PERSPECTIVE

IIT Campus - Monastery, Sanctuary or Laboratory?

■ **PROF. MILIND SOHONI** Computer Science & Engineering Department

1982 was our Silver Jubilee year, and coincidentally the year when I first came to this campus as a UG student. Hostel 4 was then a small hostel with small rooms. It was situated in a beautiful corner of the campus, the closest hostel to the wonderful Vihar lake. Ceiling fans had been installed recently and we were charged a princely sum of Rs. 20 per month as fan charges (the tuition fee was Rs. 45 per month). The department was a 15 minute walk via Hostel 2, situated under the *Gulmohar* tree at the Swimming Pool. If you had more time, you could walk across the grassy meadow adjoining the Gymkhana ground, then cross the *naalah* behind the Hobbies Club building to reach Staff Club. There was, of course, the leafy route via Hostel 5 and then the climb at the Convocation Hall slope.

What struck me as a freshie was (i) the witty, alert and multi-faceted student body, (ii) the back-drop of a beautiful and somewhat rustic campus and finally (iii) the stillness and quietude. All these facets were intimately and organically connected. I later learnt how rich the campus really was in wildlife. The IITB bird-list had more than a hundred spots to find the rare birds, and the butterfly-list was close to 60, excluding the bugs and snails, snakes and cows. A typical Sunday morning bird-watching session would easily touch to catching a glimpse of close to 50 birds. Koldongri (the area abutting Powai Lake after Hostel 7) itself would give you about 30 birds in an hour. Some regular sightings were: Hoopoes, Pipits and Wagtails around Gymkhana grounds, White-eyes and Ioras in the *Gulmohar* trees at the pool, Cuckoo-shrikes, Fly-catchers behind the Convocation Hall, and so on. Occasional sightings included the Golden-backed woodpecker, the Open-billed stork, the Grey Hornbill, Shikras, and so on. The campus was rich with many indigenous trees, which included the Palms, Teewar, Sterculius, Pangara, Ratan-Gunj, the Ficuses, Palas, Amaltas, and many, many more. There were also some rare trees such as the *Macaranga*

peltata, which stood where the current CSE building is. Overall, the campus with its meadows, hills and lakes and its proximity - both to the sea and the hills - offered an immense variety of wildlife. Such riches could not but affect the psyche of the residents.

To the lay person (i.e., not a wildlife freak) too, the campus offered intimacy and vivacity. There were always the long runs along the pipelines to get a glimmering view of Vihar Lake. Or one could count the empty glasses at the NCC Café while watching the rains lash Gymkhana ground. There were the wide, open stretches on the Hillside, or one could visit the Devi-temple or the Powai Lake and its crocodiles.

And so it was, a throbbing sub-text of courses, grades, inter-hostels, treasure-hunts, all-night *chais,* and of course, the longing for another Mood-I to a quiet and still main-text. The academics were an integral part of this stillness. Courses were timeless or should I say, time-proof. Only that which was 50 years old and yet (barely) alive, could be taught to students, thereby ensuring that it would remain so for the next 50 years. Then there was the mythology of the really, really tough courses and the legendary 'funda-man', who would crack them. Some said that these 'funda-men'(who looked scruffy and inscrutable) could actually imagine four dimensions or EM-waves. I too, privately, gave it a try without success.

The professors also played to the script. None wore sunglasses (then called goggles) and few had cars. All cars, if at all, were from the Raj days. The professors played bridge or chess at the Faculty Club which had old cane armchairs and magazines (never the latest issue) in old leather folders. Central Area (where they stayed) was most of the time unusually still. Perhaps some contemplation was in progress (history of the Wheatstone bridge? The ideal question paper?). By the way, the Director's Bungalow was called *Chintan*.

Gulmohar

Perhaps the most anthropomorphic of our trees, the *Gulmohar (Delonix regia)* puts out branches shaped into uncanny echoes of our limbs, complete with tensed muscle, sinew and joint; the tree's bark, too, is redolent of human skin in tone and texture. Our great affinity for this expatriate tree (it came to our shores along seafaring routes from Madagascar, where it is called the Flamboyant) arises usually from other reasons, however: there is its frail foliage, each leaflet just a speckle of spring green, and there is the dazzling canopy it holds aloft in summer – its masses of orange, scarlet or crimson flowers, large as fists and ornately splashed with gold. Sadly, *Gulmohars* are shallow-rooted and liable to be uprooted during monsoon squalls, after which they lie on our roads like giant wither-ing bouquets of red and gold. They are resilient, though, seeding copiously and germinating with ease, so we are likely to have fair numbers of them always around.

IIT Campus - Monastery, Sanctuary or Laboratory?

And so it would go on, monsoon after monsoon. The campus WAS actually a monastery. Knowledge was all that was permanent and invariant. And nature was where it breathed. It was all there, in the ether. Well, to be honest, not all was monastic. There was the odd Old Monk, the scandals, the MI Organisers, Schlumbergers, the GREs and so on. All at the same, the campus could well have been a monastery and knowledge could well have been ... you get the idea. The possibility did exist.

> **"Master Plans or Vision documents, if they are to make a difference, will create unexpected 'winners' and 'losers', all of which has to be foreseen. They must start with a community consensus building exercise."**

After having spent three years outside the campus, my second inning began in 1989 as a Ph.D. student, after having spent three years outside it. Many things had changed (mainly me). Firstly, a new knowledge had come to me. As opposed to permanence and invariance, this new knowledge was actually evanescent and needed intense professional pursuit called research. Next, shimmering across the Powai Lake, the first few buildings of the Hiranandani Complex were rising. The *vanvaas* had ended. Actually, both of these were two different wave-fronts of the same original disturbance called the Big Game (a.k.a. globalisation, Maya, market forces, Leela, etc.) but they hit us at the same time.

This new knowledge brought in a new thinking. A new postgraduate education paradigm was established and PG strengths started rising. Research and its infrastructure dominated our thinking about the campus. New constructions in this era include the Hillside C-types, Tulsi, Hostel 11, DRDO quarters, Tansa, QIP quarters, White House, New B-type Multi-storey, SAC, CAD Centre and more. Many department buildings were renovated and many laboratories were created. The Age of Rubble had begun. In fact, those who are archeologically inclined would find it rewarding should they explore (dig) areas behind Hostel 5 and Staff Canteen. The Age of Floods had also begun. This was the time when we started seeing days with 500 mm rainfall every monsoon. The river-linking canals that we had built were suddenly useful.

On our *vanvaas*, it had all but disappeared. The main road (Adi Shankaracharya Marg) was suddenly crowded. The legendary traffic jams of Saki Naka were already in place. Besides Radha-Krishna, new entrants such as Vadilal, Sujata Palace, Akshaya, Monginis (and further away, Chakra) unshackled the students from the tyranny of the hostel messes. The rise of Hiranandani had a more profound but subtle effect on the faculty and staff and their families. It was as if a parallel world had suddenly come into existence and was shown to us in the form of gaudy flip-books. Comparisons were inevitable, and they helped define our expectations from the campus which literally paved the way for Phase II. The administration was largely silent on the *vanvaas* front, since things were generally outside their purview or control. But yes, the entrance of Cable TV was hotly discussed and finally permitted. E-mail's entry was quiet.

SALT N PEPPER ■ DR. ARUN INAMDAR

'THANKS TO IIT, YOU GET EVERYTHING ON A PLATTER THESE DAYS!.. BACK IN THE OLD DAYS WE WERE FORCED TO LIVE ON TREES!'

Phase II began roughly in 1995. Its defining paradigm may now be called 'Endless Research', i.e., a devotion to the 'means', 'techniques' or 'technologies' of research and the meta-issues of methodology and measurement, rather than to the specific 'ends'. Pursuing the right means rather than the ends has always been recommended (of course, only if done at one's own expense). This new research could not be done sitting on a *chatai (*or *satranj* in Marathi). It needed new and sophisticated instruments, trained manpower, highly professional researchers and above all, an access to the technologies of the world. 'Access' was to be an important word.

The dual-degree programs were started. Various new specialisations were founded. The second phase of constructions had now begun. This includes practically everything that you see presently. CSE, SOM, KreSIT, Gulmohar, Van Vihar, CSE, all the labs behind the bay area, numerous extensions to EE, Hostel 12 to Hostel 13, culminating with the *Ananta* Towers. One may note the 'extra-mural' quality of the new constructions, for they were previously serving a different and somewhat ideological purpose.

This was also accompanied by a very suburban aesthetic of community development. Roads were widened, concrete footpaths were laid, parking lots were designed, faculty housing received fences and so did the Academic Area. A children's park was built, a Crèche was founded and so was an internal bus system. ACs and cars became endemic. The residential and hostel network came into existence. Interiors of houses were refurbished with modular kitchens, aluminium siding windows; houses were generally brought up-to-date.

In short, the Institute did everything within its means to create within our campus, a sanctuary for researchers and their families.

In 2005, we came up with a Master Plan which marked exactly what had been achieved and what lay in the near horizon. It offered three insights: (i) the academic area needed expansion, (ii) the space beyond the pipeline must be brought in and (iii) nature needed allocation. Growth had finally been trajectorised. The campus had metamorphosed in many ways. Its residents generally took pride in being a part of the vibrant Powai community, with fine dining, fine shopping and tolerable schooling within easy reach. The campus itself was kid, pet and car friendly, with great access to sports and cultural facilities. As far as the students were concerned, hostel accommodation was tight but for no fault of the administration. In general, though, the city was close by and had a lot to offer. Gymkhana facilities were good and getting better.

How had nature fared? Well, its role was frequently that of a nuisance, floods and the movement of leopards being the biggest offenders. Half the birds had left the campus. Koldongri was a fraction of what it was. Sonaribag (the area between Convocation Hall and Hostel 8, on the lake) was highly disturbed. Nature itself had stopped being a source of inspiration to most of the campusites. All the same by 2007, on the eve of our Golden Jubilee, barring some growing pains the campus was at peace, both materially and philosophically. The tryst was with excellence and the sanctuary was in place.

But by now, two unforeseen events happened: (i) the economy (supposedly) had tanked, and (ii) MHRD bought our monastery story, late by twenty-five years. The first has caused a lot of hand-wringing at the global table and will definitely percolate downwards. The paradigm of 'endless research' may well prove to be 'sub-prime' and funding agencies may well lose appetite for it. On the other hand, MHRD has asked us to do substantially more of rather 'end-full' teaching which cuts across our stated mission and our current tastes. Thus the 'sanctuary' paradigm for our campus may well come under some stress.

Materially speaking, the first response is to dust off the Master Plan, extend it and then modify some of the designs. These modifications would include putting the land beyond the pipeline into use, expanding Academic Area and creating huge lecture hall complexes and 1000-seater hostels. But there is a danger: just as Soviet equipment lay unused in our campus till the buildings around them

crumbled, it is possible that some of our fancy new gadgets or our old un-re-invented departments will have the same fate. Moreover, if the increase in the teaching role for IIT is not sterilised quickly, then not just the demographics but the 'type' (a game-theoretic term to indicate privately-held information) of people may also change with time.

In any case, we will be dealing with a larger student, faculty and staff body. It is not clear whether the current, rather informal mechanisms of governance (i.e., formulating rules and enforcing them, developing plans and executing them) will continue to work. For example, evolving a rule about use of campus lawns for social functions will mean defining what is private, what is the institute's and what is para-institute (such as conferences), and enforcing a rule which no one will want to break, even occasionally.

Master Plans or Vision documents, if they are to make a difference, will create unexpected 'winners' and 'losers', all of which has to be foreseen. They must start with a community consensus building exercise. This will need a wide-spectrum, transparent information and decision system - an ASC covering all aspects of the campus. Just imagine how systematic and efficient the scenario would be if the Estate Office had a transparent mechanism, wherein each project would list its champion, its design, the contract, the bids, the award, periodic inspection reports, the measurement sheet, bills and clearances, remarks and finally payments (compare this with the current www.iitb.ac.in/tenders/). The champion is the ideological owner of the project; it could be 'Master Plan 2006' or 'Head, CSE' or even 'Area representative, Lakeside'. Thus the information structure could link the demand, the design and the execution together.

> **"The shape of the campus affects (and is affected by) how we define our primary activity, i.e., research and teaching, and what we believe that the campus should provide for our welfare. Whence, a 'collective' approach to the campus will also require some amount of collective understanding of what motivates us to be in IITB, as individuals."**

Actually, there is nothing novel in our circumstances or in what is being proposed here. All American universities of comparable size have a separate office for vision, policy and strategy, and another one for planning which looks at campus-wide implications of the designed strategy (e.g., Harvard). There is a role for both ideology and for stakeholder input. The second point of this narrative is that the shape of the campus affects (and is affected by) how we define our primary activity, i.e., research and teaching, and what we believe that the campus should provide for our welfare. Whence, a 'collective' approach to the campus will also require some amount of collective understanding of what motivates us to be in IITB, as individuals. Perhaps we should treat the double-event (i.e., the crumbling economy and the new teaching load) as a cross-road from which lead two paths. The first is the survival-ist or destiny-ist path, a path which follows the semester to semester approach, i.e., the status quo. Or we follow the second path of intelligent design. Actually, the first path is well-trodden not only by us, but by our country as a whole (defense analysts and wonks call us a 'status quo' country, meaning one having no 'intelligent designs'). So let us now become a laboratory and take the other path.

The history of an Institute is always a fractal of the national history. As like other institutes, this institute too serves (and ought to serve) as an important guinea-pig for the nation. Besides of course, our mandate and our trajectory of growth, its inclusiveness and the governance structures that we evolve all constitute this one pig called IIT Bombay. How we grapple with our new reality will be keenly watched, for it will provide a clue to the future of this wonderful experiment called India. In the end, of course, all of us and the pig are dead. It is the interim which is also of immense interest. ■

The views expressed in this article are those of the author's and do not necessarily represent those of IIT Bombay or the editorial board of Raintree.

Quirky and Questioning

■ JAYA JOSHI

John Mayer recently wrote a song called Say. While penning the song, Mayer said he felt a little soul-less in the initial composition, writing just a terribly simple song.

You better know that in the end
It's better to say too much
Than to never say what you need to say again
Say what you want to say…..

Well, the terribly simple lyrics have in a strange way served as a theme for this issue of Raintree. Specifically, we've heard and let people speak on a subject that touches each and every one of us - the irrevocably changing face of the IIT Bombay campus. The increasing intake is going to further increase the pressure on campus infrastructure and in time, will alter the campus landscape. What is in store for us - the campus community? How is it going to affect life as we know it on our campus?

My personal favourite and the lead story for this issue is a Perspective piece written by Prof. Milind Sohoni from Computer Science & Engineering department. Presenting evidence, reason and logic, it is a compelling narrative on his take on the subject. He joined the Institute as an undergraduate student in 1982 and since then, he has seen it change and evolve very closely. Do read it; it's unlikely that you'll forget the plot in a hurry. Alongside an individual's perspective, our Centrespread visually takes you through the factual information on campus construction in the next two years. This issue also looks at some hard-hitting facts on campus utilities - utilities that we can never be thankful enough for and which most of us have rarely appreciated. Digging these was an eye-opening experience for our contributors. I have a feeling it will not be too different for you. For example, did you know that all the water available in campus is potable, i.e. even the water we use for washing our cars, watering plants and flushing?

Ultimately, in this issue we present a possibility of changes - both here, now and in the near and very practical future. You'll meet scientists, students, travellers, artists, photographers, award-winning newsmakers and people like you and me who have something in common. We are all part of these developments and will keenly be looking at how they alter (and when properly implemented, advance) our lives.

My apologies for the long absence: we were not exactly consumed in our launch revelry, but were waiting for the silent vacation period to conclude and let the magazine be received and read by a fuller campus. We are therefore now bringing you a double-issue with a blazing red *Gulmohar* colour theme.

The response to our inaugural issue was truly encouraging. Thank you! Of course, we realise that it's the early days and we have miles to go. But it sure does feel good to bask in the praise. This magazine, as we had envisioned, did manage to spark a few debates and questions. Some of you liked the format while others felt differently, and a few of you also made some very valid suggestions. You will get a glimpse of these in our Letters to the Editor section.

Our replies to a few: Prof. Sukhatme, you're right, the name of the tree is Rain Tree. We just took creative liberty and coined the word Raintree. Prof. Banerjee, we like your suggestion. Hopefully it will be in place sometime soon. Profs. Puranik and Pant, we agree on the issue of wastage of paper, but not all the campus residents may find the e-format too friendly. The Scrap-tree idea can be explored. To Prof. Sohoni's question on the cost of the magazine and budget for it, I would like to say that there was always a budget for a campus magazine. It's just that earlier we were printing it in-house at Rs. 60 per copy, which has now fallen to less than its one-fourth. This was quite simple. We just replaced 4-colour, laser-jet printing on A3 size paper to 2-colour, offset printing on A2 size, better looking but cheaper paper.

Once again, the success and sustainability of the magazine depends on your reactions and contributions, both sombre and blithesome in nature. We look forward to more stories – real or fictional, essays, poetry, travelogues, photographs, paintings and even cartoons. So keep them flowing.

On the format, I would like to remind you that our aim through this magazine is to provide an alternative space to a cross-section of voices and opinions. Now that you've experienced the inaugural issue, either through the print edition or on http://iitb.ac.in/Campus_Bimonthly_Magazine.html, it'll be far easier for you to relate to our stories, which are not always straight jacketed into neat cubbyholes. The satirical pieces offer an avenue to the writers to present their case in a witty, punchy and light-hearted manner. The only thing that we are seriously attempting is to learn to not take ourselves too seriously.

Raintree at its core is sharp, engaging, quirky and questioning. Would you agree? ■

INBOX

Letters to the Editor

I enjoyed reading the first issue of Raintree. My congratulations to you and your team for this new initiative.
PS: Just a thought. Should the title not be 'The Rain Tree' rather than 'The Raintree'?
S. P. SUKHATME

I have gone through the new version of the campus magazine. It is very nice - congratulations to you and your team for putting it together. I hope you will be able to bring it out on a regular basis.
DEVANG KHAKHAR

Congratulations on the new magazine! Impressive. Can we have brief write-ups on the people who retire with better pictures? This could be written by others in the section or group who know the employee.
RANGAN BANERJEE

The first issue of the Raintree carried a photograph of piled up earth in mounds. It is not a matter of whimsical choice. When construction commences on a particular site, we excavate and store the earth on a different location as the same soil is used for 'backfilling' when the foundation is laid.
K.V.K. RAO

Just checked out Raintree (great name, by the way!). I must say it has come out exceptionally well. I ended up reading the whole thing in one sitting!
ANTARIKSH BOTHALE Student

I would like to put forth a suggestion that all such magazines should be made available only in electronic format. It is my experience that a large percentage of paper issues are simply discarded without any reading, thus making the whole process wasteful toward paper use. I think it is better to save trees than to waste paper in this manner. An electronic version with a link provided in an e-mail is more than sufficient for these magazines.
BHALCHANDRA PURANIK

The new format is great! It is like a breath of fresh air. I liked particularly the informal style and a corner provided to voice residents' opinions. It is so important. Previously, the campus magazine only talked about retirements/appointments/conferences/awards which gave the (wrong) impression that everything else is just perfect.
M. B. PATIL

I fully echo Prof Mahesh Patil's observation - the new campus magazine is indeed done very well. Please keep up this series.
V. M. GADRE

Liked the first issue of Raintree. For some time now I've been bothered by the large amounts of scrap paper - blank on one side - that we generate and often waste. Just to make a point, would you consider printing one issue of Raintree (call it Scrap-tree if you will) on used paper and see how many copies can be published?
PRITA PANT

The photos of cycles are quite nice. For your information, I joined IIT in 1969 as a student and have seen the growth of the Institute and its environs. Those cycles are always there as a mark of respect to the alumni. IIT has not changed a bit as far as dumping garbage is concerned (within campus).
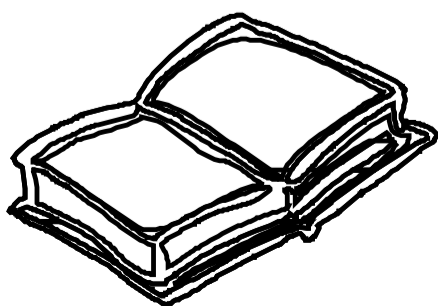**D. CHANDRASEKHARAM**

A quick question, how much does it cost to put together this new magazine with its fancy paper? Where is the money coming from?
MILIND SOHONI

Letters should be sent by e-mail to **pro@iitb.ac.in**. *We regret that owing to the volume of correspondence, we cannot publish or reply all the letters. Letters may be edited for length and clarity.*

ERRATA

A minor correction from the previous issue: Energy department has 8:2 men: women core faculty (excluding adjunct) or 10: 2 including adjunct.

Contra-dictionary

N **nickotime** *noun*.
(NOTE Not to be confused with nicotine, which is a pleasant-ish drug)
The amount of time by which the pizza delivery guy manages to beat the thirty minute rule.

P **pole vault** *noun*.
The place where Santa keeps all the presents till Christmas

(by Eeshan Malhotra, Fourth Year Undergraduate)

Riding to Class : The Bicycle Story

As successive generations of students leave the campus every year, they leave behind the old faithful - their trusted bicycles. Here in the campus, they gather dust, grime and rust and grow in numbers – forlorn relics of people who have come and gone.

With the passing years, these rusty relics had gradually become very much a part of the campus landscape. Alumni looked upon them with nostalgia while others on campus privately railed about how much of an eyesore they were, messing up an otherwise pristine environment.

In the first issue of Raintree, one of the contributors had featured these bicycles in a photo essay. The aim was to do nothing more than poke some gentle fun - laughing at ourselves and some of the established edifices on the campus landscape. Little did we know that change was around the corner and that an unexpected opportunity was coming our way.

We were contacted by a charity initiative called 'The Bicycle Project'. This charity group refurbishes old unused bicycles and gives them to tribal children who need to traverse long distances between their schools and the villages they live in.

Currently, the project is helping children in the villages of Thappar Pada, Wada and Vikramgarh, all of which are located 100 kilometres from Mumbai, off the Ahmedabad highway in Thane district. The current focus of their at-tention is 137 needy students of a Marathi medium high school called Sri Binoi Gharde Sajjan Vidhalaya in Alonde, Vikramgarh Taluka. Once all of them receive a bicycle each, the project will move on to the next village.

The bicycles lying unused on campus can be utilised by not just one, but numerous schools. We are happy to report that most of the initial legwork has been done and the official seal of approval has been acquired. The Institute has agreed to give away all the 300 bicycles lying unused on campus and has also expressed an interest to continue this exercise on an ongoing annual basis. The last we heard, the Security Office had been asked to hand over the bicycles to representatives of The Bicycle Project.

We request the passing-out batch: Do not leave your bicycles to degenerate next to your hostel gates (it costs 400 rupees to refurbish an old bicycle). Please visit **www.thebicycleproject.blogspot.com** and leave your bicycle at the nearest collection centre. Residents who do not have a bicycle can also help in many other ways. You can donate your old computers, you can provide funds for refurbishing old bicycles, or even your valuable time to the project.

This is a story with a happy ending. Our rusty relics have found a new home and will soon be ferrying yet another generation to class. Please do visit this blog. The simple act of giving away something that you no longer want can change lives of people who don't want much but need all the help they can get. ∎

THE BICYCLE PROJECT

We collect and repair old bicycles, then give them to children in villages so they don't have to walk long distances to school.

How YOU can be part of this simple but effective movement:

DONATE BIKES - Give us your old bicycle!

VOLUNTEER – Collect old bicycles for us, pick up bikes from donors or find a space where we can temporarily store bikes collected in your area

DONATE MONEY – Pay to fix up (1 or more) old bicycles Each bike costs approx Rs 400 to repair

Call us on 9820149022 or email us at thebicycleproject@gmail.com

Visit: thebicycleproject.blogspot.com

The Number Game - Facts and Figures on Campus Utilities

A curious thing about all utility services is that they are almost always taken for granted and seldom appreciated. Take for instance the case of IIT campus. The only time we sit up and take notice of campus utilities like our water, power supplies, telecommunications etc. is on the rare occasion when something falls out of order. The rest of the time, we take the remarkable efficiency of these utilities as our due with nary a thought to the people, the costs involved or what actually goes into running these utilities smoothly. Perhaps the time has come to shine the spotlight on these silent service providers who stay very much in the background, yet ensure that everything runs smoothly. In this issue of Raintree, we would like to present some pertinent facts on the utilities we use. Most of these utilities - be it water or power - represent a precious yet scarce resource available to us in abundance. All of us, as part of the campus community, have a responsibility to be sensitive to that fact and use them judiciously.

ELECTRICITY AND ENERGY

IITB's electricity bill for the year from June 2007 to June 2008 was approximately **Rs.15 crores.** The average monthly bill is about **Rs.1.25 crores**.

The average monthly energy consumption is about **19,71,250 kWh (or units).** The electricity provider (Tata Power) allocates a 'contract demand', which is what IITB can draw at any given point of time from the service provider. There has been a steady increase in our power consumption. In the year 2001-02, the contract demand was **3,000 kVA**, which was increased to **3,708 KVA** and then to **4,500 KVA** in 2005-06. There have been no changes in contract demand allocated to us since then. IITB has already applied for an additional **500 KVA** but it has not been allocated to us as yet.

There has been a surge in power consumption in the last six months. The maximum demand (Billed Demand) for the current year (January-June 2009) was **4,800 KVA**. Since this is higher than the contract demand, IITB has to pay a penalty/fine over and above the charges for the electricity consumed.

When the total connected load is segregated based on end use, air conditioning load contributes to about **50%** of the total campus contract demand! This is followed by lights and fans in the hostels and Academic Area, which constitutes about **26%** of the contract demand.

Savings to the tune of **35-40%** can be made when ACs are fitted with energy savers. CFLs consume nearly **50%** less energy than tubelights of similar luminosity.

Implementation of such energy saving measures can bring about a total saving of around **Rs.1.75 crores** per year. Total number of solar or other alternative energy units on campus: None

WATER

The campus has **24** hours water supply, **365** days in the year. All the water available in campus is **potable** water, i.e. even the water we use for bathing or watering our plants is drinkable water.
Water storage on campus: **500 kilolitres (kL)** in 2 tanks. Total number of pumps in the main pumping station = **6** In a year, water consumption figures for the campus fluctuate between a minimum of **103,588 kl/month** to a maximum of **292,809 kl/month**. If we take consumption figures for a specific month, water consumption for the month 12 December, 2008 – 12 January, 2009 was **189,221 kL.** BMC charges **Rs.3.50** per kL and an additional **60%** as sewage disposal charge. So, the bill for December 2008 -January 2009 was **Rs. 10, 59,638**. Although there are no data available, a significant portion of this water is wasted due to leakage. Incidentally, the water charges for other residents of Mumbai are based on consumption – the rates double with every slab.

WASTE MANAGEMENT

Approximately **1.5 to 2** tonnes of Solid waste is generated on the campus every day. Unlike before, waste disposal is a daily affair as garbage disposal trucks carry it away on an everyday basis.
Till a few years ago, there was a bio-solid waste treatment facility on campus initiated and managed by Prof. H.S. Shankar.

COMPUTER CENTRE

Bandwidth available with IITB till July 2008 = **32 mbps**
Bandwidth currently available with IITB = **104 mbps**
External Service providers: **2**
Tata Communications provides **72mbps** bandwidth
Verizon Business Solutions provides **32 mbps**

Current usage: **25%** of the available bandwidth (data collected from head CC in June '09)
Total number of Proxy Servers = **5**

Networks are organised hierarchically with
Total number of Core network switches (of 1 GBps each) = **5** (housed in CC, CSE, AERO, H3 & H8)
Departmental switches = **24**
Residential switches = **158**
Hostel switches (including Tansa house and staff Hostel) =**15**
Switches in the process of being installed for staff quarters = **80**

Average number of users logged in to the system at a time = **7,000**
Total number of mailing lists =**17.**

The Computer Centre maintains the hardware and software of this large network with a staff of **11** and some student research assistants. Of these, only **6** are permanent employees! The inadequate staff strength makes it difficult to implement a central command control centre format followed by other large service providers in Industry. Instead, CC is perpetually in 'firefighting' mode that allows for little scope for future planning.

The CC building was vacated and subsequently demolished approximately **2** years ago. Construction of the new CC building has not commenced yet. Currently, CC functions from three different locations in the Electrical Engineering Department and KRESIT. Server maintenance is a huge problem as there is no dedicated server room with adequate air-conditioning as yet. ∎

Environmentally Yours

BISWA KESAN SAHOO, Executive Engineer, Electrical Maintenance Division

Our campus at IIT Bombay is a small, self-contained township; a microcosm of the city that lies beyond our walls. But the services that we enjoy are definitely of a higher order than that are available to the average Mumbaikar. The campus therefore, is not just about the faculty and students but also about the contribution of our staff who stay in the background but ensure that essential services like water, electricity, telephone connections, etc. run seamlessly. The personality for this issue is Mr. Biswa Kesan Sahoo, the executive engineer of the Electrical Maintenance Division. The impression that I came away with after my long chat with him was of an earnest and serious man, who was at his most animated self when talking about energy conservation and alternative energy solutions.

His background is rich with varied experiences. After completing his B.Tech and Masters from the University College of Engineering in Burla, Orissa, he joined CPWD. Having cut his eye and teeth over their project functioning and management he moved on to the Ministry of Information Technology and Communication for three years, where he gained valuable insights into the norms of Central government functioning. Mr. Sahoo joined IIT Bombay on May 2005. He is not new to the system followed here, as his last place of work was IIT Kharagpur.

Not having lost his thirst for knowledge, learning on the job was never enough. So he enrolled for a second M.Tech in Power Systems engineering at the Department of Electrical Engineering here. He wishes to enroll for a Ph.D after completing his Masters. We hope that excerpts from this interview not only help in highlighting the complexities of his job, but also bring to the foreground the invaluable contributions made by our administrative, infrastructural and other support staff in the smooth running of the Institute.

Introduction by **DAMAYANTI BHATTACHARYA**

Q. Mr. Sahoo, you have spent about five years at IIT Bombay. Tell us a little bit about your experience so far.

One of the interesting things about my job is the dual nature of my work and studies. I work here, but I am also enrolled as a student here, so I have the unique opportunity of implementing what I am learning in the classrooms. I find this extremely motivating. For instance, I learnt many things from my papers in Power Electronics, Power Protection, Energy-efficient power solutions which I have implemented practically. So now, there are power sensors/movement detectors installations in all the bathrooms in Main Building as well as what we call VIP rooms - (Dean's offices, Dean's rooms, Director/Deputy Director's rooms, etc.). These sensors ensure that when the rooms are empty, all power installations are automatically switched off. None of this is new technology but earlier, prices were not competitive i.e. affordable. Now that they are affordable, I would like to

"About a year into my joining the Institute (towards the end of 2006), there was this particular snake which made my life miserable. It managed to enter one of the switch panels in the Chemical Engineering substation. The snake set up residence for the winter, probably thinking that it was the perfect spot for hibernation. However, it created havoc for the Electrical Maintenance Division! One by one all the fuses blasted off and in a domino effect, all the sub-stations tripped – first the Chemical Engineering Department's sub-station, then Aerospace Engineering substation. Soon, the Main Power sub-station was down and I had a huge short circuit on my hands. My first real encounter with IIT Bombay's wildlife - and what an encounter! In my career, I had heard of rodent related faults, even monkeys, but snakes! That was a first."

Number of complaints attended by Electrical Maintenance Division daily = 50
The number of WACs/SACs maintained by EMD = 1500
Average power factor maintained = 0.98 (Target: 0.99)

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expand it to other parts of Academic Area as well. Despite our elaborate system of power supply, power protection was previously not given its due importance. We have now opted for some advanced power system protection for our main Receiving Station which will give us better, more reliable power supply.

Q. Can you mention any interesting projects or challenges that you have encountered so far?

After I joined IIT Bombay, I was surprised to encounter the volume of challenges that awaited me. In the stretch from Sameer to Ananta, all over-head power lines had to be converted to underground power lines. Numerous challenges were posed by wildlife – the numerous monkeys, birds, snakes, etc.- to our old world, outdoor-type power system. The old power systems represented a serious safety hazard, so we embarked on a process of converting all of them to indoor-type installations, with an eye to the future. This means that in the next 20 to 25 years, there is no threat of obsolescence to the system. Today, with the exception of the Lakeside area (which will be converted soon) all power systems of the entire campus have been converted to the new indoor-type layout. Speaking of challenges, I remember an interesting anecdote. About a year into my joining the Institute (towards the end of 2006), there was this particular snake which made my life miserable. It managed to enter one of the switch panels in the Chemical Engineering sub-station. The snake set up residence for the winter, probably thinking that it was the perfect spot for hibernation. However, it created havoc for the Electrical Maintenance Division! One by one all the fuses blasted off and in a domino effect, all the sub-stations tripped – first the Chemical Engineering Department's sub-station, then Aerospace Engineering sub-station. Soon, the Main Power sub-station was down and I had a huge short circuit on my hands. My first real encounter with IIT Bombay's wildlife - and what an encounter! In my career, I had heard of rodent related faults, even monkeys, but snakes! That was a first.

Q. The campus is in a phase of expansion; student-intake is going up. How far is the Electrical Maintenance Division prepared to meet the increase in demand?

In the current scenario, we have a decentralised power market. IIT is in the process of approaching multiple sources for more power. In our estimation, our power demand is going to double from our current demand of 4,500 KVA over the next three years. There is a need for more sophisticated technology and upgrading of systems, but we have decided to take the route of extensive outsourcing. So far, our experience with outsourcing has been quite good - provided the situation is defined properly and you have a well-developed system of monitoring and evaluation. In the areas where we apply outsourcing, I pay a lot of attention to user-feedback. These areas include hostel maintenance of electrical installations, air-conditioners, pumps for drinking water and sewage water, etc. To go into some specifics, the new Convention Centre, Hostels 13 and 14 and the Lecture hall complex will have their own power sub-stations. I can say this with confidence that as far as the current expansion in IIT Bombay is concerned, growth in the Electrical Maintenance Division is happening on par and we can balance expansion demands with ease.

Q. Describe your typical working day.

Believe it or not, as an executive engineer my job is quite hectic. My office hours are not fixed so there is no regular time of reaching the office or home. My day starts early

and I start responding to my e-mails often before coming to office. This helps me act on those e-mails during office hours. Most office hours before and after lunch are spent on site visits, meetings, giving dictations and preparing work proposals. Site visits are necessary before designing a specific job and also before billing and payments are made. Meetings are also a big part of my work. They can be with my subordinates, with the higher authorities, with users as well as vendors. I need to visit factories to check on the materials and seek modifications. Finally, I have to visit the utility offices - Tata Power, MSEB, etc. Efficient functioning demands that I clear all papers and cases within that very day. On an average, I clear about fifty cases regarding complaints, approvals, bills, etc. each day. For me, the best time for doing this paper-work is from 12.30 pm to 2 pm and 6 pm to 8.30 pm, when I am less disturbed. So, a typical workday starts at 9.30 am and continues till 2 pm. I break for an hour for lunch, and work resumes again at 3 pm, to conclude around 8.30 pm.

Q. Describe your style of functioning and explain to us if there are any specific stresses that come with the job. If yes, how do you deal with them?

My style of functioning can be described very simply. I try and ensure that the system of functioning is defined clearly for everyone here at the Electrical Maintenance Division, so that there is no room for mistakes or misunderstandings by anyone. As for stress, if you choose a profession as a service provider (particularly in my case in the Electrical Maintenance Division, where you are accountable to the entire campus), then stress is a part of life. I try to lead a balanced life. I strive to have a calm and quiet life at home to nullify the stress at work. My answers to minimising stress would be to have a closer connection with spirituality coupled with lots of physical activity. We have such a beautiful campus, that doing all three - leading a quiet life at home, having a spiritual bent of mind and having lots of physical activity becomes easy. I am very thankful for the abundant beauty of this campus and also to the excellent sports and recreational facilities available here, which make staying here such a pleasure for me and my family.

It stands to reason that the most ardent advocate of energy conservation should come from the ranks of people who work in areas like power generation and maintenance. Mr. Sahoo dreams of an energy-efficient campus, full of green buildings. He is a passionate believer in alternative energy solutions and energy-efficient practices. He would like to sensitise the campus residents to the problem of power wastage and encourage them to think green. The idea is that every community member becomes accountable for the amount of energy consumed. When it comes to practicing energy-efficiency, labs and entire departments (and not just individuals) start functioning on this principle of accountability. We wish him all the best for his future endeavours and hope that for all our sakes, the actualisation of his dream is not that far away in the future. ∎
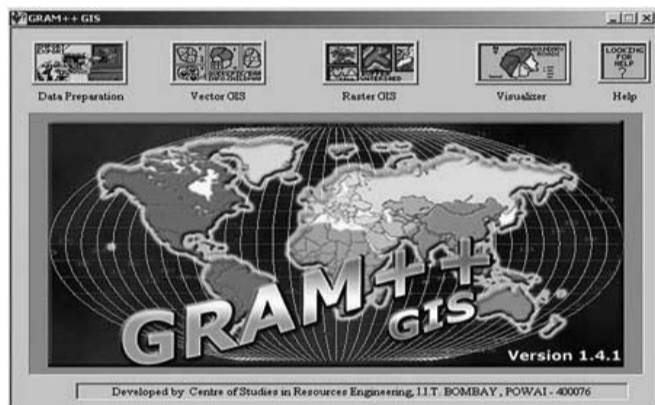
From Innovation to Entrepreneurship: The story of GRAM++

Centre of Studies in Resources Engineering, IIT Bombay develops India's first fully indigenous GIS software: GRAM++

Popular awareness of Geographic Information Systems (GIS) in India is low - more like a poor cousin to GPS. Mention GIS to an ordinary person, and you will probably draw a blank. Mention Google Earth, and there will be instant comprehension, which is nothing but GIS services on the Internet. GIS also has enormous problem-solving capabilities for a country of our size and numerous complexities. For instance, it can help calculate the shortest route from your residence to your office, locate the most vulnerable areas in flood-prone Mumbai (before every monsoon), indicate what crop a farmer can cultivate in his land so that he gets better yield and also indicate what is the optimal location for building a water-harvesting structure in a village, etc.

What is GIS? For answering all these questions, we need to integrate data from different sources in a consistent form. The art, science, engineering or technology associated with answering such geographic questions is called GIS. They are powerful computer-aided tools for collecting, storing, retrieving, analysing, modelling and displaying spatial data from the real world, enabling us to observe, interpret and visualise possible scenarios. Thus, GIS and its applications have tremendous potential as a planning tool, and also in providing solutions for better resource management and protection of environment. The user community can be at all levels of governmental agencies, academia and industry, especially businesses in engineering applications.

GRAM++, first indigenously developed GIS in India: In India, the technologies used and deployed in this field are usually costly imports developed elsewhere. The only exception is Geo-Referenced Area Management (GRAM++), India's first fully indigenously developed GIS software at the Centre of Studies in Resources Engineering (CSRE), IIT Bombay by Dr. (Mrs.) Parvatham Venkatachalam and Dr. B. Krishna Mohan. It was originally developed with the financial support of Department of Science and Technology (DST) and United Nations Development Programme (UNDP).

Capabilities of GRAM++: The software is organised as a number of modules including Import/Export of different format data, Map Editing, Raster Analysis, Vector Analysis, Network Analysis, Terrain modelling and watershed delineation, Digital Image Processing and Map Layout. It is a highly capable GIS tool that facilitates a wide range of operations such as map database creation, query and retrieval, analysis and visualisation. To put it in simple terms, it helps in locating any spatial feature, visualising and planning, sharing and managing information for an entire region or enterprise.

GIS can be integrated into application-specific Spatial Decision Support Systems (SDSS) that offer modelling (which may be hydrological, transportational, environmental and even socio-economic), optimisation and simulation functions for generating, evaluating and recommending alternate strategies for decision-making. It can be integrated with mathematical models such as partial differential equations, Cellular Automata, dynamic programming etc. to see the effects of natural and human processes on landscape.

Along with GRAM++, Bhugol GIS has also developed a Web Gram Server, which is a server-based Geographic

Agni IITB's Formula Student Car

Information System (GIS). It comes with out-of-the-box services for spatial data management, visualisation and spatial analysis. It offers open access to extensive GIS capabilities that enable organisations to publish and share geographic data, maps and analysis over the web. Web Gram Server works with OGC compatible GML 2.1.2 file standard. High performance GIS applications can be built using the Web Gram Server.

The development team in CSRE has also developed an E-tutor as a Computer Aided Teaching Material in the area of GIS.

However, from 2004 onwards, it became self-sustaining through paid distribution to hundreds of interested users, as part of CSRE's GIS training courses. In November 2006, GRAM++ was transferred to Bhugol GIS Pvt. Ltd., a company incubated by GRAM++ developers in the Society for Innovation and Entrepreneurship (SINE) at IIT Bombay. At present, about 700 copies of this package are in use across the country in academic institutes (around 300 copies), government departments (around 270 copies), NGOs (120 copies) and industries (10 copies). Over 30 operational projects have been completed using GRAM++ in the country. Compared to expensive imported GIS software packages, the price of GRAM++ has been kept very low, so that it is affordable to user community at all the levels.

The ultimate use of any GIS is in supporting decisions. The technology, thanks to innovators like Dr. Venkatachalam is now available at a low cost. What we do with it after this - whether it becomes a powerful tool to engineer transformatory policies in rural as well as urban India - will depend on its timely popularisation and the will of our policy makers and industry leaders.

JEE 2009

The results of the Joint Entrance Examination (JEE-2009) for admissions to undergraduate courses in the 15 IITs, IT-BHU and ISMU Dhanbad were declared on 25th May. A total of 3,84,977 candidates appeared in JEE-2009, out of whom 10,035 candidates have qualified to seek admission for 8,295 seats in the IITs at Bhubaneswar, Bombay, Delhi, Gandhinagar, Guwahati, Hyderabad, Indore, Kanpur, Kharagpur, Madras, Mandi (H.P.), Patna, Punjab, Rajasthan and Roorkee, including the non-IIT institutes, namely IT-BHU Varanasi and ISMU Dhanbad. The number of candidates who appeared in JEE-2009 is nearly 24% more than that in the previous year. Nitin Jain (Reg. No. 2076372) who appeared in JEE from IIT Delhi Zone topped this year's All India list of successful candidates.

This year, 98,028 girls attempted JEE and 1,048 of them qualified. Also, out of 1, 04,045 OBC candidates who

wrote JEE, 1,930 have qualified. Similarly, out of 36,117 SC candidates, 967 have qualified, and out of 12,484 ST candidates, 208 have qualified. This year, 138 students with physical disabilities have also qualified with the same relaxed norms provided to SC/ST candidates.

Agni

Agni, IITB's Formula Student Car was unveiled on Friday, 20th June at 3 pm in the Lecture Theatre (PC Saxena Auditorium) by Mr. Narain Karthikeyan, the pioneer of Formula Racing in India. Director of IIT Bombay and Dean, Aston University were the guests of honour for this ceremony. IIT Bombay Racing, a group of around 40 students of IIT Bombay who have an unmistakable passion for motorsports will be participating in the Formula Student 2009 to be held at the Silverstone Racing Circuit, UK in July. Agni is our entry for this annual International Race-car Design and Manufacture competition run by the Institution of Mechanical Engineers (ImechE). This competition will attract 95 teams representing universities from all corners of the globe. It challenges students to design, build and race a one man, open-wheeled race car assuming that they have been engaged by a manufacturing firm to produce a prototype car for evaluation as a potential production item. Restrictions on the engine capacity and the car frame force the students to widen their realm of creativity and imagination and think out-of-the-box.

IIT Bombay Racing also participated in all-terrain vehicle competition, Baja SAE India 2009 which saw competition from 60 Indian colleges. After winning 5 awards including the best Engineering Design Award, IIT Bombay Racing is confident of its success and making India proud at Formula Student 2009. The IIT-B team comprises of students from various fields of engineering and sciences, including the students of IDC, the Design School of IIT Bombay.

Pratham

Pratham - The IIT Bombay Student Satellite Project: Students of IIT Bombay are all set to put their own satellite in the sky. Over the past year and half, a team of 40 undergraduate students from a variety of disciplines have been building *Pratham*, the first in the series of satellites which will hopefully emerge from our Institute.

The payload of *Pratham* is a simple experiment designed to measure the Total Electron Count and electron density of the ionosphere. The data produced can be used for applications like improving GPS error corrections and also in fields such as radio astronomy. TEC data is not available with India currently. The students aim to put this data in the public domain, so that everyone

can benefit from it. The main goals of this mission are education, outreach and encouraging a new generation of space scientists - not just in the Institute but in different corners of the country. Till now, around seven universities are actively involved in making ground stations for *Pratham* in their university campuses. Around four new Student Satellite projects have started off in other universities in the country.

The students are now in the process of chalking out a MoU with ISRO. The MoU will provide them with support which will cover building and launch costs to the tune of Rs. 1.5 crore ($300,000). This is an order of magnitude less than student satellites made elsewhere in the world, which usually cost about $2 to $5 million. If everything works out well, the satellite will be ready for launch by the end of this year!

Mood Indigo 09: Rogues en Vogue

The 39th incarnation of Mood Indigo is scheduled to be held from 21st to 24th December 2009. This year's theme will be Pirates, which was finalised after inputs from students on the basis of polls held on the MI website and on Facebook.

Swarna

The Industrial Design Centre, IIT Bombay, held this year's Design Experience Seminar and the Design Degree Show, *Swarna*, commencing from 8th June and culminating on 14th June, 2009. The Design Experience Seminar, which was jointly organised by IDC, IIT Bombay and InDeAs (India Design Association) showcased the work done by designers and other professionals related to the field. The seminar had presentations of case-studies by leading design professionals, followed by discussions with Chandrashekhar Wyawahare (Director, Furturing Design), Ed Cutrell (Microsoft Research, India), Jean-Philippe Salar (Chief of Renault's Mumbai studio in India), Prahlad Kakkar (Director, Genesis Film Production) and many other leaders and thinkers related to design.

MoUs

A MoU was signed between IIT Bombay and Applied Materials Inc., the global leader in Nanomanufacturing Technology™ solutions. Applied Materials had already endowed the Institute with an 'Applied Materials Nanomanufacturing Laboratory' and also with a MoU. Thanks to these, the scope of its research collaborations with the Institute will be extended further. As part of this new collaboration, Applied Materials intends to donate an additional US $ 1.5 million (over a period of three years) to the Institute.

Prof. D.V. Khakhar, Director IIT Bombay and Dr. Mark R. Pinto, C.T.O. and Sr. V.P. , Applied Materials Inc. signing the MoU

Infineon Technologies, one of the world's leading semiconductor industries **and IIT Bombay jointly achieved a major break-through in integration of high-voltage functionality for advanced CMOS Technologies.** The collaboration between Infineon and IIT Bombay which began in 2007, conducts advanced research in the areas of IO device design and multi-gate MOSFETs for the sub 45 mm node CMOS technologies. A major break-through was recently achieved when the joint team of IIT Bombay and Infineon was able to explain the mechanisms behind electrostatic discharge (ESD) events in high-voltage FET devices. Based on this, high-voltage functionality ranging from USB interfaces to high-voltage line drivers can be integrated into 'system-on-silicon' solutions in 45 mm CMOS and below. The results were presented at the International Reliability Physics Symposium 2009 at Montreal in April. There are currently four Ph.D students supported by Infineon under this collaboration at IIT Bombay.

IIT Bombay signed an MoU with Brno University of Technology, Czech Republic, on 1st June 2009.

MoU Signed between Intellectual Ventures and the IIT Bombay: This MoU is expected to result in the wider dissemination and practical utilisation of inventions generated by IIT Bombay's faculty, students and staff. Intellectual Ventures will both license IIT Bombay's inventions accepted under this program and will work on a number of possible commercialisation strategies for them. Intellectual Ventures will pay IIT Bombay's fees for licensing and will also bear the patenting costs associated with these inventions. This partnership is not exclusive and allows both IIT Bombay and Intellectual Ventures to engage with others for IP-related matters.

Prof. Ashok Mishra, Chairman, Intellectual Ventures and Prof. Krithi Ramamritham from IIT Bombay, signing the MoU

With a global team of more than 400 inventors and collaboration with over 500 inventors around the world, IV currently manages a portfolio of over 20,000 patents and patent applications. It has returned over US$1 billion to its investors. Prof. Ashok Misra, the ex-Director of IIT Bombay is the current Chairman of Intellectual Ventures, India.

A **Mou with the University of Alberta, Canada** was signed by Dr. Indira V. Samarasekera, President, University of Alberta and Dr. Devang Khakhar, Director, IIT Bombay on 5 March. The two institutions intend to collaborate in the area of hydrocarbon and alternate energy, energy policy and management, nano-biology and device fabrication.

RANDOM MEANDERINGS

The Sage of Y-Point

■ DR. VEERAVALLI RAGHAVAN IITB Alumnus

The sage of Y-Point sat on the culvert, cross-legged, gaze calm and concentrated on the milkmaid buying vegetables yards off. Immediately in front sat the disciple, worshipful, deferential, respectful.

A passing crow relieved itself on the sage's left shoulder. He gave it a look of rage and scorn and frowned at the disciple.

"The vicissitudes of fortune, O *Vyasa*," he began "are truly tormenting. We are all misplaced. We're misfits. Verily, to be sitting on this culvert at the exact moment that black emissary of the devil acted, is a real misfortune. But so it was willed & so it happened. Philosophy and resignation, these are the keys to salvation."

At the post office an urchin hurled a stone at a dog, missed, and fetched the disciple a whopping blow just below the trunk.

"Aaah! Philosophy and resignation, O master! May I not rise and impress upon that young fellow the wickedness of his action? In fact, O holy one, excuse me one moment."

The disciple sprinted after the urchin, cuffed him soundly and came back panting. He composed himself, his face tranquil and solemn, and said:

"Philosophy and resignation, the twin keys to salvation. How illuminating thine wisdom, O mahatma! What would

the world do without philosophy and resignation? The keys to the afterworld! Continue, swami!"

Y-point resumed – "Serenity, calmness, an unflinching acceptance of all that fate flings at us. As capsuled in the words of that immortal salesman Dale Carnegie - Cooperate with the inevitable. I have sometimes admired the poise of the cabbage. How calm is the cabbage! How unflinching in his acceptance of all that fate flings at him!

You cut him, boil him, and eat him. And what does he do?"

The disciple said – "But the wicked cabbages, O swami, what about 'em? Eat them unknowingly after cutting 'em and mincing 'em. They give you diarrhoea."

"Silence! It is your greed, *Vyasa*, that compels you to eat more cabbage than prescribed. The right amount of cabbage never did anyone any harm. Greed, greed! Remove greed and you shall become one with the One."

"But father, does not the wicked cabbage offer its soft and succulent body and tempt the beholder into sinning? Poor mortal that I am, how can I ever resist that wonderful seductress of the vegetable kingdom?"

"O deluded idiot! You have changed the gender of the cabbage inside a sentence and brought Woman into the picture. Woman, the source of all illusion, temptation,

the repository of all wickedness in the world. Woman, the temptress".

Y-point unfolded his legs and stepped off the culvert. The milkmaid was returning with the vegetables; she passed and Y-point stretched.

"Let us follow this path and see where it leads. Do not mind that milkmaid before us. She is a test. Ah, vanity!"

Speaking thus, his gaze calm and concentrated on the milkmaid's behind, the sage ambled along.

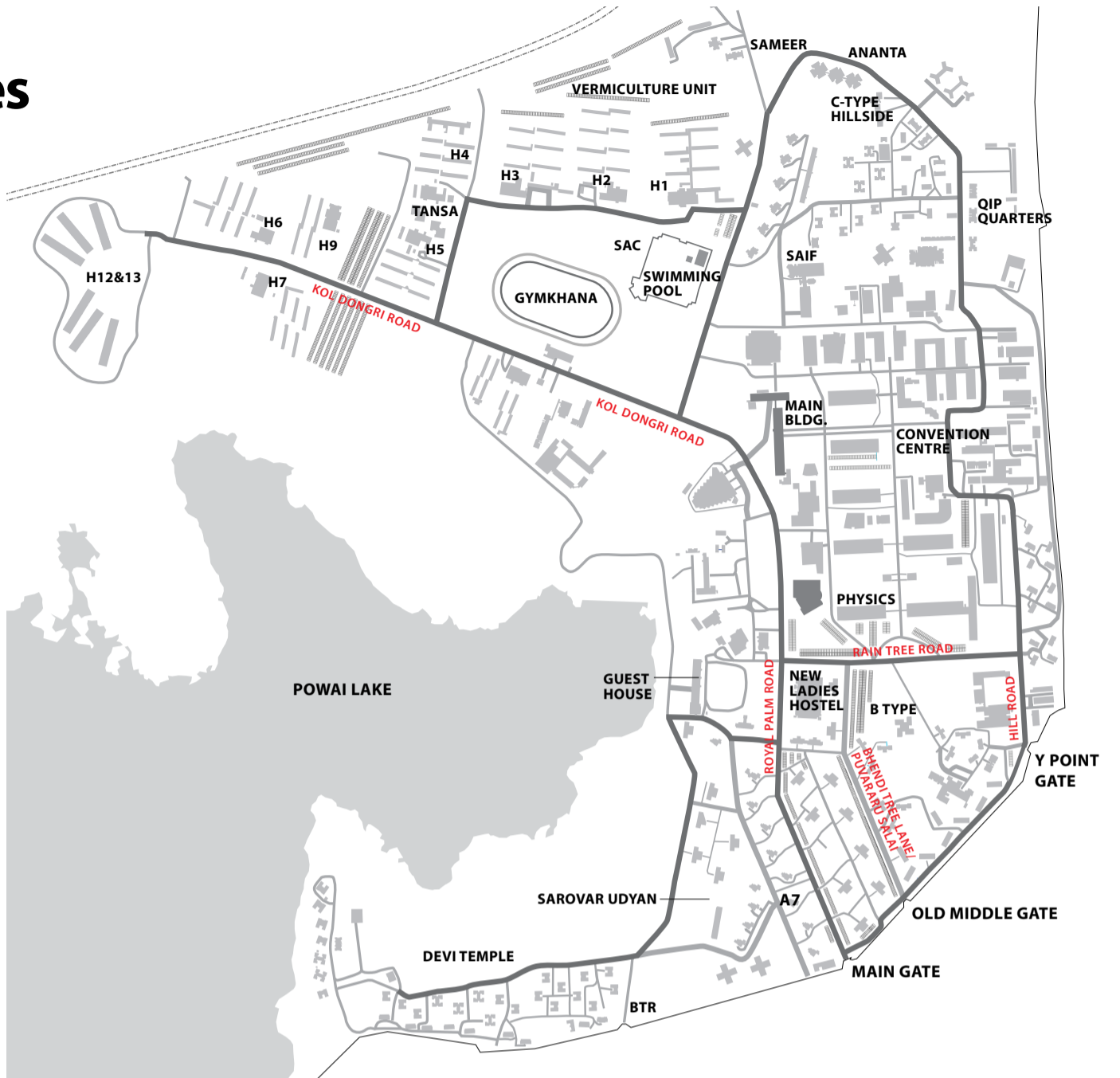One step behind came the disciple, silent, respectful, deferential. ■

(from STUDENTS' GYMKHANA MAGAZINE, 11 January 1978)

Proposed Road Names

For 50 odd years, our campus has been a place reminiscent of the famous U2 song - "*Where the Streets Have No Name*". Moreover, we do not subscribe to pedestrian objects such as signage. Every day, we bump into people from the 'outside' who waylay us with requests that inevitably start with, "Excuse me, can you tell me where is XYZ place?" Well, all that is set to change. Soon, the campus roads will have names and who knows, maybe signage will follow in the not so distant future. The Associate Dean, Planning, Prof. Venkatramani has been entrusted with this task of *namkaran*. He recently circulated an e-mail with an exhaustive list of names for the campus' roads. He has also invited comments and suggestions from the campus community. While suggestions have already started pouring in, it is still very much a work in progress. Produced below is a map delineating the main arterial roads on campus along with their suggested names. Comments and suggestions are welcome.

As for us, we are looking forward to the day when the campus roads will have romantic and whimsical names such as Raintree Avenue and Bottle Palm Road. ■

Pheasant-tailed Jacana *(Hydrophasianus chirurgus)* is a wader that is identifiable by its huge feet and claws. The size of its feet enable it to walk on floating vegetation in shallow lakes, its preferred habitat. It can be spotted in the Lake Side area of the campus. **Photographed by C.P. Joglekar.**

Origin and terminating points of the Road	Name of the Road/Lane/Avenue/Boulevard
Main Gate to Main Building	Royal Palm Road
Main Building to H-12/13	Kol Dongri Road
Road By the Side of H-6	Kol Dongri IV Cross
Road Behind H-5/H-4 till last building	Kol Dongri III Cross
Kol Dongri Road to H5/H4 + underpass to Vermiculture unit	Kol Dongri II Cross
Kol Dongri Road to Swimming Pool+Type1 quarters	Kol Dongri I Cross
Kol Dongri I cross to Kol Dongri II Cross	Student Activity Centre Road/ 123 Road
Sarovar Udyan to H8	Sarovar Marg/ Sunset Boulevard
Royal Palm Road-Guest House	Jalvihar Lane
Jalvihar Road till A-7	Palash Lane (to be planted)
BTR till Devi Padmavati temple	Devi Padmavati Temple Road

Lake Side Quarters Road will be Cross Roads of Devi Temple	
Devi temple road H1-BB - Powai Vatika	Devi Padmavati Temple I-Cross
Devi temple road to Lake Side Exit	Devi Padmavati Temple V-Cross
Devi temple road to Community Hall	Devi Padmavati Temple VI-Cross
Devi temple road to Type2B	Devi Padmavati Temple VII-Cross
Devi temple road to Old Multistoreyed Building	Devi Padmavati Temple VIII-Cross

Y-Point Gate to Sameer Junction on Kol Dongri I Cross Road	Hill Road
KV School Junction Till Power House	Hill Side Service Road
Swimming Pool junction to A-19 Bungalow	Amaltas Lane/Labernum Lane (to be planted)
QIP qtrs junction to SAIF Junction	Hill Road I-Cross
Hill Road I-Cross to C type Hill Side	Frangipani Lane (to be planted)
Hill Road I-Cross to H-1 + (new constructions?)	Kanher Lane/ Oleander Lane (to be planted)
Kol Dongri 4th Cross Road – Hill Road	Hill Road II-Cross
Hill Road to Royal Palm Road	Rain tree Road
Main Building to Convention Centre	Central Avenue
Physics Dept. to Central Avenue	Junglee Badam Road
New Ladies Hostel to B-type Bldg. No.5	Queen of flowers Lane (to be planted)
Rain Tree Road to Old Middle gate	Bhendi Tree Lane / Puvararu Salai (to be planted)
Rain Tree Road to Y-Point via Campus School	Tulip Lane (to be planted)

One or two more lanes are remaining to be labeled, some new service roads will come up near Y-point.	Ratnagunj/Red Coral Road (to be planted)

Hidden, but Active : The Development Office ■ AISHWARYA SHARMA Third Year Undergraduate

Snuggled comfortably in the Dean, Resource Mobilisation's (RM) office, the Development Office isn't as much a 'hidden corner' by location as it is by the work it does silently in the background. Shouldn't this be located someplace near the Dean R&D's office? I thought so as well – till I gained a deeper knowledge of the role it plays in gathering resources, monetary and others (e.g. special skills and expertise). Initially, key individuals from the Heritage Fund, Alumni Association and Professors Misra, Phatak, Vasi, Shevgaonkar, Khakhar and others may have been involved, but it is the Development Office that acts as the facilitator in the whole process.

"*We're primarily responsible for interfacing with donors, who pledge considerable sums of money in an effort to contribute to the growth of IIT-Bombay*", says Mr. Rajeev Deshpande, Chief Development Officer and continues, "*we figure out the connections they have with the Institute, persuade them to come on board, 'reel them in', so to speak and make them feel good about giving back*".

The donors in the past have included alumni as well as pre-eminent members of the industry who have deep ties with the Institute, such as Mr. Rahul Bajaj, who served as the Chairman of the Board of Governors and whose trust has given Rs. 7 crore.

As far as facts and figures go, out of the roughly 30,000 students who have graduated so far, around 2,000 actively contribute in the process of giving back, along with approximately 200 corporate houses. It isn't always about the money – on several occasions, alumni have been known to come forward and share their expertise, their know-how and time with people in the Institute, strengthening ties in their own special way.

So how does one keep these donors happy, and the money flowing in?

"*A simple 'thank-you' e-mail is simply insufficient, nay, unprofessional,*" says Mr. Deshpande and adds, "*our next step involves carrying out the support processes, such as celebrating their donation and showing them that their involvement makes a difference. There's nothing they like better than seeing their money being used productively, and as outlined in the MOUs signed by both sides.*"

Case in point: The '82 batch pooled in funds to offer a Rs. 3 lakh signing bonus as incentive to each new faculty member. To commemorate this gesture, a gala party was held with cheques being presented to the new professors, and everyone left with a smile on their faces. Sometimes, it is these small things that matter.

Better still, there are occasions when there is no need for persuasion – Dr. Kulkarni from the Mathematics Department has recently pledged a considerable sum and laid the groundwork to set up a National Centre for Mathematics (NCM) that he has envisioned at IIT-Bombay in the near future. The obvious technological self-reliance makes such proposals worth pursuing with added vigour – why depend on foreign expertise, when we can optimise our operations by utilising algorithms developed

'in-house'? A certain level of financial self-reliance is also empowering. Do we need a Development Office on the campus? Definitely. Why burden the taxpayer further, when endowments from external sources can add to the current funding? (Currently, the Government of India funds around 95% of the new developments in IIT-B – the rest are funded by the said external sources.)

On a parting note, Mr. Deshpande said: "*It's not as if there's a scarcity of resources available – they need to be deployed productively. These investments are but small stepping stones to a bigger picture; there's no limit to what these* [measures] *can yield if things, right from research output to facilities, improve.*"

And I couldn't agree more. ■

The Development Office

Current Location
The Dean RM's Office, First Floor, Main Building

Chief Development Officer
Mr. Rajeev Deshpande (rbd@iitbombay.org)

Supporting Staff
One Executive Officer, two Project Managers, two Accountants, one IT Manager and two Clerks.

The Development Office reports to Dean Alumni and Corporate Relations (Prof. A. Q. Contractor). He in turn reports to Deputy Director Finance and External Relations (Prof. R. K. Shevgaonkar).

Donor	Cause	Donation
Victor Menezes	Convention Centre	Over Rs. 12 crores (last three years)
Bharat Desai	New Gymkhana	Over Rs. 6 crores (last few years)
Pramod and Parimal Chaudhari	Chair professorship and Cell culture laboratory	Rs. 1.02 crores
Praj Industries (Executive Chairman, Mr. Pramod Chaudhari)	Chair professorship	*
Forbes Marshall Company	Chair professorship	*
D L Shah Trust	Chair professorship	*

Class	Fund	Brief Description	Donation
C'80	Powai Lake Beautification	Kshitij (Garden behind Convocation Hall) was completed in 2008. This was phase I. Phase II is in the planning stage	Rs. 95 lakhs
C'82	Young Faculty Fund	Also known as 'Joining Bonus'. Rs. 3 lakhs over three years are paid to new faculty members	Rs. 2 crores
C'81	Financial Aid Program for Students	Loans up to Rs. 40,000 given to qualified student applicants	Rs. 40 lakhs
C'81	Entrepreneurship	Funds given to SINE	Rs. 30 lakhs
C'83	Gurudakshina	'Young Faculty Fund' and 'Faculty Development Fund'	Rs. 1 crore
C'62	Chair Professorship		*

* Chair professorship donations are about Rs. 50 lakhs each

Why am I in IIT? ■ VAIBHAV DEVANATHAN General Secretary Academic Affairs (UG)

Expanding the walls of the classroom: A member of the IITB contingent on a field trip to a village near Karjat

I came into IIT Bombay without even thinking why I was coming in; it is generally accepted that an IIT is - without equal - a desirable destination. This has always been the case, and it doesn't look like there's going to be a change anytime soon. What is a tragedy, though, is the fact that most of us don't wonder why we're in IITB even after we get in; we spend most of our 2/4/5 years here in a state of suspended animation, waiting for the IIT brand name to lift us to better things.

First, some numbers. The facilities that a paternal Government provides the students of IITB cost Rs. 2.4 lakh* per year and a paltry Rs. 60,000 is collected from the students as fees in the same period. Therefore, it seems that the students are under an obligation to give back to the community as a whole, perhaps through research and development activities that have concrete, real-world benefits.

However, as the first paragraph indicates, we do not give back all that we should. This article examines reasons for this and possible solutions to the problem.

ANALYSIS OF THE PROBLEM

One reason for this is our relatively underdeveloped social conscience. In most world-class institutes in the world, social service is an integral part of the curriculum; students do social service internships as often as they do industrial internships. It is ironic that some of them actually come to

India, viewing it as the place where the most interesting possibilities for developmental activities exist. We are sitting on a gold mine of possibilities, and do not recognise it. There are also ample opportunities for students of IITB to use their technical expertise in such internships – the accepted ways of doing things in India are hardly ever efficient, so possibilities for innovation are ample.

But would we do social service internships, if given the opportunity? Many students feel that we are in IITB not to benefit India in the short run, but in the long run. Historically, many alumni of IITB have gone on to become technology leaders, industry leaders and entrepreneurs - Arun Sarin, Kanwal Rekhi and Shailesh J. Mehta are just a few examples. These entrepreneurs have created large numbers of jobs, thereby providing gainful employment to a large number of people. This counterview is rather comforting for us, because it seems to suggest that it is fine if we are selfish now, because we will eventually do good anyway.

However, all of us will definitely agree that the associated apathetic attitude that many students develop (that of

"I think that an effort from both the student and faculty administrators is required to set up channels for people to do internships in the social service sector – and this must be done immediately."

having earned a right to a few years of leisure in IITB by virtue of having been admitted) is wrong. Four years ago, there was a long discussion on the Institute newsgroup, *Varta*, about the IITs in general, and IITB in particular, having become the Great Indian Pit stop, a place which people fight to get into, regroup in for a few years and after their graduation, plunge into the fray outside. The discussion, which culminated in a well-attended panel debate, focused on whether such an attitude had any meaning at all. We need more such discussions on an ongoing basis.

POSSIBLE SOLUTIONS

So, what exactly should we do as students? One thing that is immediately required is to improve our sensitivity for social service – this is one aspect of universities elsewhere which we absolutely must emulate. Since it is definitely difficult for students to approach the multiple NGOs involved in social service on their own with success, I think that an effort from both the student and faculty administrators is required to set up channels for people to do internships in the social service sector – and this must be done immediately. The best way to start is to probably contact NGOs, build contacts with them and set up a database which can be made available to students eligible for an internship.

It might be that an external social service is not the only option for a student at IITB today. We could look inwards as well – at trying to improve IITB for those who will come after us. In this regard, I feel that a dialogue between the establishment and the students is essential – we must be told how we can improve the system, so that more people can put in more focused effort. For example, something as simple as honest academic feedback from each student could do a huge amount of good.

In conclusion, Nehru set up the IITs to produce students who could become technocrats. Over their history, the IITs have been accused of producing many different things and the situation right now seems to be akin to that of a factory; we churn out a certain number of students every year. We should definitely start asking ourselves this question: given that we are more or less obligated to help either the IITB community or the Indian community at large, how best can we do it? ■

•Arrived at by taking the total budget and dividing by the number of students (all categories). Of this, around Rs 1.7 lakhs was met from MHRD funds, the rest from IITB's other earnings ploughed back into operational costs. Source: interviews conducted for Monastery, Sanctuary, Laboratory – 50 years of IIT Bombay.

The views expressed in this article are those of the author's and do not necessarily represent those of IIT Bombay or the editorial board of Raintree.

Here Comes the Rain!

■ SUSHIL SHINTRE Fourth Year Undergraduate

With the monsoon right at our doorstep and gladly not inside yet, the mood is all set for the rains, as daily reports of clogged drains and incomplete works come in, accusations fly all over and the MET department predictions go haywire. For every Mumbaikar, each monsoon comes with a huge relief from the scorching heat and also with an underlying, unsaid fear of the day when it will unleash its wrath upon the city and catch them off-guard. And since everybody seemed to be talking about how badly prepared we are as a city, how we will see another storm this year and so on, we thought we might as well check out what is up with our very own Institute in terms of preparations. Here is what we found.

It turns out that it is an annual ritual to clean all drains which are blocked over the year by an ultra huge amount of foliage generated by our green campus and the incessant littering of its inhabitants, before the monsoons. (*The authorities don't seem to mind doing a little extra because of the garbage, although it wouldn't hurt if we consciously made an attempt to reduce its extent*). And the ritual for this year has already been concluded on schedule, with the drains ready to face the rains any day.

As for the other preparations, a pleasant surprise came our way when we came to know that the Institute already has sand

bags and pumps in store to deal with any clogging issues, if they are to arise. The pumps have been kept at two locations - Hostel 12, 13 and the Y-point gate market, the latter being one of the vulnerable points on account of the topography and blocking of the runoff surface by the encroachments in Phule Nagar. Appropriate disaster management plans are also in place to deal with any situation. Another interesting fact which we 'unearthed' was that the Institute authorities are becoming more and more sensitive towards rainwater harvesting systems. Efforts are being made to implement it extensively in the campus. *(Kudos, we say!)*

We wondered if flooding was even an issue in IITB to reckon with. And it seems that given the status that IITB enjoys, quite a few privileges have been accorded to it. An almost total immunity to serious flooding (as compared to the rest of the city) seems to be one of the many. For most part, the credit would go to the blessed designer who had foreseen these conditions some 50 years ago and prepared an adequate system for the Institute. And, perhaps some credit could also be given to the convenient nearby water outlet, popularly known as the Powai Lake.

But not all was merry during this half-century. There were a few hiccups along the way. For instance, a series of serious

flooding incidents which happened in the early 90s (*we failed to find someone who would give us the exact year*). Subsequent measures included construction of a huge *nullah* from the SAC gate to Hostel 5, joining the main *nullahs* in the Institute. And the other incident, a natural catastrophe of 2005 resulted in the construction of smaller waterways in the hostel areas to avoid regional water clogging. Besides, the drains have been gradually converted from *kutcha* to *pucca* over the years.

And to be extra sure, a study of the entire storm water drainage system of IITB is being carried out to predict and avoid any unforeseen circumstances in the future. So all in all, it seems we are fairly prepared to face the monsoons this year, and we probably will not have to share the same fate as the less fortunate Mumbaikars. Wouldn't they love to be at such peace!

And if by any chance, the skies do decide to pour more than 900 mm of rain within 24 hours like they did four years ago, there is very little one can do about it. ■

P.S. If you are an intelligent reader, you would have noticed that we have not quoted anybody. But rest assured, all our information is from highly reliable sources.

The Visual and the Verbal ■ PROF. MILIND MALSHE Department of Humanities & Social Sciences
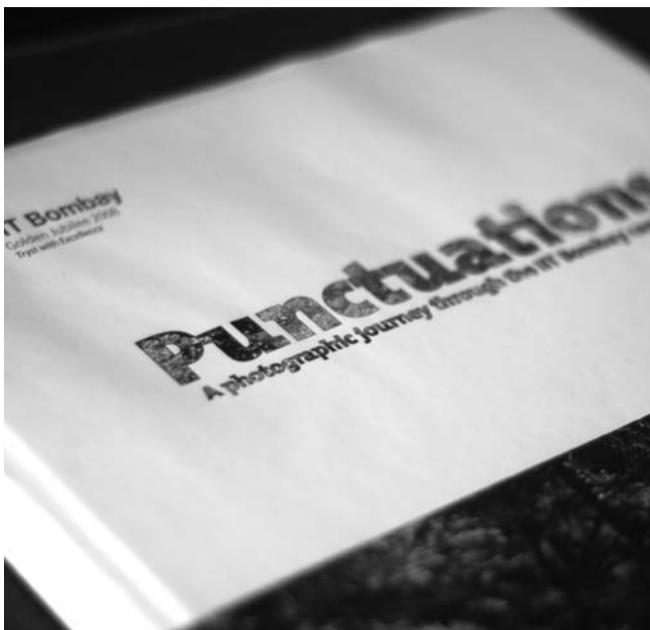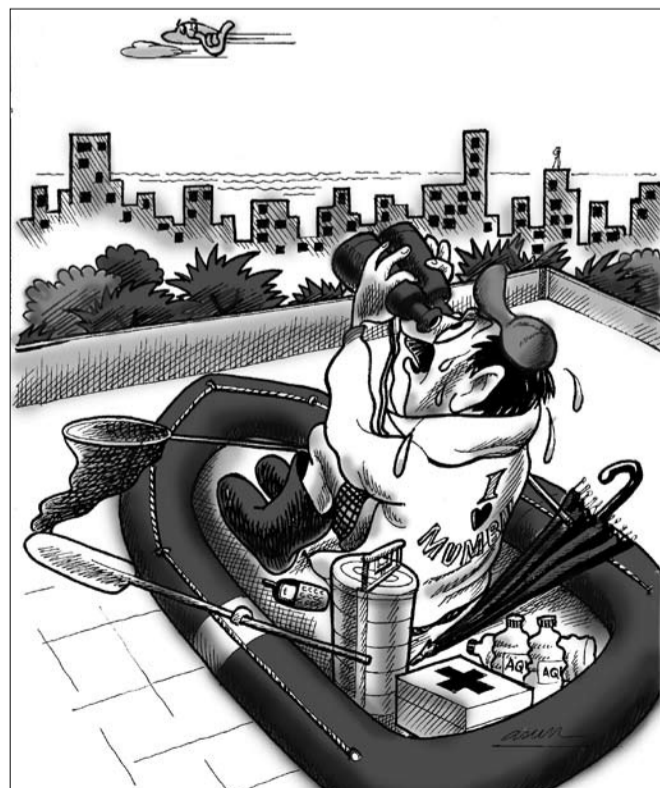
Books reviewed

1. *Punctuations: A Photographic Journey through the IIT Bombay Campus*. Narosa Publishing House, 2009. ISBN 978-81-7319-994-3.
2. *The Circle of Fate*. Tara Books, 2008. ISBN 978-81-86211-58-8.

The issue of verbal-versus-visual, or word-versus-image has been a controversial issue for philosophers and literary critics. There have been allegations of the "tyranny of the eye" or the "tyranny of the word" from either side. After the emergence of the electronic mass media in the latter half of the 20th century, the controversy has considerably sharpened. People who love books and verbal narratives have been apprehensive of the domination of popular culture by the visual. Many intellectuals have expressed a deep sense of anxiety about the growing corrosion of the mind and its cognitive abilities by the influence of the grossly sensual visual culture.

However, there are traditions and innovations which see the relation between the verbal and the visual in the form of a dialogue rather than a conflict. Two very significant examples of such a dialogue have been published recently. One is a 'photo-journey' titled *Punctuations*, which uses the art of photography to give a feel of the IIT Bombay campus through time and space. The other titled *The Circle of Fate*, uses the ancient Indian tradition of *pata-chitra* (painting on a special canvas made from cloth) to narrate the parable of the divine bird *Garuda*. Both have been exquisitely designed and produced. In spite of the obvious differences in intent, each book represents in its own unique way the triumph of the dialogue between the verbal and the visual.

Punctuations has the subtitle: 'A photographic journey through the IIT Bombay campus'. The volume has been published as a part of the Golden Jubilee Year Celebrations. It has been visualised as the photographic 'sibling' of the verbal historical narrative, *Monastery, Sanctuary, Laboratory: 50 years of IIT-Bombay*, written by Rohit Manchanda. The photo-journey is produced by the staff and students of IIT Bombay. The core team and the editorial team, along with photographic contributors have produced a marvel. The 530 acres of the land of the campus - the beauty of the lakes and the hills surrounding it, the infinitely blue skies covering it, its buildings and its people, its corridors and its arches, its motto of knowledge being the highest goal and its academic ambience – all these have been captured in great detail in the photographs and the brief verbal comments accompanying them. The title *Punctuations* aptly summarises the intention stated in the opening comment: "From within, *Punctuations* is a stroll through the campus in space and time, halting now and then to record that which may be of import as a high point in the life of the institute or which may appear as a nuanced instant in its daily life.

SALT N PEPPER ■ DR. ARUN INAMDAR

The end is to embalm the richly variegated and often unexpected treasures that this institution harbours." (p.1)

"Embalm" is the right word, for this is an attempt to preserve the moments from oblivion. The idyllic life is indeed worth embalming, worth protecting from the ugliness within and without. It is an experience of sheer joy to go through each page, beginning with Pandit Nehru laying the foundation stone of his dream vision on 10 March, 1959, right to the end with birds flying over the trees and the sun setting over the lake. Each photograph has exquisite details, giving one a feel of the time and place. The past and the present are neatly juxtaposed on adjacent or successive pages, showing the past in grey and the present in bright colours. For example, the interior of the Lecture Theatre with fans, bright lights and hanging wires and the renovated LT (renamed PC Saxena Auditorium), the old and new classrooms, the heavy gadgets of the past and the new nanotechnologies, the old and the new Gymkhana facilities, the old and new Mood Indigo cultures, the old and new hostels, the old and new dress styles at the convocation and so on.

A special mention must be made of the wonderful characterisation of the rich ecology of the campus: the meticulously prepared lists of the species of trees and plants, birds and butterflies. The verbal texts, wherever present, are minimal. Sometimes they are quite factual but sometimes, they are also highly evocative: The P.C. Saxena Auditorium "harbours memories of the days when Arthur Clark lectured here, or when Vijay Merchant addressed large audience." (p.25) "The long shaded avenues welcome all entering the campus, in deep contrast to the outside roads crawling with traffic. These long verdant veins connect the entire campus along their dappled lengths. Reflecting the varying hues of the day's progress or the imprint of the season …" (p.103)

The Circle of Fate is an illustrated parable presented in the *pata-chitra* style from Orissa. The narrative is jointly composed by Raja Mohanty (Professor, IDC, IIT Bombay) and Sirish Rao, a versatile Indian writer, while the art is by Radhashyam Raut, a young painter trained in this traditional art. 'The Cast' of the tale given at the beginning of the pictorial narrative comprises gods (Lord Shiva, Lord Vishnu and Lord

Yama), birds (*Garuda* who is the protagonist and the beautiful little bird that he wants to protect from Lord Yama), the snake, the buffalo and the tree. This is a clear indication of the ancient anthropomorphism of the original myth which the team has retained in its retelling. The result is a lively story, told economically and elegantly. As the blurb claims, it is "a parable of destiny and love, [which] gently mocks at our desire to control the future". The accompanying illustrations on the adjacent pages are in a non-realistic, non-perspective, unidimensional and ornamental style, done in bold colours. The 'dialogue' between the verbal and the visual elements is indeed striking.

The use of the present tense for narration is a little puzzling. Narratives are normally in the past tense: "Once upon a time, there lived…" This is the 'zero-time', i.e. the temporal framework of a narrative. So when the story opens with the sentence, "*Garuda* carries Lord Vishnu over the snowy peaks of the Himalayas to Mount Kailash, the home of Lord Shiva," the reader is likely to wonder why the simple present tense is used. Is it to bring out the eternality of the parable? Is it to bring out the circularity of fate? Or is it to respond to the corresponding pictures on the adjacent page and emphasise their immediacy? In any case, the parable has to have the final moment of realising the eternal truth: "The world is a never-ending cycle, where everything has a time and place. Even a thing of exquisite beauty must come to an end and be re-born as something else. There is a pattern. If you want to change it, you must act in the way your heart dictates. But in the end, it is you who belong in the pattern. It does not belong to you."

At the end, I'm just wondering whether as a reader/viewer, I have the freedom to switch the genres of these two books. Suppose, the photo-journey through IIT Bombay campus is read as a futuristic parable on technological institutions, on the lines of *The Circle of Fate*. With an IIT campus coming up in every state of India in the 21st century, the photo-journey has potential enough to become a parable. Vice-versa, suppose the *pata-chitra* story is read as a factual photo-narrative about a real god and a real bird. With a large number of modern Indians (including a large number of IITians) mixing divinities and humans, the *Garuda* parable can indeed become a factual historical account of modern India. ■

Contra-dictionary

Q

quickie *noun. singular.*
The minimum amount of time required between waking up and being present in the lecture classroom. Analysis over the years has estimated a quickie at approximately 8 minutes. (Under optimal conditions)

RELATED
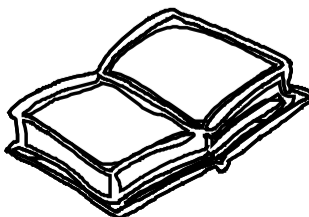**quickier**
noun. singular.
A very quick quickie.

(by Eeshan Malhotra, Fourth Year Undergraduate)

S

schlumdog *noun. off.*

Someone who gets placed before anyone else does, owing to his 9-point CPI.

(by Mukul Gupta, Second Year Undergraduate)

Construction on Campus

Buildings nearing completion in the next 9-12 months and others planned for the near future

NAME	LOCATION	CURRENT STATUS	COMPLETED BY
ACADEMIC AREA			
1. **Convention centre**	In front of IDC	60% of total civil construction to be over by July end	Around Dec 2009
2. **Lecture Hall Complex**	Between Physics & Metallurgy Dept. Other half is between Chemistry Engg. and Humanities, next to the current Biotechnology building		
3. **Nano Electronics lab**	G+7 building behind EE annex	G+5 already completed.	Construction completed by 2011
4. **School of Biosciences and Bioengineering**	Next to the existing Biotechnology building		
PLANS FOR 2010-13			
5. **CC Building which will also house the CC Dept.**	Previous site		
6. **New IRCC building**	Next to the new Convention Centre. Same area would also have the IITB Monash Building	Target 2.5 years from now	
7. **Bajaj Innovation Centre (will also house SINE)**	Same area next to IITB Monash Building		
8. **Dept. of Energy Science building.**	Behind Chemistry Department	Around 2012	
RESIDENTIAL AREA			
9. **Super C Towers , G+17 story, (64apts)**	Behind Campus School, next to Building no. 10	Construction commences by 30th April	Project to be completed in the next 24 months
10. **Two type B buildings G+16 story, with 60 apartments**	First one behind Tulsi, near the last A-type bungalow, A-19. Second one opposite Kendriya Vidyalaya maidan	Construction will start after monsoon, around October	18 months from date of commencement
11. **Type 2B building for staff (24 apartments will be replicated twice)**	Under construction in Hillside just opposite the QIP area. The other two on the same road but down towards CSRE	One has already started, the other two to be completed in the next 3 years	
12. **Type H 1 tower (60 apartments) Also for staff**	Near Hillside	Planning phase	
STUDENT AREA			
13. **Extension of H-10 145 double rooms**	Behind Old H-10	Nearing completion of civil phase	
14. **H 14-15 Four blocks of 200 each, about 800 rooms**	Next to Hostels 12 & 13	One tower has already started	To be completed by June 2010, in another 14 months.
15. **Extension of Hostels 12 & 13**	Additional rooms within Hostels 12 & 13 in the stilted area, some 80 rooms		Ready before this Autumn Semester
16. **Project Staff Hostel (700 rooms)**	Near the pipe line, behind Tansa hostel	Should start in later half of 2009	
17. **Flat for married students and QIP scholars**	Hill side, behind the current QIP quarters	Planning stage	
18. **Hostel for 2000 students with 2 blocks of some 1000 capacity**	Behind Hostel 1		Over the next 2.5 years
19. **Swimming Pool**	Gymkhana grounds	Construction under way	To be completed by mid 2010
20. **Indoor stadium**	Gymkhana grounds, next to new swimming pool.	Construction under way	To be completed by mid 2010

SOURCE *Interview with Prof. R.K. Malik, Deputy Director, AIA*

The UG sanctioned strength will go up from **2,548** in 2007-08 to **3,911** (this will stabilise in 2015-16)

The total sanctioned strength will go up from **4,971** to **7,611**. Considering the fact that about 10% of them are externally funded Ph. D and M.Tech students, the net student strength will be over **8,000**.

Current total student strength is **5,526**. As per our sanctioned strength, **1,973** new students will come in 2009-10 session. Taking into account the additional number of students in M.Tech. and Ph.D, this number may go up to **2,100**.

As per data from the HCU, about **1,300** students will be passing out this year. Presently, there are 100 rooms vacant. This gives a gap of 700 seats.

All students up to 3rd year B. Tech will have shared accommodation. So will all M.Tech students. Ph. D. students in other hostels will be requested to move to Hostels 12 and 13, where the rooms are single. So we may manage this year. However, sanitation is still a big issue. We need to urgently construct additional toilet facilities as the hostels will be more crowded than at present.
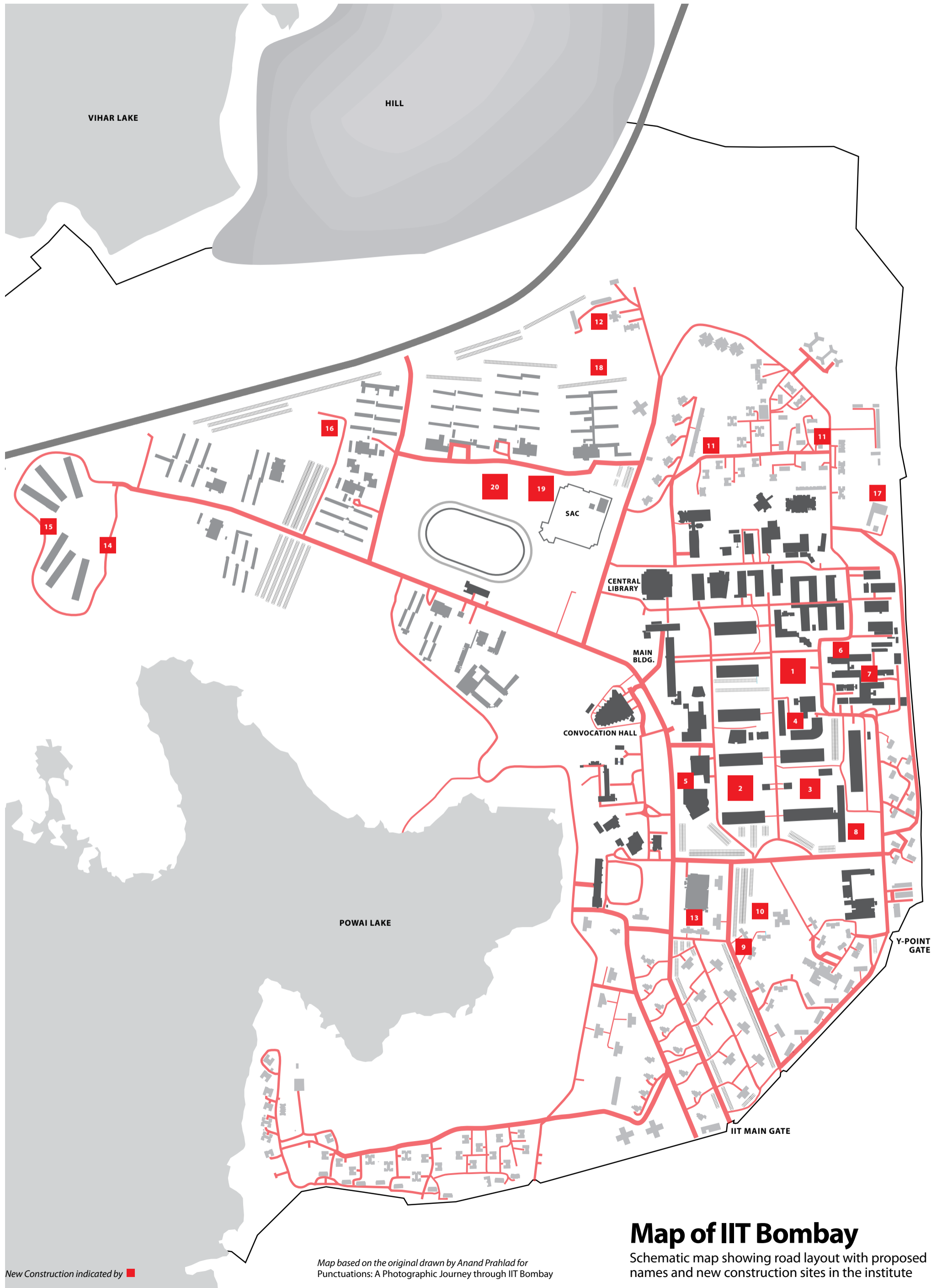
By next year, additional wings in Hostels 12 and 13, accommodating 800 students will come up.

The estimated cost of new construction in this phase of expansion is Rs. 330 crores.

The total built up area of buildings that will be completed in the Academic Area within 2010 (Convention Centre, Nano-electronics lab, Lecture hall complex and Bio School) is 4, 90,000 sq. feet.

" All new constructions have been planned in such a way that the green character of IIT Bombay remains intact. We are building vertically, which means that when all the construction in this phase is completed, we would have utilised only 0.58 of the 1.0 FSI (Floor Space Index) allotted to us."

— **PROF. K. V. K. RAO**   Dean Planning and Development

" In the Academic Area, one of the biggest problems has been the lack of buffer space, which has hampered our progress to a great extent. The new constructions in this area will create the much needed buffer space, so that we are not cramped for room in the near future."

— **PROF. R.K. MALIK**   Deputy Director, AIA

VIHAR LAKE

HILL

12

18

16

11

11

17

20

19

SAC

15

14

CENTRAL
LIBRARY

MAIN
BLDG.

6

1

7

4

CONVOCATION HALL

5

2

3

8

POWAI LAKE

13

10

9

Y-POINT
GATE

IIT MAIN GATE

Map of IIT Bombay

Schematic map showing road layout with proposed
names and new construction sites in the institute

New Construction indicated by ■

Map based on the original drawn by Anand Prahlad for
Punctuations: A Photographic Journey through IIT Bombay

A Ringside View of PAF 2009 ■ RATHEESH RADHAKRISHNAN Faculty HSS, with inputs from MANISH AGARWAL Fourth Year Undergraduate

Walking into the OAT for the first performance of this year's PAF (Performing Arts Festival) was a surreal experience. It felt as if I was walking through a delightfully clichéd film set – there were mammoth structures of a mosque and many other public spaces, with lights and wires spread all over. There were men in many costumes, ranging from mythological characters to those from the kind of Muslim socials made by Hindi film industry in the 1960s (remember Rajendra Kumar in his nawabi costumes?). It felt like the movies.

Walking out of the first performance, on the other hand, brought back uncomfortable and scary images to my mind. Some might say that I am over-reacting. Some might say that the kids don't even know about the images I refer to. I will probably agree with this. But to see a sea of people run to a mosque (even though it was made of cardboard and paper and who knows what else), climb atop it and bring it down (I was told that it was a post-performance ritual) brought back to me images from almost two decades ago, that have changed the way many of us look at the world around us.

Do these two visions of extreme excitement and extreme anxiety that I came back with from the first performance of PAF tell me about the frames within which we thematise the world we live in? This short note will not try to answer this question. It will just look at this fascinating cultural moment in the calendar of IITians with wide and excited eyes.

It was the fall in attendance in the class I taught and the sleepy looks on the faces of those present that first alerted me to PAF. Yet, I was not prepared for what I was to encounter.

The flurry of activity in the OAT made it visible to me the possibility of collective and community formation that has hitherto been invisible on the campus. It was hard to believe that under our noses this was taking shape – a cultural production of over an hour, with hundreds of students working on songs, dances, action and drama.

The simultaneous separation and connect between the many groups [eight, according to Manish Agarwal's (Final Year B.Tech, Chemical) study of PAF] – the *junta*, as they were called, brings to fore the uniqueness of form

"For someone (like me) interested in the dynamics of student life, PAF was the one high point of my first semester at IIT. At one level, it showcases the talent on the campus, and on the other it reminds me that our educational institutions are increasingly becoming institutionally blind to student talent."

in these performances. It is evident that the script, the songs, the dances, the action and the sets are produced separately and put together. (Marx has famously discussed the production of a watch in these terms.) Of course, the suggestion of uniqueness is not to imply some idea of an unfettered, utopic originality. It is indeed in the form of our popular cinemas, as was the form of 19th century Parsi Theatre, folk performances from different parts of the country and so on. As it has been noted by many commentators of cultural practices in India, it is indeed this aspect of put-together-ness that allows for the most complex articulations of our present (radical artists have of course developed politically fascinating uses of this put-together-ness in other contexts). The hegemonic idea that realism and linearity (produced 'organically' as it were, like a needle according to Marx) are desirable and that the popular form is illegitimate seemed to weigh not just the audience and judges but also on the performers. This resulted in making the performances and definitely the response, including probably the judgment, slightly off the mark. Needless to say, *a priori* value judgments do confuse the complexities of the world around us. What else explains the response (unintelligible, too complex, and so on) to the one performance – *Najafgarh Express* - that tried to weave in together disparate narratives, bring in a reference to the life of a colourful personality like Ismat Chughtai, with a self-reflexive understanding of the form itself?

And of course, there is the audience *junta*. The attempts to discipline the audience (by segregating hostels and so on) soon proved impossible. Like the various *junta* who put the show together, the audience too was a central participant of the show. With the much expected and much feared 'anti-cheering' (an interestingly evocative expression that just got added to my vocabulary), the demands for 'choreo', the audience was also a performer. And the performances responded – some seemed to know when someone from the audience would shout 'choreo' and would try to provide it. The absence of 'anti-cheering' and other usual youthful responses to performances makes me wonder if there is indeed too much policing of the students, which even the students have internalised.

This year's PAF took on some of the most vexing issues of our times. As one would have expected, terrorism was a favourite theme. Two out of four performances were on this topic. The third dealt with the ability of the individual to refashion his world and the fourth discussed issues of community formation, individual aspiration and the role of women in the public. At times, I felt like the Joker: "Why so serious?" But then thinking back on my own college days, I restrained myself. We were worse.

Let me not dwell on the themes too much. It suffices to say that some of them were disturbing, as they provided a foreground for the frameworks with which we understand our present. What is worrying is how most of the performances, except one or may be two, failed to go beyond the accep-
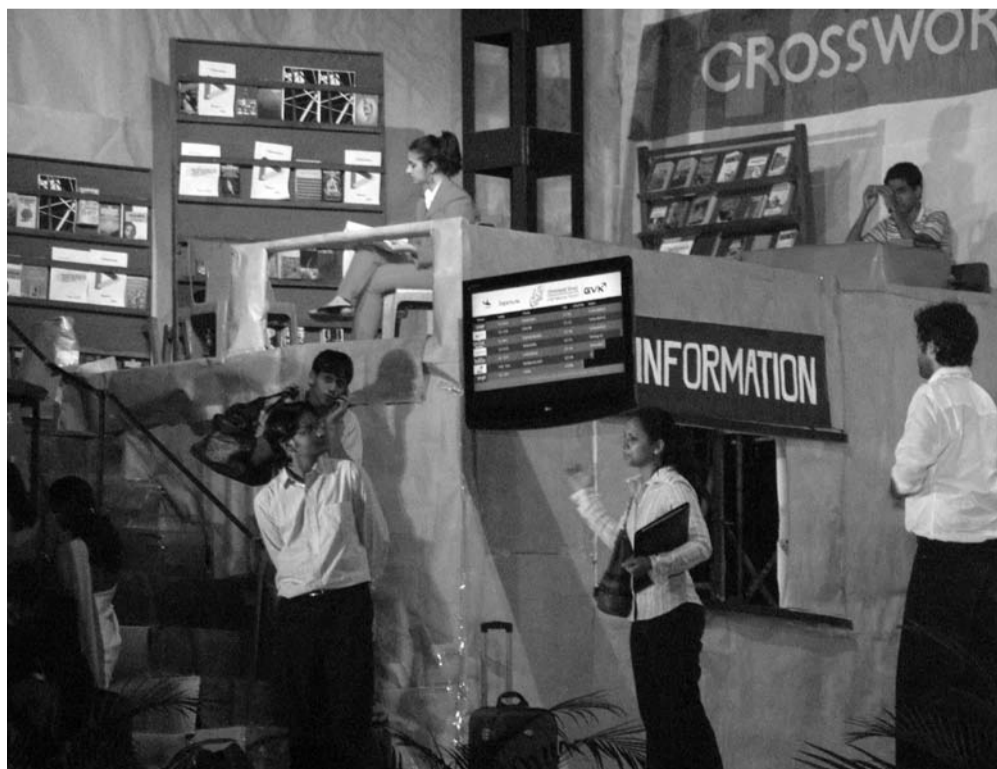
Performing Arts Festival (PAF)

This year, a total amount of Rs. 35,000 was given by the Institute for each PAF and the same amount was also raised by the hostels of each group. Thus, a total of Rs. 70,000 was spent on each PAF.

As per the survey, around 70% of the students didn't miss even a single PAF during their entire stay in IIT. Out of the rest, 25% missed one or maximum two events.

The Overall Coordinators (OC) are appointed by the General Secretaries (G.Sec) of individual hostels, after consulting other council members and last years' PAF core team. Only students who have worked more than two years in PAF are eligible for this post.

ted narratives about what terrorism meant, about Islam and so on. It was refreshing to see *Najafgarh Express* deal with the Muslim community and not see the need to harp on the terrorism angle. It seems as if the only place for the Muslim in our narratives is in the discussion of terrorism, either participating or condemning. How can we forget the long interviews Shahrukh Khan had to give after the events in Mumbai in November? The one on the 'average working man' in Mumbai, *If Tomorrow Comes*, was a commendable effort. Though slow-paced and stretched, the simplicity of the idea and the neat presentation made it highly watchable. And as far as perfection on the stage and production quality goes, *Arthur Road* was the best, though it was not ambitious in comparison to the other performances and took too simple a view of terrorism and religion.

For someone (like me) interested in the dynamics of student life, PAF was the one high point of my first semester at IITB. At one level, it showcases the talent on the campus, and on the other it reminds me that our educational institutions are increasingly becoming institutionally blind to student talent. Such moments of allowances, i.e. PAF, are surely well used. And as for me, even while Manish informs me through his study that the administration has second thoughts and that there is a decline in participation and lessening of hostel loyalties and so on, I wait for the next PAF. That too with my mind made up that I should get to OAT a lot earlier than the show begins to see the students at work – a community at work. ■

PAF 2009 : A Serious Faff ▪ BHAVINI PANT Campus Resident

Another highly anticipated, grand affair of our campus – PAF – passed without posing itself too animatedly in conversations across faculty and residents. PAF has traditionally not been very popular with the professors, owing to the yawning, empty benches and the wide-eyed quality of students who do manage to make it to the morning classes, when the preparations have begun.

But this time these reasons were not fully justified. I watched three of the four performances (I missed out on *Najafgarh Express* performed by hostels 6, 7 and 10) and kept wondering where the spirit of fun, cheekiness and originality had disappeared. Of course, PAF themes have always been serious – but there has never been a rule that they must always be *projected* so seriously!

The first PAF performance was by hostels 5, 9, 12 and Tansa House titled *Karvat*, which came third. It revolved around the theme of strained Hindu-Muslim ties against the backdrop of terrorism and humanity, and how society reacts to both. The performances were quite average – both Hindus and Muslims were played in regular, clichéd manners. The story had potential in it to be played in a refreshing, evocative manner which, post-performance, would give the viewer some room to think, but it was not used effectively.

A constant feeling that one had while watching *Karvat* was that while the performers were trying their best to reach out to the audiences in order to convey what they had in mind, they were not able to achieve this through their acting. However, what they could not achieve through drama, they did beautifully through dance. The Shadow Dance was much appreciated with beloved cries of 'Encore!' Though Talvinder 'Talli' Singh's performance in *Bawra Mann* fetched the usual cries of popular admiration, it was the fact that everybody seemed driven to be emotionally articulate through dance which got me clapping and whooping happy. The dance costumes were brilliantly coloured and went beautifully with the music and movements. The prods were quite an achievement – the mosque was as grand as thermocol and wood can never get, with the fountain in the middle giving perfect, Sufi-esque tranquillity.

Thematically, *Karvat* could have been more exciting, more intellectually provocative and more insightful. One felt that the definitions of terrorism, faith, inter-religiosity and humanity could have been tackled in a fresher, less jaded manner. Given the recent events which have happened globally and domestically, it was obvious that terrorism would have been chosen as a popular theme. What remains to be seen is how we can translate these generic themes through a different, thoughtful)and hopefully light-hearted) perspective as well.

The next PAF was titled *If Tomorrow Comes* and performed by hostels 3, 8 and 11. This performance won the Runners-up position. The major reason why this performance did not clinch the first prize was because the story (and some performances too) was copied from the film *Groundhog Day*.

The basic theme revolved around the monotony of a man's life, how he indulges in his sufferings and finally breaks free of his *own* shackles. The story was quite interesting – given that the film was a successful Hollywood movie – but its PAF 'interpretation' was not able to retain the sense of tension and anticipation till the end. The reason? The narrative kept going back into time again and again. And again. And then – again. The four main scene locations – the central protagonist's office, the airport, the politician's speech-making stage and the protagonist's home went back and forth some dozen times. True, the non-linear time narrative probably demanded this, but the script could have been much more tautly edited (and also not so heavily 'influenced') to avoid the feeling of tedious déjà vu. An anonymous comment – "*iska script likhna kitna aasan raha hoga – chaar scene likho, phir repeat karte raho*!" – elicited many laughs and strengthened cries of the dreaded, "*Dayaa*!"

Despite this, *If Tomorrow Comes* probably had one of the most well-handled stories among all the other PAF performances. The idea that man himself is the system, and is not always a victim of an external system was enmeshed into an Indian scenario quite well. What *If Tomorrow Comes* lacked in originality, they strove to compensate with some clever stage productions. The last act of presenting a speech, first in the normal order of A-Z and then reversing it (the former providing a context and the latter sending the message across) was a brilliant depiction of intelligent stage show. The audience went into a frenzy of applause and cheering. Of course, many cribbers complained that this was a rip-off from numerous e-mail forwards but then, they are what they are – cribbers. The dances provided a much-needed break from the scene-looped situation, and were all quite good.

A special mention should be made to the student who had a minute role of playing a scraggly roadside vagabond, forever in search of a bottle of *santra* under the flyover. He played his role bare-to-truth and with near-perfection. The central protagonist's female colleague's thick, Hindi-accented English stood out, but was played decently by the actor. The phone-pecked lover was also played well. The idea of having two time-trapped alter egos was an interesting concept, and depicted well, despite its abstract nature. *If Tomorrow Comes* also stole the show with their mind-blowing prods. Seriously, the Café Coffee Day outlet, the check-in counters, the LCD flight schedule display - and lest I commit the unforgivable sin of forgetting the *working* escalator! A deeply (and loudly) appreciated effort.
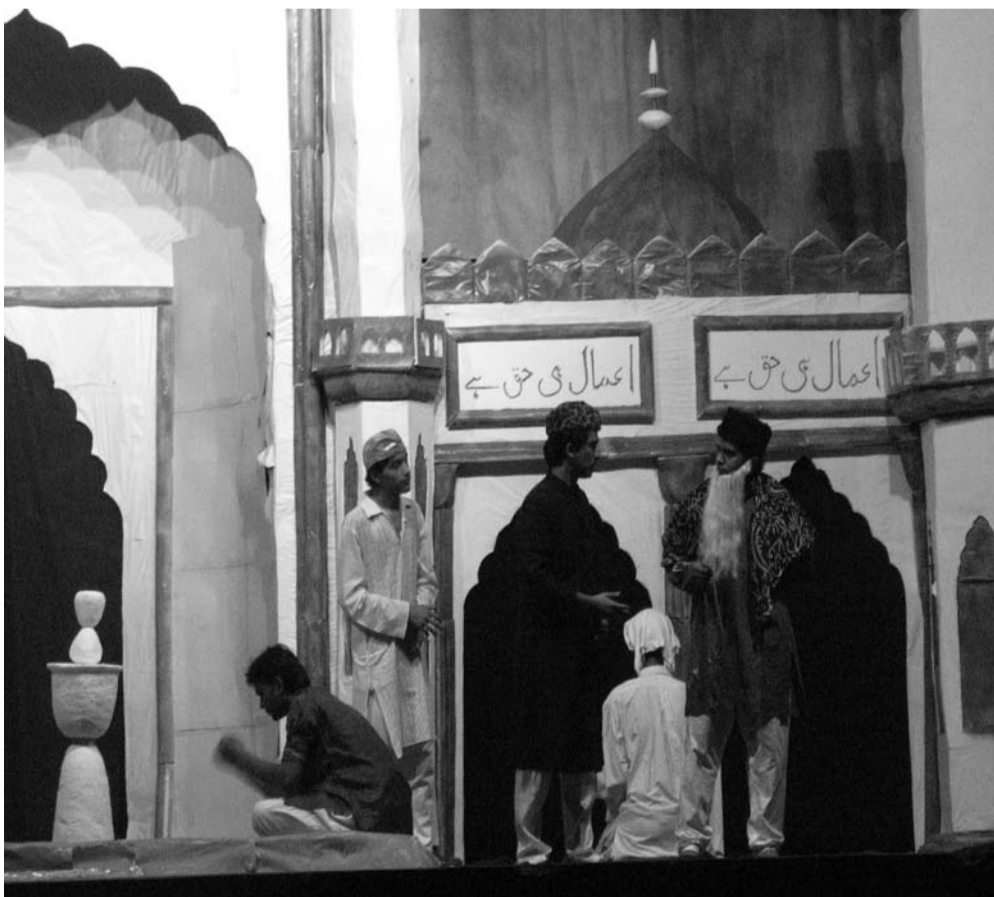
Performing Arts Festival (PAF)

Starting in 1980s, PAF has grown magnificently over the years. Till 1998, it used to happen in Convocation Hall. It was then shifted to OAT due to its growing size.

All in all, *If Tomorrow Comes*, with its entertaining prods, entertaining dances and entertaining supporting performances (despite its shoddily edited script) managed to achieve what a PAF performance primarily aims for – entertainment with a message. One only wishes that all that hard work could have been utilised to come up with an original story.

The next PAF performance (that I saw) was *Arthur Road* – the winning performance by hostels 1, 2, 4 and 13. It was based on terrorism and the age-old principles-versus-situation conflict. The story was inventive and thought-provoking, specially the jailer's role. The performances of the criminals in the jails were a surprise apart from the rest of the performances – they were quite well-played. However, the central focus – the jailer – failed to impress and could not carry the story's responsibility effectively. His dubbing-alter seemed much more effectual, passionate and expressive of the role. In fact, most dubbing-alters seemed to verbally audiate their respective roles much better, across various PAF performances. Maybe next time, the dubbing artists should have a little ray of limelight shined on them too.

The shadow technique for interrogating the terrorist-suspect was a unique effort, but not well-portrayed. It probably needed more finesse which could have been achieved through some before-than-last-minute epiphanies (and rehearsals). However, the *dahi-handi* murder attempt was a slick rendition of some desi Bond masala. The prods again, were beyond amazing. I am constantly amazed with two-storey high prods, and the main jail installation was picture-perfect, specially when those tiny, gloomy lights lit up each separate cell. The effect was, quite truly, godmax.

The story of *Arthur Road* had quite some potential. It could have depicted a fresh and discerning understanding of terrorism, its roots and its causes, badly needed during these troubled times. But it remained, in terms of thematic interpretation, a could-have. Three thumbs up to the departments which handled the prods, the costumes and the lighting and also to the student-actors who played the roles of the criminals. All in all, it was an engaging effort by the entire team. ▪

The Bejewelled Setting (Chapter 2)

As part of our ongoing series, the following is an excerpt from *Monastery, Sanctuary, Laboratory - 50 years of IIT Bombay*, written by **ROHIT MANCHANDA**

Nearly everyone on campus 'senses' that we are privileged not just with a well laid-out township, but also with environs rich in plant and animal life. Few, however, are aware of the campus's impressive holdings of flora and fauna, or of the reasons why this abundance exists. This excerpt from the book, starting with the fluctuating fortunes of the campus's green cover, moves to the attributes of IIT-Bombay's geographical positioning that make it ecologically special, and in many ways unique.

The science and technology micropolis of IIT-Bombay was the first 'modern' township to rework the Powai landscape. Modernization on a wider scale started twenty years later, around the mid-70s and early 80s, when the suburb's first tower blocks came up. The first lines of Powai's contemporary face were etched in 1985 when the Hiranandani real estate group converted the erstwhile agricultural land into a residential and commercial complex. Within 15 years, Powai's skyline had undergone a wholesale makeover. It now sports a modish new township crammed with skyscrapers, fitted out with shopping malls, entertainment hubs, a hospital, call centres and no few multinational corporate offices and banks.

Over the past several years, Powai has been arguably the fastest growing – and mutating – suburb of Mumbai, and it shows. Its newfound vibrancy has changed life for campus residents beyond recognition from just a dozen years ago. Gone are the days when long distances had to be travelled to satisfy the simplest indulgences or needs – to eat out well, or fit yourself out in a set of ready-mades, or hunt out the book or cassette you had long wished to add to your collection. Now it's all available at the Institute's doorstep; students or staff who sign on at the Institute today will find it hard to picture the hermetic, islanded existence their predecessors eked out not long ago.

Burgeoning at breakneck speed, the rest of Powai has had to pay the predictable price for its urbanization, rapidly losing its mid-century green cover. IIT-Bombay's campus, by contrast, continues to wear a lush mantle of verdure. And yet, though it might have started off as a virgin forest and today resembles a man-made one, there were times when the campus was not as verdant, not as beautifully shaded and cool as it is today. Present-day campus residents are astonished on hearing this (as was I when first apprised of it by Dr A.Q. Contractor, of Chemistry) but to believe it, you need only look at two pictures taken some thirty years apart, in 1970 and in 2003, each a sweeping view of the Institute captured from atop its north-eastern extremity, the 'Temple Hill'.

The panorama, looking out west and south, is instructive. The picture taken in 1970, ten years into IIT-Bombay's life at Powai, shows the campus at the end of its first phase of development (see Plate 2.1a). Its upper-half is monopolized by the many-lobed expanse of Powai Lake, glinting with overexposed intensity. Two attributes of the picture strike the eye with force. One is the character of the lake. It is all water, unencrusted and uninvaded, not a whisper of weed to be seen on its nearest or farthest margins, telling of the lake's once pristine state. Second, towards our cameraman, the buildings thin rapidly away:

but they're not the only things thin on the ground. On the patches of ground between them, there is practically no tree cover to speak of. All we have is bare, undulating earth spreading to all sides – good stretches of it unadorned by a single tree. Here, truly, is a landscape exposed cruelly to the elements: the scorching tropical sun in summer, the lashing rains in the monsoon. It's a far cry from the teeming jungle the campus was said to have been just fifteen years before the picture was taken, or the well-wooded enclave it was to become again.
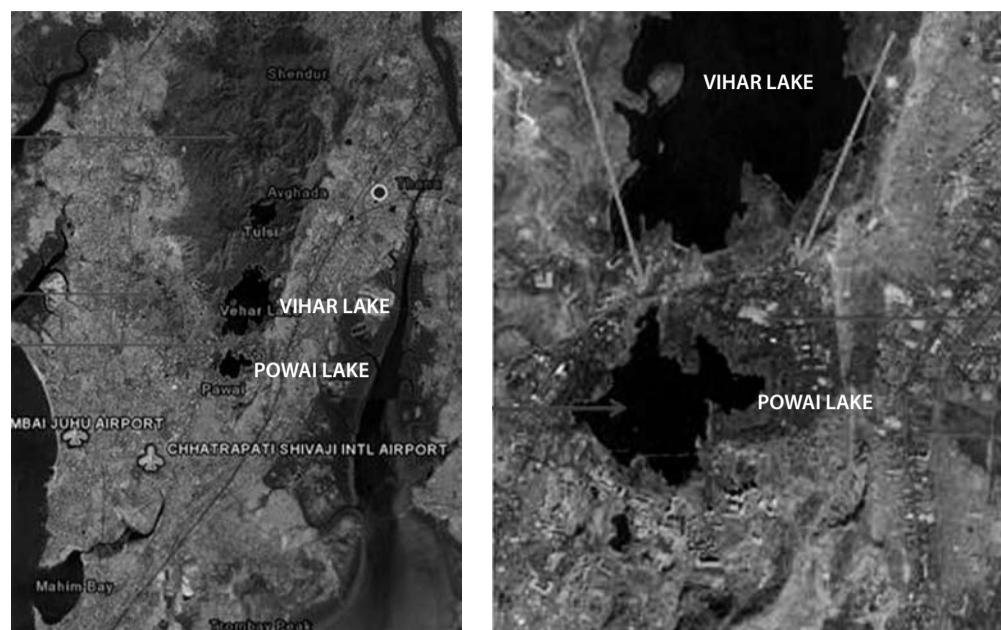
When alumni across the years were asked about their enjoyment of the 'greenery on campus', Hari V. Sahasrabuddhe, batch of 1964, Electrical Engineering responded incredulously: 'Greenery? What greenery?' adding: 'It was a construction zone in our time. We often trudged through ankle-deep or more rainwater to go from hostels to labs. Sometimes our gumboots were not high enough.' Parag Rele, Chemical Engineering 1969 confirms the impression: 'The campus was not green in those days of the late sixties. It was sweaty business walking or cycling around the Institute. The lakes were the best part of the campus.'

Had IIT-Bombay's frontiersmen been overzealous in the matter of 'clearing the ground' for the Institute's settlement, stripping it down to the bone? In people's memory, the campus (before it was settled) is washed in varying shades of green. Some feel it was near-forest; others contend it was partially arable wasteland, none too heavily wooded. Be that as it may, today the campus is vibrantly leafy once more – as it has been all along the last couple of decades, and as the 2003 panorama of Plate 2.1b attests. Here, you can barely tell the buildings for the trees. The Institute has greened itself again; and the fact that its leafy carapace was fashioned within a matter of fifteen years (between the early 1970s and mid-1980s) is a tribute to the prescience of those who took it upon themselves to do so. Given the splendid variety of trees and shrubs present on campus (summarized below), IIT-Bombay would seem to have had an enlightened horticulturist on its rolls; the records say the post that existed was that of Horticultural Assistant, occupied by a certain Mr. D.C. Purohit. From all accounts there was a band of faculty too, who set themselves to the greening with the zeal of crusaders. Foremost amongst those credited with the effort are Dr. G.C. De of Electrical Engineering, Dr. A.S. Mahajan of Physics and Dr. B.S. Jagadish of Mechanical Engineering. De in particular (to be distinguished from former Director A.K. De) was an avid bird-watcher and is said to have personally planted, or seen to the planting of, many of the avenue trees on campus; he is also recorded as having undertaken the afforestation of the campus's pockets of woodland, Kol Dongri and Sonari Baug. Credit is also given to the Directors during this spell, Drs P.K. Kelkar and A.K. De for generously supporting and facilitating the task. The dense and varied tree cover today is a succour to campus residents, keeping them from overheating as they stroll or pedal or drive their way around – and it is of course the primary reason why the township is a world removed from the one that starts just outside its gates.

But the virtues of IIT-Bombay's campus don't end there. The solace and idyll it offers are merely the most visible of its many-layered riches. Scratch the surface a little, and nothing short of a treasure trove is flung open.

IIT-Bombay's campus as it appeared in the early 1970s, dusty brown (above) and as it stood some thirty years later in 2003, awash in green (below).

2.2a   2.2b

Plate 2.2a
Physical features of northern Mumbai. Note the dominance of the Borivali National Park over the central northern stretches, and the location of the IIT Bombay campus immediately to its south. BNP: Borivali National Park.. AMC: AareyMilk Colony.

Plate 2.2b
Showing the IITBombay campus sandwiched between Vihar and Powai lakes. The green arrows point to forested pathways that allow migration of wildlife – both flora and fauna – from the Borivali National Park into the IITBombay campus (its 'Hillside' and hostel areas).
Image courtesy Dr A. Inamdar, CSRE, IIT Bombay

AN ECOLOGICAL HOT-SPOT

Take the time out to dip into its biological holdings, and IIT-Bombay proves itself a veritable hothouse of life-forms, sustaining a catalogue of flora and fauna so diverse they would do a wildlife reserve proud. Many of these species are endemic to forests and are rarely, if ever, encountered in urban settings. A ready reckoner of this biodiversity might run as follows.

More than a hundred species of trees are domiciled on campus (a comprehensive list was once hosted on the website of the IIT-Bombay Wildlife Club). Of these, some twenty odd species, including the kumbhi, karaya, and kate-asan, are true forest trees; others, like the karnikar, the kailashpati (cannonball tree) and the sausage tree, are unusual cultivars; yet others, like the gulmohar, coral tree, amaltas and kanchan, are ornamental, and paint our treetops a brilliant scarlet, gold, or mauve at their preferred times of the year.

Wild flowers abound. The campus boasts more than 70 of the 240 species listed in an authoritative text on Indian wild flowers. (The figures for the campus are based on the author's observations. The book is Isaac Kehimkar's "Common Indian Wild Flowers", BNHS, Mumbai, 2001.) This is evidently a sizeable proportion – a striking quarter of the nation's stock of this flora on one relatively small arena alone. Interestingly, of these 70-odd species, some 30-35 are found chiefly in hilly ranges and forests such as those of the Sahyadris. They include rarities like the evanescent and outrageously showy glory lily and the pink-striped trumpet lily, the weirdly constructed dragon stalk yam and the sweetly fragrant Krishna kamal.[a] IIT-Bombay's bird life tells the same tale; around 150 species are said to have been recorded. It's notable that Salim Ali's "Book of Indian Birds" lists some 300 commonly observed species[b] thus, about half of these, again a remarkably high proportion, have been spotted here. The more flamboyant of their number include – to name just three which seen but once, become etched unforgettably in memory – the paradise flycatcher, the golden oriole and the snake bird. Then there are the songsters, largely invisible, suffusing the air with their piquant – and at times confoundingly raucous – notes: the iora, the koel, the crow-pheasant, the fantail flycatcher. And a truly staggering variety of insects flourish in the Institute's waters, air and soil – so many as to defy enumeration. Drawn to the campus by its wealth of flora, they in turn make a movable feast for its birds, reptiles, and amphibians.

Finally there are the bigger, but more secretive residents. Forest-dwelling reptiles and mammals such as monitor lizard, Indian rock python, langur, fox and jackal are to be found here; even the furtive, nocturnal civet is said to have been sighted. And how could one leave the most exotic of our denizens – though it might be an itinerant one – till the last? There's also the most elusive of the prowlers of the neighbouring forests, the keeper of their secrets, their spotted ghost... the panther. And when the panther comes visiting, the campus goes on high alert, cloaking itself in a curfew-like air. Streets and lanes wear a deserted look after dusk; if people move about at all, they move in groups. Yet the panther is as much a badge of pride for the campus as it is cause for dread: for how many academic campuses can boast a visitor as exalted as this? And in which other campus are the more intrepid of their tribe known to steal right into the heart of their academic corridors, padding inspectingly along them in broad daylight?

The lakes for their part sustain a wealth of aquatic and peri-aquatic life. Both shelter crocodiles, fish in plenty, turtles, crabs, insects, and water snakes. Powai Lake, ironically by virtue of its polluted state is also encrusted with marshy banks of weeds and floating rafts of water

hyacinth; these conspire to attract an assortment of water birds from near and far, some of them migratory, including cormorant, jacana, snake bird, and purple heron. Little wonder then, that Powai Lake – in particular its campus shoreline – features regularly on nature trails conducted by organizations such as the Bombay Natural History Society and the WWF, which look upon it as one of the Mumbai region's most valuable repositories of avifauna.

Given these many-splendoured riches, one begins inevitably to wonder what it is about the IIT-Bombay campus that has allowed it to host and foster them. Its secret has much to do with the geographical location of the Institute: and we ponder once again its setting as seen from high in the sky, but in this instance from much higher than any bird could soar, and with man-made eyes.

IIT-Bombay occupies a special and possibly unrivalled ecological niche among academic campuses in India – or for that matter among academic campuses pretty much anywhere. This singularity is best conveyed through the satellite images reproduced in Plate 2.2a, and by a somewhat odd attribute of topography in them.

In the constricting embrace of the megapolis of Mumbai, in its northern quarter, lies an anomaly of landscape. As if in defiance to the concrete sprawl that shuts it in, it is all hill and forest, glade and stream; and among its colonizers are the panther, boar, python, racquet-tailed drongo and moths so spectacularly painted and patterned that they defy belief. This is the Borivli National Park (the large green expanse in the upper centre of Plate 2.2a), an enchanted realm that enjoys the distinction of being the largest wildlife park located within city limits anywhere in the world. The Park, named the Krishnagiri National Park in the pre-independence era, rechristened the Sanjay Gandhi National Park in 1981 (and known more popularly as the Borivli National Park), has been a haven for wildlife right from the time when Mumbai's urbanization began in earnest. Until 1969, it enclosed a mere 20.26 sq km; subsequently, tracts lining the park were acquired, gradually swelling its area to about 100 sq km.[c]

As can be seen in Plate 2.2a, on the Park's southern rim lies the large water body of Vihar Lake. In Plate 2.2b which shows a closer view, slender fingers of the Park can be seen to snake round the lake (green arrows), spilling over into a horseshoe-shaped expanse of land sandwiched between Vihar and Powai lakes – the expanse of the IIT-Bombay campus. In these images, the Institute stands out as one of only two patches of woodland that are direct offshoots of the National Park (indeed, it was more or less a part of this forest before it was given over to the cause of technology). The only other tract in the city so favoured is the Institute's near neighbour to the west, the Aarey Milk Colony – but without the advantage of the lakes.

The Park itself is a marvel of tropical ecology. At a hundred square kilometres, it is really only pocket-sized when compared with its cousins like the Kanha National Park at nearly 2,000 sq km – but it's a pocket that runs amazingly deep. Bursting at its seams with life, it shelters an estimated 800 species of flowering plants alone, 280 species of birds and a scarcely believable 8,000 to 10,000 species of insects (there's been no real census). They share it with 36 types of mammals, 50 varieties of reptiles and amphibians and perhaps 150 species of butterfly. Some sense of the real scale of these numbers can be had from the fact that in its 150 species of butterfly alone, this dot on the map hosts some two and a half times the number (60) found in the whole of the United Kingdom.[d] An allied family of insects that will keep taxonomists busy for some time to come are the moths, estimated to outnumber the butterflies at least four-fold; such are the Park's riches that it also boasts the world's largest moth - the gorgeously coloured Atlas, whose wing-span can stretch to a bird-like 28 centimetres.

With a forest so exuberantly stocked as an immediate neighbour, linked to it by corridors of woodland and the waters of Vihar Lake, it's no surprise that IIT-Bombay's campus is murmurous with the trees, vines and animals of the infiltrating woods. The connection to the National Park links the campus in turn to the mightier hills and forests beyond: the ecologically luxuriant Sahyadris and Western Ghats.

As already noted, the campus lies cradled between two major lakes. It is remarkably privileged, then, in being situated both near two large water bodies and on the immediate margins of a protected tropical forest. It is this setting that makes IIT-Bombay's estate a very special – and rich – ecosystem; so rich that it comes close to qualifying for the status of what naturalists call an 'ecological hot-spot'.[e]

(To be continued)

ENDNOTES

a A further striking statistic is that some 40 species have been observed on the lower slopes of IIT-Bombay's Temple Hill alone, over an area no more than a couple of hundred metres square (author's observations). These foothills appear to be a veritable hot-spot for these flora.

b S. Ali, *The Book of Indian Birds,* BNHS, 1991

c S. Monga, *City Forest,* India Book House, 2001, pp. 14-15

d *Ibid.,* p. 49.

e These are areas, relatively small in size, which may not harbour the diversity boasted by large tracts of forests and reserves but, because of the special features of their topography and climate, are yet ecologically prolific, able to support an astonishingly extensive stock of flora and fauna.

My Travels into the Hermit Kingdom ■ DAMAYANTI BHATTACHARYA Campus Resident

I am a self-confessed global hermit who till recently, had never travelled abroad or lived in a foreign location. Perhaps it was my 'karma' then, that when I eventually got a chance to travel abroad, it was to the Hermit Kingdom or South Korea. For a year, we (my husband, me and my son) lived in *Jinju*, a small town in the south which proved to be an experience more alien then we had bargained for, yet a memorable one nonetheless.

When our flight bound for Seoul took off, I relaxed into my seat (as much as it is possible in 'Coach' class). When I tried to envision Korea in my mind, I drew a blank. In college, I had skipped my paper on the Far East and despite reading up on the mandatory Lonely Planet, all that I knew about the two Koreas put together stretched little beyond the Korean War and *Kimchi* – the Korean pickle.

What I subsequently learnt about the place, its people and the rhythm of life there is perhaps more relevant for the smaller towns like *Jinju* and others along the East Sea. The first thing that strikes you when you arrive in Korea is the breathtaking beauty of its countryside. 70 % of Korea is forested. A majority of the population is packed into a few cities, leaving the countryside and the smaller towns relatively untouched. Consequently, they display an innocent charm reminiscent of America in the 30s and 40s.

"70 % of Korea is forested. *Jinju* is nestled in a valley ringed by the rolling hills of the *Jirisan* National Park. The *Nam Gae* River meanders through it."

Jinju is nestled in a valley ringed by the rolling hills of the *Jirisan* National Park. The *Nam Gae* River meanders through it; it all seemed almost postcard-perfect and was a relief after the hustle-bustle and sheer scale of Mumbai. Our neighbourhood was quaint and quiet. It had been a village not so long ago; now it had a small park with wooden pavilions, always occupied by aunties who tended the nearby vegetable plots and old gentlemen who sipped *soju* (the local drink), staring endlessly into the horizon.

If there is one thing that defines Korea and Koreans, it is the veneration of age. This is probably the only place where Confucius is well and truly alive - a country in absolute admiration for everything and everyone that's old and probably, the most socially structured place in the world – mind you, this is coming from someone belonging to the Land of the Caste System! Hierarchy is everything in Korea. When a Korean enters a room, he immediately takes a snap assessment of the age and social standing of all those present so that he knows where to slot himself in. We also learned very quickly that the pecking order was about the most important thing that we were supposed to know. So my husband and I played it safe by bowing deeply to just about everyone, the cleaners included. As a result, we ourselves were generally held as decent blokes, and were held in high regard for our remarkably inappropriate courtesy.

But there is downside to this Confucianism as well. Koreans are taught to respect and follow elders from a young age, which has made for a feudal and paternalistic kind of

Korean sword dance

society that is completely anachronistic for an otherwise First World, economically forward nation. Society is extremely gendered and although women do work, they are, by and large, confined to specific, well-defined roles. Racial homogeneity apart, community reigns supreme in Korea and there is an absolute absence of individuality that permeates into every aspect of their life.

Everything and everyone looks the same. Their urban architecture runs along similar lines; they first devise a perfect, fail-safe apartment design and then replicate this design *ad infinitum* everywhere. The way they dress, the haircuts they sport are all similar to the extent that you can tell the age of a person by his/her clothes and the haircut they sport. It is due to Confucianism again that appearances are of great importance, and plastic surgery is a multi-million dollar industry. Both sport and exercise are woven into the everyday life of an average Korean and you would be hard pressed to find anyone who is overweight (being fat is associated with stupidity) or men who are grey or balding, thanks to the hair-weaves and dyes that they all use.

As far as general impressions go, most Koreans came across as practical, polite and hardworking but at the same time distant and somewhat inscrutable. Like India, Korea is also nation replete with curious contradictions. For instance, Korea would love to shake off her hermit-like image and be perceived as an international hub, yet she keeps most foreigners at a distance, by virtue of bestowing upon them the status of *waygook* or outsiders. The single biggest national obsession is learning English, yet few people seemed to speak it well.

It had a GDP lower than ours in the 50s, and yet from then has emerged as one of the foremost economies of the world. This is undoubtedly due to a work culture unparalleled anywhere else in the world (barring the Japanese). It's normal for a Korean to work 50, 60 or 70 hours a week. Unlike the Indian Middle Class, they are not people who leered off physical work and refrained from getting their hands dirty. I was amazed by the fact that most households grew a part of their own vegetables, even if it was in a plot ploughed by them along the highway!

Even children were not exempt from this schedule of industrious activity. Kids in Korea go to school from nine to five. Then they usually attend English 'cram-school' or *Hagwons* - academies for all-round development, which include more English lessons, piano lessons, art, *Taekwando* and who knows what else! They reach home around 8 pm, and after a quick dinner they tackle their homework. Only the really lazy kids finish in time to get to sleep before midnight!

"The National College Entrance Examination is a landmark event in Korea. The President addresses the students on the eve of the examinations and all flights to the *Incheon* airport are deferred on the day of the examination."

Gyongbokgung Palace at Seoul

Streets of Jinju

Back here, our education system is such that there is a continuous compulsion to perform, but when it comes to putting performance pressures on our children, the Koreans are way ahead of Indians. The National College Entrance Examination is a landmark event. The President addresses the students on the eve of the examinations and all flights to *Incheon* airport are deferred on the day of the exam to avoid all disturbances for students.

There are other areas where Indians share a remarkable similarity with Koreans. Both Koreans and Indians do not believe in the Western norms of good table manners like eating with our mouths closed. Koreans, like Indians also litter like crazy, the only difference is that there is a silent army of *anjummas* (older, married women) who come at the dead of the night or in the early hours of the morning to clear away the mess left behind.

We Indians love our *paan* and chewing tobacco; the walls of our government offices are decorated with the evidence of this national past time. Koreans too seem to have a lot of saliva and are ready to spit anytime, anywhere, and in any direction - right at your feet if you are not watching out.

"There is Mickey and Minnie mouse - the greatest American import into Korea since beef. I am told the national animal of South Korea is the tiger. I am convinced that they got it wrong; it should be Mickey and Minnie Mouse."

Walking down the streets is like traversing a minefield. You cannot think of being in a dreamy mode and have to be continuously on the alert - you never know when the next glutinous missile is going to be thrown at you.

The flip-side of this oral fixation is brushing teeth, which is the unofficial national pastime. You can see Koreans, young and old, at all times of the day, at all kinds of locations, brushing away energetically. I would go to my son's playschool and find the teacher standing in the class, happily brushing away. We would go to a restaurant and I would see the cook at his station, brushing away. You could stop at the rest stop of a bus station, and the bathroom would be full of women brushing - either the Koreans have very bad teeth or they are obsessed with oral hygiene - I know not which.

There are other strange and curious habits that are quintessentially Korean. For instance, there is Mickey and Minnie mouse - the greatest American import into Korea since beef. You will find them everywhere - in cutlery, upholstery, tableware, bed linen and clothing, accessories, ties, fobs, seals and jewellery. They are almost as ubiquitous as cell-phone accessories. I am told the national animal of South Korea is the tiger. I am convinced that they got it wrong; it should be Mickey and Minnie Mouse.

Korea probably has the most liberal outlook when it comes to the consumption of alcohol, a practice common across all ages and sexes. The other popular recreational activity is smoking - but this is largely confined to men. The way one can recognise public hospitals in Korea (this is particularly

if you cannot read *hanguel*) is by the motley groups of men of assorted age that are huddled around the entrance. They are all garbed in their hospital gowns; some towing their re-hydration drip bags, needle in their arms, others in wheelchairs, but they are all happily puffing away.

When you live in a different culture for sometime, it leaves indelible marks on you. The Korean in me now misses the *galbi* (barbecued meat) and *bibimbap* (a kind of rice with vegetables cooked in a stone bowl), the lack of crime, the absence of smoke, pollution, traffic jams, crowds and eve-teasing, their exemplary honesty, the fact that I had never been lied to or cheated when I was there. Trails abound in every corner and a weekend expedition of discovery with one's child was as easy as stepping out of the house. In the *Chronicles of Narnia*, there is a closet at the back of the house through which the children managed to escape to a strange and wonderful land. At the back-end of our house, there was a path going up the hill. The first time I walked up that hill, I felt as if it was my personal backdoor to such a magic land - green, verdant and untouched by civilisation. Like the children in the movie, I also managed to find my way home again, but was left wishing for that door to appear again and carry me off to that maddening yet magical land. ∎

RANDOM MEANDERINGS

Exam-O-Mania ∎ VAYSHNAVI GANESH Campus Youth

Exams - they're like a universally common phenomenon, a syndrome (inclusive of all symptoms and diagnosis for those facing the ordeal); as natural as the sunlight and the winds. Right from nail-biting styles to Cortisol levels – they're the same with everybody – it's a unique kind of harmony.

Phase 1 The pre-exam events include all procrastinators on Facebook with guilty eyes, a considerable amount of time spent in day-dreaming about holidays and sponta-neous spurts of texting. Then a week prior to exam, one begins the formulation of impressive, practical resolutions – brilliant time-tables with flexible time slots for Coffee Shack visits, Bhavani Juice Center and of course, naps. So this way, one doesn't feel guilty watching an episode or two of F.R.I.E.N.D.S or 30 Rock, or even a movie because of 'The Plan', which will take care of the exam part of life. Bathing reaches new heights of importance, the table and bed need to be tidier for a 'studious environment'. And before you know, it's a day before the exam – you're still doodling on the corner of the photocopied notes (god bless the photocopy-wala) which you have just managed to get. You then chart out Plan B, which is going to help you cover just the important chapters, so that you can still be unashamedly proud of your new-found serious-ness. You curb your anxiety by calling up that buddy who almost definitely has studied less than you, and that, of course, is comforting.

One hour before the exam – on the way to the hall – last minute 'revision' and bam – there it is.

Phase 2 You finish the three-hour paper in two hours, but don't want to be the first person leaving the room. So you just pretend to recheck your paper, but actually are at your observant best. This nerd in front of you has already taken four supplementary sheets, and he still won't stop writing. And you can't even see what it is that he is writing, thanks to his tiny, ant-sized handwriting. The professor seems to be staring only at you, and you realise he hasn't oiled his hair and also that he should have changed his Woody Allen spectacles long back. And then you get back to the paper.
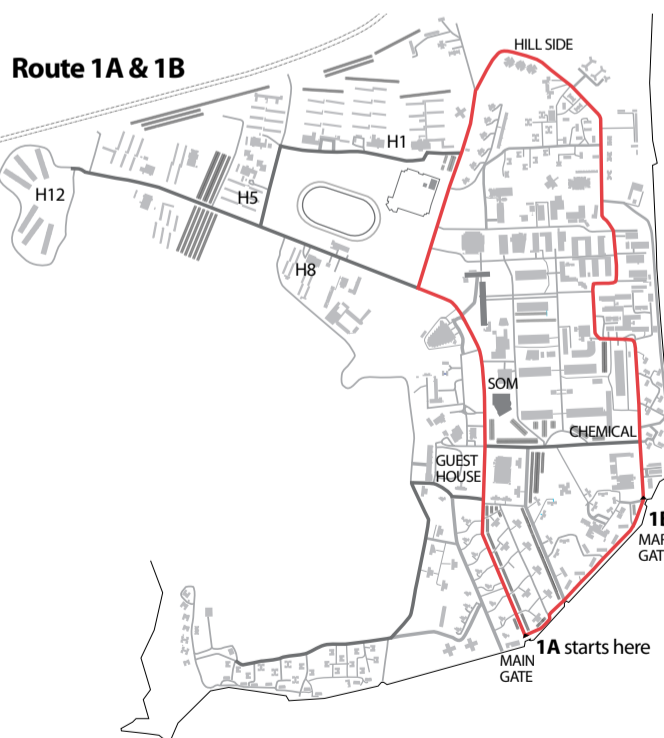
You finally walk out (after at least one of the geniuses), concluding that the paper was tougher than usual, the professor was a sadist and this whole thing was just not fair. You first calculate that you're going to lose about 10 marks, during coffee you realise you're losing 10 more and by the time you're back in the room, you feel you'll be grateful if you manage to pass.

Phase 3 Holidays were more than fun, though the jobless-ness starts to get on the nerves once in a while, and one unconsciously looks for a let-out for one's head, freaked out about the results. The nerds always whine about those two marks they lost; some are as expressionless as a pumpkin. And the normal lot show one of the two reactions – a) Surprise – what the hell did I write to get so many marks?? The gods must be crazy! or b) Shock – This is so not done. You know, these old guys don't know how to check. There is some major error. Professors must be crazy! And yes, the IPL guys are the cruellest.

A New Dawn So a brand new set of resolutions are made, which include no chatting in the week before the exams, daily hours of study and other such resolutions which become misty smoke in the blue sky after two days. And then there is a new year, more exams, more surprises, more sitcoms, more coffees and many more dreams. These cruel times turn into pleasant and funny memories, and the frowns into chuckles. ∎
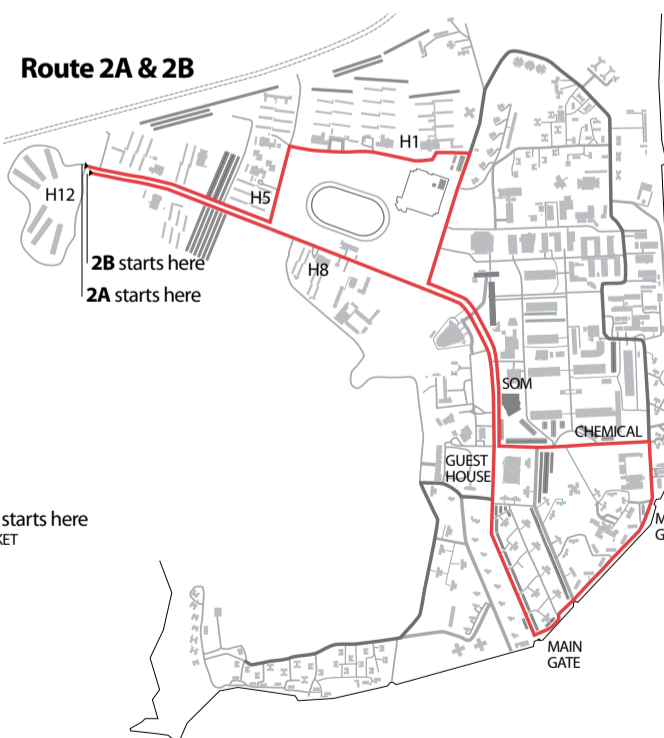

QUICK TAKES # IIT Bombay Bus Routes

Route 1A & 1B

Route 2A & 2B
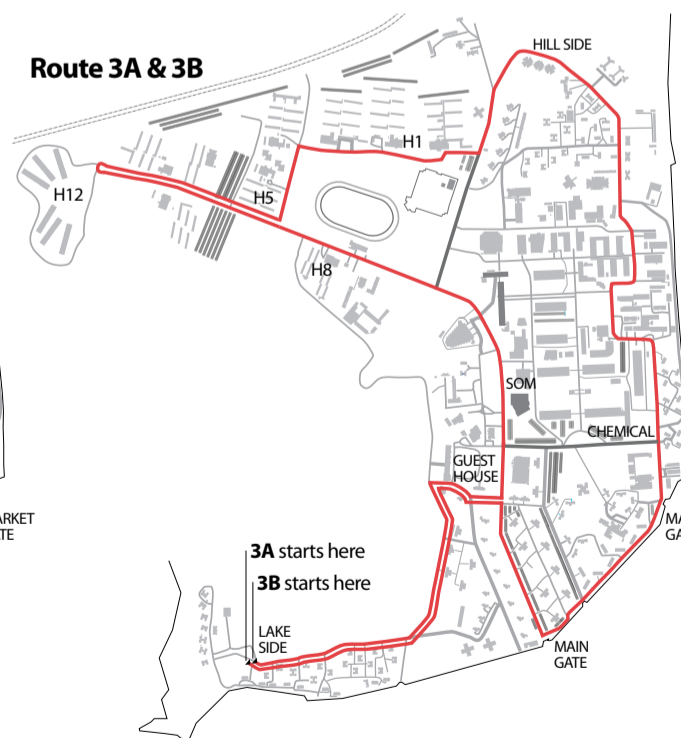

Route 3A & 3B

1A Main Gate > SOM > Hill side > Market Gate > Main Gate

1B Market Gate > Hill side > SOM > Main Gate > Market Gate

2A H12 > H1 > SOM > Chemical > Market Gate > Main Gate > SOM > H8 > H12

2B H12 > H8 > SOM > Main Gate > Market Gate > Chemical > SOM > H1 > H-5 > H12

3A Lake side > Guest house > SOM > H8 > H12 > H5 > H1 > Hill side > Market Gate > Main Gate > Guest house > Lake side

3B Lake side > Guest house > Main Gate > Market Gate > Hill side > H-1 > H-12 > H-8 > Guest house > Lake side

APPOINTMENTS

Prof. Anuradda Ganesh, Department of Energy Science & Engineering has been appointed as the Head of the Department of Energy Science & Engineering on June 8, 2009.

Prof. Anurag Mehra, Department of Chemical Engineering has been appointed as the Professor-in-Charge, Administrative Planning and Services on June 8, 2009.

Dr. Parag Kumar Chaudhuri has joined as Assistant Professor in the Department of Computer Science & Engineering on June 3, 2009.

Dr. Surekha Krishnan has joined as a Postdoctoral Fellow in the Department of Metallurgical Engineering & Material Science on June 2, 2009.

Prof. G. G. Ray, Industrial Design Centre has been appointed as the Head of the Industrial Design Centre on June 1, 2009.

Mr. Kaustab Ghosh has joined as Postdoctoral Fellow in the Department of Electrical Engineering on May 19, 2009.

Dr. Animesh Kumar has joined as Assistant Professor in the Department of Electrical Engineering on May 18, 2009. His research interests include applied statistics, integrated circuits, signal processing and sampling theory.

Dr. Sibi Raj Bhaskaran has joined as Assistant Professor in the Department of Electrical Engineering on May 11, 2009. He did his Ph.D from E.P.F.L Switzerland. His research interests include Fundamental Limits of Communication Systems, Information Theory and its applications, Compressed Sensing, Stochastic Modeling, Resource Allocation Problems, Interference Channels, Relaying and Broadcasting.

Dr. Dipankar Saha has joined as Assistant Professor in the Department of Electrical Engineering on May 7, 2009. He did his Ph.D from University of Michigan. His research interests include Micro-electronics, New Device Physics, Semiconductor Spintronics, Spin injection, transport and detection in III-V systems and Device Reliability.

Dr. Saketha Nath J. has joined as Assistant Professor in the Department of Computer Science & Engineering on May 4, 2009. He did his Ph.D in Computer Science at CSA, IISc. His research interests include Machine Learning, Data Mining and Convex Optimisation.

Dr. Gopal R. Patil, Department of Civil Engineering has been appointed as Assistant Professor (Contract) on May 4, 2009. The appointment is for a period of two years.

Shri Rahul P. Deshmukh has joined as Technical Officer (Web Manager) in the Centre for Distance Engineering Education Programme (CDEEP) on April 29, 2009. The appointment is for a period of one year.

Dr. Sahil S. Kulkarni has joined as Assistant Professor in the Department of Mechanical Engineering on April 27, 2009.

Prof. P. Banerji, Department of Civil Engineering has been appointed as the Professor-in-Charge, IITB-Monash Research Academy on April 22, 2009.

Mr. B. S. Punalkar has been appointed as Registrar on April 20, 2009. He was earlier the Officiating Registrar and Deputy Registrar (F&A).

Prof. K. V. Krishna Rao, Department of Civil Engineering has been appointed as the Dean (Infrastructure, Planning and Support) on April 20, 2009. He was earlier Associate Dean (Infrastructure, Planning and Support).

Prof. Surajit Bhattacharyya has joined as Assistant Professor in the Department of Humanities & Social Sciences on April 8, 2009.

Prof. Ranjan Kumar Malik, Department of Chemical Engineering has been appointed as Deputy Director (AIA) on April 2, 2009.

Shri D. K. Sawalkar, Estate Office has been appointed as Assistant Registrar on March 30, 2009. He was earlier the Sr. Accounts Officer.

Prof. Jaydevsinh M. Gohil has joined as a Post-doctoral Fellow in the Department of Chemical Engineering on March 16, 2009.

Prof. Ganesh Ramakrishnan has joined as Assistant Professor in the Department of Computer Science & Engineering on March 12, 2009. He did his Ph.D from IIT Bombay. His research interests include Statistical Learning Theory (Support Vector Machines, Kernel Machines and Radial Basis Functions), Statistical Language Modeling, Reasoning and Inferencing and Information Extraction.

Prof. Sahana Murthy has joined as Assistant Professor in the Centre for Distance Engineering Education Programme (CDEEP) on March 9, 2009.

Prof. Subhankar Karmakar has joined as Assistant Professor in the Centre for Environmental Science & Engineering on March 5, 2009.

Prof. Punit Parmananda has joined as Associate Professor in the Department of Physics on March 5, 2009.

Prof. Nina Sabnani has joined as Associate Professor in the Industrial Design Centre on March 5, 2009. She did her BFA (Painting) from Baroda. She has done teaching, research and practice in the following areas: Animation Films, Visual Communication, Visual Culture, Folklore, Storytelling, Illustration and Installation Art.

Prof. K. Ramachandran has joined as a Professor in Industrial Design Centre on March 5, 2009.

Prof. Subhasis Chaudhari, Department of Electrical Engineering has been appointed as the Dean (International Relations) on March 2, 2009.

Prof. Sagar Mitra has joined as Assistant Professor in the Department of Energy Science & Engineering on March 2, 2009. He did his Ph.D from Indian Institute of Science, Bangalore. His research interests include Nanostructured Materials-synthesis, organisation and integration, Lithium ion Batteries, Hybrid Vehicles Electrochemical Energy Storage, Electrochemistry of Nanomaterials, Nanocrystals and Nano-oxide electrocatalysis for Fuel Cell application, Electrochemistry of Semiconductors and Cu on chip interconnect metallisation process for high speed IC industry.

Prof. Shilpa Ranade has joined as Assistant Professor in the Industrial Design Centre on February 29, 2009.She did her Bachelor of Fine Arts (Applied) with a specialisation in Illustration and Video from Sir. J.J. Institute of Applied Art, Bombay in 1987. She did her Master of Design (Visual Communication) with a specilisation in Advanced Illustration and Video from IDC, IIT, Bombay in 1989 and M.Phil in an Animation Thesis on 'Indigenous Images and Narratives for Socially Relevant Animation' from Royal College of Art, London in 1985. Her areas of interest include Cell Animation and Illustration.

Prof. Bhaskaran Raman, Department of Computer Science & Engineering has been appointed as Associate Professor on February 27, 2009. He was earlier working as Assistant Professor.

Prof. Sharmila Sreekumar, Department of Humanities & Social Sciences has been appointed as Associate Professor on February 27, 2009. She was earlier working as Assistant Professor.

Dr. C. V. Tomy has joined as Associate Professor in the Department of Physics on February 27, 2009.

Prof. K. Ramasubramanian, Assistant Professor in the Department of Humanities & Social Sciences has been appointed as an Associate Professor on February 27, 2009.

Shri Omprakash Bhendigeri, Central Library has been appointed as Assistant Librarian on February 27, 2009. He was earlier the Library Information Officer.

Dr. Nisha Shah, IIT Hospital has been appointed as Chief Medical Officer on February 27, 2009. She was earlier the Sr. Medical Officer.

Prof. K.G. Suresh, Department of Physics has been appointed as the Faculty Adviser of Foreign Students on February 10, 2009.

The appointment of **Prof. Pushpa L. Trivedi**, Department of Humanities & Social Sciences as the Faculty Adviser to SC/ST students has been extended for a further period up to end of August 2009.

RETIREMENTS ON 31MAY, 2009

Ms Saraswati K. Kamble will be retiring after 28 years of service on July 31, 2009. She worked in the Institute as Sr. Ayaht in IIT Hospital.

Shri Devanga P. Ganesh will be retiring after 32 years of service on July 31, 2009. He worked in the Institute as Attendant (SG) in the Institute Guest House.

Ms Sulbha S. Sane will be retiring after 30 years of service on July 31, 2009. She worked in the Institute as Sr. Data Processor (SG) in the Accounts Section.

Shri Bhaskar Kanu Sutar retired after 36 years of service on June 30, 2009. He worked in the Institute as Sr. Mali in the Estate Office.

Shri Mohan P. Dhotre retired after 35 years of service on June 30, 2009. He worked in the Institute as Mechanical Assistant (SG) in the Department of Mechanical Engineering.

Shri Nimbaji Govind Pawar retired after 31 years of service on June 30, 2009. He worked in the Institute as Helper (SG) in the Estate Office.

Shri Vijay A. Kadam retired after 34 years of service on June 30, 2009. He worked in the Institute as Attendent (SG) in the Chemistry Department.

Shri Magansingh Udaisingh retired after 33 years of service on June 30, 2009. He worked in the Institute as Watchman (SG)in the Security Section.

Shri Ramchandra D. Tate retired after 36 years of service on June 30, 2009. He worked in the Institute as Jr. Technical Suprintendent in the Printing Press.

Ms A. D. S. Pillai retired after 35 years of service on June 30, 2009. She worked in the Institute as Lab Suprintendent in the Department of Computer Science and Engineering.

Ms M. Chandravati Krishnan retired after 32 years of service on May 31, 2009. She worked in the Institute as Sr. Superintendent in the Dean (R&D).

Ms Vandana K. Lalge retired after 37 years of service on May 31, 2009. She worked in the Institute as Jr. Superintendent in the Administration Section.
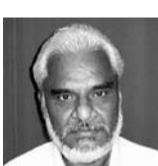
Ms Nirjhar Chakravortty retired after 27 years of service on May 31, 2009. She worked in the Institute as Jr. Superintendent in Electrical Mainenance Division.

Ms Sugi Sundarsingh retired after 16 years of service on May 31, 2009. She worked in the Institute as Asstt. Library Information Officer in the Central Library.

Shri Dhananjay R. Parab retired after 27 years of service on May 31, 2009. He worked in the Institute as Superintendent in the Accounts Section.

Shri Shankar V. Gaikwad retired after 30 years of service on May 31, 2009. He worked in the Institute as PTI (Section Scales) in the IIT Campus School.

Ms Mariamma Joy retired after 37 years of service on May 31, 2009. She worked in the Institute as Jr. Superintendent in the Estate Office.

Ms Manda T. Rahate retired after 21 years of service on May 31, 2009. She worked in the Institute as Helper in the Department of Civil Engineering.

Shri Rajendra Singh will be retiring after 33 years of service on May 31, 2009. He worked in the Institute as Watchman (SG)in the Security Section.

Shri J.S.R. Prabhu will be retiring after 30 years of service on May 31, 2009. He worked in the Institute as Sr. Helper in the Electrical Mainenance Division.

Shri Edathodikudial Chami will be retiring after 34 years of service on May 31, 2009. He worked in the Institute as Mech. Asstt., in the Department of Civil Engineering.

Shri Ganpat Umaji Shirsat will be retiring after 31 years of service on May 31, 2009. He worked in the Institute as Helper (SG) in the Gymkhana.

NEWS

Laurels and Events

PROF. MANOJ K. MISHRA of the Department of Chemistry has been invited to deliver the Lowdin Lecture 2010 of the Quantum Theory Project, University of Florida. The lectures are organised once every year or two by QTP in honour of Professor Per-Olov Lowdin. They are used as an occasion to invite a scholar of international repute in theoretical Chemistry/Biochemistry to visit for a period and interact with graduate students, postdoctoral fellows and faculty of QTP. The first lecturer, Sir John Pople was the Chemistry Nobel Laureate of 1999, and he has been followed by other highly accomplished and eminent scientists.

PROF. ABHAY KARANDIKAR's (Electrical Engg, also Head, Computer Center) work in Segment Protection (with Tejas Networks) has been forwarded to the New Standards Committee of IEEE and is poised to lead to the starting of a new IEEE standard namely IEEE 802.1Qbf. According to the scientific community working in the area, this signifies a major achievement and endorsement of their work. This may be the first time that a new IEEE standard is emerging out of the efforts of professionals working in India.

PROF. RAJDIP BANDYOPADHYAYA, Department of Chemical Engineering has been elected as a member of the National Academy of Sciences, India (NASI).

PROF. S. D. SHARMA, Department of Aerospace Engineering has been appointed as Editor-in-Chief of the International Journal of Emerging Multidisciplinary Fluid Sciences.

PROF. D. B. PHATAK, Department of Computer Science and Engineering has been honoured as one of the '50 Most Powerful People' by the Business Week under 'Technology.'

DR. DIBYENDU DAS, (jointly with Dr. Tapas Ganguly of RRCAT,

Indore, an IITB alumnus) Department of Physics has received the 'Satyamurthy Award' for his contribution to studies of simple models for non-equilibrium phenomena in Soft condensed matter Physics, and in particular, the motion of dissipative systems of granular matter and single polymer submerged in fluid flows.

DR. ANIRBAN SAIN, Department of Physics has received the 'BUTY Foundation Award' for his contribution to the study of Soft condensed matter Physics involving polymers and biological systems.

PROFS. ANIRBAN SAIN AND DIBYENDU DAS, have also received the Young Scientist award of the "Indian Physics Association"(IPA).

THE TEAM FROM SJMSOM, IIT Bombay created history by being the first ever team from India to reach finals of the NUS Cerebrations Global Business Challenge, the annual flagship event of NUS, Singapore. The event saw participation from more than 200 colleges from across 30 countries. This is the second time in the last five years that the team from SJMSOM has reached the semi-finals (the only Indian college that holds this distinction).

PROF. S. K. MAITI, Department of Mechanical Engineering has been elected as a fellow of the American Society of Mechanical Engineers (ASME) for his contributions in many areas of Solid Mechanics, including topics such as elastic and elastic-plastic materials, composites & cellular materials.

PROF. M. K. MISHRA, Department of Chemistry has been appointed as Associate Editor of the International Journal of Quantum Chemistry and is also on the Editorial Board of the Advances in Quantum Chemistry.

PROF. AZIZUDDIN KHAN, Department of Humanities and Social Sciences has been selected for the 'Cousin's Center Global Outreach' award by the American Psychosomatic Society, USA.

PROF. A. K. SINGH, Department of Chemistry has received the 'ISCB award for excellence in the area of Chemical Sciences' instituted by the Indian Society of Chemists and Biologists.

PROF. M. D. ATREY, Department of Mechanical Engineering received the best paper award at the 22nd National Symposium on Cryogenics at IISc Bangalore for his paper titled 'Experimental Investigations on 80 K Stirling type Co-axial Pulse Tube Refrigerator'. The paper was co-authored by M. Sarkar.

PROF. DIPANKAR CHOUDHURY, Department of Civil Engineering has been selected for the Bilateral Exchange Fellowship Programme 2009-2010 of Indian National Science Academy (INSA), New Delhi. He will be carrying out research work for three months in the area of 'Geotechnical Earthquake Engineering' at Department of Ocean and Civil Engineering, Kagoshima University, Japan.

MR. SAMEER S. SAHASRABUDHE, Project Manager, Dept. of CSE along with his team at Ekalavya Project, IIT Bombay has won a 'Certificate of Appreciation' for the three films they created. The filmmaking competition was organised by the National Knowledge Commission, Government of India. The films are short documentaries based on different projects (headed by Prof. Sridhar Iyer, Prof. Krithi Ramamritham and Prof. Chetan Solanki) at IIT Bombay. The link to see the films is http://www.it.iitb.ac.in/~s1000brains. The details of the awards and the projects are also available here.

In addition to this, two films from CDEEP have also won a **'Certificate of Appreciation'**, making it a total of five films for IIT Bombay.

PROF. K. SUDHAKAR received the Systems Society of India's Raj Kumar Varshney Award for lifetime contribution to Systems Science at the National Systems Conference at IIT Roorkee. The Raj Kumar Varshney Award in Systems Theory has been established by Systems Society of India in conjunction with the Varshney family for exceptional contributions to systems science, application, and technology. The award has been conferred on Prof. Sudhakar for his scholarship, leadership and outreach in the area of systems science, and in particular to Aerospace Systems Design and Engineering. The award carries a Gold Medal and citation for notable and outstanding contribution.

Master SIDDHARTH RAO DEB, of Class VII, KV, IIT Powai, won a Gold medal in the 100 mt Breast Stroke event, at the State Level Swimming Competition held at Balewadi, Pune on 2nd and 3rd of May 2009. He was selected to represent Maharashtra state at the Sub-Junior Swimming Nationals held in Goa from the 26-31 May 2009 under the auspices of the Swimming Federation of India.

The annual tree-plantation drive **'Vanamahotsav 2009'** was held at the hill slope behind Hostel No. 4. Prof. Devang Khakhar, Director, Prof. K.V.K. Rao, Dean Planning along with a host of school children and campus residents got together to plant around 3,000 saplings this year.

IIT Bombay showcases its R&D innovations at **TechConnect 2009**:The best of IIT Bombay's research and innovation was put on display on April 4 this year at TechConnect 2009, an event organised by IRCC. It is the Institute's first-ever attempt to bring together all products of IIT Bombay's research labs and the Society for Innovation and Entrepreneurship (SINE) on a single platform.

There were more than 41 exhibits showcasing IIT Bombay's innovations in manufacturing, ICT, defence, energy, healthcare and processing industries – ranging from mobile jammers to prosthesis for young children with bone cancer, from treating cancer cells by heat and drugs via magnetic nano-particulates to IT for agriculture. Even innovations for local transport were on display. More than 82 visitors from the industry, representing 52 companies attended the event.

IIT Bombay celebrated Energy Day - 2009 on 21 March. The function showcased postgraduate research at IIT Bombay in the field of Energy. This year's highlights included sessions on Renewable Energy Systems, Power Systems and Distributed Generation, Efficiency Improvement in Energy Systems, Applications of Power Electronics and Electrical Machines in Energy Systems. The event was inaugurated by Shri. V. P. Raja, Chairman, Maharashtra Electricity Regulatory Commission.

Swimathon, the annual swimming equivalent of the marathon (or the crossy as we know it) was held on 21 March at the Institute swimming pool. Like every year, the ultimate target was the maximum distance covered, marked by 12 continuous hours of swimming. With **90 participants** coming forward from all across the Institute population of undergraduates, postgraduates, professors, their family members and staff members, this was the largest Swimathon till date in terms of participation. Of them, 12 students completed the full 12 hours. There were kids in the age group of 12 who swam up to a distance of 7.5 km, swimming for about 7 hours. Another noteworthy achievement was by Mr. Rajeev Shenoy, who completed the said distance (10.4 km) in 12 hours. He is mentally challenged.

Psychophysiology laboratory hosted Brain Awareness Week seminar on 16 March. The one-day lecture series was attended by 100 participants from various colleges and professionals, all working in the field of Brain Research. Prof N. K. Sharma from IIT Kanpur enlightened the audience on creativity and cognition, followed by various mental models. Through the talks, students were given a glimpse of Cognitive Neuroscience Research. The students particularly enjoyed participating in a demonstration of Neuro-feedback and the 10 channel Electroencephalogram (EEG) study used to explain the autonomic nervous system by Mr. Erwin Hartzuiker, CEO of Mind Media, B.V. Netherlands.

IIT Bombay Alumni Association, (IITBAA) hosted an alumni event on 14 March at the Hotel Lalit Ashok, Bangalore to culminate the Golden Jubilee Celebrations of its alma mater. The event named as **IITB: Kal, Aaj aur Kal**. It included many programs designed to bring the alumni & faculty of the Institute together and featured prominent alumni presentations on diverse topics, ranging from Science & Technology (*Chandrayaan* and Pharma), Films, Entrepreneurship, Social Development and Governance.

IIT Bombay celebrated its **Foundation Day** on 12 March at the Institute auditorium. The ceremony commenced with a welcome address by Prof. Devang Khakhar, Director, IIT Bombay. In his speech, Prof. Khakhar highlighted key milestones reached in the Institute's Golden Jubilee Year. The Chief Guest was Dr. Anil Kakodkar, Chairman, Board of Governers, IIT Bombay who gave away this year's Distinguished Alumni Awards and Faculty Awards to: Alumni - Dr. Ajit Keshav Ranade, Dr. Dhirendra Nath. Buragohain, Dr. Chetan Chitnis and Mr. Girish Jaywant Gaitonde and Faculty - Prof. (Ms) Chandra Venkataraman, Chemical Engineering Department and Prof. Sambasivarao Kotha, Chemistry Department for their contributions in their respective fields. A fitting epitaph to the Golden Jubilee Year was the release of the book "Punctuations: A photographic journey through the IIT Bombay campus" by Prof. Khakhar and Dr. Kakodkar. Prof. Chetan Solanki, who along with Prof. Raja Mohanty was the key driver of the project described that the book was an anthology of photographs and images, to capture the flow of life within the Institute.

Indian Institute of Technology, Indore (Madhya Pradesh) was inaugurated on 17 February. Shri Arjun Singh, Hon'ble Union Minister of Human Resource Development, Government of India was the chief guest and laid the foundation stone of the Institute. Other notable guests included Shri Shivraj Singh Chauhan, Chief Minister, Government of Madhya Pradesh. IIT Indore is being mentored by IIT Bombay.

A Golden Jubilee of the Bovine Kind

Bovine Achievement Awards — EXCELLENCE IN EVOLUTIONARY BIOLOGY

Bovine Achievement Awards — EXCELLENCE IN SPECULATIVE EUGENICS

Bovine Achievement Awards — LIFETIME ACHIEVEMENT IN ADVANCED ACOUSTICS

Bovine Achievement Awards — FELLOWSHIP OF THE PEDESTRIAN SOCIETY

■ **MRS. SURANGA DATE** Campus Resident

For campus residents, interactions with the bovine population is as much a daily affair as a Mumbaikar's interactions with the four-wheeler, three-wheeler and sometimes the two-legged variety. They can be found lording over the Main Building lawns and sampling the tastiest morsels from *mali*'s newly planted hedges, laying manure in the Guest House lawns, trudging down the corridor to the bovine class.

Back in the mid-seventies, we were not yet a brand - there were no real 'show' standards. 25 years of sweaty summers and heavy monsoons combined with vague maintenance had converted the corridors into a dripping labyrinth where students with uncombed hair and mismatched hawai chappals, who had missed breakfasts and forgotten their umbrellas (and sometimes yet-to-be-submitted assignments) hurried along, sometimes late for classes; more so as they encountered an angry buffalo with its head down and its horns pointing straight ahead, sauntering towards them with single-minded dedication.

It is possible that chewing cud amidst the greenery, traipsing long distances to meet other buffaloes and cows, exchanging notes on pesky troublesome dogs (and newly cleared but unavailable green patches on campus) must get a trifle boring.

If you are of the bovine kind, that is.

Every now and then, we see the advent of high-tech anti-cow/buffalo devices. We have several gates, which I suspect exist for the sole purpose of closing at odd times, so that people have to jump over them. Several such gates (at a non-trivial cost) were modified with what I was told is a Buffalo deterrent grill. It is a metal grill fixed on the road in which the buffalo is supposed to get stuck as it places its hoof on it. I am not sure whether they have standards for buffaloes. Obviously, a high-tech Institute has high-tech buffaloes with super high-tech feet. Despite these devices, one could see several of them routinely strolling

over the grill, chewing and flicking tails at imaginary flies as they sauntered towards the new department buildings, wondering how long they could outwit the technologists.

In addition to these devices, watchmen are given terribly low-tech implements called *lathis* and asked to chase errant buffaloes who dared to appear in the path of a 'learned' population. The corridor was a favourite arena for driving them out. I remember an occasion when a huge herd of buffaloes and cows had just about had it, wandering for greens and running from *lathis*. They just sat down in the middle of the road that runs from the Main Gate, then turns at the Guest House. It was very impressive - cows coming home at dusk and resting their tired bodies, fairly invisible in the frequently failing electric road lights - and two-legged, two-wheeler types dodging around them. It was almost as if they were having a meeting.

Well, that's what happens when they inhabit an academic institute: mindsets change.

No amount of *lathi*-based cajoling worked, giving a well-deserved victory to the original inhabitants of the campus.

So it was with great wonder that one noticed this cool morning, around sunrise, a hefty buffalo sitting in solitary splendour in the well-appointed, landscaped grounds of the Kanwal Rekhi School of IT. It was nonchalantly chewing away with nary a look at the several security types, trying to make it get up and leave. A great image opportunity after 50 years of combat between two-legged and four-legged types. And the location was perfect.
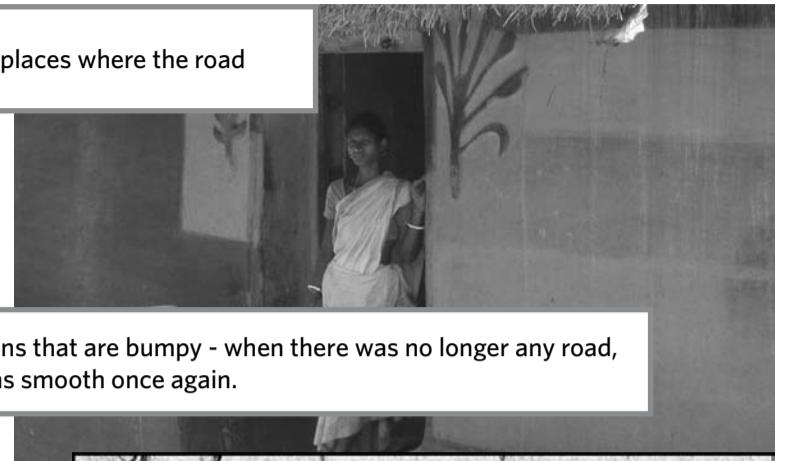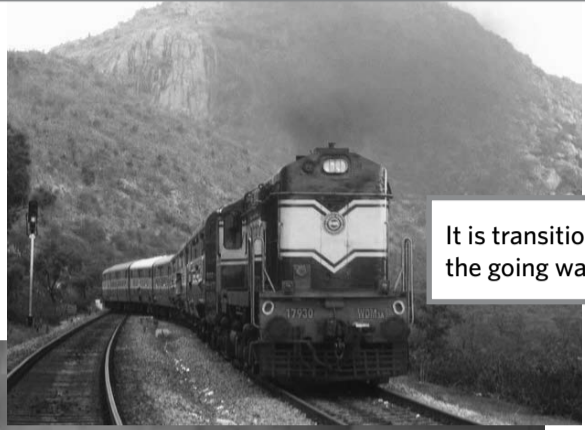
High-tech meets low-tech.

A raised *lathi* and a tentative abusive command elicited a disdainful sneeze, a dismissive look from heavily lidded eyes, a flick of the tail at a pesky fly. The animal continued its rumination, probably contemplating on the next paper it would publish in the Bovine Annals of Technology titled, "Making it to the Golden Jubilee: Reminiscences of the Bovine Kind". ■
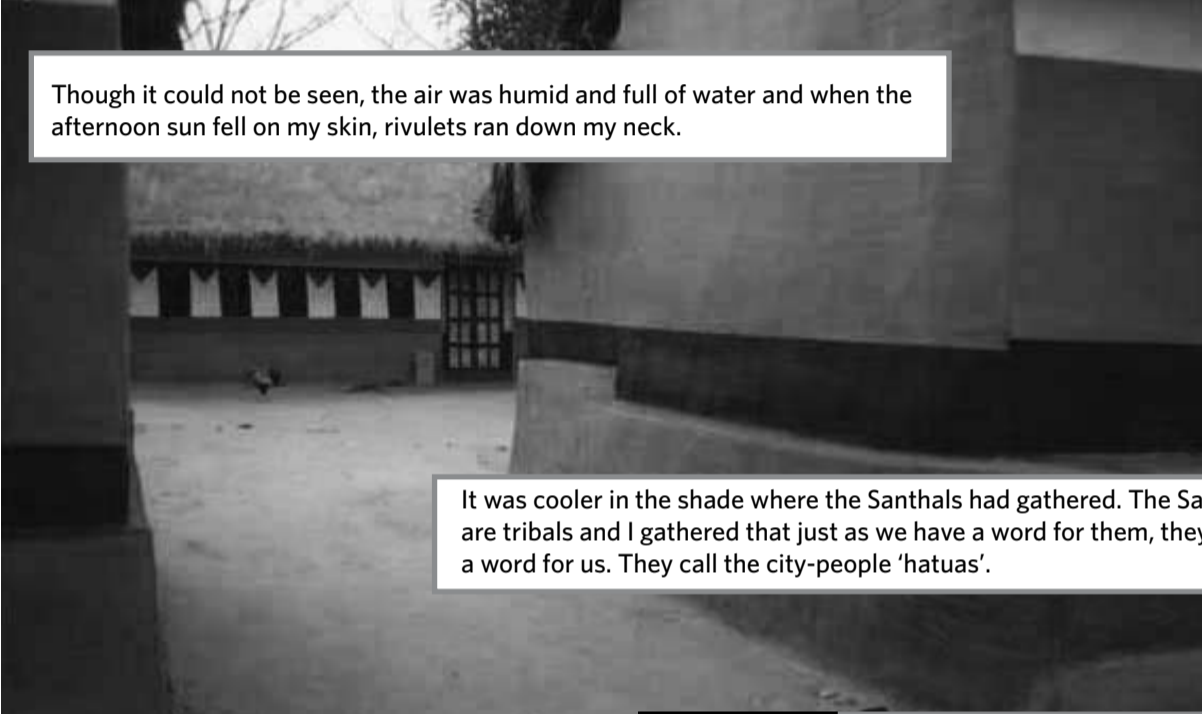
'Hatuas' Are Us! ■ SWEETIE AHLUWALIA

This summer, I went down the dusty track to places where the road does not go. To places where the road slowly disintegrates and finally disappears altogether.
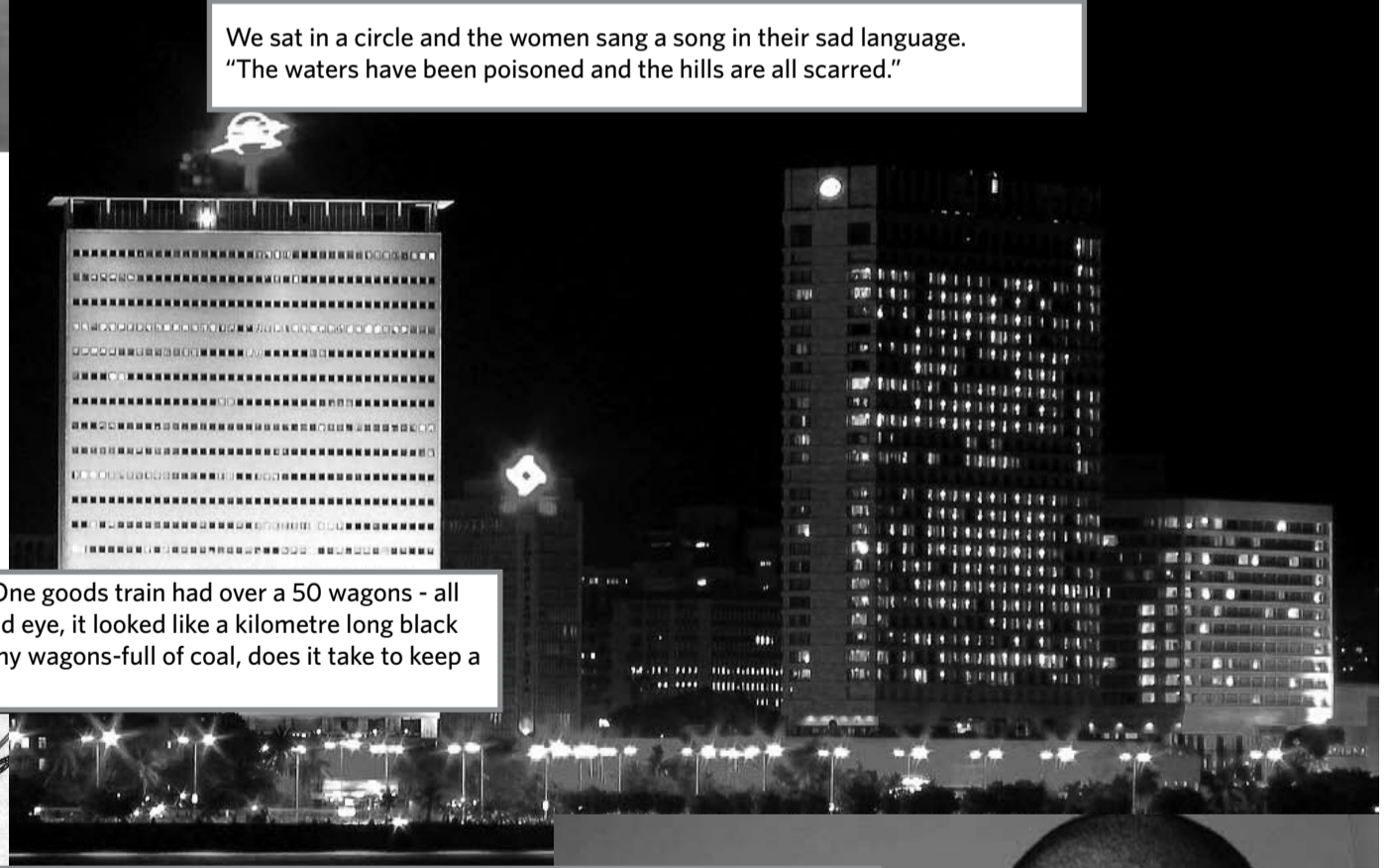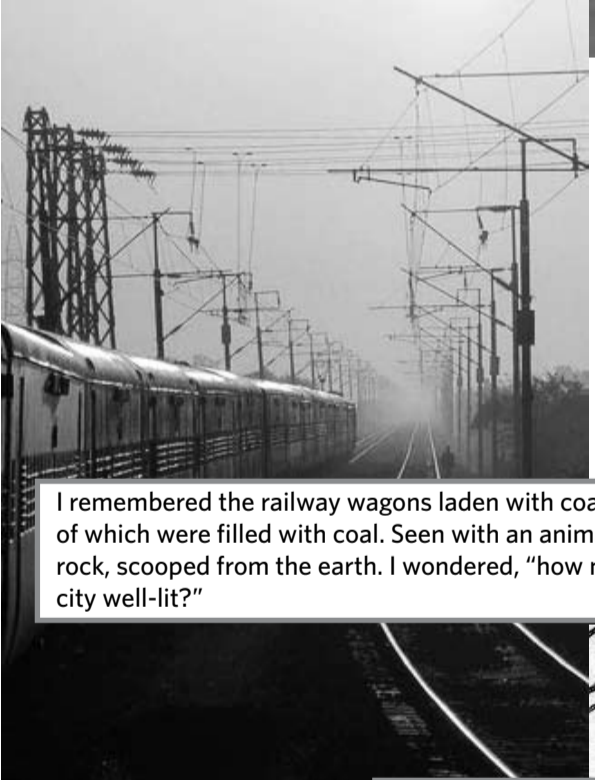
It is transitions that are bumpy - when there was no longer any road, the going was smooth once again.

Though it could not be seen, the air was humid and full of water and when the afternoon sun fell on my skin, rivulets ran down my neck.
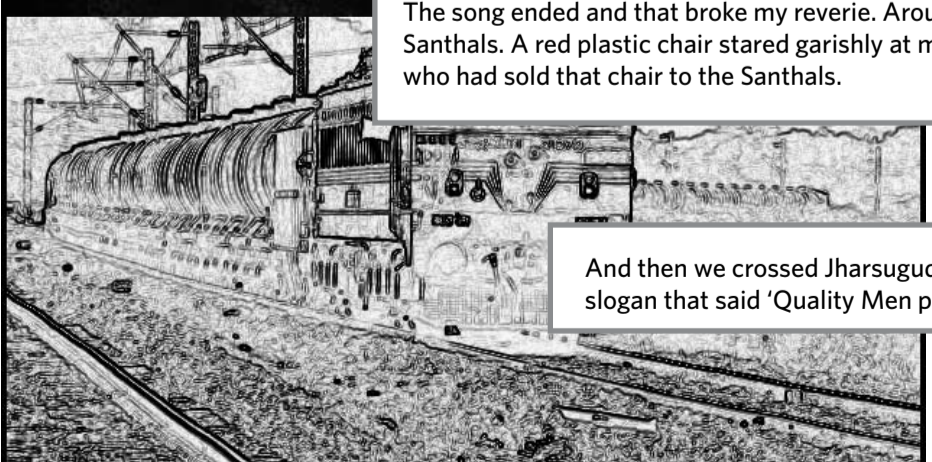
It was cooler in the shade where the Santhals had gathered. The Santhals are tribals and I gathered that just as we have a word for them, they have a word for us. They call the city-people 'hatuas'.

We sat in a circle and the women sang a song in their sad language. "The waters have been poisoned and the hills are all scarred."

I remembered the railway wagons laden with coal. One goods train had over a 50 wagons - all of which were filled with coal. Seen with an animated eye, it looked like a kilometre long black rock, scooped from the earth. I wondered, "how many wagons-full of coal, does it take to keep a city well-lit?"

The song ended and that broke my reverie. Around us were the neat mud-baked walls of the Santhals. A red plastic chair stared garishly at me. I had to count myself amongst the 'hatuas' who had sold that chair to the Santhals.

And then we crossed Jharsuguda and before we came to Bhilai, I saw this painted slogan that said 'Quality Men produce Quality Coal'.

Not for the faint-hearted: On-site camaraderie can take on an ebullient intensity, which these bravehearts seem to take in their stride.

Energy zap before the next bout of work: super-sweet 'cuttings' are indispensable in keeping the men going through their shifts.

Nails and screws, too, need their catnaps… and what better hammock to doze off in than a reinforced helmet?

The feminine touch.

Grace and rhythm lie waiting to be captured in the most humdrum of tasks, as our cameraman discovers. Here, the soil is being loosened with jets of water before it is dug up.

Brick-layer fashion statement: Who cares if they fit, as long as they look good?

Send in your articles, photographs, etchings, poetry, or anything else you would want portrayed in the magazine to **pro@iitb.ac.in.**

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