research which helped researchers understand the spread of virus and counter it was blocked behind paywall. This caused a huge uproar among the community which forced publishers to make Covid research freely accessible and enabled researchers to find treatment and vaccine solutions in record time. This serves as sufficient evidence that open access to scientific research enables rapid innovation.

There is no reason why any other field of research should be treated any differently. Whether it be cancer research, climate research, public health crises or complexity theory. Cancer takes almost 10 million lives annually and even though American taxpayers pay \$5 billion every year to fund cancer research, it is still kept behind paywall by greedy publishing houses.

To conclude, publishing houses which were originally started with the intention of making academia accessible to scholars and researchers have become the real villains of the industry by keeping the publicly funded research from the people who funded it. We're past the time of damage control and into the era, we are seeing consequences with the inaccessibility of related papers, this pandemic being the latest case. Scholars create knowledge by sacrificing their time, money, and labor and there is no reason to give its access to multi-billion dollar corporations. The current system is inefficient as it has zero interest in taking advantage of our collective intelligence. To realize the true essence of science, it's essential for universities, and core to their mission, to assert greater control over systems for knowledge representation, dissemination, and preservation instead of selling it to the market.


EVOLUTION OF CATRINAS IN MEXICO

177. It became one of the most beautiful drawings of Mexican art: an elegant bust of a female skull wearing a hat adorned with flowers.



It was published in October 1913 after Posada died in January of the same year. He could not have guessed how his "No. 117" would become a cultural symbol of Mexico that would be recognized around the world. Posada's images have been published and republished again and again with different titles years after his death.

*Tapen Sinha,
Vis. Fac.*

he history of "Catrinas" started with the caricaturist José Guadalupe Posada. He never named his creations. This one from 1913 was simply called No.

No. 117 has spawned a cultural revolution in Mexico. Diego Rivera put that No. 117 as the central character in his famous mural about the Alameda Park. Today, around the time of the Day of the Dead, millions of Mexican women paint their faces like No. 117. Today, it is trendy to paint just half of the face.

On October 22, 2023 I was riding the Metrobus in Mexico City. A girl sitting next to me had her face adorned with the Catrina motif. I asked her if I could take a picture of her. She cheerfully agreed.


So, here is how Posada's original creation has evolved from 1913 to 2023.

It is a tragedy that Posada died penniless. He was buried in a pauper's grave.



DEATH BY BUCKET

Gautham
Viswanathan,
B.Sc. III

 *n memory of Constans II,
Byzantine Emperor,
assassinated in his bath with
a bucket.*

“You want me to assassinate the
Earl of Shadworth Castle — with a
bucket.”

“Yes.”

“When over the past year, we’ve
learnt everything there is to know
about knives, poisons, nerve gases,
martial arts, sniper rifles — you
want me to use a bucket.”

“That’s right!”

“Sir, pardon, but would you mind
explaining to me again, slowly, why
I’m doing this?”

“One of the most ephemeral
skills that an assassin needs is
creativity. Sure, we’ve taught you all
the standard techniques; but
where’s the fun in that? Where’s the
expression, the freedom, the art, the
joy?”

“The fun comes in the thrill of the
hunt, the joy in seeing one’s mark’s
bloody entrails scattered across
their exquisite marble floors; there’s
enough material for art after that-”

“Come now, Walt. No need for
such morbid humor.”

“Sorry, sir.”

“Besides the opportunity for
creative expression, expansive
though our curriculum is, we have
only had a year with you, and you’re
bound to encounter situations
sooner or later in which none of the
tools that you’ve mastered will be of
any use.”

"Yes sir, but a bucket of all things—"

"If we don't set hard homework, how will we know your true potential? If we don't push you, how do we test your balance? No more arguments — I want you to create and I want you to create well. You have seven days."

"You could just have us stand on one leg."

"The Earl of Shadworth is a creature of exacting habit. He also happens to believe that the only way to enter a room on the seventh floor of a house is through the house itself."

"As any sane man would."

"Ah, but like many sane but ultimately thickheaded men, he often forgets about the windows."

"So that's why you've brought the rope and harnesses?"

"Did you think we were heading out for a soiree?"

"And I thought we weren't allowed to work with each other for this assignment!"

"Yes, yes, but the Headmaster

said to be creative, so I'm sure he won't mind me interpreting his rules to my liking."

"Walt, I don't quite think that's what he meant."

"Besides, I need a spotter. I need to climb this wall, and I am not doing it without your help. I want to graduate, not die, and being expelled is most certainly not worse than being killed."

"Fine, but if I die, I'm haunting you for the rest of your life — or afterlife."

"Just for that, you can go first."

"What do you mean no poison?"

"Lad, I think those words are fairly self explanatory."

"But I used the bucket and everything! I snuck into the Earl's home, climbed seven marbled stories, which are a lot taller and slipperier than they look, and killed him fair and square! And without entrails!"

"Yes, but it's the poison that truly did the work, no? Besides, propping a bucket of goop above a slightly ajar door is such a cliché, and juvenile to boot."

"But it worked, right? I recorded the Earl's movements, saw that he always let his guard down when entering his bathroom, and executed on my plan perfectly. This was a flawless assassination in every way!"

"Except in that it wasn't good enough to satisfy me. You're going to have to try again. And try to come up with something original this time. Aesthetics, Walt. That's what separates memorable assassins from the merely mediocre."

"Yes sir."

"Good man. Now, the Earl will be up and functioning tomorrow-"

"Yes sir, I know, the Earl isn't really human and is just a really enchanted training dummy, I have learnt everything you taught us this year. Learnt it well, in fact."

"Good. Now run along!"

"Why do you have a bucket on the seat next to you?"

"Long story. I don't want to talk about it."

"Walt, you do realize we're in a five star restaurant in the courtyard of one of the largest castles in

Wensley, right? On what you promised would be a 'posh, fancy, chic' date?"

"Don't remind me."

"Of what, that we're on a date?"

"Let's just order, shall we? Waiter!"

"It's disturbingly red. You're getting rust all over the upholstery."

"It's red velvet anyways, nobody will notice."

"At least not until they get infected and start spasming over their dinners. Awfully distressing, that'd be."

"Lindsey, that's not how tetanus — can we just stop talking about the blasted bucket?"

"Fine, but why is it here? And does it have to be so unsanitary?"

"Stupid college final assignment."

"Walt, you're here for work? I thought this would be some me and you time! You've been so busy the past year, all you've been thinking about is knife this, bloodstain that, poison this, rifle that. We've barely spoken for the last two weeks!"

"I'm as upset about it as you are, but it is what it is. This version of the Earl has much better security at home, so I had to track his movements outside, try to catch his guards in an inattentive moment. And I need a strong alibi and cover, so if you wouldn't mind...?"

"Stop smiling like that, you know at this point I'm only with you because of your dashing good looks."

"And the brains have nothing to do with it."

"Quite frankly, no. There's a bucket sitting next to you on our date, if that needs to be repeated."

"Yes, well, cover for me, and I promise that I'll kick the Headmaster in the-

"Walt!"

"I mean, I'll respectfully hand in my assignment to the Headmaster, and then we can spend the rest of that week dreamily in love, or whatever it is that young couples do."

"I guess that'll do for me. Yes, waiter, I'd like one order of today's special."

"And I'll have-

"He'll have the mutton curry. With extra spice. You know, red meat, with all those red spices, to match the red sofas, and that delightful rusty bucket by his side."

"Lindsey!"

"Fine, fine. Get him some extra water too. He's going to need it."

"No bludgeoning?"

"That is the most brutish, unoriginal, crude, and disturbing way to murder somebody that I've seen yet."

"Unoriginal? Did you see the poem that I wrote with the Earl's blood? How is that unoriginal?"

"Walt, what have I said about the morbid humor? And besides, that has nothing to do with the bucket. I asked you for creativity, for aesthetics, and you give me the brutest of brute force in return."

"Sir, but it worked, didn't it? Planning, execution, raw skill, training, that's what we need, isn't it? Why reinvent the wheel, why reach outside the box when there's plenty of space inside the box to work with?"

"It may have worked, but that was not the assignment. You needed to assassinate the Earl, and you needed to do it creatively. You just bludgeoned him to death."

"Yes, but not with a bludgeon, right? Buckets weren't intended for bludgeoning, so that's creativity, right?"

"Walt, I'm giving you one more chance. If you want to graduate, complete your assignment well, to my satisfaction."

"Fine, sir."

"And do pick up another bucket on your way out. I imagine that your previous one isn't in workable condition."

"That'll be five hundred silver chips, sir."

"Thank you my good man. And here's another two hundred for speed — and discretion."

"My Lord's too kind. Mum's the word on this one. Say, why do you want this job done, anyway? Bit of a strange request, to forge an old bucket into shivs."

"Long story. Long, annoying story."

"Ah, are you also in that school of assassineering, or whatever it's called?"

"I believe the proper term is assassinry. And yes, how did you know?"

"My daughter went there a year ago, and she kept screaming about some bucket near the end of it. Thought she'd gone barmy, but now I see it's just school."

"No, sir, trust me, we're all barmy at the end of it."

"So sir, pardon, but is this some metalworking project that you're cheating on? Turn the oldest thing at your house into weapons? My daughter did a lot of metalwork at that school, she did. Made a lot of knives, shuriken, even a crossbow. Didn't cheat once, though, not even with her father being the best blacksmith in town!"

"Sir, I would never cheat! Lie, steal, murder, and backstab, yes, but never cheat!"

"Well, what is this, if not metalwork?"

"Some stupid idea that the Headmaster has about us being creative with a bucket."

"And your creative use for a bucket is to turn it into knives."

"Exactly."

"The same kind of knives that you and your mates have spent the entire year with, which your Headmaster must be getting mighty bored of by now."

"Just get in your forge and smelt, sir."

"Walt, I am astounded."

"You are? I mean, of course you are, what other student has handed in three perfect final assignments in one year?"

"I am simply amazed — at your insistence on producing derivative, lifeless, and unoriginal work."

"Lifeless? You want my mark to be alive after I'm done killing them?"

"Walt, stabbing someone to death is not creative. Thousands of assassins around the world do it every day."

"Yes, but I bet that no other student has thought of using the bucket like this before, right? How many other budding assassins submitted bucket-shivs for their final project?"

"I wonder why nobody has thought of this yet, considering that your 'bucket-shivs' constitute the worst submission that I have had the misfortune to evaluate in all my years at this academy."

"But sir! I used the bucket and everything! The bucket is literally inside the Earl right now!"

"Walt, nothing you say can convince me that any of your submissions were artistic and exemplified the creativity of an assassin that has mastered his art."

"Sir—"

"You are an expert at being thrown out of the box — and jumping right back in. And for that — just take the damn degree."

"What?"

"Take the degree and go. Scram. Vamoose. Get out of my sight. I don't want to see you nor your tenaciously formulaic hide in this castle again."

"Thank you sir! To show you my gratitude, my first murder will be with a leftover bucket shiv — you know, a simple, standard backstabbing, like we learnt about in week two, unoriginal, typical—"

"Out!"

REPORT ON BOOK DISCUSSION

Vighnesh Sangle,
B.Sc. I



discussion on Shobana Ravi's historical fiction 'Amaru' was held on 7th September 2023. The highlight was that the author, Shobhana Ravi herself was present for the discussion.

The discussion began with Prof. Usha Mahadevan introducing the author and highlighting some salient features of historical fiction as the novel Amaru belonged to that genre.

Next the author shared her experiences about how she went about her research especially in connection with Adi Sankara's biography before attempting this genre. This was followed by questions from the participants. Several interesting questions were asked, both by students and the faculty members present. The questions were on various aspects like the author's inspiration, the sources used while depicting facts (as the novel was set on the Kashmir of 8th century), whether she was anxious about offending anyone given the nature of the genre and many more.




The author took the questions patiently and gave insightful answers after which Prof. S. P. Suresh recited and explained a verse from the 'Amaru Shatakum'. The book discussion ended with a vote of thanks given by Sanjit Dev, a BSc student.

THE STUDENT SEMINAR SERIES:

Expanding Horizons
and Sharing
Knowledge

*Ram Madhav, Sankalp,
Swaminathan, Adhvik,
Anand; B.Sc. III*

his semester, we kicked off something pretty awesome – the Student Seminar Series. It stands to spread the joy of mathematical ideas and help

students explore the mathematical world beyond the classroom. We've had a fantastic semester with some seriously interesting talks that covered a wide range of topics in math, physics, and computer science.



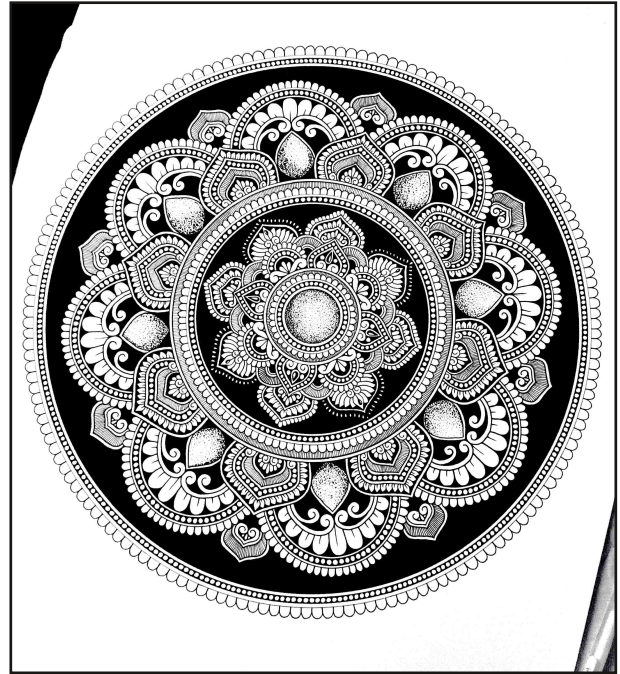
This series wasn't just about speakers giving lectures. It was a two-way street. The speakers got to share their expertise, and the attendees got to soak up knowledge and engage in some thought-provoking discussions. It was a win for everyone involved.

But it wasn't just about learning; it was also about building a sense of community. We all came together to discuss our shared interests and passions. It wasn't just about sitting through seminars; it was about connecting with like-minded folks, challenging each other's ideas, and fueling our enthusiasm for learning.


Looking forward, we're pretty excited about the future of the Student Seminar Series. We want to keep spreading mathematical ideas, dive into even more topics, and get more students involved. The strong start we've had this semester has set the stage for something special, and we hope to see this initiative continue with the same level of enthusiasm and engagement.

In a nutshell, the Student Seminar Series has been an enriching experience that expanded our horizons and brought our academic community closer together. We hope it keeps growing, providing a platform for students to share their love for math, physics, and computer science and making intellectual exchange and community building a part of our academic culture.

FRACTAL BEAUTY



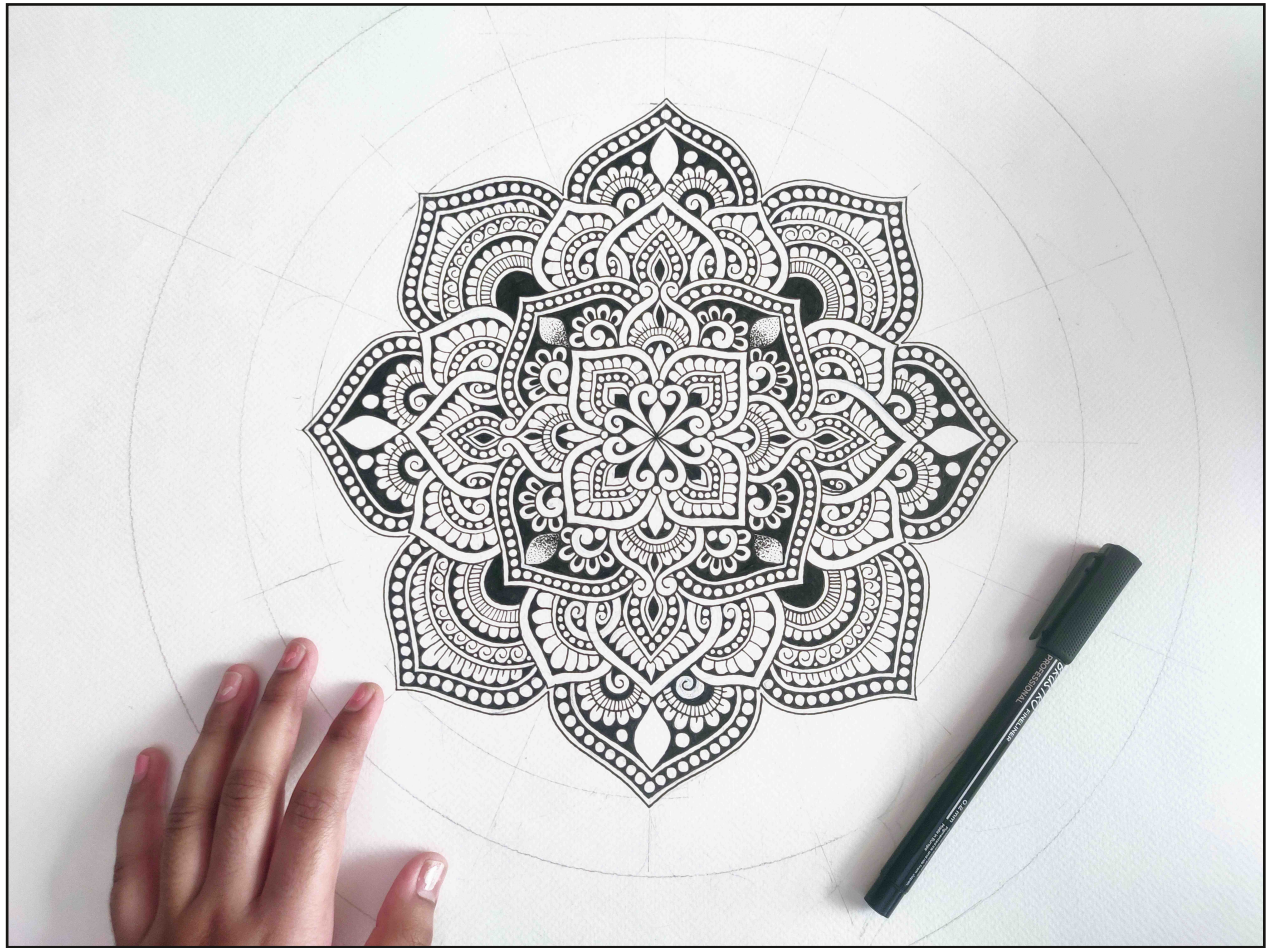
Shruti Patil, B.Sc. IV

 In the intricate world of mandala art, originating from various cultures and traditions around the world, where circular designs radiate from a central point creating a visual symphony, I feel there is a subtle yet profound connection to the realm of mathematics.

Fractal geometry is a fascinating mathematical concept, which provides an relation between math and creative expression. Fractals are self-replicating, never ending patterns, regardless of the scale at which they're viewed. Similar to how fractals showcase the beauty of self-similarity, mandalas are composed of repeating elements that form intricate patterns. Of course fractals exhibit scaling over infinitely many levels, and mandala patterns are repeated for very few levels.

Mandalas are much simpler than fractals but I see them as macroscopic manifestations of the microscopic world of fractals, where each layer unfolds into a new level of complexity. The symmetrical arrangement of elements induces a sense of equilibrium and proportion.

It's as if I had stumbled upon a shared language, reminding me that logic and imagination are indeed intertwined.




AN INTERVIEW WITH H. S. MANI

and Master's at Delhi University, following which, he completed his PhD at Columbia in 1964. He returned to India in 1969, joining IIT Kanpur and working there for over 20 years. Following which, he joined HRI in 1991. He has made valuable contributions to high-energy physics, specifically in weak and strong interactions. He was appointed a fellow of IAS, Bangalore and NAS, Allahabad, in 1984. And he was awarded the DAE CV Raman lectureship by the Indian Physics Association in 1998.



*Aditya, B.Sc. II;
Adhvik, B.Sc. III;
Atharva, M.Sc. M II*

When did you discover your interest in physics? Did you do so at an early age?

rofessor Mani is an eminent physicist and an adjunct faculty, currently working here in Chennai Mathematical Institute. He obtained his Bachelor's

Well, I was interested in both Maths and Physics by the time I finished my school, and it was not clear which branch I should take. Many people advised me, saying that Physics was more interesting than Math. Math is far more abstract, and at that time they were

also concerned about job security - it was difficult to get jobs in Math compared to Physics. I however was enjoying Physics as well, so I did not consider that as a major constraint.

So you decided to join Delhi University for your Bachelors in Physics. Could you describe your undergraduate days there?

I always found that I learned from some extraordinarily good teachers - D. S. Kothari and Ajit Ram Verma, to name just two. Equally importantly, I had very good colleagues. We used to go after the class to a nearby coffee house, have a big adda and learn lots of Physics there by challenging and debating each other. I picked up many basic concepts during these walks. Doing the math after the concepts are clear is not very hard. It was a very enjoyable experience.

After your Bachelor's and Masters at Delhi, you joined Columbia University for your PhD. How was your entire experience there? What kind of research were you interested in?

Well, it turned out that my training in Delhi University was so good that I could get through the qualifying examination without much difficulty, and I was able to get the supervisor I wanted to work with, Prof. Feinberg, since the

number of candidates were limited back then. He was a very friendly person and gave me a lot of interesting ideas, and would leave me alone by and large. For one year he was out of Columbia University, travelling to Japan & India. It didn't matter that I had no guide that time; I had discussions with my colleagues and picked up things.

Interestingly, there were many experimentalists there. One of my experimental Nuclear Physicist friends, Girijesh Mehta, worked there too; I would go and see how these things were done. When I joined, there were four Nobel Laureates in the department of Physics. Many of them were just very, very fond of experiments: they were doing very high-level theory, but they also knew the nitty-gritty of the experiments - they knew physics so well! I mean, we were just drunk with physics. Even when brushing my teeth, all I thought of was the problem at hand. Fantastic experience!

As for research, my thesis was on W-meson scattering and decay. W-meson is a particle which was postulated to explain weak interactions. And, it is hilarious, they were experimentally discovered after about 15 years or 20 years and their mass is about 50 times more than what I assumed at the time. We were so wrong!

But once gauge theories came, everything changed. I did my PhD in '64, but gauge theory gained in prominence '66 onwards. Since I knew my weak interactions thoroughly, I could follow the theories and the various ideas floating about. We constructed some experimental verification for various models. Once you have a theory, how do you verify it? What is the simplest way of performing an experiment? That's one of the things I did there.

You came to work at IIT Kanpur in 1969, and stayed there for 20 years. Many of your students are now distinguished mathematicians and physicists.

That's a huge group! I do not like to call them my students. They are students who attended some of the lectures I gave in a course. Whatever they have achieved is by their own efforts, and I want to say that I really enjoyed teaching them. If I can name some, Ashoke Sen was there, and Deepak Dhar too, in one of the first batches I taught. In fact, the very first batch, I taught them mathematical physics. I remember a few things about them. I was trying to solve a problem I had assigned on the blackboard. Deepak Dhar comes to the board, and solves it in three lines! [Laughter] So, that's how it is. It is a pleasure to interact with such students. You learn a lot yourself.

You joined IIT Kanpur when it was barely established. Could you share with us the general environment with the IIT just coming up?

IIT had just been established, so living conditions were not easy. We had no gas or power, so we would use firewood for cooking. We also needed to boil water for my young daughter to drink. Oh, the coal-sometimes we would get coal, and as you know, it produces smoke. We went through all that, but still, I could happily endure that time.

How different was your academic experience at IIT Kanpur?

I learnt so many things apart from physics in IIT Kanpur, not because I just interacted with the physics department, but other departments too - mechanical engineering, electrical and chemical engineering, and so on. This was the insight of Kelkar, the first director. He did not want to divide the various departments. He ensured that we, physicists, would interact with people from other departments. Chemical engineers know thermodynamics from hands-on experience. When we know it as theorists, we know it from a book, by working out some problems and such. But for them, they know it by pure experience that the free energy decreases in some reaction.

Similarly, a mechanical engineer friend knew a lot about normal modes. People gave him a problem about an aeroplane (which has tremendous amounts of oscillations going on!) and within about 2 days he gave them a solution, and it was done! Whereas, if I had to do it, I would write it as a 100 x 100 matrix and try to solve it using a computer or something. This is the difference. I learnt a lot from these inter-department discussions. But, again, the engineers always thought the physicists were an arrogant lot.

So, after you left IIT Kanpur, you joined the HRI.

Yes, that was a different kind of job, an administrative job. I had my own ideas of how an academic institute should be, and had a chance to implement it. And what was in my bank account? All the students I have interacted with in 20 years. I could always bank on them to help me in deciding and things like that. If you have time, you should go and visit the place. It overlooks the Ganga River where it meets Yamuna. There are boats which can take you there from the campus.

Did you face any challenges along the way? How did you overcome them?

Well, I had a lot of help from the dept of atomic energy and IIT Kanpur, without which it would have been impossible. We were the first to establish emailing in Allahabad. Before, all you could do was make a telephone call for a very high price. So, one of the persons who worked as a systems manager would come at night, at say, 11 o'clock, when the charges were low and you told him: these are the things I must send. No concept of privacy then! He would send them to the appropriate people, and the next morning you would know that the email had been sent.

The faculty, I must say, were good people. Ashoke Sen had joined then, after 3-4 years, and Sumathi Rao too. They were all very, very good people - extremely talented and dedicated. I had an opportunity to watch them at close quarters, which was great fun. Of course, there were always some administrative issues. You would have to go to the DAE and beg them for grants of money. All these things are there but you must take it in your stride.

We see that modern physics is increasingly using abstract mathematics and conversely, maths comes down to physics, a lot of maths is motivated by physics. How has this interplay affected your work throughout your career?

Let me see. I learnt a lot of mathematics from friends who were good at it. Some of them were on the borderline of physics and mathematics. For example, all of linear vector space theory. I had learnt it of course the bookish way, but they would give me guided ways through that. Oh, and group theory too. CMI students learn it in an abstract way, but I had to learn how to use it. Mukunda and Sunil Mukhi had a lectures series on groups, and on lie groups in various forms.

How has your experience been in CMI?

It is one of the best places. I have been in many places, let me tell you that. I have taught in, well, 8 to 9 places in the country. And CMI is the most relaxed place. But it is very deceptive for students. You are given a lot of free time compared to, let us say, an IITian, but the responsibility is on you to pick up the material. There, there are many more examinations, many more

structured things, and the learning process is kept that way. And here, I think... you have around 10 lectures a week, right? Whereas a person there would be having around 25. He does not get as much time to think about things. But that does not mean it is easy here. When I teach, I expect students to work many steps out. I just make some comments and let the initiative come from them to do things. It is one of the toughest programmes I know in Physics.

Could you share a few interesting anecdotes from IIT Kanpur?

I have an interesting incident. I do not want to take names, as they are all very big people, at least in the academic world. There was one person who I met in the swimming pool - I enjoy physical activity quite a great deal.

He said to me, "Sir, you people here are very rigid."

"Why, what has gone wrong," I asked, for IIT Kanpur was famous for its flexibility.

"I wanted to take a course, but the last date to register was over. I had some reasons as to why I could not register in time. I went to the office, and they told me that I would not be allowed to take it."

He was one of the brightest students at the time. I asked him what course he wanted to take and it was an elective. I went back home and called the DUGC Chairman, Prof. Deshpande.

“Who wants to take the course? We do not have anyone to teach the course,” he said. I offered to teach the course. Mr. Deshpande asked me to speak to the Senate Chairman. I called him and explained the situation. “Who wants to enrol in the course?” he asked. I gave him the name. No sooner had I put the phone down, Kalyan Banerjee called me up. “I have heard about the matter; I also want to teach the course. Can we share?” On the other hand, if the student was doing it for some other reason, he would have thrown the rulebook at him.

You have contributed a lot to the Olympiad scene in India, by lecturing at camps and so on.

Oh yes, I was involved with that. That was at HBCSE. We made a lot of problems there. I interacted with some of the most interesting people I’ve ever met. We would sit around and make a bunch of problems, debate and argue over those. I was also involved in the designing of experiments. That also led to some

interesting things. We were gifted a lot of lab apparatus, which is kept in the physics lab now. We also have a telescope thanks to the astronomy people. It is in CMI now – Prof. Amitabh Virmani takes care of it.

The 50s and the 60s were a time of great excitement in particle physics, which is when you were in the US. Do you have any stories about the time?

Of course, of course, that is true. If you were looking at the right set of problems, yes, it was very exciting. Also, there were many people who moved from basic physics backgrounds to doing problems in other areas and subsequently did path-breaking work. Do you know Dipendra Prasad, the number theorist? He was a physics student at IITK. I recall a funny story about him. I was teaching him a course on field theory. There is something called renormalisation, in which we hide infinities. If the number is at infinity, we say it doesn't matter and throw it away, by "subtracting infinity". He listened to this for some time, and eventually declared "enough of this nonsense", and moved to mathematics! [Laughter] He is a very good friend of mine. He was at HRI for quite a while.

The 50s and 60s were also an era of socio-political turmoil, both in India and the US. Do you have any comment to make on those things?

Oh, I was there. The thing was Vietnam. Oh, and Kennedy being murdered. Moreover, the Indo-China War was going on when I was there. When I talked to people about it, they would just say "there's nothing you can do about it from there. You think you can send money?", which we did for whatever little money we could save. As much as we could. So that is about all, nothing very concrete about that.

So, all this was there, but none of it was very serious. All the students who came to Columbia were not very interested in politics, they were interested in working, so we learnt more physics.

What advice would you give to people who are starting their careers in physics and science?

You should enjoy your subject. And then you should be willing to learn from anybody. I mean, if I must learn how to solve a Rubik's cube faster, I think I should go to an 8th class boy who understands it. I should just not stand on the fact that I am senior or something. So, I think

that is the important thing, enjoy your subject. I have had that by and large, fortunately. Of course, I have disappointments also, in the sense, I could not do that well in research as I would want to do but that's life.



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