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We Smart lasses and shrewd lads are the first ever batch of IISc Undergrads

2012
Volume one Issue one

Quarks

Fundamentally unique Fundamentally different

A Magazine from the Undergrad School of IISc

The story behind the winning of Mimamsa 2012

ENTROPY @ WORK

Expressions

Check out how the pen, pencil and colours express themselves!!

Creating difference

We smart lasses and shrewd lads are the first batch of IISc undergrads

flip it out

25 REASONS TO JOIN UNDERGRADUATE IISc

PLUS ! THE EVENTS OF THE UNDERGRADUATE LIFE @ IISc THROUGH THE TWO SEMESTERS!

Quarks

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Your opinion is valuable to us ...
Suggestions and "free advice" regarding any section of magazine are invited.
You may drop a mail to
quarkseditor@gmail.com

Through my lens

dean's words

Dear Reader,

It gives me great pleasure to present to you "QUARKS", the magazine brought out by the inaugural batch of undergraduate students enrolled in the 4-year BS course of IISc. As you know, the Institute started its first undergraduate programme in science last year. 84 students joined this programme and started classes in August, 2011. The academic performance of these students in the first year has exceeded our expectations. Professors, laboratory instructors, teaching assistants, faculty advisors and others who have interacted with them are all very impressed by the curiosity, intelligence and enthusiasm of these youngsters. These students are also pursuing various co-curricular activities. They have integrated quite well with the larger community of Postgraduate and PhD students and are contributing substantially in the social, cultural and recreational activities in the campus. The youthful exuberance of these students has brought about a noticeable change in the general atmosphere in the campus. Interacting regularly with these bright students during the past year has been a wonderful experience for me.

Several students have worked very hard to prepare this magazine. It contains a large number of literary pieces, such as short stories and poems, in several languages, as well as works of art, such as sketches and paintings. These items provide ample evidence for the creativity of our undergraduate students. The magazine also contains several articles on their life at IISc, including a section on their sporting activities. It also includes articles on their experience in the courses they took in the first year and interviews with professors and teaching assistants who taught them. I am sure that you will enjoy reading this magazine. It will also make you more familiar with the undergraduate programme and the students enrolled in it.

Happy reading!

Chandan DasGupta
Dean, Undergraduate Programme

on my mind
Editor's letter

"Hey you are UG kids right", "Oh what kind of program is yours ?" , "Ah I see IISc has offered a course for kids .." "How is the course and how are you feeling here?" such questions continued to follow us in every nook and corner of the Indian Institute of science, be it the mess, our own department, hostel or gym or faculty club or even Prakurti !! Quite amusingly, instead of interacting with ourselves and getting to know each other, we spent a large portion of our time making our seniors aware about "us". So to improve our existence as "US" and at the same time to become a member of the IISc family, an idea popped up in my head, let's get out a magazine! "An exclusive undergraduate magazine"! That will give a platform for us to showcase our numerous non-academic skills and passions, which will eventually help in knowing each other. Plus since the magazine will cover the lifestyle of students, their interests, achievements and experiences, it will let our seniors, faculties and of course our future juniors to know about us.

"Democratic decisions take a lot of time, but yes they are the best to deal with situations" .This is what I realized as we finalized the title "Quarks", which expresses many thoughts. It is an elementary particle and a fundamental constituent of matter, so are we, the undergrads, learning the elementary concepts of science. Further there are six types of quarks, known as *flavors*: up, down, strange, charm, bottom, and top. So do we learn six different subjects and come from various parts of the country. There are numerous similarities between Quarks and us which I leave on the readers to figure out by their imagination!

I am very sure that all your skills of classifying things or tracing a pattern are going to fail here… We have brought in articles and poems on wide ranging topics, from national awareness (Muk preshak , Aadat si ho gayi hai) to social observations(Naqab ya khwabh, Ezhayin kanavu (a begger's dream , tamil) ,brutus) and personal emotions (Kash ek choti behan hoti ,the chase, the way to be). We have invited writings in all languages as we think language cannot and should not be a barrier to express thoughts .

Since this is the first issue of the magazine, of the first ever Undergraduate course of IISc, we get you three special sections (sports, undergraduate life, and interview) that throw light on undergraduate life at IISc and enclose the thoughts of our professors and TAs. This is a special effort to help our juniors know about the program.

Driving the magazine team on this heretofore untrodden path was a very memorable experience! As the first issue of "Quarks" reaches its readers it gives me a sound reason to thank all my teammates (who otherwise would reject my thanks as we worked more as friends than professionals). A special thanks to our honorable Director Prof. P.Balaram, without whose timely guidance and support none of this would have been possible. I would also like to express my gratitude to the Dean, UG, Prof. Chandan Dasgupta and UG department for their support. And of course a big vote of thanks to Prof A G Menon and ARCHIVES department for helping us out in the most crucial step ! And yes how can I forget to extend a warm thanks to you all - "the readers"!

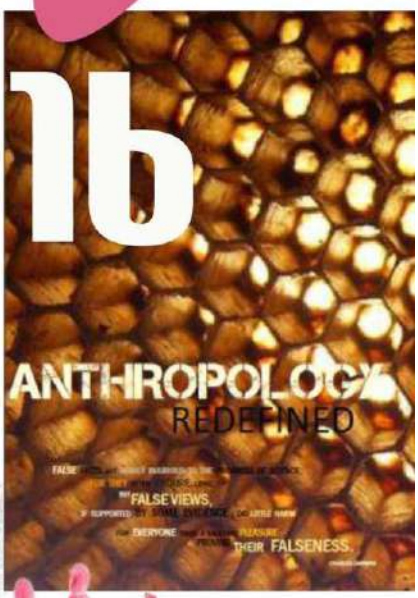
As Albert Einstein rightly said ,"The whole of science is nothing more than a refinement of everyday thinking". Similarly, the whole of magazine is nothing more than refinement of our everyday work, discussion and yes everyday thinking! Our former president Dr Kalam has rightly said, "Without arts and humanities human being will become SHAITAN" in our very own JN Tata auditorium!! So, here in your hands you hold the efforts of the youngest members of the family who are trying to take you a step away from becoming "Shaitan" by taking you close to arts and humanities……

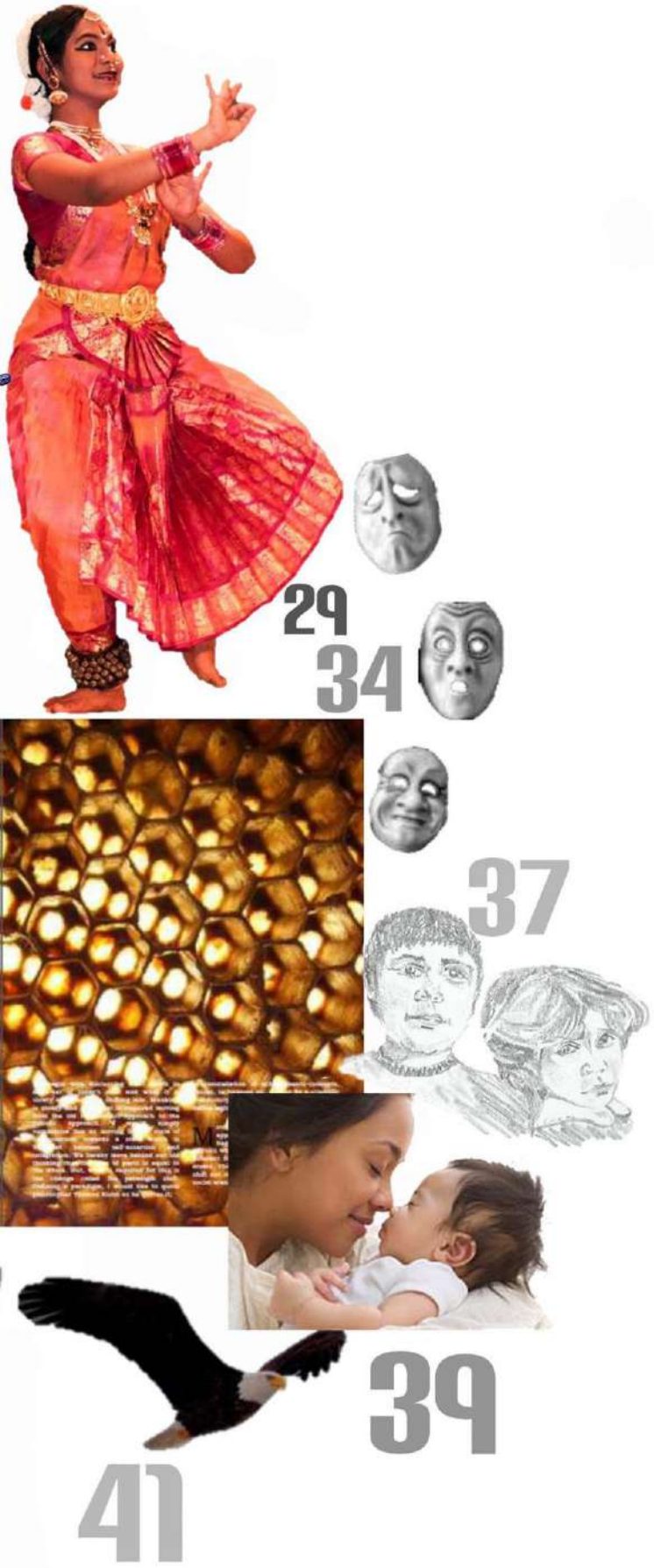
I hope you enjoy reading it and any suggestions and help in preventing people from becoming "Shaitans" are welcome!!!! You can drop in your suggestions any time at : quarkseditor@gmail.com .

Pratibha Mahale

IN THIS ISSUE

EXPRESSIONS





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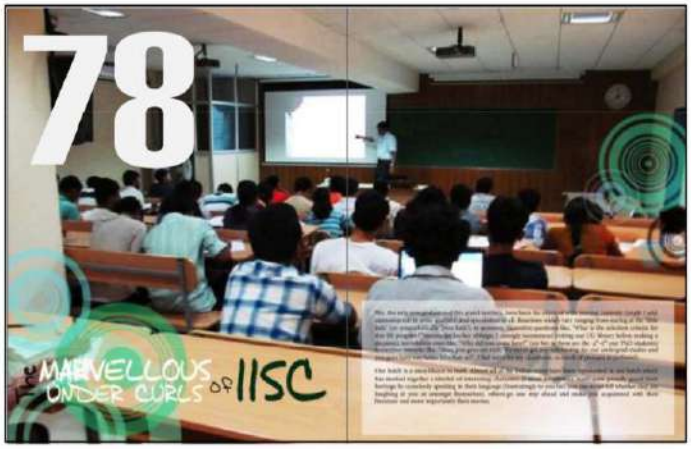
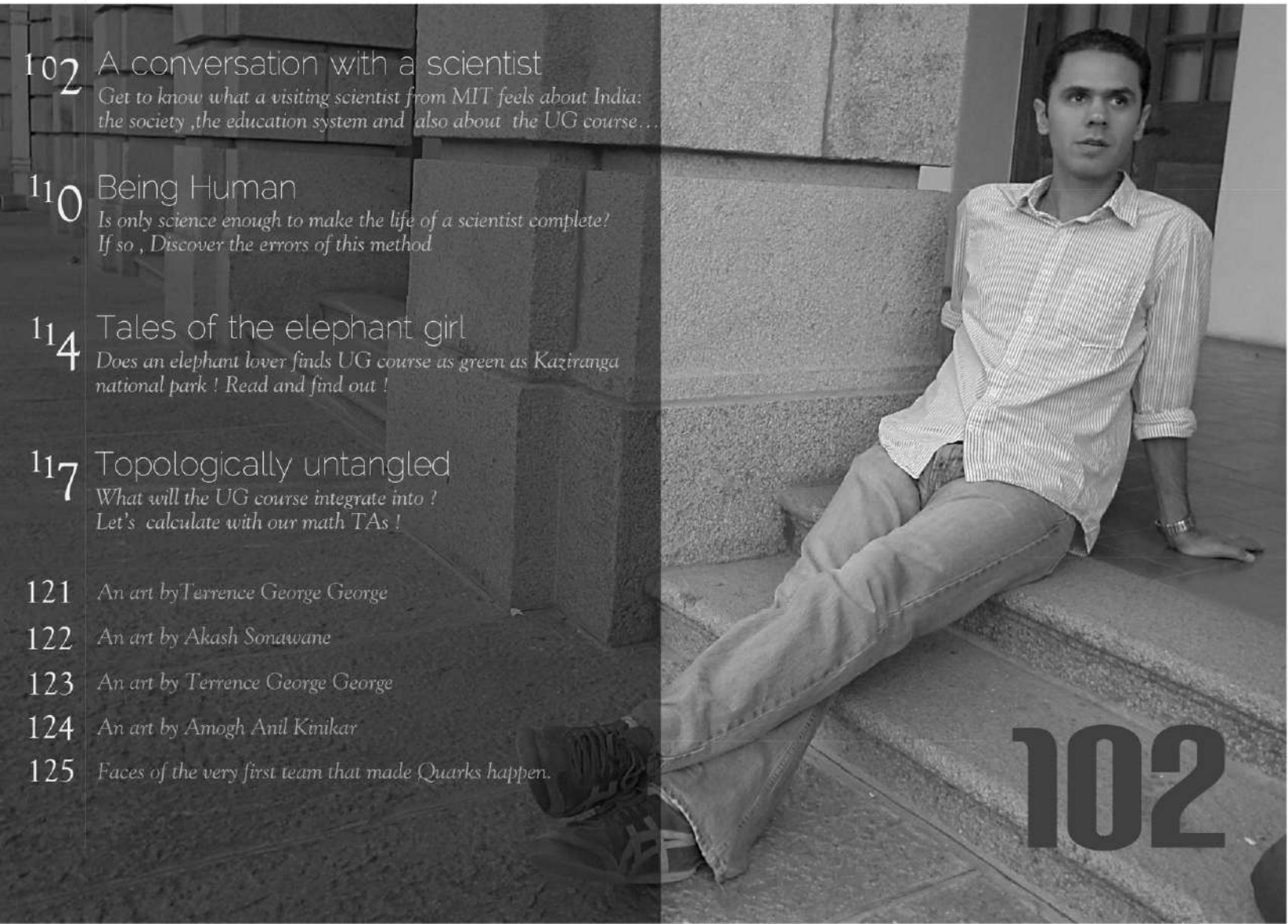
SPORTS CORNER

UG LIFE AT IISC



INTERVIEW



Drawing : Janhavi Kolhe

‘मूक प्रेक्षक’

बीत चुका वह ६२ का अंतराल,
आज फिर बन रहा यह ह्रुदय विशाल,
इतिहास की झांकी, इन सदियों का कमाल,
आकांक्षा के शोलों में है यह नैराश्य पायमाल;

जुनून देशभक्ति का, जो बना रहा है नेत्र दीप्तिमान,
जिगर व्यापक क्रांति का, अब नहीं है अनजान,
सुषुप्ति की जंगीरों को अब तोड रहा है इंसान,
दौड रहा है वह शौर्य-लहु, निभाने कर्तव्य महान;

जनोद्धार के दीपक अब पहुंचेंगे हर घर,
बनेगा जीवन सेवा और बदलाव का सफर,
आत्मवि सर करेगा उन्नति के शिखर,
नवनिर्माण से नया भारतवर्ष, एक अलंक्रुत परिसर;

तेजस्वी, उत्क्रुषट मानस के लिये है यह आह्वान;
आओ, इस शिरोधार्य दायित्व से बन जाएं कीर्तिमान॥

- प्रनव गुप्ता

A winter battlefield

Yet another winter morning,
The dog has arrived,
The feeling creeps upon me, Déjà vu
Been here before, I have
No more running, no more hiding
The long awaited battle now must be fought
I look at my blade – I doubt its force
I watch my companions – They have each other
Yet I have none, I stand alone

The ghost of my past weighs heavily upon me
I hear my own vows - meaningless myths
The fault that lurked within,
The fruitless failing that did not help,
The duels I lost, the duels I won
Yet my foe, remaining a step ahead.
Until the blinding light of retrospection
Did reveal that black monster of nature mine
How I found the chaos that had me….

But now , too late it is.
The battle draws closer, the moments longer
I look around – tension, mirth and in difference
Yet I stand apart; none have I but myself.

Rohit.R

THE CHASE

I had chased it through the lush green;
Such freshness in nature I had never seen,
Through the tree tops,
glinting in the summer light
It never ever paused in its flight.

I followed it into the open plains,
Through the bright sunshine, the pouring rains,
On the beautiful river banks, sailing on the
wind that blew,
Just out of my reach, it flew.

Away and away from my fellowmen,
Up and up the dazzling white mountain,
Ignoring the awe inspiring sight below me
I concentrated on what I thought mine to be.

I sat down exhausted and tired,
Quenching the emotions that had fired,
My sight, from side to side, darted,
As I remembered how it all started.

It had been flying so high,
The single butterfly that caught my eye,
With striking colours on its graceful wings
It promised all the happiness that life brings.

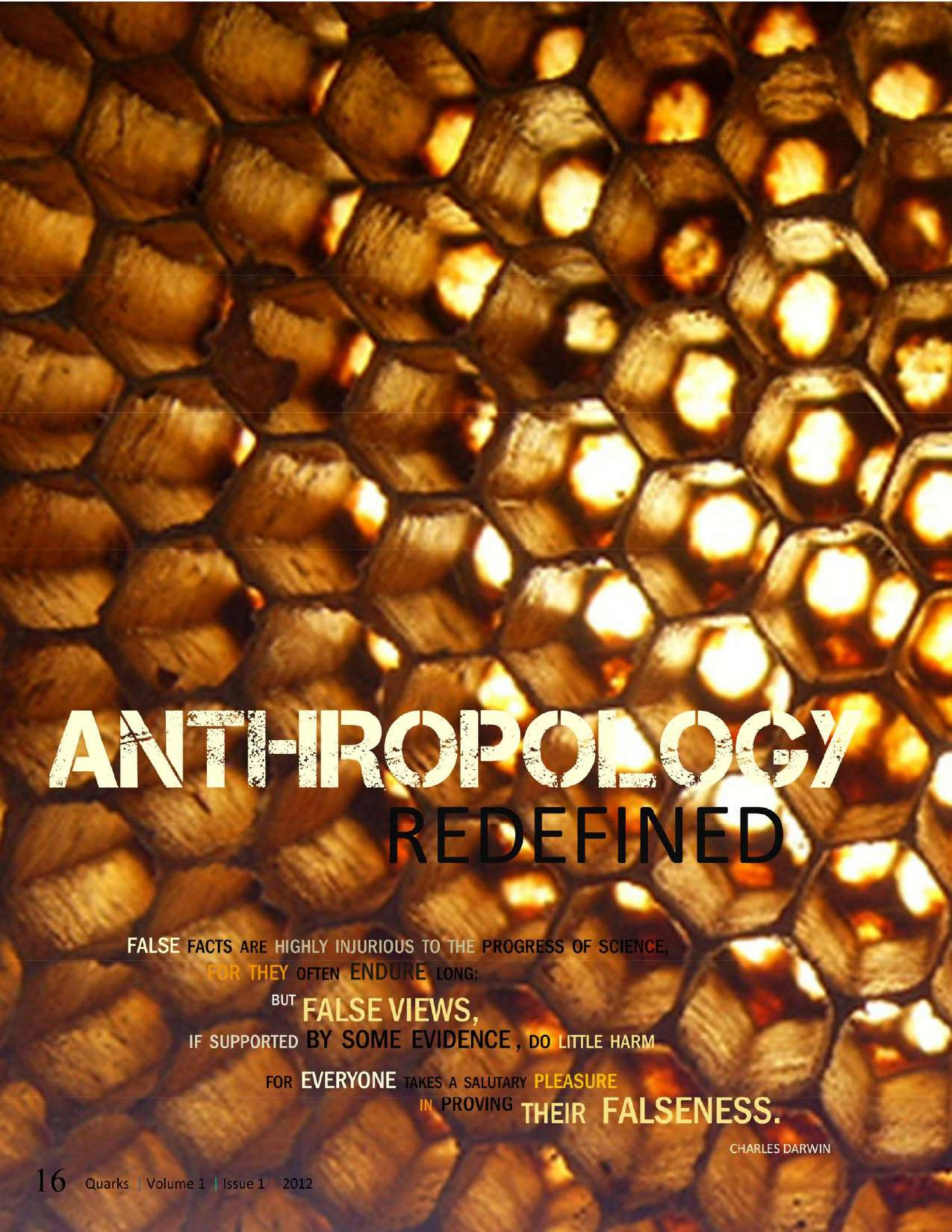
Desire coursed through my veins
As I pursued it down the lanes,
Oblivious to my surroundings then
Now, came to my aid memory of men.

Over the hills, back into the fields,
A strange power over me it wields,
Across the hot desert, the cold wet swamp,
My once high enthusiasm went damp.

It had remained out of my reach,
And I had collapsed onto this beach,
Now with the lapping of the waves around
The realisation made my world go round.

All along it was the journey that had mattered;
The sorrow, this pure joy shattered;
Towards the sea, as I looked up from the sand
The butterfly came and perched on my hand.

Himani Galagali



ANTHROPOLOGY REDEFINED

FALSE FACTS ARE HIGHLY INJURIOUS TO THE PROGRESS OF SCIENCE,
FOR THEY OFTEN ENDURE LONG;
BUT FALSE VIEWS,
IF SUPPORTED BY SOME EVIDENCE, DO LITTLE HARM
FOR EVERYONE TAKES A SALUTARY PLEASURE
IN PROVING THEIR FALSENESS.

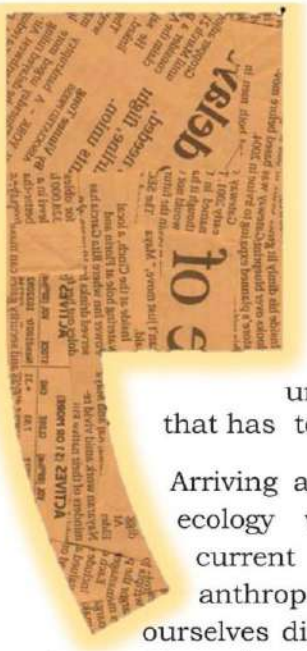
CHARLES DARWIN

"Man over the ages has wondered and tried to learn about the world he lives in, but, in doing so he forgot the fact that not all can be measured and quantified. Here in this note is discussed the rise of the train of thought called systems thinking, the way some of us realised that not all can be known from breaking down stuff and that somethings matter only when brought together, and that is the missing factor in the quest for knowledge. hereby we move into an era where mind conquers matter and we move from an assertive to a holistic approach to life"

We begin by discussing what exists in mind-set of today's man and what it is slowly and inevitably shifting into. The mind is slowly and what is required moving from the old reductionist approach to the holistic approach. I would simply summarise this as moving from a state of self-assertion towards a state which is balanced between self-assertion and integration. We hereby leave behind our old thinking that the sum of parts is equal to the whole. But, what is required for this is the change called the paradigm shift. Defining a paradigm, I would like to quote philosopher Thomas Kuhn as he quotes it;

"a constellation of achievements-concepts, values, techniques etc. shared by a scientific community and used by that community to define legitimate problems and solutions."

Moving towards the paradigm shift apparent in scientific knowledge; we begin with the example of quantum physics wherein what man believed is totally different from what he knows today about atoms. This has brought about a paradigm shift not only in science but as well as the social arena .i.e. to say what is discussed



here is not only in the context of science but also the whole of mankind for e.g. the old understanding that female is subsumed under man is a belief that has to be left behind.

Arriving at the concept of deep ecology we realise that the current mindset is anthropocentric, that we see ourselves different from the whole universe. But, what really is to be realised that we're embedded within the fabric of nature i.e. to say we can't change the way nature works because we ourselves are a small thread in this universe. We only do onto ourselves what we do onto the whole universe. This school of thought was originally first developed by Norwegian philosopher Arne naess. There are also other school of thoughts called the social ecology and ecofeminism. These are simply specialisation of general ideas of the actual concept of paradigm shift.

Here, we also discuss about the values that we need to imbibe to be moving towards the systematic world. In this new paradigm shift, what is most important is the change from self-assertion to integration; which is also a more holistic approach rather the orthodox reductionist approach. What is also realised that the connection between an ecological perception of the world and corresponding behaviour is not a logical but a psychological connection. Logic doesn't lead us from the fact that we are an integral part of the web of life to certain norms of how we should live. However, if we have deep ecological awareness, or experience, of being part of the web of life, then we will be inclined to care for all of living nature.

→Shift from Physics to the life sciences

By calling this new vision of the universe deep ecology we actually emphasize that life is at the centre of all universe. But, since in the old mechanistic view of the universe physic was used for most metaphors but now there is a move from physics to life sciences since because physics has lost in explaining the fundamental description of reality whereas life sciences has been nearest to the explanation of what is true about the universe.Now with time scientists started to come to new realisations that the whole concept of parts and reductionist approach overlooks the fact that the whole system actually works not because of the functions of the different parts but due to the interdependence and relationships between these parts.

Hence, this leads us to the idea of transition from parts to the whole. Actually in reality this was an idea already conceived by ancient scientists like Aristotle but then over time due to Galilean transformations and Newtonian mathematics these old ideas were overtaken by the mechanistic view that all of the universe can be broken down into the smallest of parts and can be understood by physical and chemical properties of these parts. Galileo believed that all of the universe could be measured and quantified. Whereas in the old idea of Aristotle reasoning, it was believed that the form is not different from the pattern. Aristotle believed that the whole system worked on interdependent relationships; and that matter and the living form were a common skeleton of the design of life. Aristotle believed that matter as itself only had the potentiality to form life but, it was the essence of the form that actually gave a direction to this matter into a functional form. Hence, matter and form were interrelated. But, Rene Descartes developed the idea of analytical thinking; which tells that all complex systems in nature can be broken down into small parts and all their mechanisms can be understood from the properties of their parts. Moreover, there was the development of the Newtonian mechanics which was the crowning jewel of

the 17th century sciences. Based on this model Harvey tried to explain the working of the human circulatory system; but failed to do so but soon after due to the works of Lavoisier, the father of modern chemistry the processes of oxidation and reduction entered the picture and hence now started the belief among all mechanistic scientists that all of the life sciences could be broken down to the basic principles of physics and chemistry.

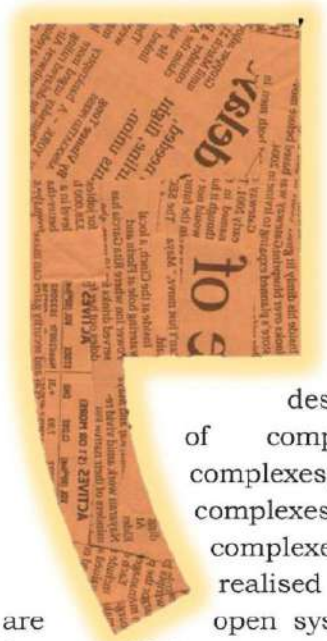
But, soon later with advent of the Romantic Movement these ideas of a mechanistic view of the world were being criticized openly by poets such as Blake, Immanuel Kant wherein they stated that the whole living organism is a world of organisms within. Hence, started a form of thinking of the whole earth as a giant living organism which was also the earliest form of the whole Gaia hypothesis developed later on by James lovelock in 1970s.But, as this general idea of whole greater than parts was developing there was the beginning of the new sciences of microbiology, embryology and the laws of heredity; and once again the focus shifted from the organism to the cell. But, the development of the idea of homeostasis led to the development of the new ideas of vitalism theory and organismic theory. But, what stood above all this was the advent of the systems thinking .i.e. what was in the larger relationships, contextual interdependence etc.

There are a few criterions to the idea of systems thinking; firstly, it is a transition from the parts to the whole and hence the very discussion of the functions of the parts is a denial of the systems approach towards the explanation of the universe. Secondly, when analysing systems thinking one should learn the ability to move back and forth between different levels since the same properties can't be applied to all levels and every level new properties arise that are non-existent at the lower levels, such properties are called as emergent properties.

Moreover, the development of the systems thinking is in the contextual sense .i.e. to say that all the properties of the systems are with respect to the surroundings of the organism which is actually the environment. Hence, we can say that the systems' thinking is actually environmental thinking. There is also an idea that living systems are not hierarchical systems but network systems and, also the fact that in these networks the relationship links are the primary function and the properties of the objects are only the secondary property.

Moreover, there this the development of a thought in systems thinking that the old concept of scientific knowledge being built on firm foundations has been left behind .i.e. to say that in systems thinking there is no firm foundation and that all information is in the form of networks such that no information or scientific fact is more important than any other scientific fact or discovery. The development of systemic thinking can only take place when the epistemic thinking is developed .i.e. the science of asking questions and since it is impossible to know all the relationships therefore what exists today in our worlds is actually just approximate knowledge.

Tektology was a theory developed by the Russian philosopher and researcher Alexander Bogdanov; it was an attempt at the development of a framework that explains the structure and principles of the science of organisation in living systems. It anticipated the conceptual framework of Ludwig von Bertalanffy's general systems theory, and it also included several important ideas that were formulated four decades later, in different language, as key principles of cybernetics by Norbert



Weiner and Ross Ashby. He defined organisational form as the totality of connections among systemic elements. He described three types of complexes: organised complexes, unorganised complexes, neutral complexes. Bogdanov also realised that living systems are open systems that exist far from equilibrium.

Another philosopher Ludwig von Bertalanffy could not resolve this dilemma, but he took the crucial first step by recognizing that living organisms are open systems that cannot be described by classical thermodynamics. He called such systems open because they require a continuous flow of matter and energy in order to stay alive. With this there was the advent of feedback mechanisms wherein there were systems or models developed that formed closed loops .i.e. determining that the whole cycle of life is nothing but a cause and effect closed loop. These feedback loops were of two types: positive feedback and negative feedback mechanisms. Positive feedback mechanisms were also sometimes referred to as runaway mechanisms because these loops simply amplified the whole system since increase in one element automatically lead to the increase in other mechanisms whereas negative feedback mechanisms are just self-correcting systems wherein the feedback causes the system to correct itself. The determination of whether a feedback loop is positive or negative depends on the number of negative relations within the loop; if it is odd the system is positive feedback else it is simply a negative feedback mechanism.

Therefore, the application of cognition and feedback mechanisms to explanation of life and cognition .i.e. mind using feedback mechanisms was a bold step towards the rise of the systems thinking.

During the 1950's and 60's with the rise of the systems thinking there was also advent of the idea of cybernetics; this led to the application of systems thinking to the technical fields like engineering, management, military & defence. Suddenly there was a development of new ways of solving everyday practical problems like mutual interaction of various elements of production through principles of systems thinking. But, during this time there was also the development of the field of microbiology wherein the theory of genetics and cell structure had revolutionized the way in which the society at large looked at the concept of life.

Meanwhile, there was a widespread critique of the idea of systems thinking such as Robert Lilienfeld, concluded his excellent account, The rise of systems Theory, published in 1978, with the following devastating critique;

"System thinkers exhibit a fascination for definition, conception, and programmatic statements of a vaguely benevolent, vaguely moralizing nature ... They collect analogies between the phenomena of one field and those of another ... the description of which seems to offer them an aesthetic delight that is simply a justification for itself ... No evidence that systems theory has been used to achieve the solution of any substantive problem in any field whatsoever has appeared."

The main reason behind this and other such critique were because even though systems thinking was able to germinate certain new ideas about the holistic approach .i.e. to say that the whole is greater than the parts still it was never able to give mathematical prove of any of its findings. Man has also been intrigued into phenomena's which he can explain using his ultimate creation ever,

Mathematics. I would like to quote famous thinker Archimedes;

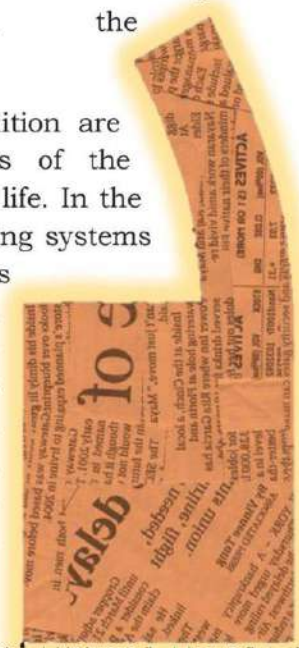
"The so-called Pythagoreans, who were the first to take up mathematics, not only advanced this subject, but saturated with it, they fancied that the principles of mathematics were the principles of all things."

But, meanwhile all this time in all systems thinking from the very start there was a precedence of form over matter. With this idea there was the realisation of the idea of self-organisation and began the strenuous efforts of many scientists that all systems move towards order self organised selves even when in a state of absolute chaos. Hence, came into the picture Ilya Prigogine who using Bernard's cell explained that systems that are far from equilibrium at certain critical conditions develop dissipative structures that require a continuous flow of matter and energy through them to remain stable; and in such phenomena the transfer of energy or simply flux exists because of convection and not because of conduction. Meanwhile, there were also other experiments which finally led to development of the fact that living systems exist in a quasi-equilibrium or simply reversible equilibrium with its surroundings.

It was proposed in the early seventies that the origin of life on earth may have been the result of process of progressive organisation in chemical systems far from equilibrium, involving 'hypercycles' of multiple feedback loops. The hypercycles studied by Eigen self-organise, self-reproduce and evolve. And yet, one hesitates to call these cycles of chemical reactions 'alive'. Therefore, Humberto Maturana realised that perception and more generally, cognition, don't represent an external reality, but rather specify one through the nervous systems process of circular organisation. Therefore what is more important is the interest in the processes and relations between processes realised through components. The organisation of a living system is the set of relation between its components that characterises the system as belonging to a particular class of organisms.

The key to a comprehensive theory of living systems lies in the synthesis of two approaches- the study of pattern(or form, order, quality) and the study of structure(or substance, matter, quantity). The configuration of relationships that gives a system its essential characteristics is what is meant by the pattern of organisation. The structure of a system is the physical embodiment of its pattern of organisation of its shapes and chemical compositions etc.

There are three key criteria for the continuation of the cycle of life. There is growth, development and evolution. Thus from the very beginning of biology, the understanding of living structures has been inseparable from the understanding of metabolic and developmental processes. In the case of the bicycle, the pattern of organisation is represented b y the design sketches that are used to build the cycle, the structure is a physical bicycle, and the link between the pattern and the structure is in the mind of the designer. The three criteria – pattern, structure, and process – are three different but inseparable perspectives on the phenomenon of life.



Autopoiesis and cognition are two different aspects of the same phenomenon of life. In the new theory all the living systems are cognitive systems and cognition always implies the existence of an autopoietic network. An autopoietic system creates its own boundaries, which

define the cell as a distinct system while being an active part of the network. The whole system in such a model is organisationally closed, even though it is open with regard to the flow of energy and matter. An autopietic system is not a set of relations among static components but a set of relation s among processes of production of components. The difference between relationships among static components and relationships among processes is a key distinction between physical and biological phenomena.

A living system is structurally open but organisationally closed therefore to highlight the seemingly paradoxical coexistence of change and stability Prigogine coined the term 'dissipative structures'. Therefore, a living dissipative structure, such as an organism, needs a continual flow of air, water, and food from the environment through the system in order to stay alive and maintain its order. The vast network of metabolic processes keeps it in a state far from equilibrium and, through its inherent feedback loops, gives rise to bifurcations and thus development and evolution.

In the emerging theory of living systems the process of life – the continual embodiment of an autopoietic pattern of organisation in a dissipative structure is identified with cognition, the process of knowing. This implies a radically new concept of mind, which is perhaps the most revolutionary and most exciting aspect of this theory, as it promises to finally overcome the Cartesian division between mind and matter. Most interestingly, according to the Santiago theory, the mind can exist without the brain .i.e. to say that small organisms like bacteria have no brain yet a mind. They perceive all changes in the environment around them. Therefore, brain is not necessary for perception.

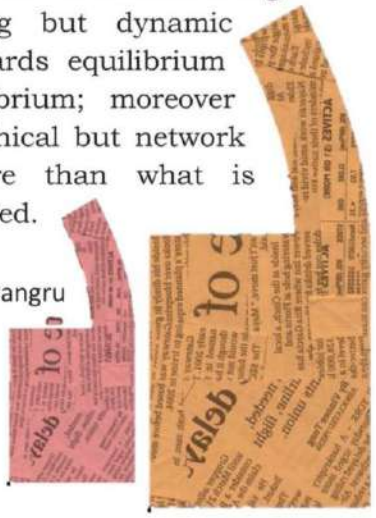
In the classical thermodynamics picture though important, 'irreversibility' an important process only deals with loss of energy and generation of waste but, we very much realise that in living systems that exist at conditions far from equilibrium reversibility is an very important conception hence all living systems are within a condition of quasi-equilibrium. Irreversibility is the mechanism that brings order out of instability and chaos.

The central characteristic of an autopoietic system is that it continually undergoes structural changes while preserving its web like pattern of organisation. One type of change is simply renewal which is nothing but a self-correcting feedback mechanism at work. The second type of changes are those wherein new structures are created – these new type of changes are developmental rather than cyclical. But, the environment only triggers these structural changes it doesn't direct them. The pattern of organisation determines the system's identity (.i.e. it's essential characteristics); the structure, formed by a sequence of structural changes, determines the system's behaviour.

Moreover, over time studying the concepts of neo Darwinism we realise that the laws of evolution are fundamentally flawed, not only because it is based on reductionist concepts that are now outdated, but also because it was formulated in an inappropriate mathematical form. The language of life is not ordinary arithmetic algebra but the language of life is chemistry.

Hence, with time we realise that all living systems are nothing but dynamic systems moving towards equilibrium while still in equilibrium; moreover nature is not hierarchical but network and nature is more than what is perceived and quantified.

- Sushant Bangru



आदत सी हो गई हैं...

गोधूलि की बेला में दहशत का रंग हैं छाया,
काली नही लाल हैं अब अपनी काया,
बम के धमाको के शोर का ढोल
गूँजते हैं कानों में जैसे हो प्रार्थना के बोल,
पर परिवर्तन ही हैं जीवन,
यह जानता हैं भारतीयों का मन,
इसलिए तो हमे इस सब की आदत सी हो गई हैं.....

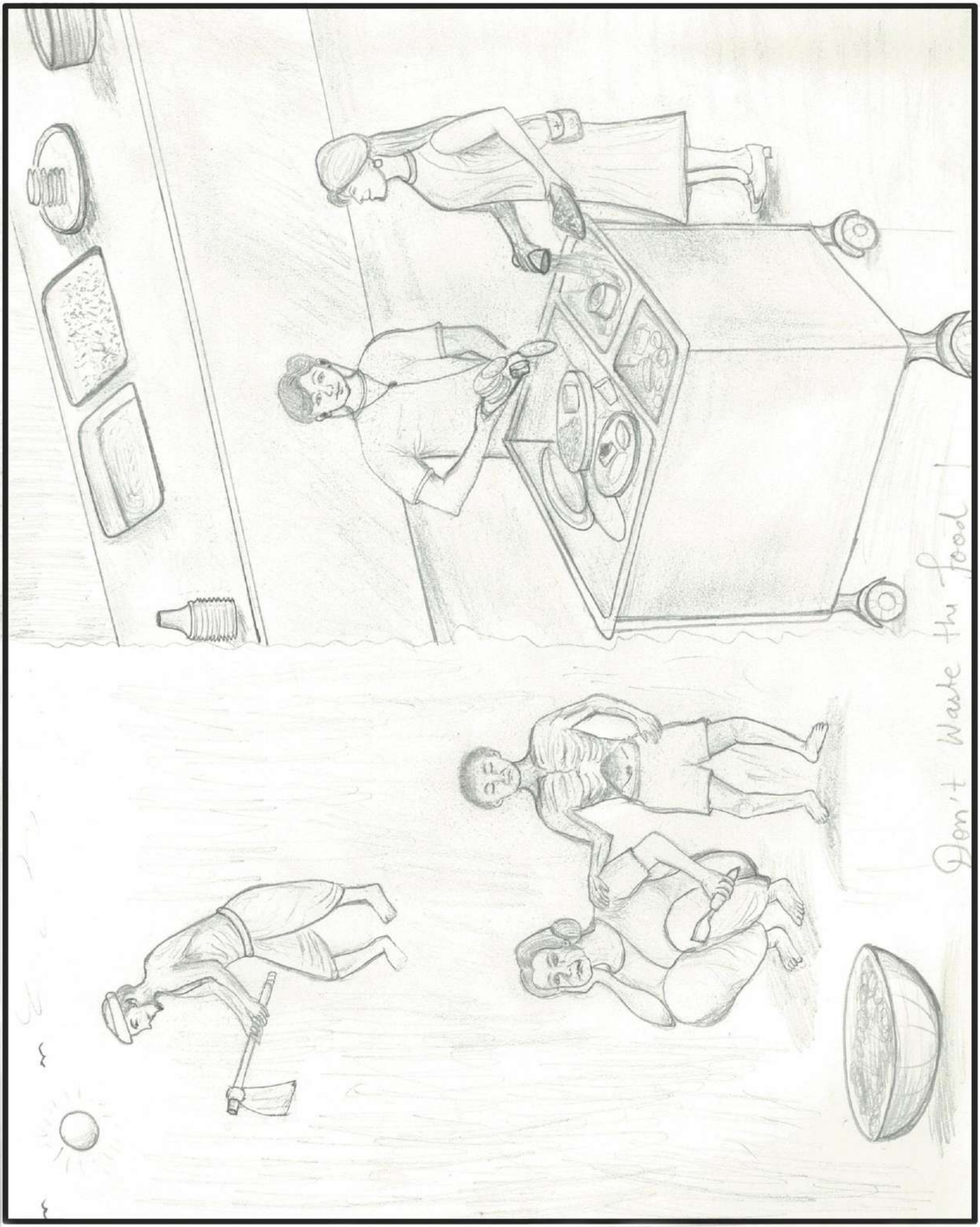
लहु के छीटों को सफेद रूमाल से पोछकर.
एक दिन गम मानकर,
फिर सूखे आँसू आँखों में दबाकर,
अपनी दिनचर्या का चक्र चलाकर,
बढ़ना प्रगति कि ओर,
यही हैं हम भारतीयों के जीवन का हर छोर,
क्योंकि सचमुच हमें इसकी आदत सी हो गई हैं.....

इतनी हैं पैसो की भूख,
कि सारी मानवता गई हैं सूख,
क्यों हमारे ही तंत्र होते हैं विफल,
क्यों प्रजातंत्र होने का नही मिलता कोई मीठा फल,
कर क्या रहे हैं हमारे प्रतिनिधि,
अपनी शपथ की वे क्या निभा रहे हैं हर विधि,
बस इन कुछ सवालों को पूछकर चूप हो जाने की
आदत सी हो गई हैं....

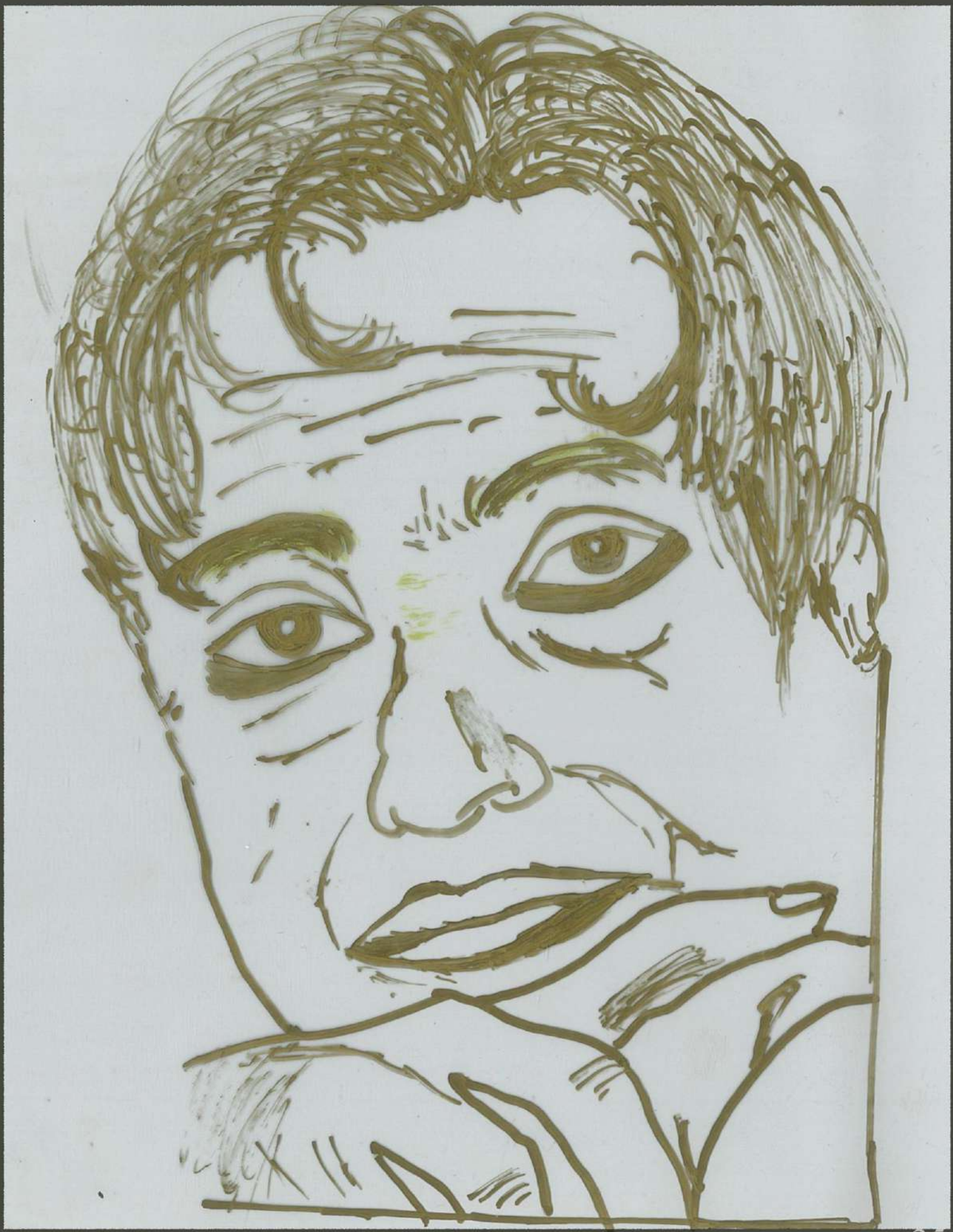
शोक, सांतवना के शब्दो का उपहार,
देते हैं हमे नेता हर बार,
उच्च तकनीक से हम भी हैं लेस,
फिर भी आंतकी लेकर कोई न कोई भेस,
दे जाते हैं आत्मा को हमारी इतनी बडी ठेस,
पर फिर भी हर हादसे,पर सांतवना के बोल सुनने,
और फिर नए ख्वाब बुनने,
कि यकीनन हमें आदत सी हो गई हैं.....
सबकुछ सुनकर, जानकर, समझकर,
अफसोस जताकर,
आँह भरकर, लँबी साँस लेकर,
"हम कर भी क्या सकते हैं", ये कहने कि हमें
आदत सी हो गई हैं.....

प्रतिभा महाले

inspired from Bombay terror attack on 13 july2011



Drawing : Irfan Ansari



Drawing : Arjun

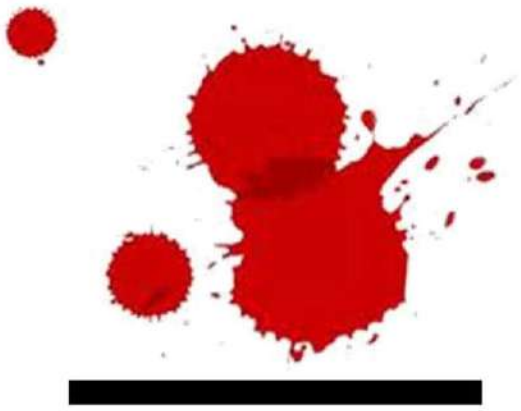
a reminder

Of life in the world,
Faint memories that remain,
Like a cradle in the sand,
Drops of water that sustain;

Of courage in Earth,
That lights up our hearts,
Like a brilliant spark,
Making way in the dark;

Of Love ,
A little star among billions,
On its own and unique,
A peaceful legacy for eons,
Distant yet complete.

- Aditi Mishra



Of Brutus

I go with a good heart
And a noble nature,
For the well-being of others,
Because that's what I feel.

Getting exploited by others;
Ye tu Brute;
To be marked as a traitor
Is what I get in return.

Should I stop feeling
The way I feel,
Or should I keep fighting
Till I fail,

Or even better, I die:
My own way,
And let the world reckon,
Whatever it likes

Amrita Padhi

कलम

कलम है छात्र, संपादक और कवि का जीवन,
जब होता है भ्रष्ट लोगों द्वारा धर्म और सच का दमन,
फिर संपादक, कलम की धार से,
सच की तलवार से,
करता है छोटा सा प्रयास,
इससे होता है इनका नाश।

कलम ही है जो कवि द्वारा हमे देती है,
सच की राह पर चलने की प्रेरणा,
और बेइमानी और अधर्म से बचना।

कलम ही एक छात्र की सफलता की राहो पर उसका साथ देता है,
और बदले में केवल इज्जत और सम्मान लेता है।

कलम ही है वो हथियार,
जो करता है बेइमानों मे वार,
और करता है सबका उद्धार ।।

- प्रवीर तिवारी
(2006)

Bharathnatyam is a classical dance form of India, which is very popular in the southern part of the country and especially in Tamil Nadu. Almost every girl in Chennai learns this beautiful art form for at least a year. So it was no wonder when my mother asked me, about 11 years ago, whether I would like to learn Bharathnatyam. I agreed only because my neighbour was learning as well (no surprises there!). Little did I know that the consequences of my oh-so-naïve answer would turn out to be so wonderful.

My initial days of learning were uneventful, really. I walked down the road to class twice a week and learnt the basics pretty quickly in about a year (Usually it takes around 2 years to complete the basics). I liked to dance, yes, but didn't love it. It was then that my mother decided that another teacher would be a good option. That was how I met my Guru Smt Anita Gu ha. From then onwards there was no turning

back. Thanks to my amazing guru, I now loved dance. I went for classes 4 times a week (often even 5 or 6 times!!). In all these years there has not been a single dull class. There not has been a single class when I haven't laughed, when I haven't worked hard, when I have stayed idle or when I haven't had fun-not one single class. I would rush home from school, gobble my food and travel 45 minutes to class. This is the only long journey that I truly love (according to me, any journey for more than 15 minutes by car is an absolute bore). The reason was the one and a half hours (sometimes even 3 or 4 hours) of dancing at the end. I would return home exhausted but revitalized and refreshed and most importantly happy.

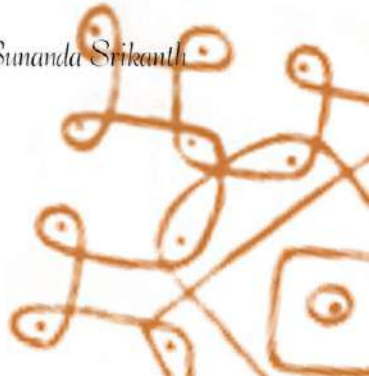
I have performed all over India both solo and in groups. My first solo performance was in 2006 - my Arangetram as it is called.

My years of dancing have made me the person I am today. I love the joy of dancing. It gives me immense pleasure to dance. It is a way to express myself. And I have often found that dance imitates life. There are always things in dance that you can relate to. Dancing has increased my concentration power. It is also the most effective stress buster I know of. It is an avenue to forget the little things that may have gone wrong that day (which miraculously become alright after dance class!!) Assignments, projects and homework seem more inviting after dancing. I score better on exams when I have had a dance class or even stage performances the previous day. Dance is an amazing memory booster and of course, a way of exercise. It is always after a practice session that I am at my best spirits. As it is said, practice makes a man perfect. The same is true of dance. Only, here, dancing takes me a step closer to perfection not only in dance but in all aspects of life.

As I already mentioned before, I owe my love for dance to my guru. She is very affectionate and kind person the likes of whom I am sure I can never find in my life. I have learnt from her, ideals like passion, hard work, sincerity, patience, respect for people and their work, love, caring and sharing, humility, discipline, devotion, punctuality(though I failed at that one) and even a sense of humour. Having participated in dozens and dozens of group performances I also learnt the value of team spirit, selflessness, and a lot about friendship and relationship with people.

To me Bharathnatyam is not just any art form. It is my passion. Even though there are times, due to my education, when I am not able to dance as much as I want to, my passion for this magnificent art form continues now and forever....

-Sunanda Srikanth

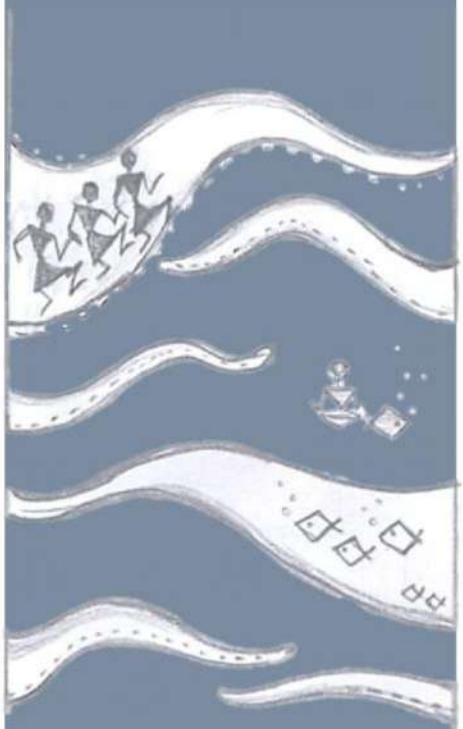


Kolam (drawing) : Sunanda

ஏழையின் கனவு

ஆழ்கட லடியில் பழுத்திடும் முத்தும்,
கீழிடை வரையில் நெடுந்திடும் மணியும்,
நிழலி ல்லாமல் பரக்கும் கடலில்,
தினமும் இரையும் கிடைத்திடல் வேண்டும்.
தங்கும் இடத்தில் பகைவரும் இன்றி,
சில பல மீன்கள் நீந்திச் செல்ல,
வருடம் தோறும் மகிழ்சியும் பொங்க,
அழகு வர்ணங்களை ஆழ்கடலில் காண,
இறக்கைகள் இன்றியும் , நீந்திச் செல்வேன்.

நீர்க்குமிழிகள் கீழ்வரக் கண்ட தில்லை ,
பிறர் எனைக் கண்டும் வாடினதில்லை .
காரணம் செழிப்போ ? அல்லது மனதின் செருக்கோ !
என் மனதிலோ ஒரே கோடுதான் :
இழிவின் மேலே சுத்த இரத்தம் .
மாற்றார் மேனியின் மீதுள்ள செதில்களை உடைத்து
என் போன்றவரையும் நிமிர்த்திடல் வேண்டும் !
இது உம் ஒரு ஏழையின் கனவு !!!



- நவீன் செந்தில்நாதன்

இச்செய்யுளை இரட்டுற மொழிதல் வழியாய் காண முழு பொருள் விளங்கும்

Drawings by : Naveen Sendhilnathan

ਰੱਬ ਦੀ ਅਨਮੁਲ ਦਾ

ਮਾਂ ਕਹਾਂ ਮੈਂ ਬਾਰ ਬਾਰ
ਫੇਰ ਵੀ ਦਿਲ ਨਾ ਰੱਜਦਾ
ਮਾਂ ਤੇਰੇ ਚਰਨਾਂ ਚ ਕਰਾਂ
ਲੱਖ ਬਾਰ ਮੈਂ ਸੱਜਦਾ

ਤੇਰੇ ਨਾਂ ਦਾ ਜੇ ਮੈਂ ਲੱਭਾਂ ਅਰੱਥ ਤਾਂ
ਸਾਗਰ ਦੀ ਗਹਿਰਾਈ ਵੀ ਘੱਟ ਪੈ ਜਾਵੇ
ਆਖਣ ਲੱਗਾਂ ਜੇ ਤੇਰਾ ਦਰਜਾ
ਤਾਂ ਅੰਬਰ ਵੀ ਥੱਲੇ ਰਹਿ ਜਾਵੇ

ਰੂਪ ਲੱਗੇ ਤੇਰਾ ਨਿਰਮਲ ਇੰਨਾ
ਕਿ ਘਰ ਬੈਠੀ ਦਾ ਤੂੰ ਹੱਜ ਕਰਵਾਯਾ
ਸੁਣਾਂ ਜੇ ਬਹਿ ਕੇ ਤੇਰੀ ਮੈਂ ਲੋਰੀਯਾਂ
ਜਾਪੇ ਜਿਵੇਂ ਕੋਇਲ ਦਾ ਹਮਸਾਯਾ

ਗਮਾਂ ਦੀ ਤਖੇਰੀ ਧੁੱਪ ਵਿੱਚ
ਤੂੰ ਹੈ ਪਿੱਪਲ ਦੀ ਛਾਂ
ਤੇਰੇ ਜਿਹਾ ਮੈਨੂੰ ਕੋਈ ਨਜ਼ਰ ਨਾ ਆਵੇ
ਦੀਵਾ ਲੈ ਲੱਭੇ ਸ਼ਹਿਰ ਤੇ ਗਰਾਂ

ਜਾਪੇ ਤੂੰ ਮਰੂਥਲ ਵਿੱਚ
ਪਹਿਲਾ ਸੰਝ ਦਾ ਤਾਰਾ
ਦਿਨ ਚੜ੍ਹਦੇ ਦੀ ਲਾਲੀ ਵਰਗਾ ਤੇਰੀ
ਇੱਕ ਝਲਕ ਦਾ ਲਸ਼ਕਾਰਾ

ਤੇਰੀ ਉਂਗਲ ਦੇ ਸਹਾਰੇ ਤੇ ਹੀ
ਸਿਕੰਦਰ ਨੇ ਵੀ ਤੁਰਨਾ ਸਿੱਖਿਆ
ਜਾਣੇ ਕਿਹੜੇ ਮੋਤੀ ਦੀ ਸਿਯਾਹੀ ਪਾ
ਰੱਬ ਨੇ ਤੇਰੀ ਸੀਰਤ ਦਾ ਪੰਨਾ ਲਿਖਿਆ

ਲੱਖਾਂ ਪੜ੍ਹੀਆਂ ਕਿਤਾਬਾਂ ਪੋਥੀਆਂ
ਮਾਂ ਜਿਹਾ ਮਿੱਠਾ ਅੱਖਰ ਨਹੀਂ ਪੜ੍ਹਿਆ
ਹੋਣਗੇ ਜੱਗ ਤੇ ਲੱਖਾਂ ਮਹਾਸਾਗਰ
ਪਰ ਕਿਤੇ ਨਹੀਂ ਤੇਰੇ ਜਿਹਾ ਪਿਆਰ ਦਾ ਦਰਿਆ

ਸੀਨੇ ਦੀ ਤੇਰੀ ਠੰਡ ਲੈ ਉਧਾਰੀ
ਰੱਬ ਨੇ ਸਵਰਗ ਬਣਾਏ
ਨਿੱਘ ਤੇਰੀ ਗੋਦੀ ਦਾ ਚੁਰਾ ਕੇ ਹੀ ਤਾਂ
ਰੱਬ ਪੋਹ ਚ ਧੁੱਪ ਚੜ੍ਹਾਏ

ਕਿੰਝ ਭੁਲਾਵਾਂ ਮੈਂ ਤੇਰਾ ਉਹ
ਮੇਰੇ ਤੋਂ ਪਹਿਲਾ ਕਦੇ ਨਾ ਸੋਣਾ
ਅੱਖ ਭਰੀ ਮੇਰੀ ਵੇਖ ਕੇ ਤੇਰਾ
ਕੁਰਲਾ ਕੁਰਲਾ ਕੇ ਰੋਣਾ

ਤ – "ਮਾਂ"

ਜ਼ਮਾਨੇ ਦੇ ਕੀਤੇ ਹਰ ਸਿਤਮ ਤੂੰ
ਆਪਣੇ ਸੀਨੇ ਤੇ ਝੱਲੇ
ਰੀਝਾਂ ਨਾਲ ਲਾਏ ਹੋਏ ਇਸ ਬੂਟੇ ਨੂੰ
ਕਦੇਂ ਛੱਡੀਂ ना ਤੂੰ ਕੱਲੇ

ਰਹਿਮਤ ਸੋਹਣੇ ਰੱਬ ਦੀ
ਜਿਨ੍ਹੇਂ ਪਿਆਰਾ ਰਿਸ਼ਤਾ ਬਣਾਇਆ
ਮਾਂ ਤੇਰੇ ਵਿਸ਼ਵਾਸ ਨੇ ਹੀ ਮੈਨੂੰ
ਡਿਗ ਕੇ ਵੀ ਭੱਜਣਾ ਸਿਖਾਇਆ

ਤੇਰੀਆਂ ਕੀਤੀਆਂ ਦੁਆਵਾਂ ਹੀ ਤਾਂ
ਤੱਤੀ ਵਾਹ ਤੋਂ ਵੀ ਬਚਾਉਣ
ਤਾਂ ਹੀ ਸਾਧੂ ਸੰਤ ਵੀ
ਤੇਰੇ ਨਾਂ ਦੇ ਸੋਹਲੇ ਗਾਉਣ

ਸਾਹ ਮੇਰੇ ਜਿਹੜੇ ਚਲਦੇ ਨੇ
ਇਹ ਵੀ ਤੇਰੀ ਦਾਤ ਹੈ
ਤੇਰੇ ਬਿਨਾ ਮਾਂ ਜ਼ਿੰਦਗੀ
ਅਮਾਵਸ ਦੀ ਭੈੜੀ ਰਾਤ ਹੈ

ਤੇਰੇ ਪੈਰਾਂ ਹੇਠਾਂ ਹੀ
ਵੱਸਦੀ ਹੈ ਸਾਰੀ ਜੰਨਤ
ਹਰ ਵੇਲੇ ਮੈਂ ਤੇਰੇ ਚਰਨੀਂ ਰਹਾਂ
ਰੱਬ ਕੋਲੋਂ ਮੰਗਾਂ ਮੈਂ ਇਹੋ ਮੰਨਤ

ਸੁੱਖਾਂ ਦੀ ਹਵਾਵਾਂ ਵਾਲਾ
ਬੂਹਾ ਰੱਬ ਕਦੇ ਨਾ ਢੋਵੇ
ਕਿਸੇ ਕੋਲੋਂ ਇੱਕ ਪਲ ਵੀ
ਮਾਂ ਜੁਦਾ ਨਾ ਹੋਵੇ

ਤੇਰੇ ਜਿਹਾ ਜੱਗ ਤੇ ਹੋਰ ਨਾ ਕੋਈ
ਕਰ ਲਵੇ ਭਾਂਵੇ ਕੋਈ ਕਿੰਨੇ ਹੀ ਦਾਵੇ
ਅਰਜ਼ੋਈ ਕਰਾਂ ਮੈਂ ਰੱਬ ਅੱਗੇ
ਹਰ ਜਨਮ ਮੈਨੂੰ ਤੇਰੀ ਪਾਕ ਕੁੱਖ ਚ ਹੀ ਪਾਵੇ

ਰੱਜਾ ਕੇ ਮੈਨੂੰ ਚੂਰੀਆਂ ਨਾਲ
ਤੇਰਾ ਆਪ ਭੁੱਖੇ ਸੋ ਜਾਣਾ
ਸੁੱਕੇ ਤੇ ਸੁਲਾ ਕੇ ਮੈਨੂੰ
ਆਪ ਗਿੱਲੇ ਤੇ ਪੈ ਜਾਣਾ

ਖੁਆਬਾਂ ਦਾ ਇੱਕ ਰੋਸ਼ਨ ਬਸਤਾ
ਰੋਜ਼ ਤੂੰ ਮੇਰੀ ਪਿੱਠ ਨੂੰ ਲਾਉਂਦੀ ਸੀ
ਭਟਕ ਜਾਵਾਂ ਕਦੇ ਰਾਹ ਤੋਂ
ਤੂੰ ਹੀ ਸਿੱਧੇ ਰਸਤੇ ਪਾਉਂਦੀ ਸੀ

ਜ਼ਿੰਦਗੀ ਦੇ ਕੰਡੇ ਚੁੱਕ ਤੂੰ
ਮੇਰੇ ਲਈ ਫੁੱਲਾਂ ਦੀ ਸੇਜ਼ ਸਜਾ ਦਿੱਤੀ
ਧੰਨ ਧੰਨ ਹੋ ਜਾਵੇ ਉਹ ਇਨਸਾਨ
ਜਿਹਨੇ ਤੇਰੇ ਪੈਰਾਂ ਦੀ ਮਿੱਟੀ ਪਾ ਲਿੱਤੀ

Diksha Rehal

नकाब या ख्वाब !

चेहरे कितने चेहरे ! हर चेहरे पर एक नकाब हैं,
इसके पीछे हैं कोई मजबूरी या कोई ख्वाब हैं ...

हरा, नीला, काला, पीला,
जितने रंग सोच सकते हो बनाने अपना जहाँ रंग रंगीला,
जितने सुनहरे सपने सकते हो तुम बुन,
जितने मधुर गीत सकते हो तुम सुन,
जितनी गाली से नवाज सकते हो अपने दुश्मन को,
जितनी बार किसी गलती के लिए कोस सकते हो अपने मन को,
उससे कहीं ज्यादा,
मिलेंगे तुम्हे नकाब, ये हैं मेरा वादा..

चेहरे कितने चेहरे हर चेहरे पर एक नकाब हैं
इसके पीछे हैं कोई मजबूरी कोई ख्वाब है !

नकाब की भिन्नता और प्रकार ,
को गिनते गिनते जाओगे तुम हार,
दिखाते है प्यार, नफरत, एतराज और कभी समर्थन,
न जाने कितने है करने को मंथन,
एक चेहरा एक नकाब,
ऐसे नहीं मिलेगें तुम्हे उदाहरण बेहिसाब,
नकाब कई एक चेहरा,
वास्तव में यहीं हैं सच गहरा,
एक नया मौका, एक नया व्यक्ति,
और एक नए नकाब से एक नई अभिव्यक्ति !

चेहरे कितने चेहरे! हर चेहरे पर एक नकाब हैं
इसके पीछे हैं कोई मजबूरी हैं या कोई ख्वाब हैं!

पर इस नकाब की आखिर वजह हैं क्या?
नकाब पहनने वाले न करेंगें ये ब्यान..
फिर बिना नकाब के चेहरे को कैसे पहचाने,
क्या ऐसा कोई चेहरा हैं ये भी कोई न जाने I
नकाब पहनने वाले से पूछा अगर,
तो उसकी हर तर्क पर कह पाओगे सिर्फ मगर,
जीवन एक दौड हैं,
सफलता पाने की होड़ हैं,
एसे में होने के लिए विजयी,

कुछ तो करना पडेगा भाई
ये शब्द करके अदा
वो कर देंगे तुम्हें विदा .....

चेहरे कितने चेहरे! हर चेहरे पर एक नकाब हैं
इसके पीछे हैं कोई मजबूरी हैं या कोई ख्वाब हैं!

कुछ तो अपना मुख भी नही खोलेंगे,
एक शब्द भी नही बोलेंगें,
वो होंगे नकाब पहनने में निपुण ,
जो हर परिस्थिति में सकते हैं नया नकाब बुन,
एक **प्रश्न** जो हैं इतना गहन..
आता देख लेंगें एक नया नकाब पहन,
नकाब ओह ! नकाब !
किसने? कब? कहाँ? पहना हमे भी बताइए साहब !
"ये तो हैं ग़लत",
कहकर अर्जित करते हैं भीषण प्रश्न में भी सहुलियत ,
पर उनकी निगाहे,
खोलती हैं दिमाग की वो राहें,
जो चीख-चीख कर कह रही है- " बुझो तो जाने ",
फिर तुम भी लगोगे नकाब को अपनाने !

चेहरे कितने चेहरे! हर चेहरे पर एक नकाब हैं
इसके पीछे हैं कोई मजबूरी हैं या कोई ख्वाब हैं!

नकाब के उपयोग के क्या है कारण,
ये जानने का कार्य हैं यकीनन असाधारण,
आपने अगर है ये पहेली बुझाई,
तो सचमुच आपने दुनिया को नकाब से लड़ने की युक्ति सुझाई,
पर गौर करना,
इसे **प्रश्न** का उत्तर तब न भरना,
जब नकाब का ताला,
रोक रहा हो उचित विचारों का उजाला ,
तो सोचिए, पूछिए
और विचार कीजिए ...

चेहरे कितने चेहरे हर चेहरे पर एक नकाब हैं
इसके पीछे हैं कोई मजबूरी कोई ख्वाब है !

प्रतिभा महाले

Drawing : Akash Sonawane

"काश एक छोटी बहन होती"

काश एक छोटी बहन होती
जिसे अपने दिल का हाल बता पाते,
जो हमे भाई कम दोस्त ज्यादा माने
और बिना किसी वादे के ज़िंदगी भर दोस्ती निभायें;

काश एक छोटी बहन होती
जो खुद के अस्तित्व का ज्ञान कराती,
और ढेर सारी बुराईयों में से
कुछ अच्छाईयां दिखाती,
जो बार-बार भईया-भईया बोलकर दिमाग खाती
जब कभी मन घबराता तो उससे बात
कर मन को समझा लेते कि-
अभी बहुत काम है बाकी मन तु बाद में घबरा लेना;

काश एक छोटी बहन होती
जो हमारी हार को भी जीत बताती
और हारा हुआ सिकन्दर कहकर चिढाती भी,
हमसे ही जीतना सीखकर हमे हराती ,
आपके जैसा बनना चाहती हुँ बोलकर,
आपको अच्छा बनना सिखायें,
जिसकी हँसी सुनकर आप सब दर्द भूल जाती,
और उसकी सच्चाई को महसुस कर पाते

Drawings by : Terrence George George

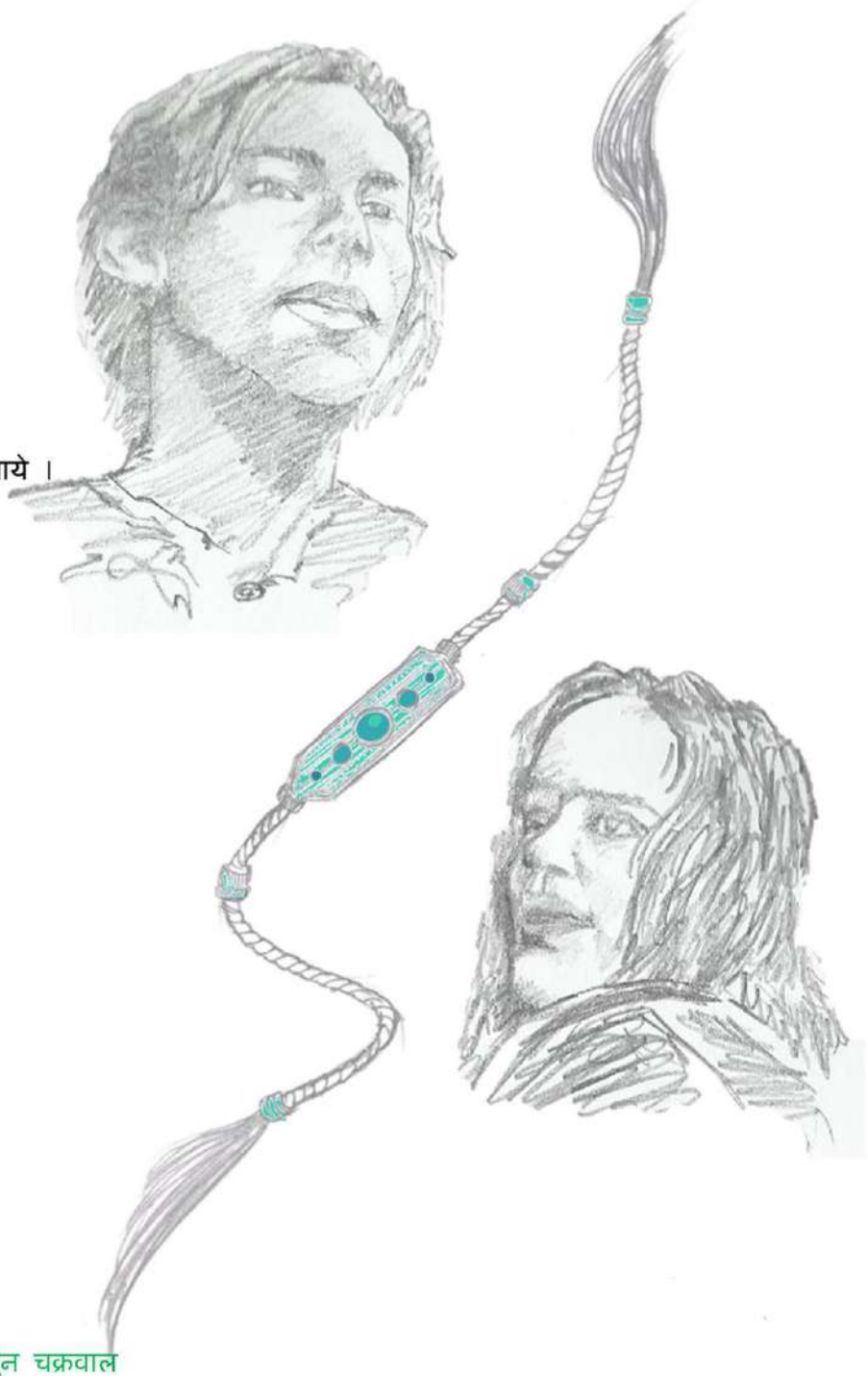
काश एक छोटी बहन होती,
जिसकी बातें हवा के झोंके के जैसी होती,
जो कभी ना रुके, कभी ना थमे,
बस लहरों की तरह बहती रहे,
और जो आपकी जिंदगी को,
यूं ही बहते रहने की प्रेरणा दे ;
आपकी छोटी सी छोटी खुशी उससे जुडी हो,
जब भी गम के बादल छायें तो वो,
छाता बनकर आपके पास आए,
और लहरों की तरह गम के महलों को धो जाये ।

काश एक छोटी बहन होती,
जो आपके हाथों मे एक धागा बांधकर
जिम्मेदारियों का एहसास कराती ,
और माथे पर तिलक लगाकर
लंबी उम्र की कामना करती,
जिसकी दुआओं मे हर एक काम
आसान करने वाली शक्ति है ।

काश एक छोटी बहन होती,
जो हमारे दिल का हाल समझ पाती,

काश एक छोटी बहन होती,
जिससे अपने दिल का हाल बता पाते,

काश एक छोटी बहन होती,
जिससे अपने दिल का हाल बता पाते ।



-अर्जुन चक्रवाल

Drawings by : Terrence George George

I Miss You Mother...

I was one, when I was left in this cruel world.
She went away in those far reaches of sky,
Among those twinkling stars
I lost her when I even could not speak
The word 'Mother.'
As the tide of the time of flowed,
It also erased my old memories.

I had only seen her in the image hung on the opposite wall.
I sat under it gazing it for hours,
Wishing had she come out of the image
And blessed me with her love,
But she never came to quench my thirst.

Whenever I asked my sister
How was our mother?
She always replied that she was the same like you, My Brother.
With these words I felt my mother's essence within me.
As if telling me, "You have a long way to go on my child."

Every night I used to lie on the roof
With a pillow beneath me
And she used to lull me
With the cold breeze which flew over me.

I knew she was among those
A hundred thousand stars,
Reflecting her light as a token of love on me.

Nikunj Goel
31/08/2008

चतस्त्रः भार्याः।

एकः पुरुषः आसीत्। तस्य चतस्त्रः भार्याः आसन्। भार्याभ्यः मध्ये सः चतुर्थ्याः भार्यायाः उपरि अतीव स्नेहमहमदर्शयत्। तृतीयायै भार्यायै अपि तस्य हृदये स्नेहम् आसीत् , किन्तु चतुर्थ्याः न्यूनम्। द्वितियाया: भार्यायाः विषये सः कदाचिदेव अचिन्तयत् उत प्रथमां प्रति सः कदापि चिन्ता न अनुभवत्।

तस्य जीवनम् एवमेव मृत्युपर्यन्तं तिष्ठति स्म। मृत्योः अवसरे सः अतिप्रियां चतुर्थीम् अपृच्छत्, "प्रिये, किं त्वं मम चिरसङ्गिनी भूत्वा मया सह आगमिष्यसि?" इति। सा अवदत्, "न, अहं त्वया सह केन कारणेन गमिष्यामि तव मृत्युपश्चात्?" इति। एतत् श्रुत्वा सः विकटमाघातमनुभवत्। तृतीयया उक्तम्, "अहं त्वया सह आगन्तुं न शक्नोमि।" इति। द्वितीयायाः अपि तृतीयासमम् उत्तरं श्रुत्वा सः निराश: अभवत्, "वञ्चितः अहम्।" एतदपि विचारयति स्म। सहसा एव प्रथमया उक्तम्, "स्वामी, अहं गमिष्यामि।" इति। सा खलु तस्याः पत्नीधर्मस्य पालनम् आदर्शरूपेण अकरोत्। दुःखितः सः पतिः ग्लानिमनुभवत्, प्रथमाया: क्षमा अपि अयाचताम्।

वास्तविकजीवने एताः भार्याः आत्मा, शरीरं, बान्धवः, वित्तम्-इतीनां वस्तूनां स्वरूपाः सन्ति।वस्तुतः चतुर्थ्याः कृते अस्माकं मस्तिष्केषु चिन्तास्ति। तृतीयायाः भार्यायाः बन्धूनां विषये वयं वित्तस्य पश्चात् सदैव विचारयामः, किन्तु आत्मनं प्रति द्वितीयां च भार्यां शरीरं प्रति किञ्चिद्वारमेव वयं विचारयामः चिन्तयामः वा।

अतः अस्माभिः सर्वैः आत्मनं प्रति ध्यानं दत्तव्यम्। आत्मनः स्वरमेव अस्ति सत्यं निष्पक्षं च।

(एषा एका, अनुकूलतया निश्चयेन पठतु, दोषाः च सूचयतु।)

- प्रनव गुप्ता

The Eagle soars

Wings Spread,
Eyes upon the target, I take flight.

I probe the earth tilting only slight.
Nothing escapes me,
Nothing betrays me,
My pray shivers with my might.

Everything I devour,
Is just my hard earned bread.
My life is my own,
fearlessly can I tread.

Only I can be my pilot,
My beliefs are my controls.
My mind the compass, passion
fuels my whole.
What else do you wait for?
The ignition only needs a spark.

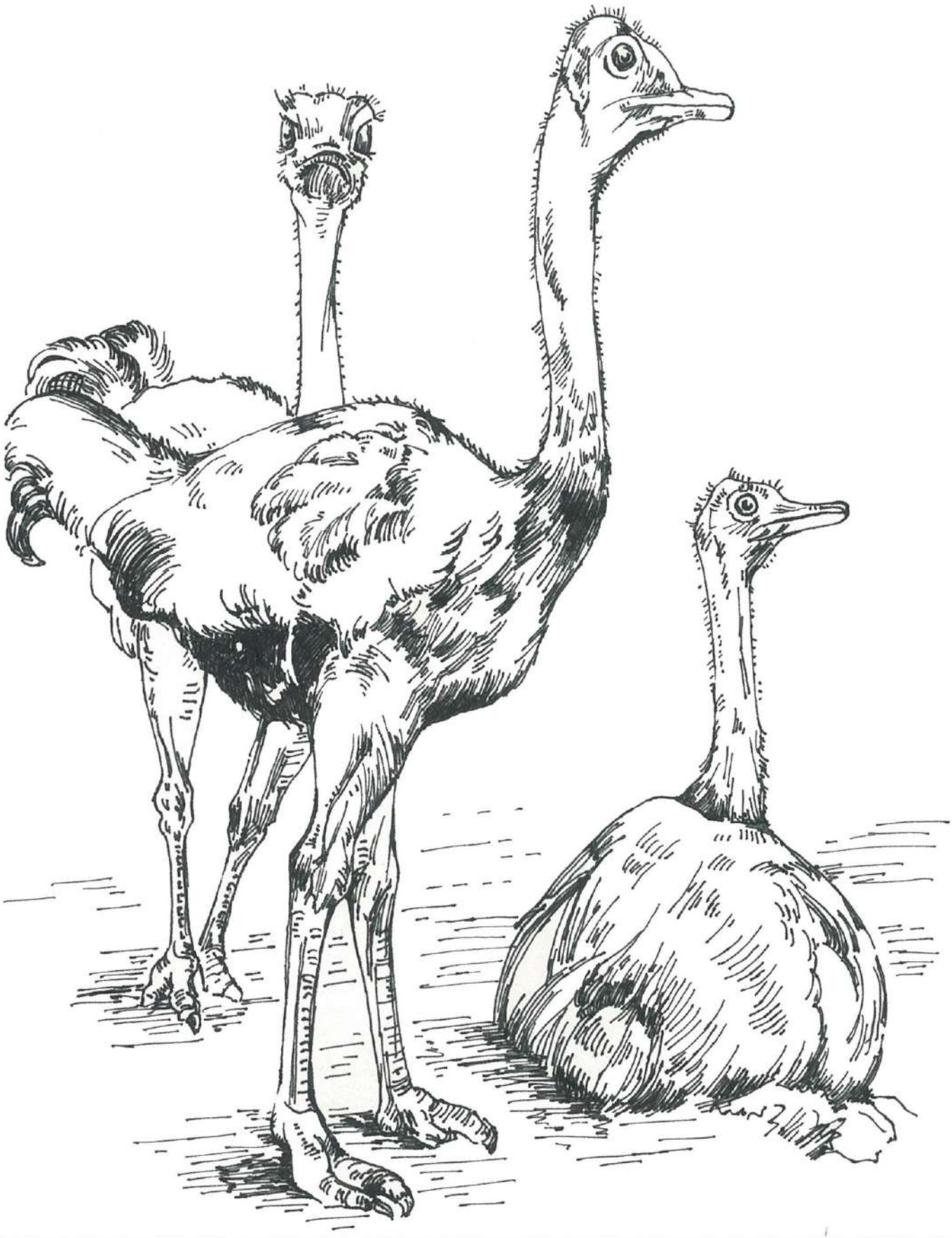
Only a dream is enough,
For you to leave your mark.

Everyone knows the rules,
Yet the winner takes away all.
He was true to himself in the race,
How could he fall

SO
Don't stop, Don't sway,
Don't doubt, Don't fear.
Endlessly keep flying.
Reach out to the skies,
Your journey begins here.
The worms won't crawl
into your nest,
Get out of your comfort,
Stop being a pest.
Live for yourself,
Defy all the rules.
Be your own mastermind,
Make hard work and faith your tools.
Break free of your myths,
Set yourself apart.

After all you are unique,
The one and only Mozart.

Neha
Kondekar



Drawing : Terrence George George

Drawing : Janhavi Kolhe

Sports corner

What's inside...

Football

Read the experience of the captain of the UG football team... how the newly team faces the established ones...

Basket ball

Go down the memory lane of two UGs to trace what made them so passionate about basketball

Badminton

Meet the enthusiasm of the UGs while playing badminton at gymkhana IISc

Hockey

Catch the way this game is played in the Gymkhana grounds along with the players' profiles








ISc hockey club is a group formed by the students of IISc for students and gymkhana members interested in playing and learning hockey. The group comprises of both the members of the faculty and student body. The group is active in organising coaching sessions and tournaments for the benefit of all the members of the club. The group is open to all interested in joining and being a part of the hockey family. The group organises an annual intra-IISc hockey tournament (also known as IPLH – IISc premier league hockey) and also the beginner's hockey tournament. The undergraduates also took part in the beginner's tournament as a team marking the event of the undergraduates becoming a part of the hockey fraternity. Besides, the club also participated in tournaments organised by other colleges in Bangalore like the St. Johns medical college. The team performed very well with commendable achievements and this was also special since the goalkeeper of the team representing IISc was an undergraduate. The group also has members coming from adjoining research institutes like Raman research institute (RRI) and NCBS. More importantly the group and gymkhana provides free balls, shin-pads and sticks to all its members. Moreover, the group also goes to various hockey matches in the K.S.H.A stadium like the recently concluded WSH (World Series Hockey). Due to affiliation with the K.S.H.A and also the good rapport of our senior players with the coaches and referees associated with K.S.H.A, the members of the club have the access to free passes. I hereby would encourage and reach out to the students and also the future potential students to take initiative and try their hand at this wonderful sport.

Photos : Praveer , Abhinav

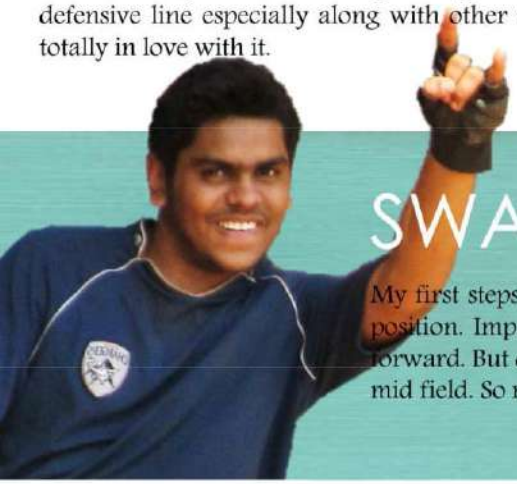
HOCKEY

SASANK Amavarapu

I started playing hockey in my school days. I had become pretty good in this field during my schooling. Currently I am the goalki of the IISC hockey team. I had played tournaments for the IISC team. Other than goally I generally play the defense position in the game. I have extended and upgraded my game after joining in the IISC Hockey club.

SUSHANT Bangru

I was first introduced to hockey when I came to IISc in the monsoon of 2011. I started going for hockey every evening and since then, it has been a regular feature of my day. From the very start I found my calling in defense. I have tried to improve my skills in defensive line especially along with other important hockey skills. I look ears and I'm totally in love with it.

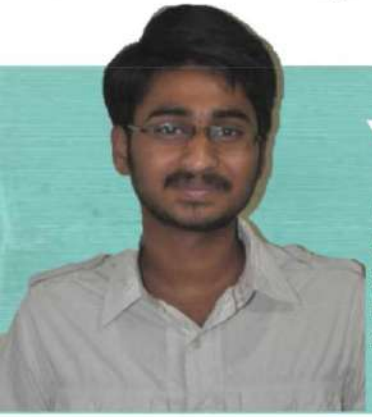


SWAPNIL Yadav

My first steps in hockey started after joining IISc. I started playing in the defense position. Impressed by my speed and skill I was promoted to play in the half or forward. But due to the obstacles I faced with stamina, I wasn't that effective in the mid field. So right now I play in the defense.

PRAVEER Tiwari

I love hockey because , it is one of those games which enhances and utilizes both physical and mental skills of the player . I mainly like the thrills involved in the game. Strategizing the whole game before the match is it's integral part , that is what makes this game unique among a thousand other games. My favorite move is passing left inside the "D" while running on the right line .



YASHWANT Vaddi

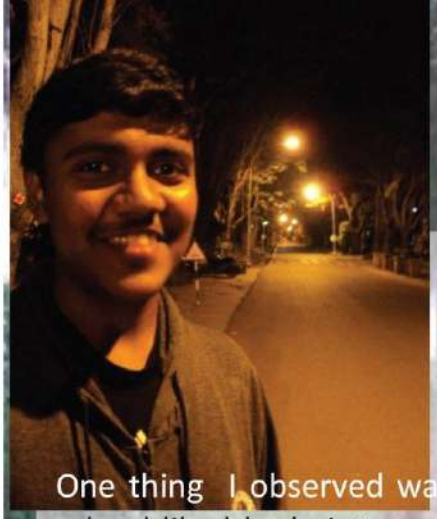
I started playing hockey during my senior schooling. I had a break in between and continued after coming to IISc. I prefer to play in the mid field or forward position. I am good in tackling the players and get the ball through them into the penalty area with my skill. I am working more on my stamina to improve my game.

ABHINAV Jain

I started playing because I enjoyed clicking hockey pics :D. Hockey is fun for me - Doing warm ups :p (tongue out because no one except me really does it), playing as a forward :) and cool downs with the people after the game are real FUN :) . In short, I WALK HOCKEY , TALK HOCKEY , EAT HOCKEY , LIVE HOCKEY !!!

Photos : Naveen , Janhavi, Praveer

The order in which the profiles appear are random



QUITE SOME RAQUET

One thing I observed was that not many guys in my school liked badminton, as they considered the sport one which is predominantly played by women. So I rarely got guys to play badminton with me in school. However, the scenario changed dramatically after I came to IISc, as I saw a lot of my seniors were interested in playing badminton and surprisingly, a majority of them were men! . My most memorable experience was when we played a game against Sathyanath and Rohit only to realise that they were to be our Engineering TAs from the next day (We had fun while playing the game though we lost to them). My fellow UG classmates namely Nirmal, Ben, Joseph, Akhil, Abraham, Abhijith, Sayantan, Indrashis, Konad, Arjit all play along with me in the Gymkhana. We do hope that we will continue to play together regularly and we expect our juniors to join too !!

Sriram.C

NEW DAWN

Chirag S Igoor former under 12 and under 14 national player, an undergraduate, has brought out a change , a change in the photograph of the award ceremony of iisc tennis tournament. Yes the IISc Tennis club has a new deserving Champion now. **Aniruddha Datta Roy**, Champion of tennis had witnessed yet another one in the "clash of the titans" .It's a new dawn at IISc tennis club

IT'S NOT WHEN YOU A LOOSING IT'S OV WHEN Y

REALIZE THE VARIETY OF SPORT UNDERGRADUATES ARE INTERE EXCEL IN

FIELDS CLOU

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Photos: Janhavi and Nave

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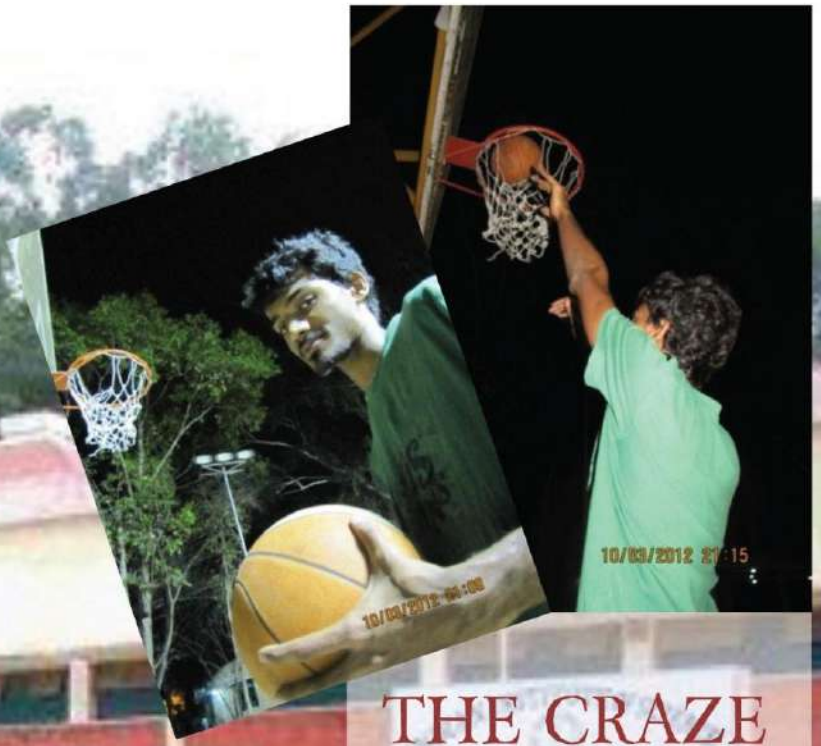


THE CRAZE

It all began in my 7th grade .I had just moved into a new school . But these early days in basketball turned out to have a great influence on me and on my life in school.it was during this time that I got a new name "pachai" , it was a weekend and a lot of seniors had come to play being kind enough they let me in, but I was a new student especially with a very long name they didn't know how to call me so one of them came up with the ingenious idea of calling me "pachai satte" (green shirt) because I was wearing one. Also coincidentally the next week when they came to play again I was wearing a green shirt !!! so they sort of standardized my name to pachai. This game has made me what I am today not a "star" but yes an ordinary student of IISc who continues to play the sport every evening simply cause it makes him happy really happy !

Vishweshwaran Ravikumar

er as a sports person since my 8th grade. It was here, "beagles" , summer basketball camp . As my dad was a basketball craze , he e and my sister to achieve something in this field ,as he realised there are a lot many things to and explore. It was still just a week to learn and know about the game when my coach called us to face tadium. That was when I felt an object of ridicule and got tensed at coach motivated me all along the game which made me play for a nce, then I continued to play basketball and now at times play in ver the time permits. I have played school national's thrice and SGFI eration of India) twice.

Sowmya Indrakumar

en Photos: Naveen(top 2 only)

Aditya
CENTER AGGRASIVE MID FIELD

Athmanathan
GOAL KEEPER

Ben johns
RIGHT SUBSTITUTE

Chirag
LEFT BACK

Madhwesh
CENTER BACK / RIGHT BACK

FOOT

"You just need to look at the player's first touch to see if he is good or not "

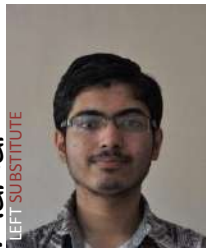
-words from my school coach that I sat pondering upon as I watched the players on the IISc football field during my first week at IISc .

"What if I am the worst here?"

"What if they all are better than me ?"

These were the doubts that assailed me even as I played football at IISc the next day. As it turned out they were not all better than me (some were though) . The thing that was disappointing was that not many in UG played football, accustomed as I was to more than half the class playing football at school.

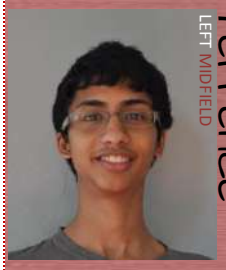
Then as the 1st semester ended, and the 2nd sem started, it was time for the 7's cup, the annual 7 on 7 football tournament. We decide to enter an all UG team although the teams didn't need to be departmental in nature. We had a very inexperienced team and when we were drawn in a group with the defending champions Phoenix and their rivals ' Black Hawks ' , our job of qualifying became even harder.



Mukul
LEFT SUBSTITUTE

Sriram .S
CENTER BACK

Sudhanva
RIGHT MIDFIELD

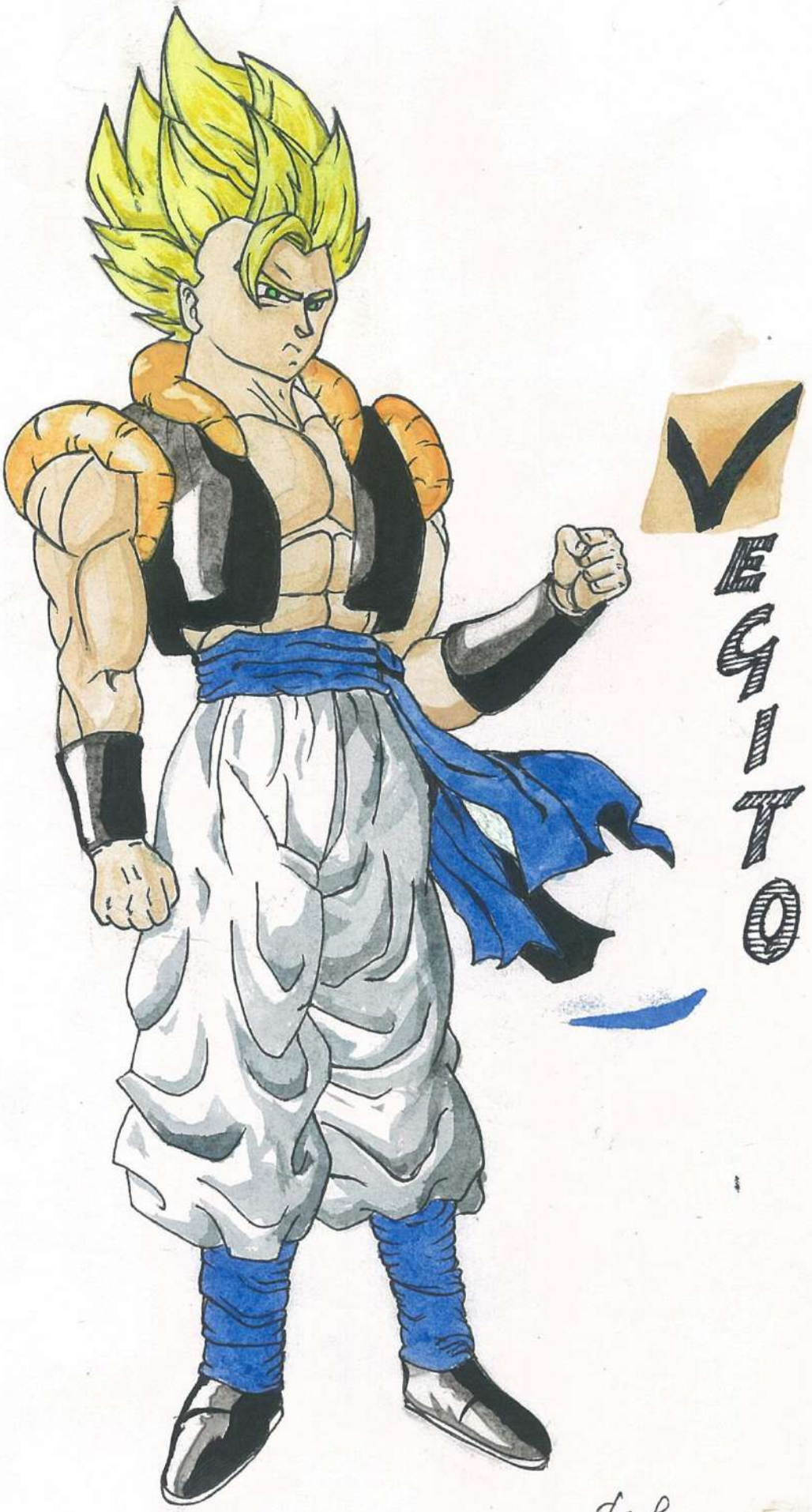


Terrence
LEFT MIDFIELD

Ullas
RIGHT MIDFIELD SUBSTITUTE

However we had a very sturdy defense and seizing one of the few chances we had in the game, we scored a goal, cancelling out the earlier strike from the Black Hawks, to draw the game 1-1. We lost the next game 2-0 against Phoenix. However because of Black Hawk's 3-0 loss against Phoenix, we went through to the quarters on 'goal difference'

Now that we were in the quarters, not only was our next game against United-ten, probably the most experienced team in the tournament, but we also had to play without our central defender Sriram who had to go to Pune . The difference in experience (and skill) showed as we suffered a heavy defeat . However, the tie wasn't over yet (technically, that is) and we had to face them again as the quarters were 2 legged (matches) . This time we were missing other central, Madhwesh , as well and though we played better than our previous game , we still suffered a heavy defeat. However the tournament was a good learning experience and we hope to do much better next year. -Aditya Hebbar



Drawing : Venkata Pavan

Drawing : Venkata Pavan

UG life

What's inside...

REASONS

to join the Undergraduate Programme in IISc

From my high schools days itself I was interested in science, particularly in physics. Although I was interested in engineering as well, I always thought I'd switch over to research after that. So I was very happy when I got a chance to join IISc as this allowed me to come to an institute centred around research for my course. Another important factor was the flexibility of the course and the fact that it would give us a broad based education involving a bit of all the major streams of science.

Aditya Hebbar

To get the complete science experience !

Himani Galagali

IISc is the best science institute in the country, suffused with the perennial breath of "science" and "fresh air" and undoubtedly the best place to transform oneself.

Pranav Gupta

I was interested in choosing research because this is a field where I can do what I like to do and also be useful (and obviously get paid). IISc is the best place for an environment of research (in India) and what could be better than research-oriented studies since the very beginning (i.e. UG) at such a fabulous institute? So I joined the BS course at IISc.

Krishnan Iyer

To answer the question which always follows me wherever I go " But why"? Diksha Rehal

---

I am very much interested in maths and physics,..and nothing else(in academics :)) so decided to join BS or Int. MSc. course in iit or IISc...JEE rank turned out to be pathetic..So my only next option was IISc..and..even if I had turned out to be JEE 1st ranker.. which all of you know I could easily have :)...I would have joined UG here.. after all IISc is the top most science institute in India..and I am really happy for my decision and proud to be among you guys being part of the first UG batch at IISc... Akhil Sivakumar

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I joined IISc because its ug course is very flexible and after doing this course I can either go into basic research or engineering oriented research. Also the course provides huge freedom to explore interdisciplinary areas regarding to my interests.

Pranav Mundada

Bangalore is an awesome place to live in !
Abhinav Jain

I joined IISc because I am interested in a research career ...This is the best place for it .. also , it was a childhood dream which seemed impossibly difficult to come true

Aditi Mishra

From the very childhood to our +2 , there were certain questions that were unanswered ... some things that are accepted as the very fact ... taken for granted ..and lots of nature's mysteries have been solved using them... so to know the basis of these so called "accepted facts" and to continue decoding the marvelous codes of nature, I decided to take a step by learning science in IISc !!

Pratibha Mahale

This course appealed to me mainly because it is different from all the other science courses available. Also the institute's reputation was a huge point

Sunanda Srikanth

After the whites had stepped in , Indians were made to forget their literature , rich tradition in every sphere possible . . . I feel we don't live our lives but rather their ... To bring out the traditions in the specific area of science has always been my dream. The first step in this is to understand science in their way then dig in our versions of the same theory and then understand the difference and the reason for their victory and try to prove to the world that we had better theories even before that stupid apple fell! ...To get the best scientific exposure, this is obviously the best institute in India

Naveen Sendhilnathan

I was always curious since my childhood about why and how nature is the way it is. I was fascinated by the grandeur and beauty of nature- both terrestrial and extra-terrestrial. Hence I wanted to make my career in research and IISc offered this undergraduate interdisciplinary course with the right environment that seemed best for future research compared to other engineering /science courses in India at present.

Hemaa Selvakumar

Our country is competent with other countries in many fields such as sports ,software etc., but when it comes to research we are just lagging behind. Once i read in "The Hindu" an article on research which stated "In terms of research productivity, the picture is not encouraging enough. India has 7.8 scientists per 1,000 population compared to 180.66 in Canada, 139.16 in the Russian Federation, 53.13 in Korea and 21.15 in the U.S." This clearly shows that there is no significant encouragement in our country for research and even if some are interested they are always discouraged by others by saying that "there is no scope for research in India nor there is any good guidance"(definitely every one of us would have come across that).

But when the most reputed institute like IISc started this programme it was really encouraging and I believe it is a step towards a new era(science and research) in our country.

As Einstein said "If someone feels that they had never made a mistake in their life, then it means that they never tried a new thing in their life".

So I tried a new thing but definitely it's not a mistake.

E. Swetha


Material Engineering
High Energy Physics
Neuroscience
Electrical engineering
Mathematics
Biophysics
Cell Biology
Science
Civil
Aerospace engineering
Biochemistry
Inorganic Chemistry
Super computer
Ecological sciences
Physics
Microbiology
NMR
Celebrating years of
100
Excellence
Bioinformatics
Solid state and structural chemistry
Molecular reproduction
Cryogenic technology
Chemical Engineering
Computer science
Instrumentation Physics
Molecular biology
Nanotechnology

I cleared JEE and ISAT examination with a decent rank. Even though I am in interested in research and liked IISc , I had a passion (actually mania) towards IITs. Many of my friends and relatives told me to join IIT. But hearing my mother's advice, I joined IISc. Actually today, I feel really happy for listening to my mother. Now, IISc feels like my home. This is the best place for doing research in India.

Kamalnath kadhirvel

It's well known that IISc-Bangalore is the best place for pursuing basic science in India. It's a world class premier institute in science endowed with its own glorious history. Also, great ones like Sir C. V. Raman, Satis Dhawan, Homi Jahangir Bhaba, Vikram Sarabhai etc. were among its family. That's why I chose to join IISc, though I got admission in IIT kanpur also.

Padma Bhushan Borah

I came to IISc at first because I always wanted to pursue sciences , and IISc gave me a blend of different science subjects , making it interdisciplinary .Moreover , this was a first of itw kind of course that put something new on the table ...

Sushant Bangru

I didn't want to sit in front of a computer wasting my knowledge , rather i wanted to do something useful in science , especially in physics , for this the best place i realized was IISc Nikunj Goel

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Medical examination tests by the health center in IISc were simple .... That's the reason I joined IISc Niharika Mekala

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IISc is the best institute for research in India and being in such a place for your under graduation is a dream come true because it's the best available platform in India for budding scientists . IISc isn't a nerd's heaven rather it is a seeker's paradise. Neha Kondekar

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IISc UG course gives the advantage to learn your favorite subject along with many other basic and wonderful subjects (like a chemist also learns economics, electronics) which is very essential in current environment where research and development is completely interdisciplinary. However in IITs or any other engineering colleges u don't enjoy this flexibility. Henceforth to at least admire all the colours of the rainbow I joined IISc UG. Neha Singal

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I have always loved science ... coming here was thus the natural choice Amogh Kinikar

---

I always wanted to do science. I was never interested in engineering , so , initially , I had made up my mind to do science in IIT , but later , as IISc started this UG programme , I was very much sure of taking science here ! Sasank Amavarappu

---

I simply love science , specifically chemistry ... Well then , obvious place to do chemistry, the best, is IISc , since it has a great platform for learning science and doing research . . . Vignesh A.N

From my childhood , I am fascinated by the laws of Physics , and want to become a physicist . I found IISc , the best place to learn science...

Yashwanth Vaddi

The way to be

Sent away in summer time
As far as the clock once turns, to rhyme
And here I was, past the gate
Of the campus that would seal my fate
Alights, is hype, so to sound
The whole world seemed to turn around !

Lucky hardly qualifies
To describe what it signifies
Awe inspired, and hardly a man
'cause I wasn't 18, & still a moron
Set off along destiny's path
And the dusty one to N-block

Immersing myself in nature's arms
I savor the delight of freedom's call
The pleasure of life and friends anew
Glows upon me
As the fresh breath of evergreen woods
The twisting lanes of autumn leaves
And lonely trails of brighter days
And even the food in my temporary mess
Makes me feel that I'm alive

Deep within, the hope aroused
As the awakened mind races
To grasp the chance ever so rare
That providence chose upon me to share.

As the dust settles on the ground
I'm left searching all around
Something amiss, I could feel
It's absence, even as I stumble to find
As sure as the blood filling my veins
I knew I left something behind

'Cause God gave us
The power to dream
As much as we could walk, talk or scream
Not the ones that moonlight brings
Or that flee from the breaking dawn
But the ones that are alive,
As if with us, they too were born,

'Tis so true, the wise ones say,
"Give wings to your dreams
So they reach the sky"
They bring alive what you crave utmost,
And doesn't dare to dare!
But time has come I realize;

When the wings of your dream
Come in the way
Of newer, brighter, younger ones,
And itself clouded is its path,
That you lose your way.

The time has come, I realize
And shed the wings, with misty eyes
To make way for newer, brighter ones
And bide its time till fate beckons.

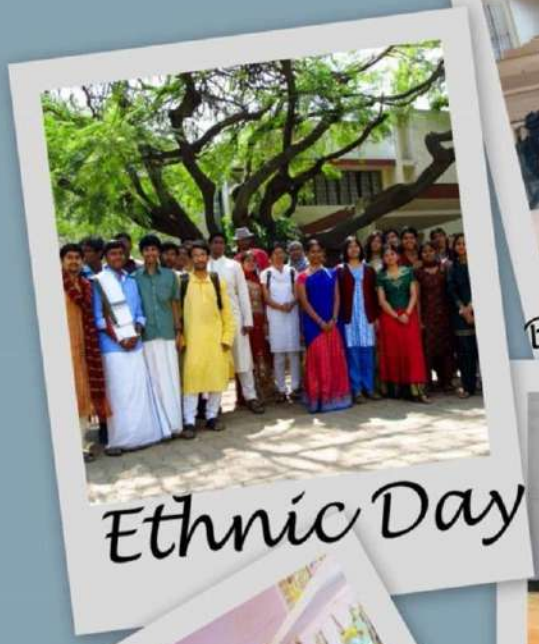
For once more will their wings sprout,
The wings of destiny, and stay afloat,
'Cause they are the ones that are alive
As if with me, they too were born.
How so true the wise ones say,
"Providence never leads you astray"

For high a dream can still abound
When the other swirls around.

Ben Johns

Down th
me

Tree Plantation



Ethnic Day

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Notebook
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UG Talent Show

Art Exhibi

Page designed by Sunanda Srikanth

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Day in support
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Open Day

DJ Night and Sankranthi

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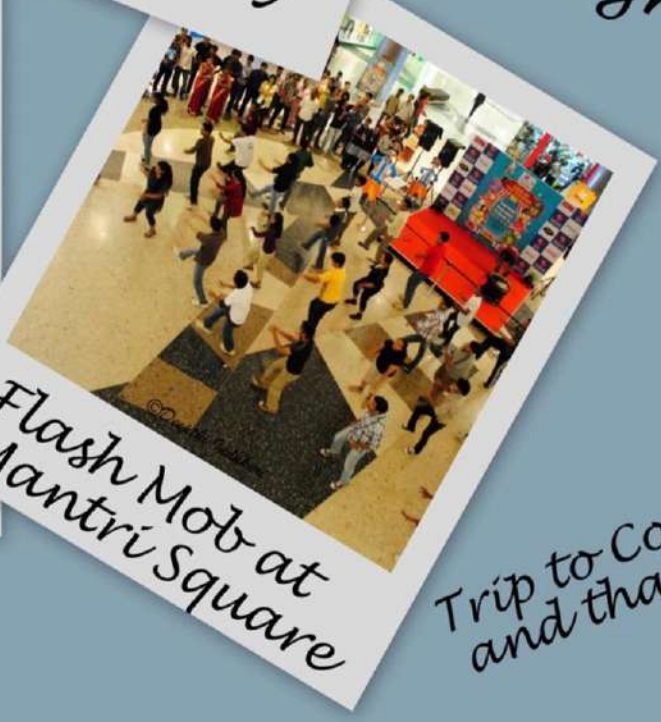


Flash Mob at
Mantri Square

Trip to Coorg, Shivanasamudram
and thalakkad

tion By UG students

FIRST SEM KI जुगलबंदी

'UG magazine UG magazine! हमारी Magazine छपने वाली है ' इस खबर ने मानो मन मे नया उत्साह भर दिया था !!! पर जैसे hindi movie मे होता हैं Hero के साथ willian'मुफ्त' 'मुफ्त' 'मुफ्त' ठीक उसी तरह इस खुश खबरी के साथ साथ एक दुविधा हौले हौले 'Bangalore' कि रिमझिम बारिश की तरह नही बलिक 'Cherapunji' (या इतना दूर क्यो जाये) आजकल की Mumbai की बारिश की तरह आई। दुविधा क्या लिखुँ इसकी दुविधा ! और इस दुविधा की आग मे ghee डाल रहे थे कई विचार -

" IISc कि पहली UG Magazine हैं, सबकी निगाहे होंगी"

Seniors, Prof तो वैसे ही हमें ' Young Chimpanzees ' , 'kids' बुलाते हैं कुछ अच्छा नही लिखा तो वही image बन के रह जाएगी। पर इस कशमकश के बीच भोपाली अंदाज मे मन ने कहा- "अंमा छोडो, मिंया हम जो हैं सो हैं।"

फिर क्या 'Yes+' चल गया और तुरंत idea का bulb जल गया। क्यो न First Sem की दास्ताँ सुनाई जाए।

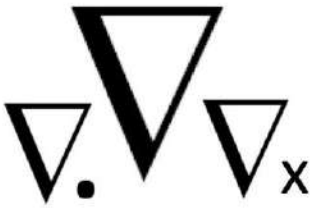
पर इससे पहले मैं 'संक्षेप' मे अपनी बात कहुँ भारतीयो का एक गुण आपके समक्ष प्रस्तुत करना चाहुँगी। कभी आपको आपके रिश्तेदारो ने मिलते ही पूछा है क्या "बेटा खेल कूद कैसा चल रहा हैं, Party sharty मस्त!!"

नही ना! सबसे पहला question अपने Ak-47 से shoot करते हैं। "पढाई कैसी चल रही है ?।" तो इससे पहले आप heredity से मजबुर होके मुझसे यही प्रश्न पुछे मै पढाई ही शुरु करती हुँ। दूर के ढोल हमेशा ही सुहानें लगते हैं इसलिए दो महीने कि मस्ती और आवारागर्दी के बाद पढाई भी सुहानी लग रही थी। हम 'SCIENCE' पढने वाले हैं, "आखिर ऐसा क्यों होता है" इन सभी प्रश्नों के जवाब ढुँढने वाले हैं। यह सोच कर तो garden garden हो रहा था और दिमाग तो चीख रहा था " Mugambo खुश हुआ।" Dirac, Feynman, Einstein, Schrodinger बस इन्ही कि भाषा मे बात होती। Surely you are joking Mr. Feynman कह कह कर ठहाके लगाते। वाह!! चारों ओर नही आठों ओर science थी।

" अन्त भला तो सब भला " ऐसा सभी कहते हैं। अब यार obvious है ending अच्छी हुई तो सब अच्छा ही हैं। पर क्या किसी ने कभी कहा है, " शुरुवात भली तो सब भला" नही न क्योंकि वो हमारी कथा और दशा पहले ही सुन और जान चुके थे। सुबह 8:30am से 5:00pm (officially !{actually 6:00pm}) तक science ने दिमाग मे ऐसी "हलचल" (हलचल बहुत हल्का शब्द है) ऐसा "भूकंप" मचाया की सुनामी भी उससे शर्मा जाए।

Walk करते करते सारा campus खत्म हो गया पर meditation भंग करने epsilon और delta का concept नही आया।

Physics की book खोलते ही does that make any sense?? यही प्रश्न दिमाग मे घुमता रहता और बार बार जहन में एक ही ख्याल आता wait a minute. Have I done something wrong?



Gradient ने हमे physics से ऐसा divergence दिया कि हमारा दिमाग Newton और Einstein के बालों कि तरह curl हो गया।

परिस्थिति इतनी बिगडने के बाद भी थोडी तो आस थी कि शायद chemistry की mystery हमारे पास थी। पर भ्रम तो टूटना ही था। Schrodinger भाईसाहब ने अपना vacation मनाते मनाते खतरनाक सी equation मजे से लिख दी और अब उसके चक्कर मे हमारे सारे weekend और सारे vacation से मजा उड गया। Schrodinger ने हमारे दिमाग को समझा हो या ना समझा हो Heisenberg ने यकीनन हमे पहचाना तभी तो अपने uncertainty principle मे केवल particles को ध्यान मे रखते हुए नही लिखा बल्कि abstract thoughts को भी consider किया eg: UG chemistry. "The concept and numerical of any topic in chemistry can't be understood completely by any student. There is always an uncertainty in it." और यही uncertainty, error analysis के through हमारे marks में carry forward हो गई। बस marks और subject देख कर इतना ही कह सकती हूँ, " I am too lazy".

UG course ने तो सृष्टि के नियम भी तोडे! अब वैसे तो ऋतुए आमतौर पर 20 दिन मे ही बदलती हैं पर जानते हैं हमारे biology course मे subject की ऋतुए 8 lectures मे ही बदल रही थी।

Darwin की दाडी नापते-नापते तो समर कब निकल गया पता ही नहीं चला। मधुमखियाँ तो मजे से अपना शहद nursery में बना रही थी पर हमारे दिमाग का दही बन रहा था। फिर ecology कि बारिश में हाथी रुपी हमारा आलस भीग कर बह गया। Plant और Animal kingdom की spring मे इतने फूल (Kingdoms) खिले कि हम ना तो सभी को गिन सके और न निहार सके। Cell biology में " Close your eyes and take a deep breath" करके भी उसकी पतझड मे हमारे दिमाग के पेड से concept के पत्तों को झडने से हम रोक ना पाए।

Humanities subject का नाम सुनते ही सोचा था कि subject सिखाने वाला, सीखने वाले और more importantly subject तो 'humane' ही होगा। पहले दो का intuition तो सही था पर तीसरा तो myth ही निकला। Mohenjodaro की city 'necropolis' है या 'city of living' ये सोचते सोचते ही हमारी सोच यकीनन मर गई!

पर सोच को जगाने ही नही अपितु उसे brush कराने engineering आया। बदलती ऋतुओं मे healthy रखने के लिए हमसे exercise भी engineering करवाता ! एक दिलासा था "Even if you fall ill I am with you" {actually-" even if you get zero I am with you"}.

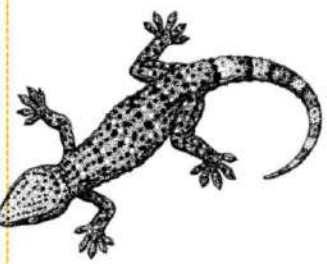
एक बात तो यकीनन सच हैं मनुष्य कभी present में नही रहता या तो past में रहता है या future के सपने बुनता है। पर यकीन नही करेंगे की अब कोई भी UG student past के बारे में नहीं सोचता!!

क्यों??

क्योंकि engineering के साथ backtracking करते करते past का पहाड खत्म हो गया लेकिन मन for loop के जंगल मे भटकता रहा और हर मौड पर if else करते करते दिन रात मे बदल जाती।These" study talks" will never end so if now your Indian genes are satisfied (which I think so are) I will tell you about other things in the campus.

IISc 100 successful years पूरे कर चुका है और इसका सबसे बडा प्रमाण हैं IISc के पुराने Hostel जो आज भी बाहर से (गौर कीजिए बाहर से) मजबूत दिखते हैं। हाँलाकि इन 100 वर्षो में अपने अकेलेपन को दूर करने केलिए उन्होंने cockroach, mice, lizards को अपना गहरा मित्र बना लिया हैं और अपने मित्रों को रीझाने के लिए अपनी दीवारें हरी-भरी रंग-बिरंगी कर ली हैं। अब

तो इनकी दोस्ती इतनी strong है की अब हमारी जरूरत भी महसुस नही होती। "मेरे पास lizards,mice हैं, cockroach हैं ,क्या है तुम्हारे पास।" hostel हर पल कहता है। हम एक ही उत्तर देते, " हमारे पास patience हैं।" (सरकार की proceedings को delay होते देखने का PATIENCE!!)। एक साल [in fact उससे ज्यादा] patiently wait करने कि कीमत (new hostels) तुम क्या जानो पुराने hostel बाबू?



Panipat haryana से बोर होके हमारे hostel के washroom में आ गया (आखिर अपने नाम के हिसाब से उसे characteristics भी मिल गए-भरपूर पानी इसलिए panipat!) और history तो history हैं! History repeats itself !! बस फिर क्या रोज morning मे "Battle Of Panipat" छिड जाता exclusively titled as "BUCKET FIGHT !!!!" इस जंग को रोज जीत कर अपना जश्न mess में idli vada or upma के साथ मनाना और फिर जश्न के mood से बाहर आकर पहूँचना!

I think so अब मेरा संक्षेप **"संक्षेप"** बन रहा हैं। इससे पहले की आप article पढना बंद कर दे मैं इसे end करना पसंद करूंगी !! पर मैं एक सत्य आपको बताते हुए जाऊंगी-अब वैसे बचपन से optimism की बाते सुन सुन कर अब तो आप यही मानते होंगे (अगर मानते नहीं तो कम से कम जानते ही होंगे।) कि 'Every coin has two sides' , 'Glass is half filled rather than half empty'

तो सच ये हैं कि मैनें आपको glass half empty ही दिखाया हैं। (for a change !)

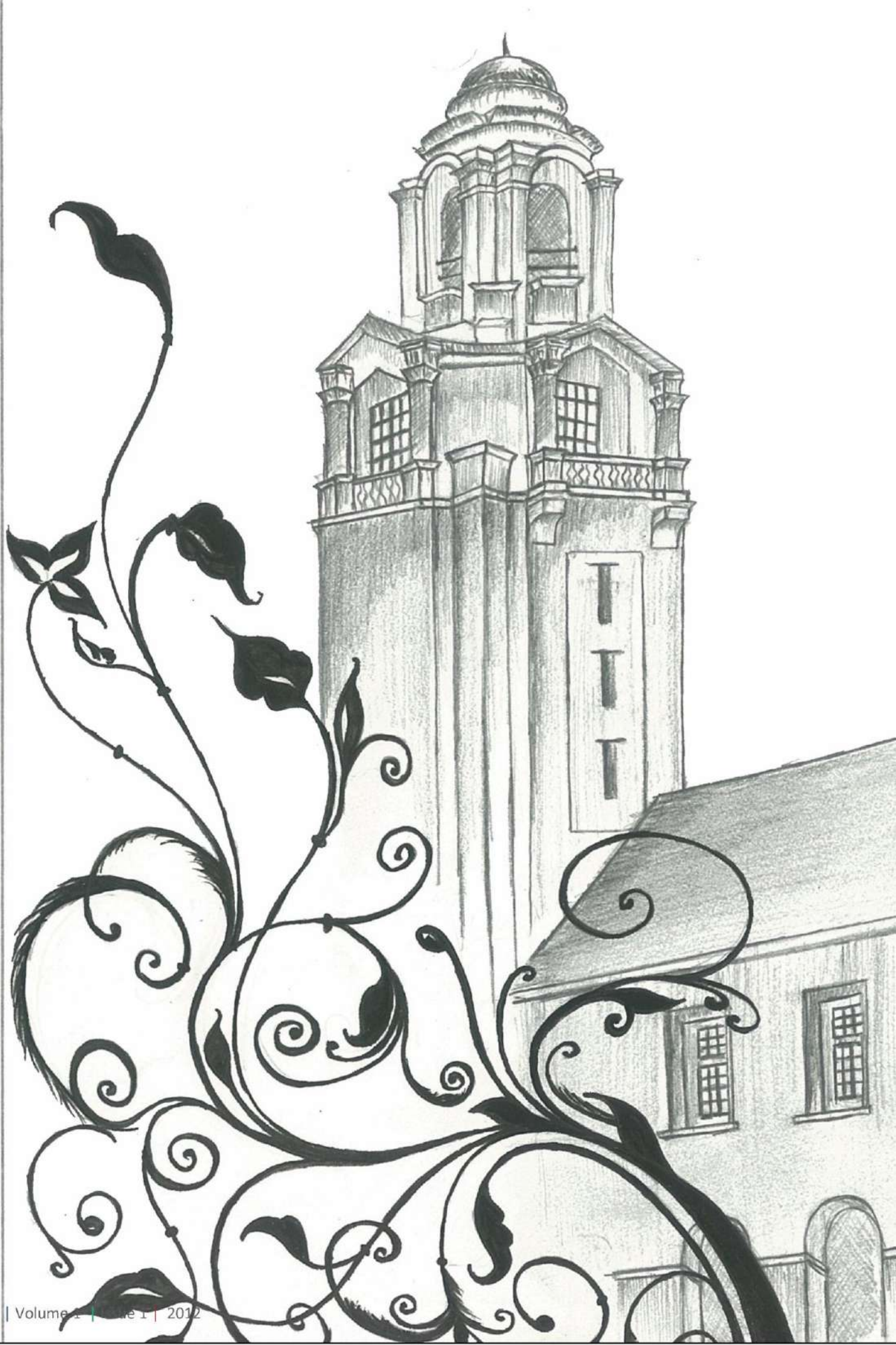
हाँ ये हो सकता है कि शुरुवात मे हम सभी UG students में से किसी ने glass half empty देखा होगा तो किसी ने half filled । पर इतना मैं sure हूँ कि जिन्होंने glass full देखा उन्होंने first sem के बाद उसे overflow किया और half empty देखने वालो ने यकीनन उसे full कर ही लिया है।

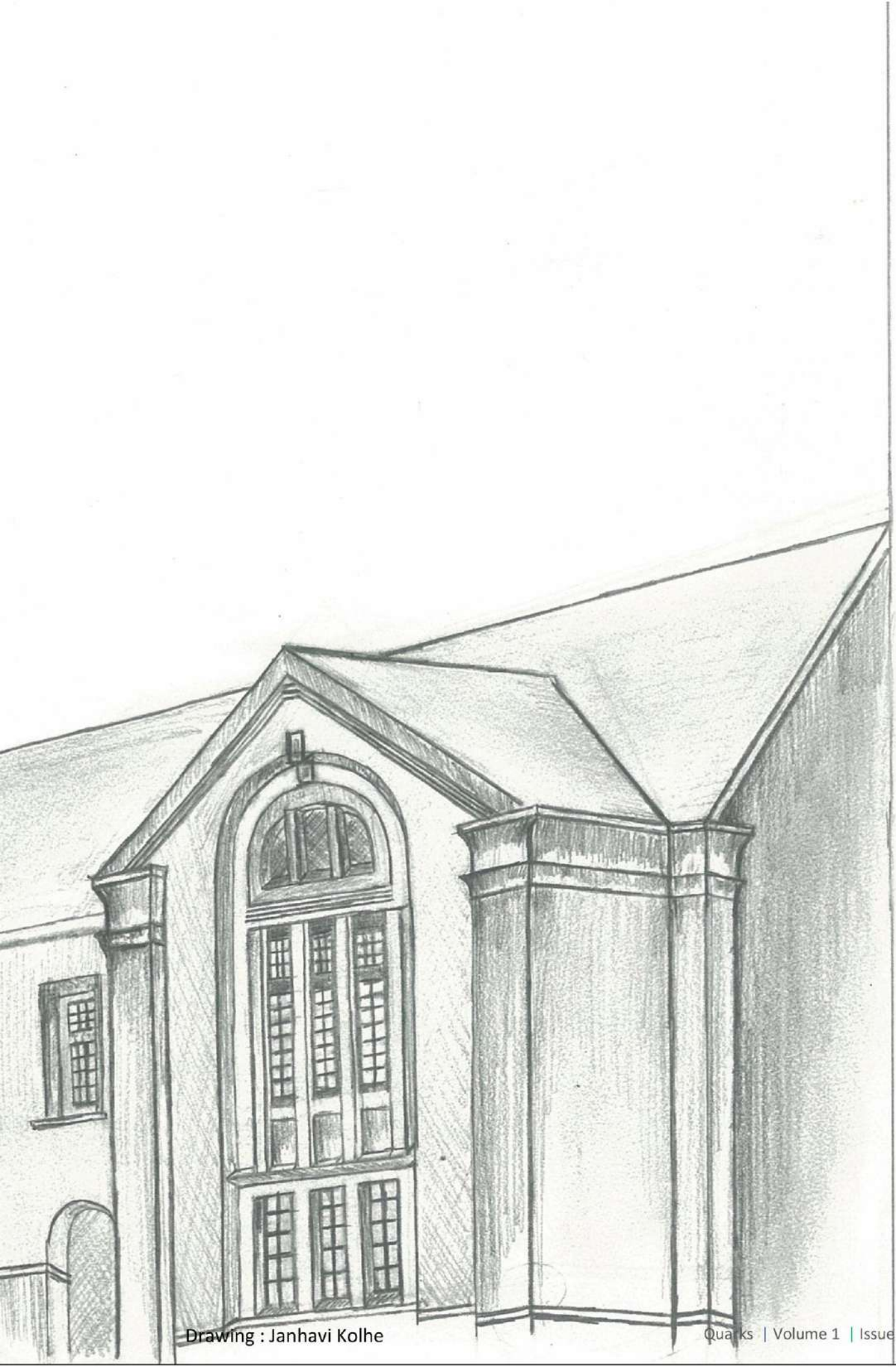
Full /overflow किया हैं:

दोस्तों के साथ से,
नये hostel experience से,
Campus के अद्भुत atmosphere से,
Professors' के उच्च विचारों से,
Bangalore के awesome weather से,
And more importantly SCIENCE से,
And the list continues.....

.....asymptotically approaches ∞ !

-Pratibha Mahale





Drawing : Janhavi Kolhe

a Ray of hope

- Irfan Ansari

31st July, 2011

"Hey dude, What's your name?", asked one. "Where are you from ?" added another one.

"Me.... Oh..... Me..... I.... I.... am Irfan Ansari f... fr... from UP." I replied in hesitation.

This was my first day at IISc and my first 'Introduction' at the N-block Hostel with my classmates. Then conversation started but I was just listening to them like a dumb person. In fact, I also wanted to be a part of that conversation just like other classmates. But I was neither able to follow them nor could I speak like them . For me, this was not a just simple conversation , but a conversation going on in ENGLISH,to understand which was like a wild goose chase for me. I began to curse Britishers who created a lot of hindrance in the development of our country for a long time and even today they are doing so by creating language barrier for people like me by imposing such an English education system.

Anyway, I was still looking for a chance to speak something. Eventually I guess that they might be talking about IISc so I asked ," Do ..... Does.... no..... Do....han ... DO you know that ..... (silence)....."

Photo : Akash

I was trying to find proper words to complete my sentence and say something in appreciation of our faculty at IISc but the way other fellows were staring at me for reply,was making me more nervous.

Then being out of mind, I just uttered , "O... Ou.... Our ff.... faculties mo..... more of them is ve.... Very pioneer ." I thought people would take it seriously. But unexpectedly all of them burst into laughter. Then I realised that something had gone wrong . I must not have expressed my views in the way I wanted. I began to curse myself. Then I felt it would be better to withdraw myself from that conversation. So, the last English phrase I spoke," A... Excuse me, " and moved away from there. After walking a few steps I turned back, I found them still giggling at me.

This event took place on the very first day became a nightmare for me. I was worried very much thinking about how I would encounter such an incident the next time. Had I come 3000km away from my village just to get insulted by these superior people ?

Next day was the first class. But as soon as I entered the lecture hall, I came to know that It would be an introduction session. The word 'Introduction' again made me recall the last day's incident. I became very nervous and scared , just imagining that this time not only 4 people but the whole class would laugh at me . My heart began to pound. I quickly sat in the back row thinking that they would start introduction from front row. But, Unfortunately, it started in alphabetical order .My classmates began to go on the dais one by one. I found them speaking English just like I had heard Cricket-Commentators speaking English during World-Cup on the Lalaji's Television, at my village. I began to listen to them very carefully and picked out (actually mugged up) some sentences from their speech . As soon as I was called , I went straight on the dais and uttered (vomited) all those sentences that I had mugged up so far. Perhaps introducer realized my problem , so he let me go earlier than others even without asking any question. Nevertheless, I came back to my seat and sat on it just like a king sits on his thrown. The reason was naturally that I had introduced myself first time in English . But all my excitement burnt to ashes when the classes started .One after another every lecture was going on in English. But all those lectures used to go above my head. Every day, I used to come to class with a hope that atleast today I would be able to understand something or able to follow something. But my every hope seemed to end in smoke. The sole thing I could do in lectures was just to observe "The Vibrating Lips" of my professors which was not very useful . I began to sit in the front to capture every movement , every utterance , every sound of the professors in the hope that something would occur in favour of me .But at the end of class I had to accept the bitter truth that I had grasp only a few words which were barely enough to

SSN at IISc helps the fellow students to cope up with the emotional pressures and demands that life in competitive IISc environment may entail . It helps the new comers to settle down in the campus. It broadly deals by one to one interaction with three kind of problems faced by new students

1 HOMESICKNESS

SSN members convince the student that he/she is not alone and that all the students are part of IISc family . Moreover they encourage them to take part in extracurricular activities .

2 LANGUAGE PROBLEM:

The very first step SSN members take in such a situation is to make the student comfortable that language problem is very common as many of the students belong to vernacular academic background. Based on the student's situation a volunteer is assigned to him/her.

3 PERSONAL PROBLEM :

Personal counselling sessions are provided by specialised team to help the students.

The effectiveness of the efforts of IISc SSN team is quite evident from the extent to which the situation of some UG students (who did have some language problem)have improved.

understand the whole concept. The language seemed to be a barriers to the flow of my dreams and hopes ,which I kept alive so far in spite of lack of resources since my childhood.

Misfortunes never come alone. To add to my inability to overcome these problem , soon quizzes and exams also started. And almost every result was like a slap on my face..... "Read more Books" was the only remedy suggested by my professors. But ironically , those books were also in English . I had to be dependent pretty much on dictionary. With dictionary on my left and book on my right the only concepts I grasped were those of exhaustion and sleep.

Meanwhile I came in touch with some more students struggling like me. But all of them having no idea of what to do? Then I recalled that we were told about 'The Student Support Network' (SSN) which helps new students in settling down in campus. I approached them and mentioned our problems. How helpful they were!. They soon started working on our problem and the very next week an altruist personality Likhesh Sharma , A PhD student from MBU department, was appointed as volunteer to teach us English language .Thus we drowning people caught at a straw. Subsequently some more hands from friends were also raised to help.

Many a little, makes a mickle. After spending fruitful time in such a supporting environment now I feel that I am closer to crossing the barrier of language and so my dreams ,my hopes once again seems to have come back in my life. Now, when the lips of my professors move , they are no longer just VIBRATIONS but they have become" THE FOUNTAIN HEADS OF KNOWLEDGE". Therefore, my heartiest wishes go to all those who helped me.

But when I think about those others hundreds of millions of students living in backward villages not having such a supporting environment, English education ,internet, power supply, good teachers, Labs and Libraries in their school and colleges, nutritious meal, proper financial background .....,It really pricks my heart that how those deprived must be struggling for crossing the barriers. Not just the barrier of language but the barrier of poverty, the barrier of illiteracy, the barrier of hunger, the barrier of disease, the barrier of unemployment and so on. .....

No doubt, their dark lives are striving for " A RAY OF HOPE" under such miserable circumstances .Hence being a part of the leading institute of India, this must be our responsibility to present them this " sanjiwani " which would bring their hopes and dreams back in their lives. So how many of us are really determined to do so?

Photo : Akash

Drawing : Hemaa Selvakumar

ENTROPY WORK

The attribute being disorganized team work, We usually worked in a very high state of entropy

It was a cool starry night; the moon was hanging around like your best buddy, who in general has a tendency to hang around especially when you don't need him. I didn't need the moon. I wasn't on a date. I was in a bus- travelling.

Thus began my journey ,which culminated with the finals of Mimamsa 2012. I arrived in Bangalore very early in the morning. Later in the day we were to give the prelims

This and subsequent episodes deal with all four of us: Pranav, Sathya, Sriram and I.

But before that- Mimamsa is an inter-collegiate competition. It consists of two rounds, prelims and finals. Many teams participate in the prelims, but only the top teams from four different colleges get to go to the finals. The finals are grueling – they are spread over two days of incessant questioning, with each question having a definite thinking time for few minutes.

Photos: Abhinav and Naveen

The questions are on four subjects : Physics , Biology , Mathematics and Chemistry. There is a special round where the teams have to make a presentation, on any subject of their liking , as long as it deals with science. Other teams, judges and the audience get to ask questions to the team making the presentation. And they call it a "quiz"! It was divided in two four sections each dedicated to one of the four subjects.

The prelims saw the beginning of the attribute which would ultimately make the Mimamsa trophy land at IISc. The attribute was disorganized team work. We usually worked in a very high state of entropy. We however didn't realize till much later how high entropy would come to haunt us.

Our first challenge, after clearing the prelims, was to select a topic on which we would make a presentation. The choice of the presentation, and the presentation itself ,were greatly influenced, benefited and, in general ,"progressed" because of our distinguished professor: Arnab Rai Choudhuri. It happened that : the four of us asked Prof. ARC a Q. And Prof. ARC gave us a talk, not talk down, but an enkindling one. Seventy five minutes later, we walked out. Nothing was needed to be said. We were going to talk on cosmology.

It was a fairly general talk on cosmology, with some involved mathematics. We talked about the expanding universe and how an oversimplified model along with an incorrect theory gave the correct answer: we derived the Friedman equation from Newtonian principles.

The day finally arrived and we went to Mimamsa, at Pune. It seems rather weird using the pronoun "we" when talking about our travel plans. "We" didn't go to Pune; "I", "Sathya and Sriram" and "Pranav" went to Pune. Our travel schedule was bizarre, perhaps suited to us.

Once in Pune, we met the organizers of the quiz and later in the day the other teams as well. The quizzing began the next day. The first session was on Physics. And the first question was on based on Electromagnetism. A presentation by one team was held in each section. We were the first team to present our talk. We were very worried that we would overshoot the time limit.

With hindsight, I can say we needn't have worried, we ended well before the time limit. The second team to ask us questions was IIT-K. They asked us about entropy. I still get nightmares.

The next session was biology. The session included questions from evolution to genetics, and they were pretty intense. IIT K presented their talk in this session. The talk was on how the developments of science lead to developments in art. We ended the day at the third position.

The second team to ask us questions was IIT-K. They asked us about entropy. I still get nightmares

SCIENCE CLUB, IISER Pune presents

Mimamsa 2012

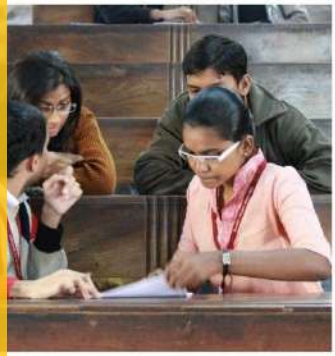


Photo courtesy : Science club , IISER Pune

The next day began with mathematics, which meant loads of logic and head-banging to get at a visible solution. There was one question, which comes to my mind: Find two prime numbers p and q such that p+q and p+7q are perfect squares .The answer which comes almost instantly is : p=q=2 . However we had to prove this result, which we almost did . We were the only team which gave the correct answer. An interesting answer given was q=4 and p=21 . We did rather well in this section and rose to the first position

St. Joseph's College presented their talk on parsimony in nature in this session. It was a wonderful talk on how a few systems end up lowering their energy.

The last session was on Chemistry. I I S E R Trivandrum presented their talk . It was an extremely exciting one which dealt with DNA sequencing using the properties of graphene.

We didn't have high hopes in chemistry but somehow the fates conspired, and we did well. We answered quite a few questions ,noticed what was to be noticed , and generally did stuff intelligently .

At the end of the day the results were announced.

We won.

We did have a few (quite a few ?) awkward moments , but they passed and so we weren't too bothered . . Mimamsa was an incredibly awesome experience . I wish that the next batch retains the title !

Conventionally whenever one writes such an article, one is expected to mention what one has learned from the experience. Indeed, preparing for Mimamsa was an enlightening experience. I learned a lot academically. But the event itself was rather low on the learning quotient. My team mates were my friends so I learned nothing new about them. I didn't learn science much either So then what was the point of Mimamsa?(Apart from the prize of course!) The main point about Mimamsa was that it was fun. It was a challenge too, and they , usually are fun.

Amogh Kinikar

The finalists

From the 200 teams which had participated in the Mimamsa 2012, a science quiz conducted by the Science Club of IISER Pune , 4 teams were finalized , of which one was the team from IISc Banglore .

Getting into the first year of the novel course , our champs , won the game at last ,against IITs and other institutions .

And the winners were:

Pranav Garg from Hyderabad
Amogh Kinikar from Pune
Sathyavageeshwar Subramanian from Kochi and
Sriram Sudarsanam from Bangalore

I wish that next batch retains the title !

Five MARVELLOUS UNDER CURLS of IISC

We, the only non-graduates of this grand institute, have been the object of wide interest, curiosity (might I add, animation too in some quarters) and speculation to all. Reactions widely vary ranging from staring at the 'little kids' (or sympathetically 'poor kids'), to common inquisitive questions like, 'What is the selection criteria for this BS program?"(mainly for his/her siblings; I strongly recommend visiting our UG library before making a decision), incredulous ones like, "Why did you come here?" (my bet is, these are the 4^{th}-5^{th} year PhD students) to envious remarks like, "Man, you guys are rich! We never got any scholarship for our undergrad studies and you guys have way better labs than us!" (I feel sorry for my classmates, so much of pressure to perform!)

Our batch is a mini-Bharat in itself. Almost all of the Indian states have been represented in our batch which has meshed together a khichdi of interesting characters (I mean no offence). Some quite proudly guard their heritage by ceaselessly speaking in their language (frustratingly to you too, you can never tell whether they are laughing at you or amongst themselves), others go one step ahead and make you acquainted with their literature and more importantly their movies.

Photo : Ashish

The Telegites, Malayalis and Tamilians seem to be in an endless debate regarding their movies as to who copied from whom (however, I have noticed that the Kannadigas cautiously remain silent) and why their version is the best. Many of course, don't give a damn, speak only in English, wear nothing but jeans and the same old shirt day after day and talk about Led Zeppelin rather than Rabindra Sangeet.

A normal day for an undergrad is, to put it plainly, jam-packed. I do not mean that all 84 show up at 8:30am for the first class. I agree with DC Sir, the first professor always suffers. But contrary to what Sir believes in, it is not competition for the bathroom (which may be true for the girls but definitely not for the boys) or for food in the mess (our seniors are even more punctual, only a handful make it before 9am) that makes one late. The reasons can be traced back to adda (gossip) sessions, senti movies for girls and movies (including romcoms from what I hear), DoTA and counter strike for guys. Before I forget, I must mention the inconspicuous ones who slip out from mess noiselessly and go and do their homework. I'll let you in a secret: the reason why your succinct, to-the-point assignments always fetch you only half the marks is because these fellows write volumes while you are watching The Big Bang Theory. Relative grading, my friends!

Before I digress and write more rubbish about my friends who work hard, punctually finish their homework, lab records, assignments (some actually remind the teacher and the TAs in case they forget to collect) and thus, make life harder for the rest of us, I shall tell you, exclusively, about some of the inner happenings of our class (in case you have nothing else to do). One professor had once described us as 'the cream of the cream' (I must say, our batch will turn out to be quite a vain lot from the number of compliments we have received. It's partly to discard such misconceptions that I write this). Some are there who clearly voice their doubts in the class, a quality that our counsellor Dr. Nalini would have surely admired. I'll give one example:

(Disclaimer: This incident is purely hypothetical. It is only inspired from our class. Any resemblance to anyone is purely coincidental. With 6 million people in our country coincidences can't be termed coincidental.)

It is BSD Sir's Chemistry class and QH (my dear friends on the editorial board wouldn't like names so I thought, why only stick to x,y,z?) is an up-standing, shining beacon of the future of our undergrad batch in my 'purely hypothetical' example.

"Sir, what is the difference between $MgSO_4$ and $MgCO_3$?" asked QH once again, reiterating with such conviction, wide eyes and vigorous shaking of the head in an eagerness that many students wondered if the stage had lost a bright star to the competitive education market.

"They have different anions which give both different properties," said BSD Sir stating the obvious answer to the equally obvious question. He didn't turn back from the board and continued scribbling on the board primarily to avoid eye contact with QH in fear or a new wave of questions. A few other students whose brains had for some reason processed this exchange sniggered at the back whereas others gave QH concerted looks fearing that if this was the beginning of a new tirade of questions then surely BSD will make them come on a weekend to finish off the course.

As soon as Sir finished scribbling, QH came with his next volley, "Sir, why shouldn't we pour water on Grignard reagent and why is it stored in dark bottles?"

"It's explosive that's why. That's why you always get it in small dark bottles."

"Sir, but why small bottles. Why not large bottles?"

"That's because the manufacturer sells them in small bottles. Chemicals are generally not bought in huge quantities. Chemicals cost money! You should never waste it (with a drawl)," replied BSD irritated but trying hard to maintain a serene countenance in front of the room full of eighteen year olds.

A few first benchers kept on staring at the board, processing the reactions in their brain, others shook




their heads to show unified disapproval of the outrageous questions being asked. The middle benchers sat straight and looked at the board for the first time to see if anything important was happening. They had not caught the entire conversation. Behind them, were the guys and gals who had their heads down. A few eyes popped opened (QH was always their alarm), surveyed the scene and closed back again. One or two guiltily woke up. The guys behind who were working hard (ahem..) on their laptop or writing(copying to be accurate from somebody who had already finished copying) their records/assignments did not care to look up.

Most students had two things on their mind (in different languages of course): 1. When will the attendance sheet be passed to me? 2. WHAT IS GOING ON IN THE CLASS?

This is not what happens always but it does happen quite frequently. So after four such lectures, me and my friends race against time on our cycles to reach the mess before the huge 1 o' clock queue lines up. Since most of our seniors are punctual enough to miss breakfast, they never compromise on lunch, however pathetic it may be. As soon as lunch is over, there we go again, back to our dear labs. If it's CEDT, then of course it's a menace to ride with full stomachs. Labs are generally fun but it takes about an hour to wake up after lunch and understand as to what we are exactly supposed to do. Thus, lab sessions invariably prolong long after 5pm. Missing tea and going to Faculty Club or Prakruthi has become all too common for our batch. I must add that there are many amongst us who immediately run off to Gymkhana or to dance, music, drama practice sessions to name a few. Most however, take a power nap to prepare themselves for a solid study session at night

So, all in all, this is the tale of our *'exclusive batch'* (try reading the two words on an American accent to get the feel), a term used to make us forget that we are actually guinea pigs of a grand experiment made to test the limit up to which undergrads can soak in data. One thing's for sure, these four year experience will change us forever.

Namrata Das

Photos : Ashish , Janhavi, Naveen, Praveer , Abhinav



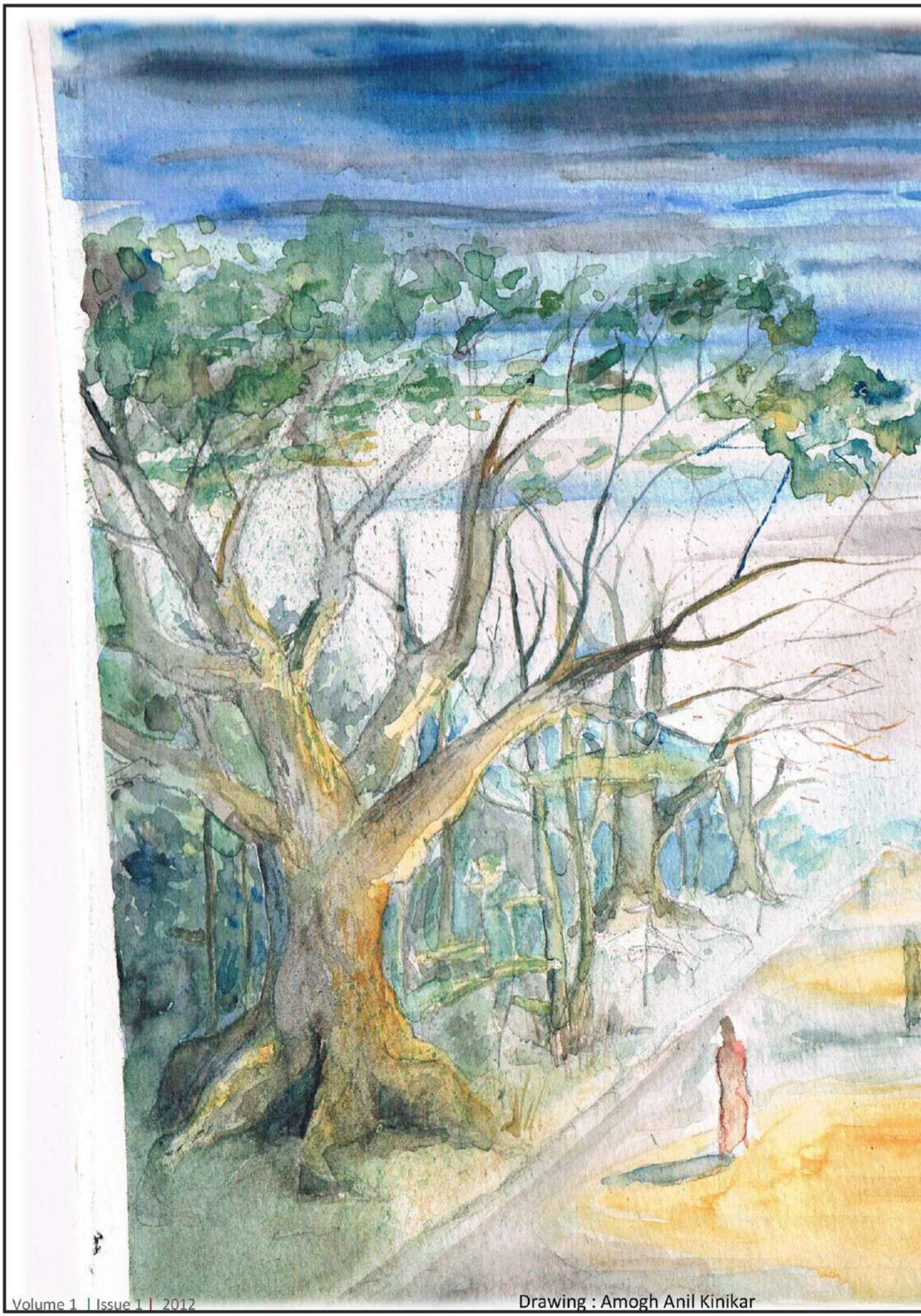












Drawing : Amogh Anil Kinikar

Interviews

What's inside...

Topologically untangled

What will the UG course integrate into ? Let's calculate with our math TAs !

Tales of the elephant girl

Does an elephant lover finds UG course as green as kaziranga national park ! Read and find out !

Being Human

Is only science enough to make the life of a scientist complete? If so , Discover the errors of this method .

Conversation with a scientist

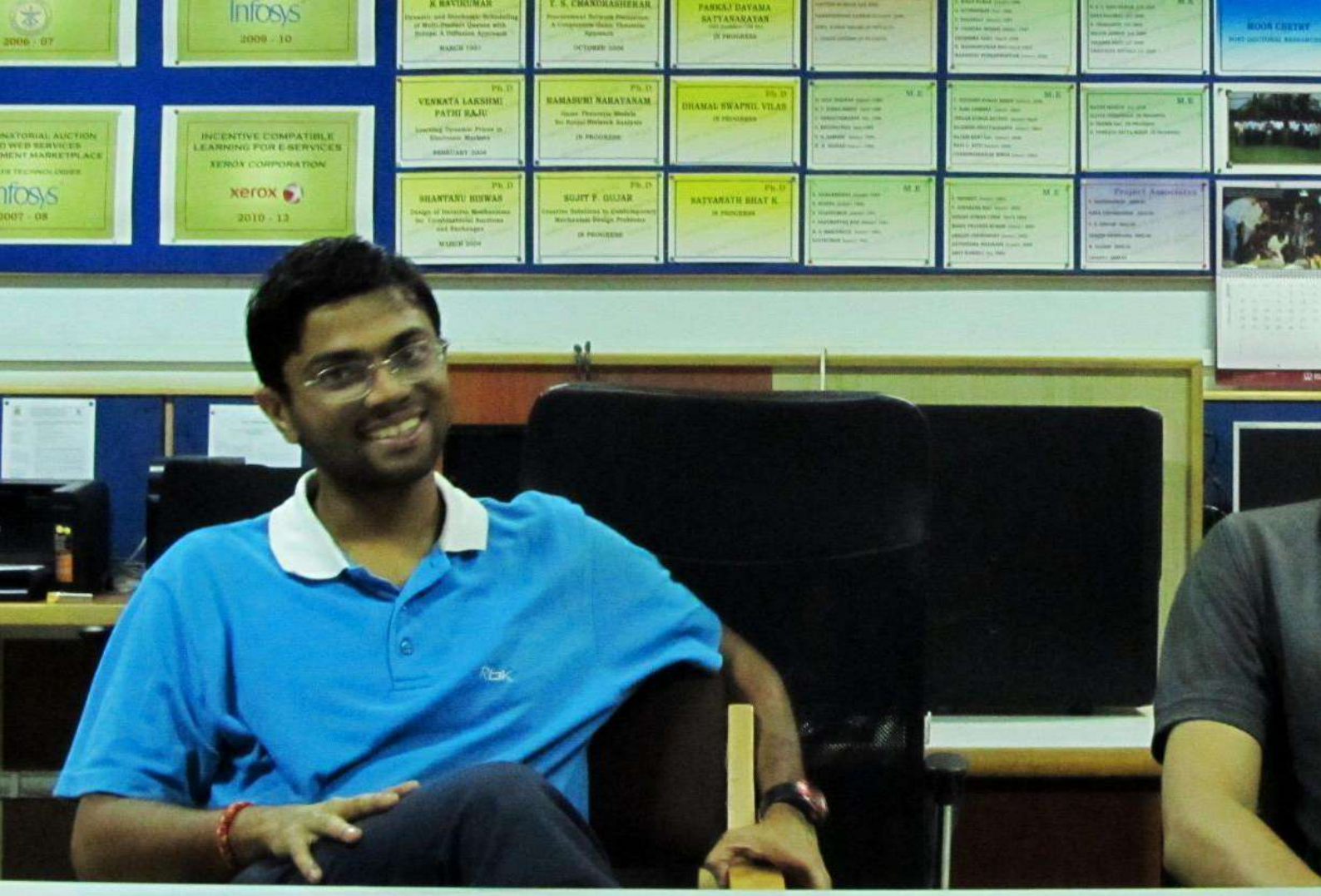
Get to know what a visiting scientist from MIT feels about India: the society ,the education system and also about the UG course...

Quantum in my veins

Check out the wave and the particle nature of the UG course from one of the India's leading quantum mechanist.

Theories

Read the observation and theories of our Physics Teaching



Backtracking the Computer

If Course: Let's see Satya and Rohit say **for** it or Else against I.T.

Check out HOW engineers C science

It was a chilly January night. My glowing watch read 8:00 pm. The five of us were gathered outside the Computer Science and Automation department building. Frankly to say, we all were pretty nervous about this one interview, it was our first and we wanted everything to be perfect.

Satyanath and Rohit were the teaching assistants for our first semester engineering course. They are PhD students in the e-commerce lab of the CSA department. A favourite amongst us students, I don't think they had anything more to say about themselves than what everybody knows. So here, we had them let their hair down, talk about their experience with the UG students and hear them reminisce about their own undergrad life.

Photo : Abhinav

Photo : Abhinav

Introduce yourselves to the magazine …

Satyanath: You don't have to give an introduction to us. I think we'll just be fine;

Rohit : Umm…we are PhD students here at IISc.. and well we are with the e-commerce lab. And.. well yes that will be all.

Okay…something more…

S: you want us to say something funny….?!?!? I think you guys have got the wrong bunch of people. (laughing nervously)

Rohit: uh…then you could say we are computer geeks.

Satyanath: (immediately jumping up) oh no no…that's not for me. And don't take that down…(giving a sideways terrified look at Rohit)

R: (giving a concerted look at S) let it be..we are supposed to be giving them controversial stuff and all that you know…

Why did you choose to be our TA's.?

S: (smiling at Rohit) we were "chosen"..

R: (laughing) No, we were not chosen. Sir mainly considered us because both of us had programming experience and we were from an industry background. Since we handled the programming part of the course, Sir thought it will be more useful for you.

S: Sir was basically looking for people to TA and we are from his lab, so.. that's a more fundamental reason why we were the TA's.

If you were in our position, would you choose to come for this course at IISc or take up a seat in the IIT's or AIIMS, which most of us I think have left to come here.?

S: It is a slightly risky decision, like you don't know about how it will turn out. Frankly that's how I feel. See , you are all a bunch of bright people so I hope that this course will turn out to fruitful.

R: You have a new path right. I mean I have done my masters in IIT and it's like a stereotypical environment there and everybody is taking the same path. But all of you here have a new chance, which doesn't come to everybody, of starting your own path. But according to me more important is how you feel about the course and how you as students think of it. I did my BE from a local college in Bangalore ,RVCE, and I had a classmate who could have easily got a seat in any of the NIT's, but now he is doing very well in the industry and he has no regrets. So you shouldn't worry about which college you are sacrificing to come

here but what you should worry about more is whether this is the right course for you.

S: And moreover you people have really good professors here teaching you at the undergraduate level which is an opportunity in itself.

What do you think of the course structure, especially the computer science course.?

S: Well ,we had wanted you all to learn more…

R: Yes, that was mostly because many of you were very slow to pick up initially in the course.

S: But what we taught you people in three months, in any normal engineering course it would have been spread over three semesters. That is pretty much fine because, I think you people are being groomed to be scientists and not engineers and they want you all have enough knowledge in all the fields that you may possibly work with.

How is this UG course different from your own ?

S: well first of all we never had so many courses to

what we taught you people in three months, in any normal engineering course it would have been spread over three semesters

you people are being groomed to be scientists and not engineers and they want you all have enough knowledge in all the fields that you may possibly work with

deal with..!!(laughs). And according to me your fundamentals in every subject is very strong. Personally my mathematics was so weak that I had to pick up everything after coming here, which is after I decided to do my post-graduation.

R: If you people do the course with all sincerity I think nobody can shake your foundations. Like research in computer science is primarily mathematical and we are now taking courses on real analysis whereas you learn it in your first semester itself. So because of your strong fundamentals you will have an upper hand even if you choose to do research in engineering disciplines.

How did you feel interacting with the UG students? You were one of the most interactive TA's we have had…and you all have your PhD work as well…

R: We liked it very much, at least I liked the audience, you were all very enthusiastic to learn and it was a very good experience.

Photo : Abhinav

We were also learning in the process , like we had lost touch with programming and the type of questions we encounter while discussing your doubts also got us to think parallel to you. So the learning was mutual.

S: To add to what rohit has said, we also learnt how to teach other people stuff and that's quite hard actually to come by. Especially in backtracking the last part I really didn't know how to tell…

R: In fact I learnt backtracking from his explanation only…I had forgotten and it was done a long time back so it was a good learning course.

What do you think of the grading that was done for the course?

S: Yes I think we should have graded more strictly so that there was a clear distinction between the groups. It was the first course and everybody was saying that the course was tough and we didn't want to freak you all out so Sir was also trying to give as much marks as possible in the exam and we were also trying to push your grades. But mostly I think you shouldn't worry about grades as much since all of you are going to be scientists and grades wouldn't matter as in a BE course.

What was your first reaction when you were told to be our TA's?

R: From a teaching perspective I thought I will teach you all a lot, that changed…that definitely changed…

S: Yeah, we were planning to cover python, MATLAB and got knows what not. We even got some python books and started reading them. I think we started to prepare to be your TA's even before you all stepped into this institute.

Your first reaction when you saw us in the class?

S: you didn't looked like kids at all(laughing), everybody looks grown up in your class. And the first class I was scared like hell as to how I will teach them this course, but fortunately, for me, you all didn't have any background in the course so I was comfortable.

What are your views on open book tests.?

S: open book tests are all just an eye wash. How much ever you flip the book you can never get the answer. It is more of a challenge to the professor that even if you bring the book you can't answer his questions.

Any special message to the UG students, current and to the incoming batch and to the professors…(all of us giggling)

R: Keep smiling like this. Don't get overburdened by your course work and have fun. I was really mesmerised by your cultural program, you all did a very good job. We hope that the campus will become more vibrant because of all of you.

> I liked the audience, you were all very enthusiastic to learn and it was a very good experience. If you people do the course with all sincerity I think nobody can shake your foundations.

Team : Abhinav, Mohsina, Naveen, Pratibha, Sasank
Drafter : Mohsina
Introducer : Pratibha

Diptiman Sen

Has the undergraduate life in IISc given us a gradient to a higher level or has given a divergence from it ? Or rather has it curled our life into something totally Unexpected ? Find out in this issue from Diptiman Sen in

HIGH ENERGY TALKS

Before interviewing a professor at high energy physics apparently we all were at very low energy state. Somehow returning from our labs, rushing to mess and cycling all the way to the physics department. All this work consumed our energy . However after the interview we all were excited from our ground state [lower state with much less energy doesn't exist otherwise I would have used that term] to a high energy state so much so that a perfectly inelastic collision [a road accident for me] was also not enough to dissipate the entire energy and return to a stable configuration.

Q **Pratibha: In India, students opt for engineering rather than pure science, to pursue their education in. Do you expect our course to trigger a change in this attitude?**

A **Prof. Diptiman Sen :** We hope so. The reason for starting this programme was that students would get education in basic sciences, right after their class twelfth and that after going through this programme they would be interested to continue with basic sciences. Right now, of course we have the IITs, since 1950's in fact; and those are doing a great job in training students in engineering. But we didn't have any such institute for sciences. The IISERs started, I think around six years ago, but from our point of view their deficiency was that they did only pure science. Today however we need to coordinate science and engineering. In IISc of course we could do that as we have both science faculty and engineering faculty. So in this programme we introduced engineering courses as well. But the prime focus remained on pure sciences.

Q **P: This isn't the first time that an undergraduate programme has been introduced in IISc.**

DS: That , I don't know about . . . Engineering was it ?

Q **P: Yeah, it was an undergraduate programme but it didn't work out that well . So… how far is this course, umm… "Secured"?**

A DS: I really don't know anything about that programme, so I can't say anything about it but I think this programme will continue. (laughs). The reason is many of us really wanted to teach. See, of course we want to train good students like you but it also benefits us, that's why many of us are very keen on teaching in this programme.

Q **P: So you were all asked to come and teach the UGs, or…**

A DS: You should know that this is all voluntary for us. The other courses that people teach here, for MSc students, the PhD students; those courses we *have* to teach, it is a requirement. But for undergraduate students we don't *have* to teach. So the only people teaching you are those who actually want to teach. See we don't need many faculty to teach this programme, we are around 400 faculty in IISc, so even if 40 of them agree to teach that is enough. The reason is that we need new courses only in the first three semesters, after that you would choose you major and then be merged with the Int-PhD programme. Then on new courses are not required, as they already exist.

Q **P: Ok. Sir, the physics course which was designed, what is your opinion on it?**

A DS: Well about the design that you should

See the people who are most successful in research are not the fastest thinkers. To be successful in research, or anything, you have to a deep thinker

tell us! It was the best we could come up with. Very few people in IISc, have had previous experience in teaching undergraduates. So for us it is a completely new thing. We are also learning! We shall find out in a couple of years from now, whether we are doing the right job. But what we are teaching is pretty standard. We looked at many course taught in US, UK, Singapore, Europe… and then we sort of designed our own courses. So what we are teaching you is pretty standard in undergraduate programmes all over the world.

Q **P: And how were the students?**

A DS: Students very very actually very good. I was happy teaching this batch. This was the brightest batch I have taught in all my years. See as undergraduates, because you are younger, you are more enthusiastic about everything compared to the students who come after BSc or MSc. All these years I have been teaching those students, and they have already had lots of

physics and they are already getting a little bored with the subject. Students like you, from class twelfth, have fresh minds; learning things from scratch, you don't have preconceived notions of what is physics, what is chemistry or what is math. That was actually very important for us that you should not have any preconceived notions. For the first three semesters you must have a completely open mind. This is a challenge for us, isn't it? Because we have to teach people who may not really like physics; they may be interested in biology or chemistry or math or something. So it is a challenge for us to make physics interesting for everyone.

Q P: Your exams where "open everything", open books, laptops and even the internet! Could you please tell us why you set such exams? What do you feel about exams?

A DS: That is something special to me. Most of the faculty in IISc don't feel the same way . But for a long time I have been doing the same thing in the courses I teach to the graduate students; they do not have exams. At least for you: you all had exams, for the course I teach them, there are no exams. No midterms, no finals. This is a philosophical thing. I just don't like exams. The problem I have with exams is this: You have to do something very quickly; in three hours, whatever the time limit is. And that is not a good way of testing students. See the people who are most successful in research are not the fastest thinkers. To be successful in research, or anything, you have to a deep thinker. You may not be able to get solutions very quickly, but given enough time you must be able to think creatively and innovatively.

Q Mohsina: Many students in our class are want physics as their major, so how many students do you think will be accommodated?

A DS: This is very hard for me to answer . The Dean and the chairman of physics department should answer this. But the real bottle neck will be caused by labs. See, it is quite easy to teach a class of 50 students; no problem! But we have to provide you with labs. Suppose 35 of you join the physics department, you will be merged with the Int-PhD students who have completed their BSc. Typically in a batch they have has 15 students per course. So it will become a class of 50. That is a huge class from our point of view. We can teach it, but we should have labs for 50 students. That is where the bottle neck is.

Q P: Any memorable event, you cherish from your experience in teaching us?

A DS: One thing I found very interesting was that you people would start clapping sometimes. (everybody else laughs) I have never had that kind of experience before. The course which I normally teach, would have a much smaller class size, maximum 30 and they

would all be very quiet. They would ask questions of course but they are not that enthusiastic. But in your class, if you found something interesting you all would start clapping!

Q **P: So did we ask a lot of questions?**

A **DS:** Yes you asked a lot of questions, but that is good. You should keep asking a lot of questions. This is something very important, you should never stop asking questions. That's the thing that keeps changing; as the students get older they ask fewer and fewer questions. Until, when they get to the PhD classes they hardly ask any questions.

Q **M: What do you think about the future of physics in India?**

A **DS:** It is very bright. In fact for all the sciences it is very bright!

Q **M: Most of us would like to know how physics will pan out in India?**

A **DS:** Generally, I think there is a lot of money being put into research in all sciences in India. So if you want to follow a research career in India, by all means please do so. But one thing one has to admit is that it is a very tough life. Suppose you want to have a research career in physics, in academics say, you will have to start with this 4 years course, then you will do a master or you can directly pursue a PhD course. A typical PhD nowadays takes around 5 years. Ok, then you have to do post docs, typically for about 4 years, two post docs, typically two years each. And then you get a faculty position and even that is not guaranteed. So, if you get a faculty position you would typically be 33 years or so. And then your salary will never be as high as say somebody's in IT sector, financial sector or management. So in terms of those things, this is hard life. But the reason why we still we go choose this life is completely different . One thing is that no one will ever tell you what to do. You are completely free to do whatever you like and if you enjoy that, then it is really great. I enjoy it and I do whatever I like. If I find a problem, and if I like it, then I jump into it. No one can tell me don't do this problem and do that problem. You have total freedom, so this is a very wonderful thing about academics. That is one thing. The other thing is students. This is one profession I have found, in which people you are in contact with never grow older, they are always young, same age. (Laughs) Because every year a new batch of students come in. Whereas, in other professions everyone around you are getting older. This helps us to stay mentally younger. And that is mentally very satisfying to be always in touch with young people. And the other nice thing about academics is that it is an international activity. So we are working on problems, on which people are working all over the world. We have collaborators all over the world and I don't think this is there in any other field. So , all the other

things, apart from money are important. Therefore I think the people in academics have a really good time.

Q **Sushant: Could you please elaborate on you career? I mean how did you come to IISc?**

A **DS:** I did my BSc in Delhi and then I went abroad. I stayed in one university for a year and then I went to another university. Since I went directly after my BSc, it took me six years to get my PhD. After that I did 4 years of post doc and then I came to IISc, in 1988.

Q **P: How did you choose your field in Physics?**

A **DS :** This is where I made a mistake . I selected high energy physics without knowing anything about the field. As in I did my PhD in high energy physics, and my post docs in high energy physics . But I didn't really like high energy physics, I liked condensed matter physics. By the time I came to IISc, I had already started to shift towards condensed matter physics and at IISc I shifted completely to condensed matter physics and ever since I work in condensed matter physics.

Q **M: So this is a perk in academics, you can change you subject if you want.**

A **DS:** Yes ,exactly. You will find many people changing their subjects in academics. So that is a reason why you should not take which major you get that seriously. All the subjects have come closer. If you look at Nobel Laureates, somebody might get a Nobel Prize for physics but he might actually be working in chemistry. So these disciplines aren't that well defined any more. So , that's why you should not worry too much about what is your major and what is your minor. It is more important what you work on.

Q **P: Any special message to the UG students, faculty as well as the coming students…**

A **DS :** I am not really good at this (laughs) I would say just try to learn as much as you can. Don't worry much about your grades, the subjects you will get for your majors or minors. Just study as much as you can. This time, from you twelfth standard to till the end of you PhD years you are really free, later you will get married and other things and you will have many worries. So you have lots of free time and you should make the most of it.

Q **P: Sir, I have observed that there are very few girls in the physics department. Why so ?**

A DS: (getting up and opening his cupboard.) Have you seen this book? (Removes a book) It is called "Lilavati's daughters". I have a colleague, two doors from this office, Rohini Godbloe. She is one of the editors of this book; it is about women scientist in India.

Q **P: We got a similar book, 'The Girls Guide to Science', about women scientist in India. But what I got from the book was that they all had a hard time to be able to pursue science.**

A DS: That I feel has got something to do with the Indian society. It still has a tendency to put strait jackets on women; they get married, earlier than boys, then after they have children most of their responsibility falls on women. So a lot of these things which the society enforces on women makes it harder for them to pursue their career. It will change, but we need to make special effort. And it is not that all developed countries are better than us, some countries are in fact much worse. Japan and Germany are two countries with very low women representation, infact the percentage of women scientists in India is greater than that of Japan and may be even Germany.

Q **P: But compared to other sciences physics still has a lower percentage of women.**

A DS: Even within sciences the distribution of women is not equal. And why that is so, I am not sure. I think there isn't any good reason for that. I don't believe that there are gender differences when learning a particular subject. I believe that one can be taught sciences. I think it may be because at home girls are told that this isn't a career for them. I have a daughter. And I think that at home no differentiation should be made between boys and girls, I see no reason why girls should not go to Physics or mathematics. In this department the ratio is not that bad, around 30 percent. But it keeps decreasing at every stage: first post doc and then faculty.

Q **P: What advice you will give us about our future career?**

A DS : Well I shouldn't be saying this sitting in IISc, but it is important for you to go abroad at least for some time. And the best stage to do that is for you PhD. In the US for example, your fellow students would be very different. Their training is very different from ours. When I was in class there, I observed that they didn't know more or anything, but they were all very creative and original. When we were given a problem in class they would start thinking in completely different ways. And eventually that is what matters more. It also teaches you to work in groups. Apart from that it is good to live

in a different society. It is learning experience not just in science but in life. At least once in your life you must work abroad. And then you can decide whether to come back or to stay there.

Q P: Why did you come back to India?

A D: Frankly, I thought IISc was a very good place to work here and I wouldn't have got a job at an equally good university in the U S. I didn't want to be at a bad university in the U S , so unless I got into a top university in the U S I would have come back. So the choice was to stay there and work in place much worse than I I S c , or to come back, so then it was obvious. Also , I never felt very c o m f o r t a b l e in that society . But again most people don't take the same decision. Around 8o percent stay back in the U S . But in spite of that it is a good idea to go because you learn a lot. You become self-reliant as you have do everything on your own . And then you make many contacts , even when you come back to India , if you have worked with a scientist there you can continue to do so here. You keep visiting them, they can come here. And as science is a very i n t e r n a t i o n a l activity, it is important to have contacts everywhere . And it is hard to do that if you are always working in India, at some stage it is good to go abroad. The best time is to go for your PhD , but suppose you stay here for you PhD then at least you should go abroad for your post doc.

Q P: Thank you so much sir for you time and for sharing so many things with us!

A DS: It was fun talking to you guys!

He is one amongst those professors we had had who was in resonance with our thoughts !!

Team : Janhavi, Mohsina, Pratibha, Sasank, Sushant
Drafter : Amogh
Introducer : Pratibha

Portrait : Terrence

Nirmalendu Acharya

PhD student from Centre for High Energy Physics

Suryanarayana Mummidi

PhD student from Centre for High Energy Physics

Ananyo Maitra

PhD student from Centre for Condensed Matter Theory

Theories

Our physics teaching assistants prefer to be introduced as Nirmalendu, Suryanarayan and Ananyo (definitely not as Nirmalendu Sir, Suryanarayan Sir and Ananyo Sir.) , PhD students from the department of physics.

It was a joyous experience for us (yes! definitely joyous) to see them, get nervous prior to the interview which led to extensive searching for rooms (apart from the fact that there were a quite number of us witnessing the epic) and once settled in the conference room the TA (I shall not name him) made to sit in the front fought a furious battle with the lock and key (does it still work? I wonder).

The one thing, I think, they love to talk about is their experience with the UG students because that topic just flowed in even without us initiating it. They remember it as an unique and wonderful experience . Already having had the opportunity to be the TA for integrated PhD /PhD students , they feel that with

Photos: Vishwesh

the undergraduates they had more fun because it was more interactive and they had the chance to teach new things as well as learn a lot more from their questions .It was also a nice chance for them to refresh what they had learnt in their undergraduate studies , most of which , as one of them said, they had actually forgotten. . The one thing to which all of them jointly agreed (without internal arguments) was the status of UG physics lab , which , shortly put by them , had some of the classic physics experiments for which any hard core physicist would die to do as an undergraduate and ' lucky ' that they too had an opportunity to be a part of the lab .

On being asked whether they would choose to join this course , they put it down strongly as an completely personal decision given the two opposing facts that it is an new course and that it is being given by IISc . But they all agree to the point that IISc is a place of their dreams because it is one such place where people from different parts of India come together with different dreams , goals , aspirations and the very opportunity to be able to interact with them alongside excellent Indian researchers and visiting international scientists is an ' once in a life time offer ' .

The one topic which significantly changed the temperature of the huge conference room was the topic of choice of majors. Following an heated argument about the system and astonishment at the fact that there are quite a number of undergrads interested in physics (joking that if so many of UG students join physics then the department would need bigger classrooms) . They feel that though coming to IISc for the

Photos: Vishvesh

"None of the TAs are knighted so none of them should be called "Sirs""

"Any institute cannot be a very good institute until and unless you start from BSc because then only you start training students according to your wish"

"Somebody at your age spending 4 years at a campus like this is a gift "

undergraduate course is like adding an extra feather to your cap, it would be unfair for the student to be not given the subject of his choice for the major . The idea of allocating the major does not sound rosy to them , even so , they feel that once given the major and you are not happy about it , one can always talk to the faculty advisor and dean, it would not be the end of the world as there is also a choice of minor and given the fact in academics one can always switch between related subjects. The very thought of us being able to attend the lectures organised by IISc quenched the room which led to a lively discussion on the topic . As one of them put it " Here knowledge is flowing and its free", and the other popped in to say that it is one of the perks of being here in IISc that you have the chance of listening to internationally renowned scientists and Nobel laureates though one has to be choosy in going to lectures depending on one's interest. The interview ended with all of us slurping on cornettos (and I think there was one apple and jelly ice -cream too and I must mention here it was their treat so here goes a well-deserved "thank you") with them reminiscing about their days in IISc and all of us having an hearty laugh about it.

Team : Hemaa , Mohsina, Neha , Pratibha, Sasank, Sowmya, Vishvesh
Drafter : Mohsina

Cartoons: Amogh and Naveen

Quantum in my veins

Dr. K. L. Sebastian is a professor in the department of inorganic and physical chemistry. He works on the applications of quantum mechanics and statistical mechanics in chemistry.

Professor K.L Sebastian is an elected fellow of the Indian Academy of Sciences, Bangalore (1994) and an elected fellow of the Indian National Science Academy, New Delhi (2001). He is also a member of Editorial Board of Pramana (Journal of Physics) and the Editorial Board of Computational and Theoretical Nanoscience

1.Apart from IISc, since IISER's have come up in the recent past, do you think more students will opt for Science as a career over Engineering ?

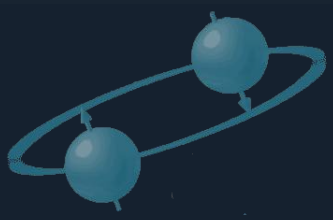
A. Yes, more students will opt for Science but the common parents will want their son/daughter to earn more money !

2. In your time, how was the situation ?

A. Well... In those days, Engineering was not so commonly available; in fact I had never heard of an IIT when I was a student.

3. Well, what motivated you to take Science ?

A. Oh ! I like doing Science !! (with a grin)



4. Would you like to comment upon the level of UG students and their approach to the subject (Chemistry)?

A. I was very happy. In fact I have no hesitation in saying that you are the best students I have ever taught. It actually made me feel younger.

5. How did you become interested in Quantum Chemistry ?

A. I like Physics, I like Mathematics and this is a branch of Chemistry which has both. Anything with Mathematics excites me but you see I am not a typical Chemist.

6. Is there any message you would like to pass on to UG students ?

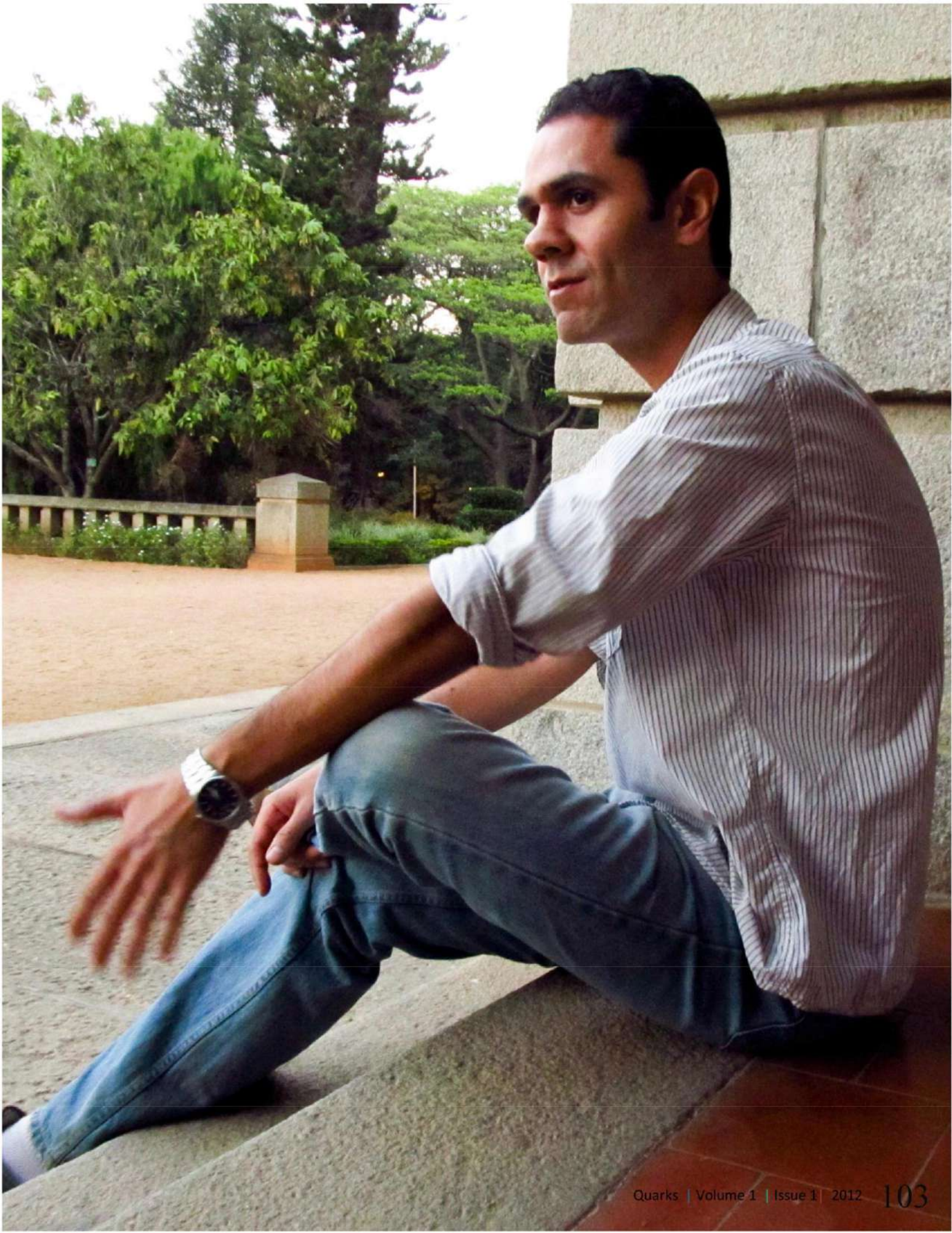
A. You people should never be worried about your future. All that you need to do is pursue science with the utmost passion, and success (and jobs) will follow ! All the Best !!

Team : Mohsina, Naveen, Pratibha
Drafter : Sriram .C
Introducer : Naveen

CONVERSATION With a Scientist

Dr. Kayvan Zainabadi is a biologist and till recently a visiting scientist at IISc, where he was an instructor of the undergraduate course DB101. His varied interests range from cancer to human rights. His first paper was published in Oncogene 2002 while he was an undergrad at UCLA. While pursuing his PhD at MIT, Dr. Zainabadi founded the website instantnightlife.com for real time updates on the popular hang outs in Boston. He has also been the president of Amnesty International at MIT.

Illustrations : Naveen



I was excited to apply my extensive training in molecular biology on the problems of the rural poor

Pratibha: What was the reason you came to India?

Dr. Kaywan Zinabadi: I had already visited India, the year prior. I spent three weeks in Vadamanappakkam in Tamil Nadu, doing volunteer work. India seemed unique in two ways ,firstly : everybody spoke English, at least were I was... even in the village, people could understand it and secondly, I was excited to apply my extensive training in molecular biology on the problems of the rural poor. I wanted to do this in the developing world, because one: I wanted to educated myself about the challenges, the limitations, the scope of the problems and two: to help build the infrastructure and help build the enthusiasm for this kind of work.

Why IISc?

Well, my old mentor, at UCLA, who is actually an alumnus from here, Dr. Eri Srivatsan, knew that IISc was starting an undergraduate programme, and he knew I was passionate about teaching, so he introduced me via e-mail

P: Not everyone shares your feeling for working for the rural poor. How did your views on this subject develop?

I read a very powerful book , it's called *Pathologies of Power* by Dr. Paul Farmer. it really made me think, it really destroyed the foundations of what I held important.

KZ: During grad school, in my second year, I read a very powerful book , it's called *Pathologies of Power* by Dr. Paul Farmer. He is a professor, a medical doctor and a Ph D anthropologist at Harvard and it is about his experiences... he is a very famous doctor, he started hospitals in rural Haiti and it is about his experiences of how the poor are the people not only forgotten about, but the way the world, the society is structured, they are the ones most often abused and suffer the most(. It's a very powerful book and it really made me think, it really destroyed the foundations of what I held important. Until that point I was very focused on myself. Doing research, having papers so that I can do a good post doc, do good post doc so I can get a good faculty position. If you think about it, that was all "looking inwards", about what *I* can do to make *my* life better. And that book made me question whether that's a good way to look at life because there's a lot of injustice, a lot of poverty a lot of horrible things going in the world and maybe I should think less about myself and maybe think more about the greater needs , the

greater good. That kind of set me on the road to where I am right now.

P: What was the reaction of the people close to you, to this decision, to work for the greater good?

KZ: Obviously my parents don't like the fact that I am here. See it is also a generational thing, my parents and myself were immigrants; we left Iran when I was six. So I think the immigrant mentality is much different than my mentality because I was raised in the states. But there mentality is different, they have left everything they know, they are thinking of survival, " How can we make it?". Whereas, I didn't have to worry about that. Once you are leading a comfortable life, and you don't have to worry about how your next meal is coming about, you start to think about other things. In the states, the extent of charity is very large, certainly much greater than here, perhaps because of the greater wealth in the states and greater comfort in people's lives. Whereas here, and then again I have been here only for seven months, everybody is worried about missing the boat or missing the train to development. Everybody wants a share of the pie and no one wants to be left behind. Still , not everyone is getting good jobs, there are people being left behind. The ones who are getting the job are generally from the middle class whereas the ones being left behind are the people living in the rural regions of India, who are not experiencing this change. This is not good !

Everybody wants a share of the pie and no one wants to be left behind. ones being left behind are the people living in the rural regions of India, who are not experiencing this change.

Photo : Abhinav

P: You have interacted with many people here at IISc, what do you think are there opinions on social development?

KZ: Not much. My interactions have been formal, like teaching and talking to professors about research and students about research, I have not had those kind of interactions to be able to judge.

"I'm one of those people who can't sit still in the face of mass atrocities. We at MIT might primarily be scientists but we're not without a social conscience!"

I went to UCLA wanting to be a doctor, but there I got exposed to research, and I fell in love with research.

P: What are your views on the Indian education system?

I think it is a mistake, and it really bothers me, like if you have to go to medical school you have to do MBBS right? Most people when they are seventeen do not know what they want to do, a lot of times its pressure from the family, and lot of times it just that you don't know, and you are scared to admit you don't know. And I think that's a big mistake, a very big mistake. For example, when I was young I would have gone to medical school, I would have finished, but I would have been miserable, but going to UCLA, like you guys are coming here, you guys are exposed to all sorts of things, science and even a bit of humanities. You can now make a decision based on knowledge, based on wisdom .And I am a classic example, I went to UCLA wanting to be a doctor, but there I got exposed to research, and I fell in love with research.

P: You have objections to the system as it forces you to take a life defining decision at the age of seventeen, is there any improvement you could suggest?

KZ: I think the programme here is a step in the right direction. 84 students out of the many millions of students in India, it is a small step , but nonetheless it is an example , where students

Portrait : Terrence

can make an informed decision. And go towards a field which you really love. Majority of your life you will be working, if you could find a field in which you love to work , first of all it will not feel like work and secondly you would be happy because you will be doing something you love. You will also be contributing significantly to the society. Mediocrity comes from people who don't like the work they do

P: We have been exposed to certain methods of learning, and have been molded by those methods, what do you think is the difference between us, the students in India and students in USA?

KZ: Basically in the states, they emphasize less on memorizing and they emphasize more on creative thinking. For example, my questions which I set for you guys, where never "Draw the structure of glutamine" they were more like "you discover alien life… ". That is what is emphasized in the states, and if look at the economy there it basically runs on innovation. Innovative economies run on brain power. Whereas here, and I see it first hand, I give a homework and 99% of the class just goes to Wikipedia and copies the sentences, that is not education, I can have a five year old do that.

In the states, they emphasize less on memorizing and they emphasize more on creative thinking

I give a homework and 99% of the class just goes to Wikipedia and copies the sentences, that is not education, I can have a five year old do that

P: How would you compare your UG life with our UG life?

KZ: It is dramatically different. Here is how it happens; you have a general idea of what you want to do, but nothing specific. You take a major, and there are some required classes. Say a required class is cell biology, which is offered by one professor at 10 am and the another professor at 2 pm, so get to choose which one to take. If you don't want to do cell biology one semester it perfectly fine . Basically you choose your own schedule, including humanities. Like I took Farsi, Persian language. You have a lot of free time. You take 4 classes every semester, each class has 3 lecture hours a week and around 1-2 discussion classes and that's it.

P: So what do you think about us having classes from 8 30 in the morning to 5 30 in the evening?

KZ: I have not experienced this kind of learning, but I think it is good, but it has positives and negatives. The positives are that you are learning a lot, you are learning too much but you are learning a lot. You might have more knowledge about more things than a typical student in the states. But you are precluded from participating in things, for example I spent four years at UCLA doing research, how? Because I had free time. But you guys do not have that luxury. The programme here emphasizes knowledge and de-emphasizes extra-curricular activities.

The programme here emphasizes knowledge and de-emphasizes extra-curricular activities.

P: So what do you think is better?

KZ: I don't know, there are people do nothing in their free time, they sit at home and watch TV. Some people like me, took the initiative to work in a lab, all my free time. It depends on the person, and how the person wants to take advantage of it.

P: What do you think about our UG course, and in particular about the first semester biology course?

KZ: I think everybody agrees that the material was good, but that it needs to be more organized where we don't jump around so much. I think especially in biology, that s why i incorporated so many videos in my lectures, that if a picture is worth a thousand words a movie is worth probably a million. I mean I could talk for an hour describing mitochondria and its functions but when a three minute video gives you the entire idea more clearly, why not go for it!

It is really encouraging that some of the students have taken the initiative to do other things besides getting lost in all the course work, like this is a good example, this UG magazine

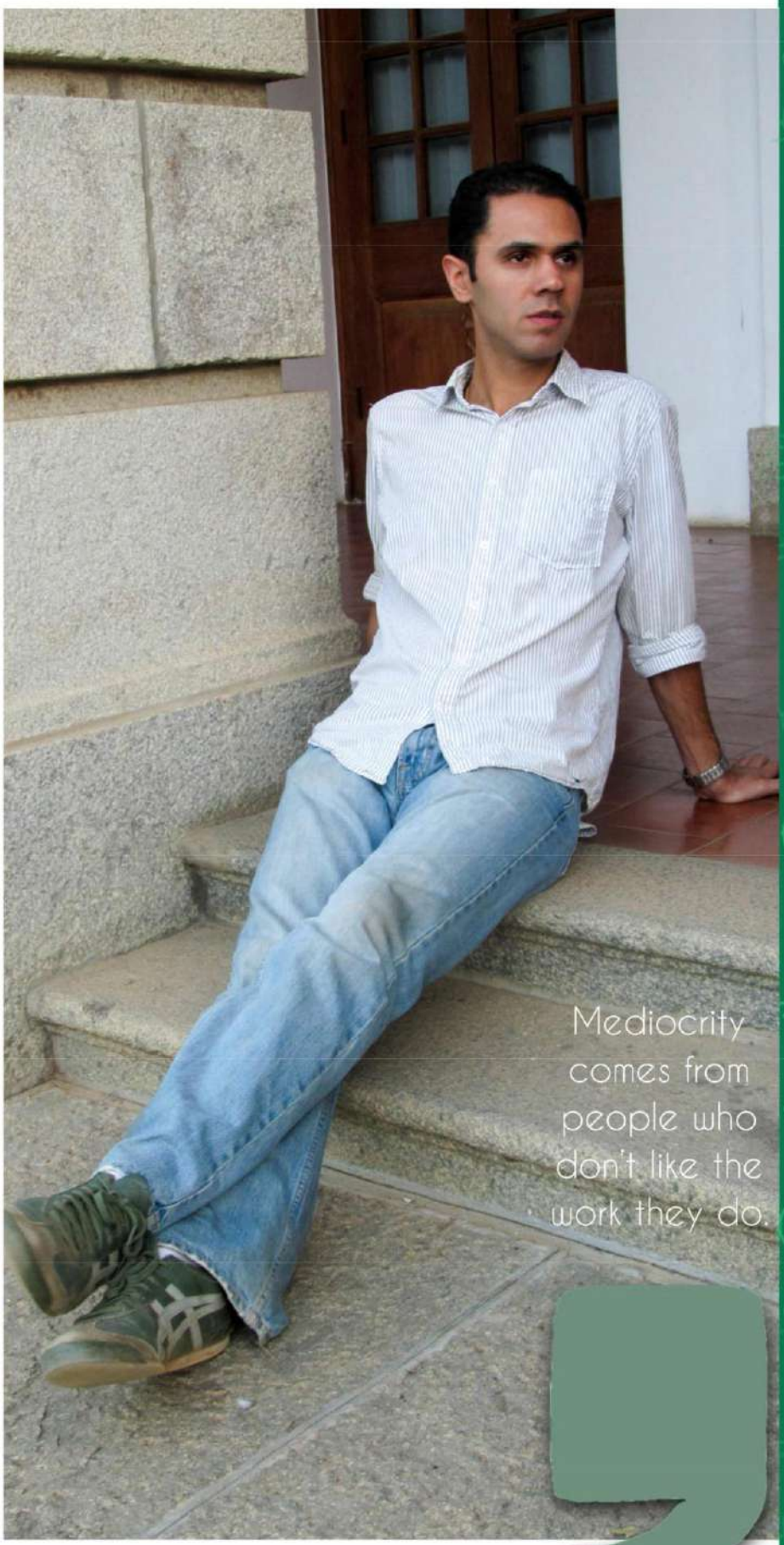
Mohsina: How where we as students?

KZ: It was good, good. It took a lot of work to do those lectures. But I observed that the class could be divided into two halves, one half is extremely excited, enthusiastic and doing quite well and the other half is less enthusiastic and struggling a little more. And every class there were at least ten or twelve students that were not there. That's a little disturbing; I don't know how

those students are getting by. And that is difficulty which I faced, and so did other instructors and professors, it is very easy to get fooled. If you ask a question in class, those students who are interested answer it and you think the class has understood everything. But there are students sitting behind who are not speaking up, who have not understood, and sometimes they are not even there, they are at their home.

P: Anything you want to comment about the UG students, any particular message?

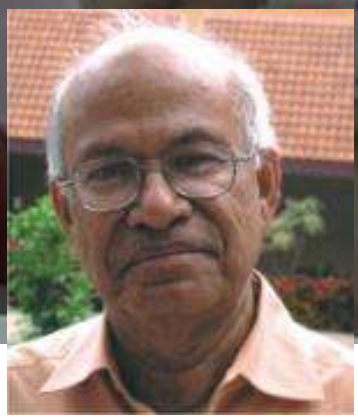
KZ: I think it is really encouraging that some of the students have taken the initiative to do other things besides getting lost in all the course work, like this, is a good example, the UG magazine, also some of these students who participate in the plays that happen in the campus. And the trip which you guys organised. These are skills that are really helpful when you become an adult. The leadership skills, when you take the initiative; that is what counts in life.



Team : Abhinav, Mohsina, Pratibha, Sasank
Drafter : Amogh
Introducer : Amogh

Photo : Abhinav

Being Human



Predominantly in India engineering is given a much higher preference than science by youngsters due to a whole lot of reasons. So this IISc UG program according to Ranganathan is a good idea. But not 'exactly new'. IISERs already have it. Listen to Dr. Ranganathan as he starts to give his views about the course and it's structure .

What many of us are not aware is the fact that IISc also had a three years honors course much earlier . So this particular program itself does not make sense on a smaller prospective except for the ambience in which it is taught. But towards the big picture , when we consider the institute , the teachers who teach several exciting courses, the students who are attracted towards the research … and such other voluminous things … they create a whole lot of difference.

So, there is no uniform formula that if a four years BS program is started anywhere across India we can all tune "ALL IS WELL". It is because this course is in IISc that makes it distinct. Without arts and humanities humans beings will become 'SHAITAN'. We have caught this from our very own APJ. Kalam . So probably keeping this in mind IISc did introduce a course in arts! But Ranganathan thinks that humanities as ' A COURSE ' has not been Introduced .

"Humanities part that is taught is like the 'Karuvepellai' (a kind of leaf used for garnishing South Indian dishes) added to rasam … While this ingredient forms a part of the recipe , added , mainly to complete the strict aroma and the finger liking taste of rasam , it still does not from a SUBSTANTIAL part of it." Our prof, who is a visiting Professor in the school of humanities , NIAS, wants MORE OF humanities . He stresses it's compulsory compatibility with the other courses offered like math, physics, bio, materials, chemistry etc.

By ignoring humanities we says we are rather neglecting our beginning of our origin.

Humanities part that is taught is like the 'Karuvepellai' added to rasam … While this ingredient forms a part of the recipe , still it does not from a substantial part of it. But without which the entire flavor is lost.

The attribute being that , a student receiving his doctorate after his diligent work in one specific domain of science and whence on would be referred to as a Doctor of "Philosophy", even when he had neglected the taste of the society and literature during his years of diligence is completely ironical.

We observe that , originally it was all humanities (philosophy), which inspired natural philosophy that heralded physics, which led to the dawn of engineering and technology, and now nanotechnology and so on and has therefore come to occupy the whole space.

Current scenario involves applications of science and technology to society where humanities has to play a very important role . For which modern students in science and technology should have a good dose in humanities . Science alone is never enough "only when you marry it to liberal arts and humanities we can get going in the positive direction".

Comment on the earlier IISc UG

While trying to change gears , Ranganathan was pulled into his memories suddenly when asked to comment upon the earlier IISc UG and the reason behind scrapping it . Getting nostalgic , he announces that he himself is a product of the earlier BSc hons program. He continues with the details. " It was all before the advent of IITs . The best student joined IISc for BSc hons. The students have done extremely well if you run through the alumni profiles."

"But then IITs came up and the best students migrated there .It was then a common notion that after 10+2 you would run into IITs. A large fraction missed their B.Sc for a B.Tech. So , that cream layer wasn't very well attracted!"

"The types of students who came later were not as powerfully bright as the students who came earlier. However still the course produced good students for example,

students like Ramesh Rammurthy became a member of Materials Research Society, American Physical Society, ASM/TMS, now , looking after the sunlight , and the whole photovoltaic program. So, they were also doing well ! But, apparently the institute felt that somehow it is not attracting the best lot. So they scrapped it but rather introduced an integrated course for the masters and the PhD. However this program is soundly in place now."

Prof. Ranganathan goes on to talk about how there are a lot of distinguished people in the campus and hopes that this number will increase due to the introduction of the undergraduate programme as this course is a crucible in which very young students are mixed with very senior professors.Hence this program certainly is being thought of making a hit! Ranganathan declares not to have lot of topics and sacrifice the core subject . But the status is that the institute has just made a token bow towards it.

UG and Rangu

This professor , is quite exited about flying to japan to teach a course in "Conservation Science", (which includes history , heritage, museology) he says that he had enjoyed a lot teaching this course .

"Designing UG course was thrilling, inviting guest faculties were delightful" [as professor Narsimha withdraw due to some reasons]. He states that teaching this course has given him the courage and having taught this, he now has access to a lot of material !

Education status in India

When the subject suddenly turned around to grades , he said "grades are necessary evil - unfortunately we have to have it." Giggling that up , the interview team now moved on to a more serious topic . In India girls are less in science!

He completely agreed it upon his toes .He pronounced that "We need 'ROLE' models. So if there are few women in science and businesses others can come up too ! Give them their chance ! Men had an earlier lead in every domain ! But its slowly changing! For example ,we see a lot of women working in banking sector now a days .. But we must wait a little longer for them to take a share in every sphere."

Furthermore , coming together will give rise to new possibilities ! The female mind has to be combined with the male mind to achieve wonders in the society.

"Designing UG course was thrilling, inviting guest faculties were delightful"

Cartoon : Amogh

A Memorable event

So , to escape from the serious atmosphere and to jump into some more of a fun stuff , we asked him for his most memorable event in the whole course … the most amazing and the surprising thing. With a sudden smile tickling down his lips and adjusting his serious gesture , he spontaneously stated that : "Every now and then there is a clap… this shows that you all are still young , alive and kicking !"

"This Institute is already old enough with white haired profs teaching the grey haired students . The class wouldn't be alive always . But here, with you people , it was different . Students were quite interested in what was taught, The classes were good , answers were very good , the response was good , the material to be covered was flexible and with students with young blood , this was one of the best courses that I have taught ."

Message time

Getting to the final slice of the conversation, that is the usual "message for the people time"
He wanted the institute to positively increase the components of humanities taught to the younger minds ! "There should be at least two components…" he starts off …. "One being the humanities course itself , the other , of the fine arts i.e music and drama … A noble suggestion would be that science could be taught via humanities and arts… for example.. science dramas."

Added to this , he strongly feels ,"this course will flourish because the institute is now mature enough ! It has prepared itself for a 100 years for launching this program. But students should not have extraordinary expectations like getting jobs immediately! A fair number of students should go for their higher studies. Unquestionably , hope of India lies in science … it lies in IISc and hope of IISc lies in the UG students because UG students are fresh. We have the chance to transfer you all more than PhD, M.Sc students or professors. The availability of digital medium is a boon and should be used thoroughly! "No more just chalks and boards "

"The Institute should develop UG course not as one of its departments but as a very own and independent UG college. It should not be that all 84 (very soon 400) will be hanging up in air! Teachers should be around, students can meet, interact, talk, get counseling from their peers."

"The institute should have a brilliant teacher student ratio , So interactions between teachers and students could be made more intense!"

"The Institute should develop UG course not as one of its departments but as a very own and independent UG college. It should not be that all 84 (very soon 400) will be hanging up in air! Teachers should be around, students can meet, interact, talk, get counseling from their peers."

Team : Mohsina, Pratibha, Sasank, Sushant
Drafter : Naveen , Pratibha
Introducer : Naveen

Tales of the Elephant Girl

V.S Naipaul views about interviews and the interviewers, I guess, are very popular.Karpagam was also a bit apprehensive about the interview. "Can I pass some questions" she giggles and asks. "Yes, of course" I console my prey "no need to worry questions are easy enough".So let your eyes roll through the lines to find out how the interview with an elephant crazy ecologist unfolds…

Pratibha(P): Why did you choose to become the TA for the UG course ?

Karpagam(K) : I…. (pause…Pratibha , Hema and Sasank stare at her …silence breaks as all end up laughing!)

So , basically Sukumar requested us . Different people work on different things so he picked us accordingly. The first section was on population dynamics .Since, I was working on something related to it , he asked me . Likewise Geeta for biomass part.

Trying to take the interview again in the light mood Pratibha asks(mentions the question as bad) :

You all were getting paid for being our TAs, how far was this factor an incentive for taking up TAship?

K: (giggles) Actually we would have come even if we were not paid because we liked teaching young people (specially science). I really enjoyed it.

P: How did the TA ship help you?

K: It forced me to learn, to really understand .See, you

have to prepare and it is only when you are trying to teach someone you sit and think about it in much more depth. So, I think it was more useful for us than the students. And yes some of you really asked very good questions which gave us incentive to think on those lines.

P: How were the students? How did they receive the course? What do you feel?

K: I didn't have much time but yes what I observed is that students were very enthusiastic. But that is also the first sem (all laugh) and also the students didn't have any inhibition. When I was an undergrad, students were very shy, they wouldn't ask many questions. But yes here this generation is quiet free.

Hema: Is this lack of inhibition always good?

K: (laughs) I think so….

P: What do you feel about our biology course?

K: Every generation is different. Structure of this course was designed by professors of current generation. Hence, this is bound to be different from their time, our time. So, obviously we will have slightly different outlook. But this is how change comes! But still I believe the course is very old fashioned. In terms of quantity I will definitely reduce ! Learn little but learn better! Also at this stage, I think, we should teach you how to think how to think, how to approach research and not overload you with information.

At this stage I think, we should teach you how to think how to think, how to approach research and not overload you with information.

P: How were your UG days? What difference you feel about your UG days and ours ?

K: My UG days were equally hectic !(Tries to recall) Some 8 papers, 4 practicals , 4 theories ..assignments… and yes exams were like mountains which we had to climb !! I didn't like it. But yes ,yours are equally hectic . I feel sorry for you guys because I worked for the course till Friday (Monday to Friday) and Saturday , Sunday I used to do something creative – sports , travel , games, arts !! I don't think your course work allows you all to do and enjoy this. I don't know for some reason in India we don't regard these creative works equally important!

P: About professor Sukumar part : were students enjoying it?

K: Its difficult to answer. It's a huge class. Some front benchers were enjoying while some back benchers were totally off. (All laugh heartily). But yes some lectures everybody enjoyed . It depends on the topic and the individual's personal interest. See the concept of "quantity vs. quality "is very important. (Here, we tried to teach you all everything. Ecology itself is a subject but in this course it was one tiny component of the broad biology course (the cell biology.. plant kingdom..) (Laughs and says)

I would have flunked; I don't know how you all managed to pass. I would have failed miserably or just barely managed to pass.

P: Why do you think students should join IISc UG?

K: I think because it provides the flexibility to choose your stream after you are considerably exposed to the relevant fields. Its a bit too early at 18 to decide. Its way of thinking so decision boils down to the individual.

Hema: Flexibility is good but what if we don't get what we want in the end?

K: See, you may or may not but that's not the end of life..you can always switch… like take my example I chose my major as Computer Science worked on it for some 8 years then shifted to ecology. I was always very passionate about it. There is no such thing such as "WRONG DECISION" because at any given point in life whatever information is available is always incomplete.. so you just do your best. Hence , there is never an end .. there is always scope for better and better !

P: Any suggestions for administration on the process of allotting major to students?

K: It shouldn't be restrictive.

P: What are your views about grades?

K: I don't believe in grades. I don't like them because motivation always should be 'to learn' but yes they need a way to evaluate you hence they use it. But it doesn't reflect everything (the aptitude, interest..) .

P: Any alternative method you would suggest?

There is no such thing such as "WRONG DECISION" because at any given point in life whatever information is available is always incomplete.. so you just do your best

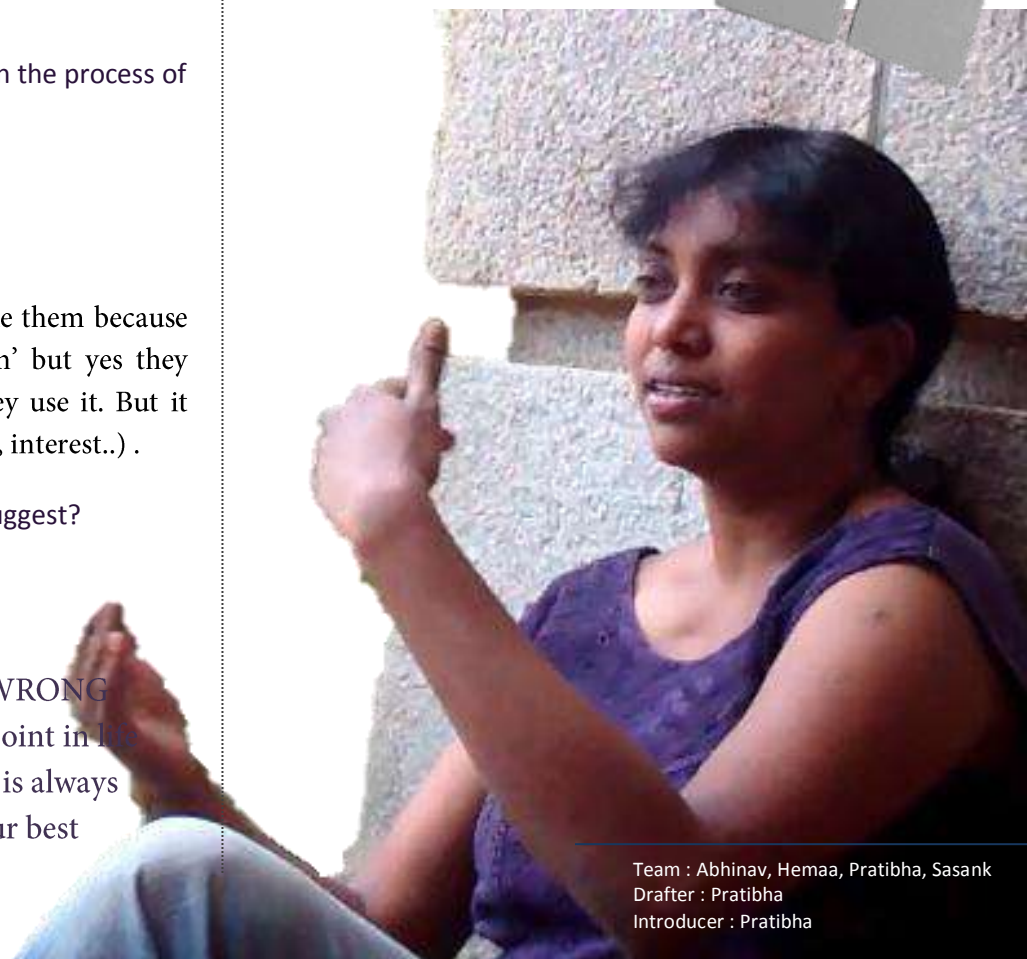
K: I don't know what the alternative is (frankly speaking) but I just don't like them !

P: The last question: Any memorable event with us which you would like to mention?

K: (laughs) Ah yes some of your assignments (can't stop laughing) were amusing like the biomass, the Gaia theory. It was entertaining for us. It was really FUN. I felt like preserving them. (As the interviewers try to defend their UG fellows by giving explanations like the topics were like that and all...) She adds "Maybe I would have also done so.. copied or probably submitted blank assignment". She recalls "It's ok to even turn a blank assignment. I did it once!"

Interview team: Yes we will try next time.(all laugh)

The concept of "quantity vs. quality "is very important. Here, we tried to teach you all everything. Ecology itself is a subject but in this course it was one tiny component of the broad biology course



Team : Abhinav, Hemaa, Pratibha, Sasank
Drafter : Pratibha
Introducer : Pratibha

TOPOLOGICALLY UNTANGLED

As WHITEHEAD has said " With the calculus as a key , mathematics can be successfully applied to the explanation of the course of nature" Similarily with maths TAs experience with the very first batch of IISc UG we can successfully learn a lot about the course: its merits and demerits (if any) . but yes do keep in mind what C.P STEINMETZ says "All mathematical truths are relative and conditional" ;)

How was it that you first decided to be a Teaching Assistant for the UG course?

We were 'The Chosen Ones'. All of us TAs were approached by Prof. Kaushal Verma and even we saw a golden opportunity in interacting with young talent. We were always a bunch of PhD students but the UG were so much more enthusiastic.

Have the UG met your expectations?

It was a fine experience. Some were very good, some studied just to pass. But, still it was nice to go back to the old college days. (Atreyee specially adds:) You guys are much more serious than we were. Our life was cool, but the hard work will be worth after 4 years.

Do you feel the UG here are missing out on the vibrant college life, like you guys had?

You guys are lucky. You have such great minds to guide you. I agree that you guys are a little more tied up with schedule packed right from morning to evening. You can't find time to do many things on your own pace. IISc is THE place to do science and at such a young age, you are already in here. You should make the best use of time but also not lose out on the fun of UG life. Strike a balance.

If you swapped places with a UG student, would you have ever selected IISc as your graduate school? (Given that the First Batch would be an experiment.)

Yeah, It would have been a tough decision. But, it's the same case with every student after his/her +2. Dilemma persists only until you have your goal clear. Some students are passionate for Science. For them, IISc must be heaven. So, it finally zeroes down totally to individual's interests.

What if someone likes Engineering and landed up in IISc just for the sake of the stature of IISc?

Again, the sole decision is with the student. Some calculated risks are always necessary in life. But joining IISc doesn't just mean Science. You can do higher studies in Engineering in IISc itself. It is only you who should explore and sculpt your life.

What would you comment on the structure of the course, especially Math?

Things may seem pretty fast now but you will study the same things in greater detail as your majors. Though, the course covers a lot in a Semester but the professors and the TAs were pretty helpful to help you with your questions unlike other universities. You had regular quizzes, assignments which were helpful too.

Do you think that choosing majors on the basis of grades solely is good enough?

Grades aren't always a true reflection of your interests. Maybe, they could conduct interviews to judge your aptitude in that subject but grades alone aren't a good gauge. They are just a window, not the only way to judge. Liking one particular thing isn't easy until you know the basics of others subjects. Hence, the course is so designed and at the end of the day you will be better off in making choices.

Anything interesting about UG students here?

UG students are fun. Some are bothered about each and every mark, others coolly cheat. “Who’s the topper in the class? “;”Why you gave me so less?” We are least bothered about marks. We want you to understand the concepts well. I guess not a long way to go before you TRANSFORM into researchers.

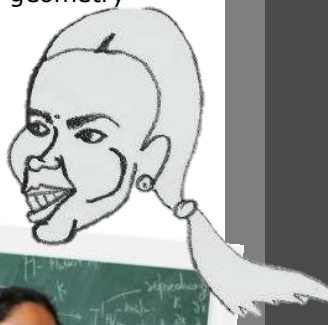
SO finally any message for the present and ‘to-be’ UG students?

You are in IISc and you have a lot of resources to explore. So reach out for the skies. Don’t take life too seriously; rather enjoy it to the fullest . . . Best Wishes,

Atreyee Bhattacharya

Atreyee Bhattacharya

A PhD student interested in Riemannian geometry



Jyotsaroop Kaur

An integrated PhD student , interested in harmonic analysis

Jyotsaroop Kaur

Team : Abhinav, Nikunj, Pratibha, Sasank
Drafter : Neha Kondekar
Introducer : Pratibha

Photo: Abhinav Cartoon : Akshay

CODES – DECODED

The story behind the titles of the interview section

How engineers C science

Apart from the science courses we take , we are also given courses on engineering and humanities as a triple thread !

This interview is taken across the desk from our first semester engineering TAs , This semester , we had a course on "C" programming …. Satisfying these conditions we have the title fitting the interview

The introduction is kind a wired … but the reason was that , backtracking was the most difficult concept we had come across in ESC101 , while we also talked about the course's success , we ask the question if backtracking the course is a necessary ! The lines becomes all the more satisfying with the familiar conditions and control structures in the "C" language : IF , ELSE , FOR

High energy talks

The professor works at the center for high energy physics , for the reason of motivating us with high energy throughout the interview , we have given the title

The introduction lines are self-explanatory in the common English language , but through a physicist's eye lens , the highlighted words : gradient , divergence and curl mean a lot since they are the particles of vector algebra !

Theories

Our physics TAs are distinctly different from others … They don't want them to be called as 'sirs' , they love our physics lab and thanked for making them breathe the air in our labs …. They have a whole set of ideas about the major choosing procedure, the reason why we should join IISc UG . Their theories are worthy enough

Quantum in my veins

We all live a quantum life …. Professor Sebastian enjoys it …. He realizes the quantum in his veins

Conversation with a scientist

This visiting professor for biology , from MIT , has a discovered a family of truths and genera of behavior from the species of India !

The title may look odd since every prof in IISc is a scientist ! But wait till you hear the story behind the title … He started a series called by the same name for the Undergraduate course , on every weekend , so the title is on his tribute

Being human:

This senior professor stresses the importance of adding more and more humanities in brewing any science/engineering course as the secret ingredient ! .This , he thinks will make us realize the realities of the shadowed world and make us understand that the outside classroom life will not be a supplementary version of the textbook life style .. He doesn't want the students to be instruments of knowledge where they are brought to school and dumped with information …He wants them to be humans !

Tales of the elephant girl:

This interview is taken in a different sense .. it has more information in refining the whole Indian educational system in general with a specific case of the IISc UG … these tales are narrated by an ecologist who loves elephants and researches on them , hence the title

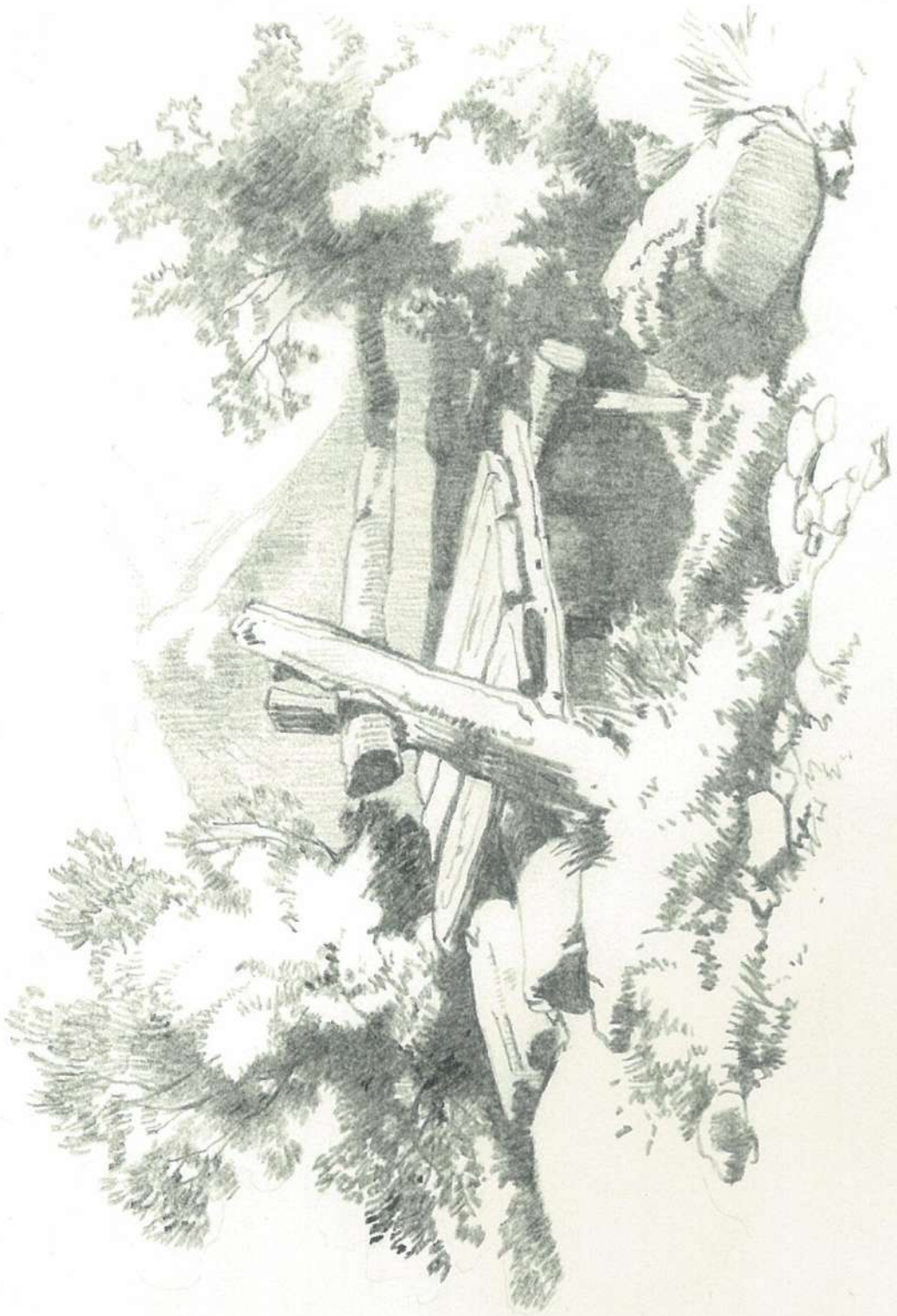
Topologically untangled :

This says that , mathematically , in the real life , everything is slow and easy , everything is actually untangled , but we , especially the first year UG students , trying to acclimatize with the surroundings , see the world as complexly tangled , but it is topologically untangled

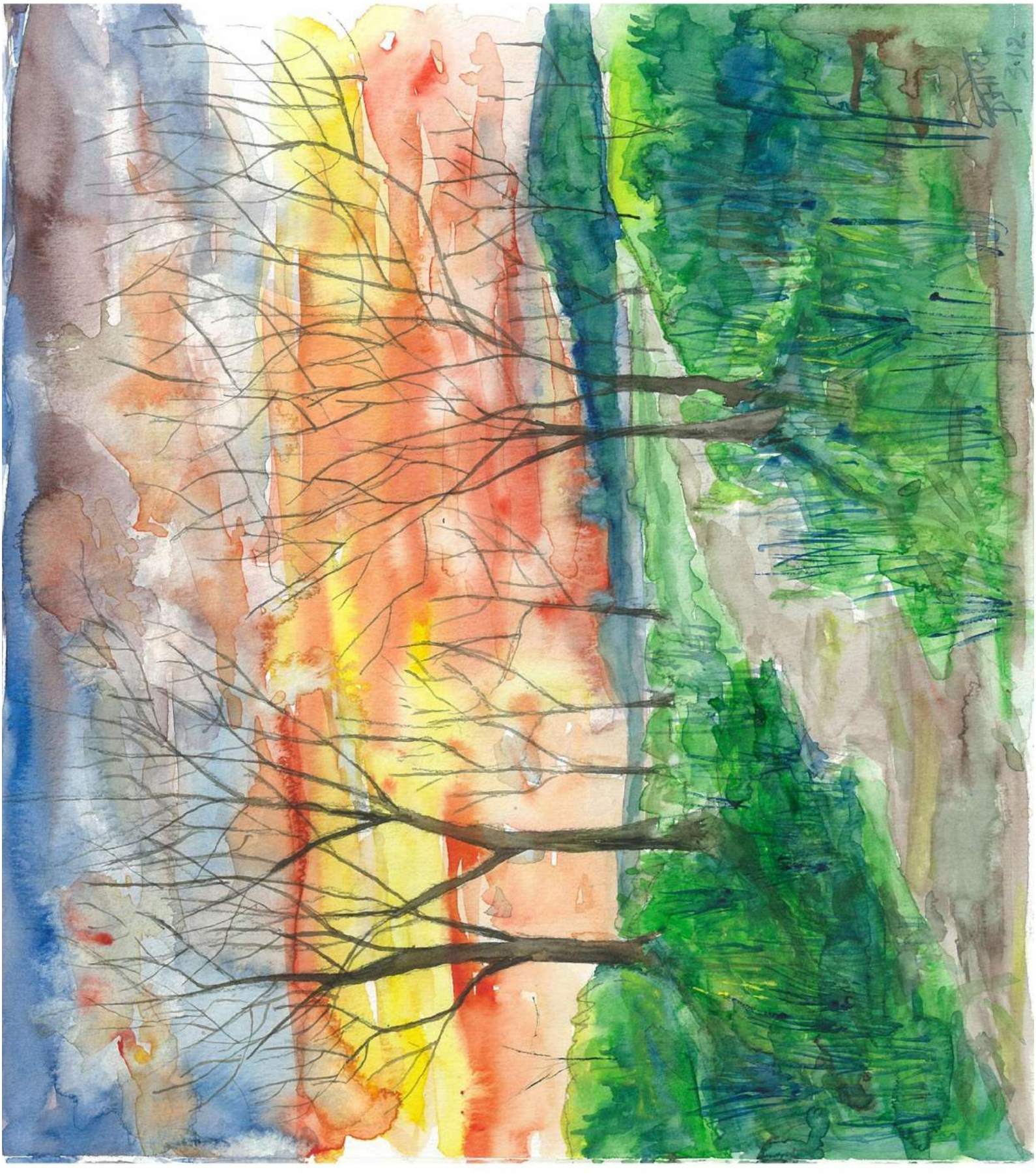
Drawing : Terrence George George

– AKASH · A · SONAWANE
BS (UG). IISc

Drawing : Akash Sonawane



Drawing : Terrence George George



Drawing : Amogh Kinikar


Amogh Anil Kinikar
Terrence George George
Pratibha Mahale
Hemaa Selvakumar
Akash Sonawane
Sushant Bangru
Sasank Amavarapu
Mohsina
Abhinav Jain
Naveen Sendhilnathan
Sri Vamshi Matta
Asish Das
Akshay Kumar Pandey
Janhavi Kolhe
Vishveshwar Ravikumar
THE VERY FIRST TEAM THAT MADE QUARKS HAPPEN
a magazine from the undergrad school of IISc
UNDERGRADUATE MAGAZINE
FACES
QUARKS

1898, J N Tata's letter to Swami Vivekananda

"Dear Swami Vivekananda,

I trust you remember me as a fellow traveller on your voyage from Japan to Chicago. I very much recall at this moment your views on the growth of the ascetic spirit in India, and the duty, not of destroying, but of diverting it into useful channels.

I recall these ideas in connection with my scheme of Research Institute of Science for India, of which you have doubtless heard or read. It seems to me that no better use can be made of the ascetic spirit than the establishment of monasteries or residential halls for men dominated by this spirit, where they should live with ordinary decency, and devote their lives to the cultivation of sciences-natural and humanistic.I am of opinion that, if such a crusade in favour of an asceticism of this kind were undertaken by a competent leader, it would really help asceticism, science ,and the good name of our common country; and I know not who would make a more fitting general of such a campaign than Vivekananda. Do you think you would care to apply yourself to the mission of galvanizing into life our traditions in this respect? Perhaps you had better begin with a fiery pamphlet rousing our people in this matter. I should cheerfully defray all the expenses of publication.

23rd November 1898
Jamsetji N Tata