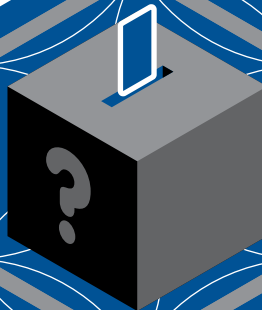
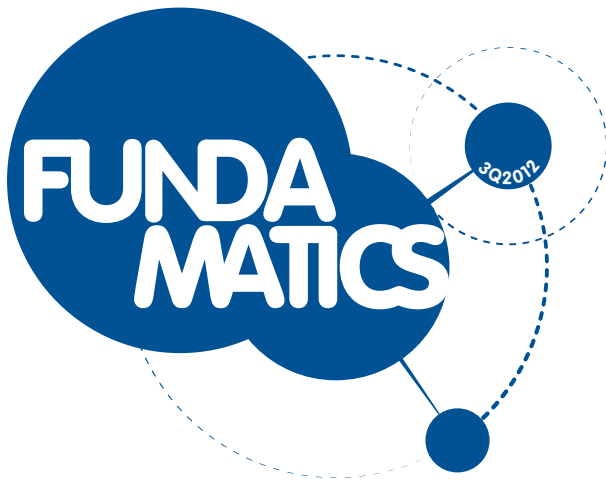


# FUNDAMATICS

4Q2012







IIT BOMBAY ALUMNI  
ASSOCIATION

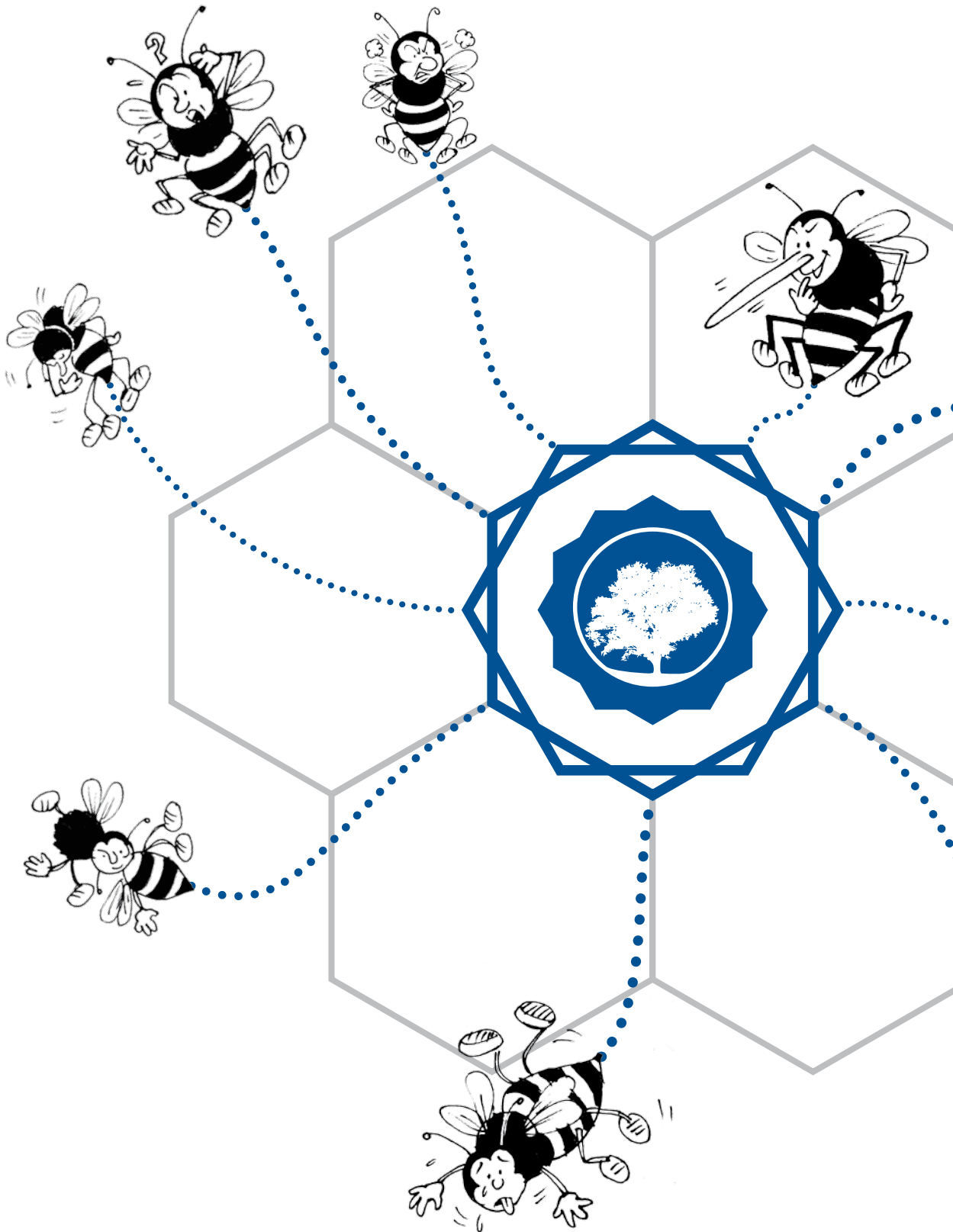
Quarterly magazine of  
IIT Bombay Alumni Association

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## Bee's Knees....



After three issues of hacking an editorial, I can say this with confidence that the opening lines of an editorial are the hardest to write. The first line should be like whispers in your ear as you crack open the spine of this issue of *Fundamatics* and turn to that pristine page one, saying, “This is the world I am taking you into; a hint, a flavour of what we have in store for you.”



I am not a diligent do-bee and come magazine-closing time, I experience, on one hand, an imminent, overwhelming relief (till the entire rigmarole starts again) and on the other, a sense impending doom—‘it is editorial writing time again.’ But after a lot of creative procrastination and whining about being ‘blocked’, I had an epiphany and I found that perfect line. Well, two words actually.

### *Bee's Knees.*

You are shaking your head in disbelief, right? But apart from its jaunty-sounding rhyme, which is very much in line with the ethos of the Beehive, I do feel that this quirky, linguistic coinage from the 20s (which means excellence) enables us to announce to the world that *Fundamatics*, a magazine that you helped us create, is in business—that it is the real deal and that too of a high quality.



This is the closing issue of 2012. We have officially been in business for a year, and although there were doubters galore when

we started out, we did manage to muddle along reasonably well. Submissions trickled in; participation increased, particularly through our online opinion poll, *Poll khul Gayi*. We got featured in the press and most important of all, we were being read. 72,000 unique page views in just three issues is not bad at all.

To begin with, we closed the issue in a record time of a month and half and managed to cover up the lag in the third issue. It helped that this last production cycle (preparing the magazine for the printer) was the least stressful from start to finish and—I hope you will agree—that the finished product is the best till date. It didn't go perfect, but when does it ever? But on a scale of 1 to 10, (1 being close to getting arrested for homicide and 10 being Nirvana) I would rate this last production cycle a solid 7.

We got excellent content and that too without having to chase behind contributors till the point that they stopped taking our frantic calls. It gives us immense pleasure to carry the news of some groundbreaking research being conducted at IIT Bombay in the health sector, which would have far reaching ramifications for cancer cure across the world. At the same time there is an excellent column on IITB which asks some provocative but necessary questions, which many of us have been wanting to ask for a very long time.

This issue also went political without any active intent on our part. There is an excellent article addressing the issue of FDI in retail and a concentration of great political satire. It is perhaps symptomatic of our times, where politics have ceased to become a contest of ideas and have become an episode from the theatre of the absurd. Look out for our TUT on elections, the second edition of Bungle in the Jungle and Campaign 2012 Tamasha, a collection cobbled together from

alumni postings in the batch's yahoo groups, on the run-up to the presidential elections in the US. We have tried our best to feed off the inherent absurdity of real news, and contest the mass-hypnotic pseudo-wisdom that helps to lobotomise politics, be it in Indian or American life. These satires are not examples of cynicism, but an attempt to conceive unreal but plausible scenarios that we hope will bring a smile to the faces of our readers.

As a matter of fact, although I am no lover of Manmohan Singh, we were strongly tempted to run a cover on Obama (in line with TIME) with the byline 'Underachiever of the Year'. I am thankful that we manage to stave off such immature tit-for-tat urges.

In short, expect a gleeful shellacking of your brain-pants in this issue. There are moments of seduction with stories within stories, where words have been turned into luminous sentences and sentences into exquisitely crafted paragraphs and paragraphs crafted together to a near-perfect article, essay or reminiscences.

I wish all the words within the issue take wings to you today and you, dear reader find this issue of Fundamatics one that you can sink into, devour and end with a refrain that it ended too soon. As always, we look forward to your critique and comments at [fundamatics@iitbombay.org](mailto:fundamatics@iitbombay.org).

*Fundamatics* is already fly-paper. We are here to stick around.

*Miss Bee of all bees*



# Readers Write in

## ONE

Dear Editors,

Great issue. Hats off to you and your team for coming up with such fantastic issues at regular intervals.

Cheers

*-Uday B. Desai, Director, IIT Hyderabad.*

## TWO

Dear Beehive,

Congratulations on one more wonderful volume. It was difficult to put it down i.e. click 'close'.

The TUT on Atlas shrugged is unbeatable!

*Urjit Yajnik, C'80, IITB, Dean Student Affairs, IIT Bombay*

## THREE

Dear Editors,

I agree with all who are congratulating you on the issue.

Last time, there was a mass e-mail to all alumni (at least in the US) with a link to *Fundamatics*, and not just to the leadership group of the chapters.

Perhaps that would be in order this time too.

Warm regards,

*Sailesh Kapadia, 2553 Glenwood Drive  
Wexford, PA 15090-7939*



Cancer- the word could mean the same to you or me as tsunami or a pit viper. Few of us have ever experienced them. Nor do you know enough about them except for the fact that they are dangerous and, in many cases, deadly.

Yet you look around and probably every single person you know has had a loved one (either spouse, mother, father, mother-in-law, father-in-law, sister, brother, or brother-in-law, nephew, niece...) who has had cancer or lost a family member to cancer. While it is well known that heart disease, diabetes and AIDS are common (and spreading) in India, the fact that cancer is equally widespread is not as well highlighted. For every Yuvraj Singh or Lisa Ray who survives to share their tales, there are over half a million not-so-lucky Indians who succumb to the disease annually. TOI March 2012 cites over half a million deaths 2011 alone!

Cancer does have its survivors, but on most occasions it strikes with swift, sharp and sure accuracy. In almost all the remaining cases, the patients battle on for years, in cycles of remission and progression, before succumbing to the debilitating disease.

Battling cancer involves the crippling side effects of chemotherapy. It is a disease that rapidly becomes drug resistant or requires multi drug regimens and a continuous search

## Cheating Death: *In search of Deliverance from Cancer*

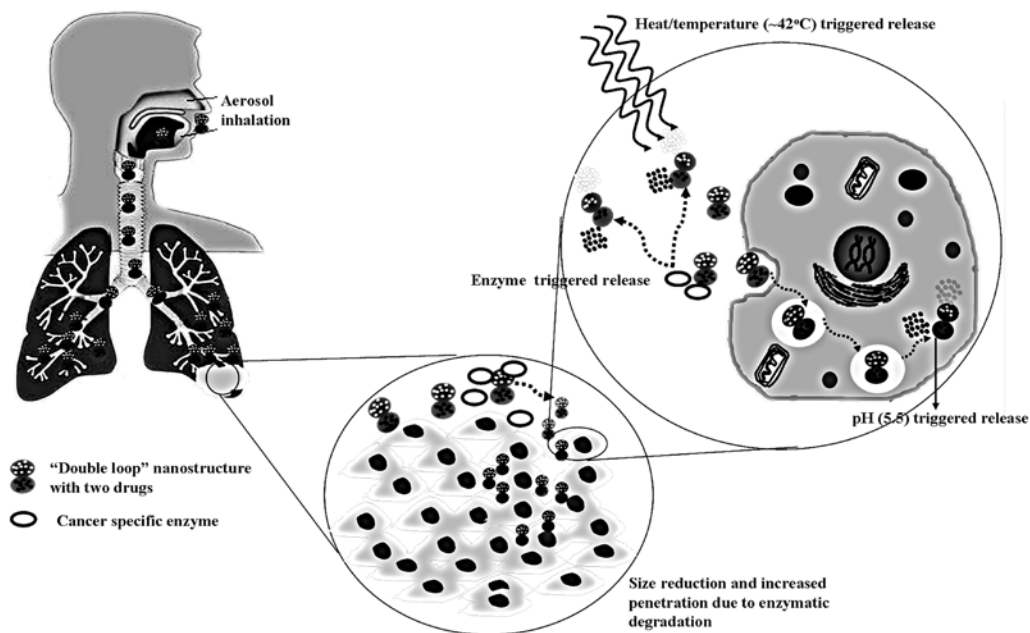
The novelty of the solution posed by the IIT researchers is the double-bead shape and structure of their nano-particle drug delivery mechanism.



for answers and hope.

It is that beacon of hope for millions in India and elsewhere in the world, in the form of a technology platform and drug delivery mechanism, which has been developed by Dr. Rinti Banerjee and her student Nitin Joshi from the Department of Biosciences & Bioengineering, I.I.T. Bombay. Instead of concentrating on a new-age drug which would require years to develop, the approach of this teacher-student duo was to improve the efficiency of existing drugs. This they achieved by concentrating cancer medication on cancerous cells while avoiding the battering effect of chemotherapy that acts not just on the cancer cells but also cause collateral damage to the surrounding healthy cells.

The research has already been patented and while the R & D part at IITB is more or less done, it awaits clinical trials on humans in FDA recognized labs. What is doubly heartening to know is that phase 1 of this stage can be completed in as little as 1 year and the



teams at Biosciences are exploring further options of translating their research into a effective form of drug delivery for patients.

To illustrate with a specific example, lung cancer constitutes a major percentage of deaths worldwide. Yet, conventional chemotherapy is limited due to the non specificity of currently administered drugs-as a result of which a large fraction of the medicines accumulate in normal and healthy tissues, resulting in severe side effects. Another major problem associated with cancers is their poor response to single agents, often requiring two or more drugs. Conventional intravenous administration of multiple drugs causes a cumulative toxicity which then limits the usefulness of the therapy.

The novelty of the solution posed by the IIT researchers is the double-bead shape and structure of their nano-particle drug delivery mechanism. These are 200-300 nm sized "double loop" lipid nanostructure aerosols with two lipid based compartments. One

compartment contains paclitaxel, a commonly used anticancer drug and the other contains curcumin, a major component of the Indian spice turmeric with known anti-cancer properties now harnessed to prevent cancer cells from multiplying while enhancing their susceptibility to paclitaxel and protecting the body from any toxic side-effects.

This may all sound deceptively simple in theory but timing is everything here. Releasing the drugs before the nano-particle completely penetrates the cell can lead to the cancerous cell fortifying its outer membrane to stave off the attack. On the other hand, waiting even a split second too long can cause the lipid casing to be digested by the lysosomes (the cellular waste-disposal units), thus rendering the attack useless.

The ingenious use of compartments with their specifically engineered composition means that the two drugs are delivered sequentially, which reduces their toxic effects at the same time improving the efficiency of

the drugs administered In other words the beads leak the two drugs one after the other only on reaching the cancerous site. Thus, Pacitaxel is released first to kill cancer cells. In the meantime, curcumin acts to prevent cancer cells from multiplying while enhancing their susceptibility to pacitaxel.

Unlike conventional chemotherapy, where some of the drug can get dissipated in the blood-stream, the multi-compartment nanostructures can be inhaled as an aerosol

Most importantly, these nanoaerosols are effective even in the most drug resistant forms of cancer where the conventional drugs do not exhibit any effect.



spray through a nebuliser. The lipid shells are deposited directly in the lungs and percolate into deeper regions of the tumour which lack oxygen. This focused seek-and-destroy strategy leads to lower drug dosage's yielding more effective results. They are also capable of reaching even the terminal regions of the lungs.

Part of the reason why inhalable cancer drugs have so far not taken off so far is because substances like pacitaxel and also curcumin are hydrophobic i.e not very stable in water.

So using the nano particles by unloading them in a water-based aerosol sprays was not without its own dangers of failure. Yet, Dr Banerjee and Mr Joshi's nanoparticles mix well with the drugs, resulting in a reasonably stable, soluble end-product.

This is mainly due to the particle's clever design. The nano particle's outer scaffold has a lipid based composition which mimics the properties of a substance present in the

lungs called pulmonary surfactant whose low surface tension keeps the tiny air sacs in the lungs open, thus preventing them from collapsing. Thus, The danger of lung airway lockage (and subsequent respiratory breakdown) by benign carriers is also effectively tackled by the Nano particle.

The subterfuge of impersonation of a surfactant means that the cancer cells preferentially uptake these nanostructures as their nutrients. Due to their lipid based composition, the cancer cells preferentially uptake these nanostructures as their nutrients. Subsequently, the nanostructures (due to their sensitivity to multiple, cancer specific conditions such as low pH (5.5) and cancer specific secretory phospholipase A2 (sPLA2) and protease enzymes) release their cargo. Also, the cancer specific enzymes can degrade these nanostructures, reducing their size to 10-20 nm and thereby increasing their diffusion through the dense, interstitial tumor matrix. This facilitates the uniform distribution of the therapeutic throughout the tumor, including the central/ deeper regions which harbor the most aggressive cancer cells and are otherwise difficult to access.

The technology has shown effective results in mice. The nanoparticle aerosols show 3-4 fold higher accumulation of the drugs in lungs and a 10 fold increase in the lethal effect of the drug, at the same time reducing toxicity when compared to convention systems of drug delivery. Not only does it act on cancer cells but the tumor growth can also be restrained by as much as 70 % with just five doses of these nanoaerosols and the synergistic action of the encapsulated drug combinations. Most importantly, these nanoaerosols are effective even in the most drug resistant forms of cancer where the conventional drugs do not exhibit any effect.

When greater effectiveness is coupled with



a 10 to 20 fold reduced requirement of the drugs , it goes a long way towards reducing costs and making cancer therapy affordable for thousands of low income households in India.

In short, the nano-particles delivered through nanoaerosols developed at IIT Bombay not only provide solutions for many of the long standing limitations of conventional chemotherapy but also offer a promising solution for the efficient delivery of drug combinations

Pacitaxel is released first to kill cancer cells. In the meantime, curcumin acts to prevent cancer cells from multiplying while enhancing their susceptibility to pacitaxel.



in lung cancer, with a potential for the technology to also act as a platform for treating other cancers when administered through the intravenous route.

For many people, this solution may have come too late. But we hope that there are millions more for whom the news will serve as a beacon of hope to hang on to and keep fighting for another day.

*Bumblebee*

# Mera Number Kab Aayega?

**Ali Baba**

It is a numbers game, as all IITians know only too well. From AIR to CPI to CTC, one can never seem to escape them. If it is any consolation, your alma mater cannot escape the tyranny of numbers either.

At the end of every summer, we announce with great fanfare that more than 60 of the top 100 JEE rankers have chosen to join IITB and, within a few weeks, IITB does not look so hot when QS (Quacquarelli Symonds) World Rankings are announced. This year was no different. We ranked 227, even behind IITD (at 212), though our Academic Reputation is 6% higher than IITD! So there is more that goes into making the QS World University Rankings than what one would call 'merit', in a way not very different from what goes into determining AIR or CPI or CTC, some would say.

But if one compares IITB with other institutes of Engineering & Technology, we do much better, at Rank 49. The numero uno in both categories is MIT. The Academic Reputation (AR) of IITB is 59.5 compared to 100 for MIT, that is relative grading for you. Reputation of IITB graduates among Employers (ER) is 82.7 against 100 for MIT. Citations per Faculty (CPF) is 38.2 for IITB compared to 100 for Harvard (here MIT is at 99.3). The Faculty to Student ratio (FS) score is 28.9 against 100 for Oxford (here MIT is 99.9). The International Faculty (IF) count for IITB

is a measly 3.2 and International Student (IS) count is a miniscule 1.2. Performance on the last two criteria is, in a way, out of our control since this depends on government policy. We can, however, improve the faculty to student ratio but there anyway seems to be some inherent confusion about how this number is arrived at since MIT, at 99.9, seems to have one faculty member for every student! But where we truly leave the rest of the world far behind is in terms of the fees.

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At less than \$2000 per year, IITs are 20 times less expensive than MIT- so we do provide more bang for the buck. If we had more bucks we could certainly make a bigger bang, but making to the top 100 will need much more than bravado. Or, we could create our own system of ranking a la American 'Football' and crown ourselves World Champions!

While such rankings may not matter much to IITs in terms of student perception (as they are aimed at students seeking admission internationally), we do need to recognize that we are not quite there yet.

However, what should be of greater concern is how we measure up to the expectations and aspirations of our own people. Does our education and research make a difference



However, what should be of greater concern is how we measure up to the expectations and aspirations of our own people. Does our education and research make a difference to them?



to them? Situated, as we are, in the biggest metropolis of the country, will Mumbai miss us if tomorrow we were to disappear? While parents and relatives may take pride in us, do we matter to the average person on the street? Is there a service or technology that we have delivered to solve the problems of Mumbai? Can we provide a solution for the pot-holes that act as speed-breakers on our highways? Have we been able to design/develop methods to build low-cost yet low foot-print and high-density housing for half the population of the city that live in slums? Can we create indigenous solutions for handling of solid waste? Can we provide smart transport management systems to prevent the massive cost in terms of fuel consumption and air-pollution due to vehicles travelling at sub-optimal speeds?

We do have a CTARA to create human resources that have been sensitized to tech-

nological needs of a developing society. We are about to launch a centre for studying the problems of Mumbai, inspired by our participation in the Center for Urban Science and Progress (CUSP) in New York. IITB has been given the responsibility for executing the project 'Aakash' to provide a tablet computer at Rs 1100. We have run the 'Eklavya e-outreach program' to teach 1000 engineering college teachers across the country through 'Distance Learning' technology. IITB alumni have played a key and pioneering role in the 'National UID Program'. But we need to do much more than we are doing and resist the temptation to keep patting ourselves on the back. While some of our alumni have made it large, many more have merely taken the ad literally. But I am optimistic, IITB ka number aayega! ●



**Prof. Aliasgar Qutub Contractor**

*Prof. Aliasgar Qutub Contractor, former HoD of Chemistry*

*Department, and former Dean Alumni and Corporate Relations, is an alumnus from C73. Endowed with a rare gift of narrating "serious" and "heavy" matters with a tongue held firmly in cheek, his incisive and informed views on IIT Bombay and alumni relations are in evidence in his column Sim Sim khul ja. He is currently 40 thieves short of his target.*



# Bungle in the Jungle

**Grumblebee**

*In the last issue of Fundamentals, in a piece titled “JEE Huzoor”, Grumblebee had ranted and raved at the murky goings-on at MGPL-Madam G’s Pvt. Ltd. which consisted of some notorious bunglers like Shudder Jowar, P. Chillum Humdrum, Pepsodent Prefab Musterjee, S. Calorie-Muddy, A Roger, Jarri Rummage, Uphill Cymbal-all led by Chief of Estate COE, a blue-turbaned, remote controlled head nodder.*

*A few weeks earlier the CAGe men had visited the COEs office and found some lumps of coal stashed away when servicing the Air-filters. The COE, Mr. Clean said these were Coal Filters and brushed it aside, but the CAGe men were bound by duty to make a note of it. Unfortunately for the COE, a vigilant Allwind Kajumishriwal got wind of it and all hell broke loose. It was discovered that while the COE was in charge of Coal Filters, tons of it was being gifted away to people as if it was his Baap Ka Maal. When questioned the COE was about to say something, and he said that he felt it best that he say nothing and his jaws snapped. The remote control ensured that He See, Hear, Say and Do Nothing Evil.*

*Grumblebee loves to grumble. And MGPL ensures that Grumblebee stays in business. In this story, Grumblebee narrates an eye witness account of a meeting held*

*in a sprawling bungle-ow, 10 Warpath, in Madam G’s estate.*

*Fundabees*

The mood at 10, Warpath was somber and grim. A strategy session had been called, entertainment had been arranged to uplift the mood and a sumptuous meal was served by the accomplished Planner – One Trick Sing-Dana Aloowalla. With a stern and angry look, Madam G turned to Jethro Tull and asked him to start the session with the Bungle anthem, while the rest stood in attention in starched designer khadi kurtas designed by Rohit Bahl. Ian Anderson belted these lines from his hit song.....

*Walking through forests of palm tree apartments ---  
scoff at the monkeys who live in their dark tents  
down by the waterhole --- drunk every Friday ---  
eating their nuts --- saving their raisins for Sunday.  
Lions and tigers who wait in the shadows ---  
they’re fast but they’re lazy, and sleep in green meadows.*

*Let’s bungle in the jungle --- well, that’s all right by me.  
I’m a tiger when I want love,  
but I’m a snake if we disagree.*



No sooner had he sung the first verse, Madam G raising her hand, shushed Jethro Tull into silence and announced, "Gentlemen! I have called all of you here to discuss a very serious matter. "All of you are top class bunglers", she continued, "But all your bunglings end with G and that is bothersome to me." "Just look at them- with names like 2G, CWG and so on. Even Uphill Cymbal bungling with JEE sounds like G." She then pressed her remote and COE started nodding his head vigorously.

"But all your bunglings end with G and that is bothersome to me." "Just look at them- with names like 2G, CWG and so on. Even Uphill Cymbal bungling with JEE sounds like G." She then pressed her remote and COE started nodding his head vigorously.



"But Ma'am", Uphill Cymbal piped in, "May I respectfully submit that we all wish to attribute these signature achievements under the trademark G and, in doing so, develop a strong Brand Identity. In fact we want to take this Brand international. Next stop is Rome. That is why as Telephone Operator I have done away with all Roaming charges." "Yes, yes, Madam G," quipped P Chillum Humdrum, "when in Rome we will do as the Romans do".

Madam G was not amused with this remark. "Do you realize", she shot back, "That if we chalo Rome, those horrible guys from the outside will take over our estate? As it is, that guy with the saffron T-shirt and khakhi shorts...what's his name...Marauder Moody... is constantly attempting a hostile takeover of

our estate. We should not be caught with our khadi chaadis down. We must be on the alert to thwart his attempts."

CFO P Chillum Humdrum spoke up. "Ma'am, there is nothing to worry about! Whenever this Moody tries to gather the required proxies, there are many of his own kinsmen who fight him. That Lukkha Thadani has already scuttled his attempts twice ever since his own hostile take over charge fell with a thud, a few years ago. And these other blokes...Overrun Jetlag and Suzy sore-as... oops, I mean Suzy Swear-aaj would rather fight Moody than fight us. So let us continue to pull more G-strings. Even the CAGe men, who check on us, like our G brand."

"Gentlemen, I sometimes wonder why I call you gentlemen! Why don't you get it? I do not want any more bungling with the G brand. We must launch a new series. Even the Bees at Fundamatics will loose interest if we don't do something different."

The little known SP Justwell jumped in. "Ma'am! I have a brilliant idea for some new bangles and foibles that can be marketed under a new brand name - The Coalgate brand."

"That's silly! ", Prefab Musterjee countered. "Colgate is an old brand. Now that I have moved to the Rasta Potty Bhavan, I will issue a Rasta Potty order to use only Pepsodent."

"No! No! You misunderstand me Rasta Potty ji...oops, this ends with another G... what I meant was Coalgate, like in Koila and not Colgate like the toothpaste. Do you remember that in early days, people used coal as toothpaste?" Justwell replied. "Anyway, I think your suggestion to switch to Pepsodent is a good idea. Also instead of Coke we should all drink Pepsi."

Jethro started humming "Old King Coal, gave away merry old dole!"

“Aw! Shut up you! Save your energy for the bungle anthem at close. Keep your wise-cracks to yourself.” Madam G growled.

Uphill Cymbal remarked, “Hmmm! Justwell’s idea sounds good. With Coalgate, all of us can cover ourselves in soot and no one will be able to recognize us. The khakhi chaddis also have a Coalgate lite version in their portfolio and they cannot rake us over coals for this. And isn’t our estate a bed of hot coals?

The little known SP Justwell jumped in. “Ma’am! I have a brilliant idea for some new bungles and foibles that can be marketed under a new brand name - The Coalgate brand.”



Best of all, with coal, we can bring in such a huge haul that the numbers will have lots of zeroes at the end. Some 12-13 of them and we can again declare this to be another zero loss venture.”

“I must confess that this idea ignites my mind. Very creative and best of all keeps the G in the clear. I think we can all disperse with a resolve to outdo all our past bungles and take up Coalgate in real earnest. After all, coal has the same colour as our money.” She clicked the remote and the COE nodded vigorously in agreement. “Meeting adjourned. Jethro Tull, please sing our anthem and let’s Bungle in the Jungle.”

Jethro belts out the anthem with this variation.....

*Walking through jungles of high rise duplexes ---  
scoff at the donkeys who pay their taxes  
down with the common man --- bled every  
Friday ---*

*We’ll eat his nuts --- saving the rest for  
Sunday.*

*Cannibals and vultures who wait in the  
shadows ---  
they’re hungry and thirsty, and party at  
Lido’s*

*Let’s bungle in the jungle --- well, that’s all  
right by me.*

*I’m a lizard nobody wants to love,  
but I’m a snake and will always disagree. ●*



## Our very own 'Waterman'

*Sitting in PC Saxena Auditorium, surrounded by a hall overflowing with music aficionados who had gathered to hear our very own Pandit Arun Dravid at Varsha Stuthi earlier this year, my memory went back to 2002. That was the year Daffy (aka Janak Daftary) institutionalized Varsha Stuthi as an IITBAA event to celebrate the onset of the monsoons, when Ashwini Bhide Deshpande held us enthralled with her rendition of Megh Malhar.*

*The institution of Varsh Stuthi itself was the effect of Daffy leading the charge of the Mumbai Monthly Meet of IITB alumni. Daffy took the MMM by the scruff of the neck in 1997, and with a few vigorous shakes he transformed a simple and small networking event into one which along the way had luminaries addressing large alum gatherings. This included iconic figures such as once-CVC Vithal, Rajaram of Konkan Railways, Julio Ribeiro who cleaned up the hoods in the then Bombay, and our very own Jairam Ramesh. He also deftly invited other IITians into the MMM, thus sowing the seeds of what took formal shape sometime later as the PanIIT alumni organization.*

*Daffy was so enamoured by IIT-B that he spent nine years on campus (a record probably held by no other) to complete his B.Tech degree. If time spent at IIT were to*

*be attributed to one's capability, we could say he spent twice the amount of time at IIT only to emerge acquiring less-than-half the engineering skills. Given the fact that many spend the requisite amount of time at IIT and acquire no engineering skills, which prompts them to go onto selling soap or join Financial Institutions, Daffy stands out in that he is engaged in very important and critical initiatives regarding water conservation and environmental issues. Carbon has to undergo tremendous pressure over long periods of time to emerge a Diamond. This is what IIT did to Daffy and, although it has taken many years, it is quite an accomplishment. Furthermore, it is said that students come in thinking they know everything and graduate knowing even less. This results in knowledge accumulating at the Institute. In that respect, Daffy has contributed to this knowledge accumulation from which IIT has benefited significantly.*

*True to his name, and we guess that is how it was preordained, Daffy has taken to water like, well, a Duck. May he continue to tread on water in his latest Avatar.*

# Life is a Jal Yatra

*Janak Daftary*

The wizened, old Red Indian chief has spoken - until man destroys all the forests, contaminates all the soil and pollutes all the rivers, he will not realize he can't eat money! Mankind, with unkind 'advanced' technology, is close to realizing this undesirable but inevitable state of affairs. This is probably antithetical to the academic regime IIT alumni go through, while going on to achieving world-wide renown. But in my current avatar, this has struck a chord deep (I/O interrupt?) and increased the motivation in my efforts to save our water bodies and related ecological assets.

In my defence, I can only say that I was always skeptical, even disdainful, of the complex EE courses (right from 101 to infinity) that I suffered for a B.Tech. On the other hand, lying on my bed in H5, watching the rain coming down across the Powai lake from Adi Sankaracharya Marg opened Windows'66 to another eons-old science. This proved to be a major deterrent in attending lectures right at the start of the academic year and played havoc with my grades.

The academic problems were further exacerbated due to some of my extra-curricular activities which earned the Establishment's displeasure, to put it euphemistically. In the

second year, some of us were reported for ragging an innocent IITJEE aspirant who'd come to merely collect the forms from the MB. Some seniors had inveigled him to come to the wing and unanimously selected my room for the "interaction". Expectedly, his lachrymose glands went into production mode, but we did mollify him with sweets and hugs, and a promise of all help to prepare him for the JEE. To establish amicable relations forever, we even dropped him doubles to y-point. As ill-luck would have it, his brother was in the Army and complained to (ret'd) Brigadier Bose, our diro. What followed was the ignominy of having to apologise for the dastardly act in public at 1130 hrs in LT, packed with faculty and students. Needless to say, we swore to be off ragging wannabe-freshers thereafter.

As I bloomed on the campus with the gym facilities and mind-boggling libry resources including National Geographic volumes, Lancer Med issues, tomes on psychology and philosophy et al, it was inevitable that academic progress was given a short shrift. The bedrock of the logic engine was honed against the most cynical but sharp minds, and social behavior groomed by the seniors and Ethics, HS-104 (plus minus 1). In all fairness, EE-xxx-es did contribute to understanding physical phenomena, being knowledge thrust by persevering and sincere faculty on even the



most reluctant inmate (of the class). Undue resistance to the flow often reduced me to what can only be called as an outmate.

One had taken on hostel responsibilities over time, which, in my case was bigtime overtime. Sticking my neck out for thankless public service, I took on the Secy's mantle for Garden, Lit and Mess (multiple shots). The hostel ethos being what it was, the seniors took my track record, such as it was, and volunteered it for the top gun's job – GS. Unsurprisingly, I was elected. Equally unsurprisingly, the Warden was embarrassed on learning that the incumbent was a maverick in his 3<sup>rd</sup> yr EE when his batch-mates were in 5<sup>th</sup> yr and graduating. His fervent appeal, nay, prayer was simply put – “please study this year”.

Around then, Protima Bedi was oo-la-la ze heart-throb of all able-bodied males in the hostels (including LH) and she fired us up by streaking in some public place. We-dare-you and a 30 coke bet from wing-mates was all it took for 6 of us to follow suit and go whooping down from MB to H5 sans clothes at 6pm, peak traffic time. Fortunately, the Establishment remained undisturbed and we enjoyed the resultant glory (and cokes) in the hostel.

Meanwhile, academic progress was lurching, what with encounters of the complex kind – electrical machines and fields. The plot thickened with the advent of the “new system” – CPI, SPI, grades instead of marks. They laid down 4.0 SPI as the minimum for moving onto the next semester with its round of courses. In the 1<sup>st</sup> sem, I hit 1.9 and, to avoid termination, was reluctantly put on ‘probation’ with the threat of expulsion if I hit another sub-4 score. The concept of ‘extended probation’ was born when I cleared 2.2 next sem, and which was judiciously extended till they eased me out of the campus



with a “Pass class” EE degree. The crowning glory was when, faced with 3 courses to clear in summer’75 against a max of 2 allowed, I plugged into Fields Theory in the summer. No amount of quadruple integrals, Einstein’s equation and Runge-Kutta formulae will be able to crack how I was granted my degree in ’75. Not out of any pride, I confess that class mates had made me a benchmark for their test results – Daffy pass hua kya? The high point of my stay was having beat Profs Kamath / Murthy & team at bridge for the campus Bridge championship.

At this stage, I must confess to never having deployed a soldering iron right through the EE courses. But I can say with a sense of achievement that I did learn and master some rudimentary hydraulics fundas in the hostel. Several times, I had got sloshed near the bottom of the staircase by seniors wielding buckets of water from above which, with a deft side-swiping and multi-plane rotary motion of the wrist, achieved success no ap.mech formulae could have helped. The advanced version, which meant you had 3yrs behind you, was to stand on the parapet and douse guys standing innocuously outside their rooms with a more complex sleight of just one hand – the other was holding onto the balcony to combat gravity.

After having struggled to earn the hallowed B.Tech, I followed the trend, got employed, did management and settled down to busi-



ness in IT and domesticity. The initial years were spent marketing low-tech products and computer consumables. Over nearly 30 yrs, my line of business migrated to communications and ebiz.

With a strong sense of obligation (and belonging) to the lush campus which nurtured and groomed me for 9 years, I put my shoulders to the alumni movement late 90's and ramped up the fledgling Mumbai chapter with wide-ranging activities suitably interesting for pseudo-intellectuals – monthly meets addressed by eminent people, nature trails, picnics, tours to exotic places (read Goa) and all.

One of these 'meaningful' trips consisted of visiting Bhoyre khurd in October'00, where the villagers had harvested rain precipitation to recharge groundwater. The IIT alumni, all high-brow leaders/captains of industry, with family, about 75 of us, travelled by train/jeep to study the fabulous returns earned by the local yokels. Everyone came away deeply impressed and decided to take this forward as in 'putting back'. Predictably, by the time some semblance of strategy was evolving, we reached Dadar and the zeal and enthu was put back on the platform.

In December'02, Dr Rajendra Singh, Magsaysay awardee and Waterman of India,

was invited to speak at the Monthly meet on Johads and his efforts to conserve water in rural Rajasthan. After listening to him about the hugely beneficial impact on crop revenue, it was decided to conduct a study tour in his Alwar district. Six of us – 2 profs and 4 alums – spent 5-6 days seeing (and hearing) first hand regarding the transformation effected by simple, low-cost and low-tech traditional water management techniques. A report is available on [www.jalsangrah.org](http://www.jalsangrah.org).

The 'satori' moment led me to close down my business soon after and join up with the Waterman. I have turned into an environment worker, evangelizing for rain water harvesting and recycling used water. I've been holding workshops, seminars and making presentations on the subject in public fora like schools, colleges, Railways, Gram panchayats, Lions and Rotary clubs, Housing Societies, etc. I also provide design and implementation support for water conservation. Currently, I have filed PILs in High Court to save rivers and water-bodies from extinction by dams, encroachment and pollution.

Taking stock of our current state of environment, I suspect technology is torturing nature so that we don't benefit from her. Instead, we are excited by the launching of probes to the dark side of the Moon and Mars – for what? To look for minerals and water? ●

# Red-tape for TSMEs, Red carpet for FDI

***Sudheendra Kulkarni***

I am not in principle opposed to foreign direct investment. It is welcome where it fills critical gaps in the Indian economy, augments its indigenous capabilities and supplements our essentially self-reliant efforts to better pursue our national goals in socio-economic development.

I believe, however, that foreign investment cannot be the mainstay of our economy. We cannot, and should not, rely on FDI to solve the basic problems of our economy. Which is why, there was something deeply flawed in the manner in which Prime Minister Dr. Manmohan Singh, in his televised address to the nation on September 21, lent the weight of his high office to the hype about the benefits of FDI in retail trade. He said:

“The opening of organised retail to foreign investment will benefit our farmers. According to the regulations we have introduced, those who bring FDI have to invest 50% of their money in building new warehouses, cold-storages and modern transport systems. This will help to ensure that a third of our fruits and vegetables, which at present are wasted because of storage and transit losses, actually reach the consumer. Wastage will go down; prices paid to farmers will go up; and prices paid by consumers will go down. The growth of organised retail will also create millions of good quality new jobs.”

Wastage of agricultural produce is indeed a

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major problem in our economy. It must be tackled effectively. However, in the above formulation, the Prime Minister is trying to tell the nation that the solution to this problem lies only — or at any rate mainly — in foreigners coming and investing in new warehouses, cold storages and modern transport systems. This is simply not true. With appropriate policies, right incentives and removal of infrastructural bottlenecks, a good deal of the solution to the above-mentioned problem can be found in encouraging domestic enterprises at various levels. In this essentially indigenous effort, there is nothing wrong if FDI plays a secondary and supplementary role. But to think — and to persuade the people of India to think — that the problem has arisen and persisted because of the absence of FDI in retail is to show both a lack of understanding of the problem and also a lack of confidence in India's own self-reliant national capabilities.

The problem with governance in India is that



our policy-makers and policy-implementers have a highly skewed approach to the way they respond to the demands of foreign investors and India's own big business houses on the one hand, and, on the other hand, of the genuine needs of the tiny, small and medium enterprises (TSMEs) in our domestic economy. It is an undeniable fact that the largest number of people in India are employed or self-employed by these TSMEs. The capacity to create much-needed new employment/self-employment opportunities is also much greater in this sector of the economy than in that high-profile sector which is represented by India's big businesses and foreign companies. This is true even in retail trade, which, along with logistics, already employs over 40 million people in India.

Have we ever heard any debate in India on the problems faced by, and the needs articulated by, tiny, small and medium traders and logistics enterprises, who account for 95% of the total retail trade in the country? Does the government have any policy aimed at removing the hassles faced by them, and thus enabling them to steadily grow their businesses and employ more people? The truth is actually the contrary. They face red-tape, harassment and even regular extortion at almost every interface with the government. Indeed, their concerns and problems are rarely discussed in the higher echelons of the government in New Delhi.

Revealingly, the very same ministers and senior bureaucrats who have no time for discussing ways in which to eliminate the red-tape and corruption for tiny, small and medium businesses, roll out the red carpet for foreign investors and big businesses. I am certain that the Prime Minister, the Prime Minister's Office, the Finance Ministry, the Commerce Ministry, the Planning Commission and the Cabinet Secretariat have received — not once but several times — representatives of the Walmarts of the world,

It is an undeniable fact that the largest number of people in India are employed or self-employed by these TSMEs. The capacity to create much-needed new employment/self-employment opportunities is also much greater in this sector of the economy



accompanied by their lobbyists in India (and the lobbyists include consultancy firms, PR agencies and even big media houses). I am equally certain that they haven't had any serious and outcome-oriented meetings with representatives of the TSMEs, who cannot engage consultancy firms and PR agencies and who don't get the support of media houses since they cannot give them lucrative ads.

In spite of all this, a very heartening feature of the current debate on FDI in retail is that a very large number of enterprising TSMEs have been gearing themselves up for the approaching competition from the big guys, both Indian and foreign. The kind of innovation they have introduced in their businesses, management practices and customer relations



has not been adequately highlighted in the media. They are doing so with least support from government agencies — national, state-level, local — or from big financial institutions. Here are a few examples.

The small kirana store near my home in Sion-Koliwada in Mumbai has vastly improved customer relations with the households in the neighbourhood. It has redesigned and reconfigured store-space to expand the variety of goods available to customers.

I recently went to a local, medium-sized, non-chain supermarket in Chembur. Like some of the non-frills airlines that are now thriving in the aviation industry, this one was completely non-frills and non-flashy. But its efficiency and unique value-proposition for the middle-class families in a large part of Chembur area, according to accounts I heard from locals, are simply unbeatable by the chain stores of big brands. The store was packed with people, but the well-trained salespersons attended to every customer with a smiling face and quick response. Here is a unique innovation introduced by the store, a multi-crore enterprise that was started about 15 years ago by a Tamilian who was a poor immigrant vegetable vendor. Knowing that most working women in Mumbai are hard-pressed for time in the morning hours — they have to catch an 7.46 am or an 8.13 am local train and then catch a bus to their

workplaces — and knowing also that many women travelling in the ladies compartment of locals use their travel time to cut vegetables, which they can cook quickly once they go back home late in the evening, this enterprising trader introduced an attractive value proposition: the store delivers fresh, hygienically cleaned, nicely cut and safely packed vegetables to households at the time of their choice. No wonder the store has established a personal relationship with its customers, who

We do need bigger investments and more modern technologies and management practices at other levels of the food and retail trade chain. But let's not fool ourselves into believing that foreign investors will come and solve our problems.



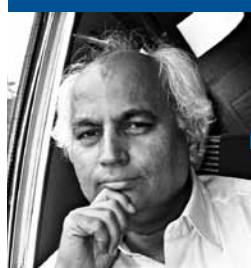
in turn have responded with deep loyalty to the store.

Robin Rappai, my good friend from Coimbatore who is both an IT entrepreneur and an organic farmer, told me about a similar success story in his city. A local non-chain superstore in his neighbourhood sells every item at below-MRP-prices without any full-page ads like the ones put out regularly by the big chain stores. But it offers such feel-good shopping experience to its loyal and fast-expanding clientele that a huge store by a big business house had to down its curtains. One reason why the smaller guy succeeded is that he looks after his employees better — he has ensured low employee rollover by hiring young boys and girls from his own nearby village, training them well, providing them good hostel accommodation and good food, and treating them well.



It isn't my contention that these competition-beating efforts by TSMEs can succeed on their own. Nor do I claim that these alone can offer all the components of the solution to the huge and complex problems India faces in agriculture, storage, transportation and distribution. We do need bigger investments and more modern technologies and management practices at other levels of the food and retail trade chain. But let's not fool ourselves into believing that foreign investors will come and solve our problems. Sadly, this is the lie that the government has employed to legitimise its policy of rolling out the red carpet for the FDI in retail. Worse, the Prime Minister and his advisors have created an impression that foreign investors are the true allies and well-wishers of India's kisans and consumers, whereas India's own TSMEs in trade are the latter's enemies and exploiters.

Our TSMEs, along with our hard-working farmers, are capable of providing a bulk of the solution to the problems we face in agriculture and retail. What they need are the following: reliable and low-priced infrastructure (24x7 power supply, above all), latest technological tools (especially those based on the mobile phone platform) that they can use smoothly, and market reforms that cut the corruption-breeding red-tape to pieces. This should be our priority. Beyond this, FDI is welcome if it can bring newer benefits. ●



**Sudheendra  
Kulkarni,  
C80, Civil, H2**

*Sudheendra  
Kulkarni, was  
a special aide to  
Prime Minister*

*Vajpayee from 1998-2004. He is a member of the National Executive, Bharatiya Janata Party and is a well known columnist with the Indian Express. His recent book Music of the Spinning Wheel: Mahatma Gandhi's Manifesto for the Internet Age was launched in September by Dr. A.P.J. Abdul Kalam in the presence of L.K. Advani, Arun Shourie, Shashi Tharoor and several other eminent personalities. In the second edition of his column "Tantra aur Gyan" written exclusively for Fundamatics, Sudheen puts forth his view on the controversy surrounding the proposed move to bring in FDI in the retail sector.*

*FDI in Retail is a subject where there is a wide diversity in opinions. The columnist has expressed his own views and would welcome comments at [sudheenkulkarni@gmail.com](mailto:sudheenkulkarni@gmail.com). The editors of Fundamatics would also like a wider debate on the subject from within the alumni community. Submissions may be sent for consideration at [fundamatics@iitbombay.org](mailto:fundamatics@iitbombay.org).*





# The Guru-Cool tales

*We've respected them, feared them, challenged them and sometimes (perhaps much more frequently than suggested) cursed them too. But one thing's certain – the Profs @ IITB have, in their own idiosyncratic and charming way, left an indelible impression upon all of us. These are little nuggets of time that we carry within us all - moments when we managed to snatch an inspiring conversation with a Prof, of pranks and tricks played while he turned away, smiling unseen and let us have our moment.*

*There is an emotional engagement in the process of learning and the bond between a good teacher and his/her students run deep, withstanding the test of time. In this issue we inaugurate a new chapter in the life of Fundamatics with a new section entitled 'Prof-Tales' to remember and honour our Profs, - those who made us who we are - the good, the bad and the funny ones. And who better to inaugurate the section than with the coolest of them all, - the inimitable Jimmy Issac.*

*Stumblebee came upon these two interesting anecdotes which we are sharing with you all with the hope that more will emerge out of the woodworks.*

*Stumblebee*

## Déjà vu :

Sometimes even the smallest of instances can have subtle, subliminal influences on you. One such incident happened during my first year of M.Tech study.

Prof. Isaac had promised to lend me a book by Niclaus Wirth. When I went to his office that day, he had forgotten to bring it. So he asked me to come to his house later and pick it up. That evening, I decided to pay him a visit to collect the book. As he led me to his room, I couldn't possibly have fathomed what I was going to see.

I'd never seen so many books in one place anywhere else, other than at the central library, before. One entire wall and, for that matter, about half of his room was lined up almost from floor to ceiling with shelves bulging with books. And what was even more remarkable was that in such an ocean of books he still knew exactly where each book was! After he gave me the book I wanted, we got talking about the project that we were doing in his course and he mentioned about three other books in which relevant material could be found. As he spoke, he casually reached over in 3 different places (without actually looking at the shelves!) and picked the specific book he was talking about.

This meeting left me very impressed with his vast collection and fantastic memory.

Some years later, after I stopped pinching money from my Dad because I had started making some of my own, I don't know how or exactly when I developed this dream of a room in my house with walls lined up with cupboards full of books. Of course, many of those ambitious, young dreams remain just that - pipe dreams. But this one managed to bear fruit when I bought a new house several years later. By the time that, happened I had completely forgotten about that old encoun-

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ter with Prof Isaac and his books. But one day while entering this room in my house, there was this déjà vu feeling of having seen it before. It was in that moment that memories of old Professor Isaac came flooding back...

*Contributed by: Satish Joshi, C78*

## The Long-Pending Letter:

Fish and I too have some memories about Prof Isaac's "study", as he called it. Disclaimer: Neither Fish nor I went there to borrow a book or do anything that can even remotely be construed as 'study'ing. In fact, we went there very often when Isaac was the DOSA (Dean of Student Affairs), particularly when our throats were parched and our wallets were empty! As late as 9 PM or later, we would bike down to Prof. Isaac's house near the Powai lake and pretend that we had a call asking us to report to his house for some Staff Student Consultative Committee meeting. Prof. Isaac would feign irritation and say, "dey dey dey...go away." We wouldn't. We would gradually inch our way from the entrance towards his study and ask him if we can discuss some important issues over a drink. He would try to push us out but didn't



succeed even once, as I remember.

This had become a routine. The door was generally opened by his older daughter, whose name I forget. She would look at us, laugh aloud and shout, “Daddy! Fish and Bak Bak have come. Should I get the fruit salad?” Fruit salad was what Prof. Isaac served us in lieu of whiskey (that we always asked for). We did manage once to get him to open a cabinet in his study and serve us Diplomat Whiskey, which we devoured till 2 AM and got drunk enough to start cussing the IIT admin and Diro De and all their policies. Looking back, it was highly audacious of us to barge into his house, demand and drink his whiskey and start cussing him in his house and with his whiskey in us, in front of his family members. But he was fond of us, and we were a source of entertainment for his amused daughters who couldn’t believe that we were for real. All in all, things worked just fine!

In 2006, when I read that a Chair was proposed in his name, I sent an email to him with copies marked to various friends. I realized later that I did not have his email address, and the mail remains undelivered till today. But, recently, I’ve managed to get a hold of his coordinates in Bangalore and I intend to send him the email A.S.A.P. Here’s the first-look at what I’ve managed to pen

down-

*Dear Prof Isaac,*

*Maybe you do not remember me. And I don’t blame you if you do not. I was not worth remembering, and still am not. My name is Bakul Desai, but you would swear that it should have been Bak Bak. My good friend Ashvin Iyengar (Fish) was the GSSA during your initial phase as the DOSA. Both of us used to badger you enough. And being the fun guy that you were outside the classroom, you would allow us to call you Jimmy, Jimbo, Hijack and what not! When we did that, you’d feign anger, slap us on our backs (Oh boy! Did you, by any chance, have a hammer attached to your hand?) and say, “Dey Dey Dey! Go away” and we would reply with “If you want De to go away, why don’t you tell him?” (the reference being to our Director A.K. De) I’m not sure, but I vaguely recollect that you lived in the bungalow A 11, just off the Powai Lake. We would drive down on my Rajdoot GTS to your place at midnight pretending that we were called there for a Staff Student Consultative Committee meeting. And when you’d angrily descend from your study to ward us off, we would sweetly ask you if you could serve us some whiskey. As an alternative, we would settle for some fruit salad which you’d serve us, and your daughters would giggle that you*

This had become a routine. The door was generally opened by his older daughter, whose name I forget. She would look at us, laugh aloud and shout, "Daddy! Fish and Bak Bak have come. Should I get the fruit salad?" Fruit salad was what Prof. Isaac served us in lieu of whiskey (that we always asked for).



*were had by the Ashvin-Bak Bak duo!*

Long before we became engineers, Ashvin and I decided to do some social engineering and hence we came on the horizon as commie-bashers. You welcomed that scenario because you agreed that commies were worth bashing black and blue. Whenever Ashvin visited your office in MB for a "strategic discussion", he would force me to accompany him because I would seduce your secretary Shanta while he walked into your office unannounced. Shanta would block the champions from walking in but she would go weak-kneed whenever she saw me and would allow anyone to walk in and out of your office while I looked into her eyes and asked her where she was all these years of my life.

Much later, in 1982 to be precise, we printed a parody magazine called the "Campus Call Girl" in response to the commie Campus Call. We did this on a ream of A4 papers which Shanta swiped from your desk and gave me after extracting a promise that no matter what happens, I would not implicate you. And true to my word, I did not let your name slip by even as I was gheraoed by the same unruly bunch who'd gheraoed you earlier. Ashvin and I were your accomplices

*during every mess workers' strike. But we would also fight you whenever the institute tried to short-change us, like this time when Prof B.V. Rao tried to duck from paying our hostel for running a successful inter IIT meet mess and also much later, when Ashvin fought for a student representation in the Senate and you guys tried to sweet talk your way out*

*And I remember, with gratitude, the day that you saved me from utter humiliation. I had written a nasty letter against Dr. Subramaniam Swamy in an issue of the Sunday Observer some time in March 1982. Dr. Swamy tried to hit back sneakily through the Board of Governors of IIT-B. When that did not work out, he got the Minister of Education, B Shankaranand, to "direct" the Director A.K. De to expel me. De referred the matter to you and I remember the exact moment where I saw you driving down to H4 on your scooter (wasn't it a Lambretta?) and you told me to lie low for a few days and that you would let this controversy die a natural death. In case you still do not remember us, maybe you remember a 16 mm movie which we shot as a part of our Hostel EP with H7 in 82. We, actually I, conned you into believing that you were doing a guest role. But we filmed you as a smuggler just off the banks of Vihar Lake. And later, we used you and your scooter for the photographer Sesh from H7.*

*I did not learn much engineering in IIT, but I did not intend to do that anyway. However, I learnt some invaluable lessons which stand me in good stead today. And, believe it or not, you were an important part of my learning experience. I whole-heartedly welcome the Chair that is proposed in your name. I'd love to know - how does one second a chair?*

*Contributed by: Bakul Desai, C82*





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### **Address for Correspondence**

4/17, Ramkrishna Nagar, Eastern Express Highway,  
Near New RTO, Thane (W) - 400604. Maharashtra. India.  
Mob.: 09323568692 | Tel.: 022 2582 45 56 | Fax.: 022 2580 24 10  
Email: yarnalkars@mtnl.net.in | yarnalkarsgroup@gmail.com



## **“Ripley’s Believe it or Not”: The Indian Election Tamasha**

*Can even Bollywood compare with the great Indian election Tamasha? Particularly when added to the mix are hysterical 24x7 television news channels where every event becomes an unprecedented crisis. Politics is reduced to a mother of all soap box opera composed entirely of a cast of characters that come to the centre-stage from time to time, entertain us with their antics and then disappear into oblivion.*

*We are a cynical and mistrustful lot when it comes to our political class. Justifiably so perhaps. It is also true that raw population numbers do not translate directly into power and they certainly do not do so in the largest democracy in the world. But numbers statistics do have startling revelations.*

*After rummaging through our web directory for the last issue’s feature on TUT (totally useless trivia), Stumblebee stumbled on some*

*election related data at Election Commission of India’s website at [www.eci.gov.in](http://www.eci.gov.in). And Grumblebee looked at the data and did what he does best. Jumblebee jumbled Stumblebee’s data with Grumblebee’s growls to ask you if have ever wondered about the fact that the Indian Lok Sabha has 543 elected seats. Yet, Parties with 5 and 4 and 3 members often decide the fate of the rest by selling stability to beleaguered major parties. Presented below are some of our own insights on the great Indian election Tamasha with its own Ripley’s Believe it or not moments. TUT, it is and we leave it to the readers to decide if it is totally useful or totally useless trivia.*

*Jumblebee*

## 5+4+3=543?

Sometime in 1996, during the Deve Gowda regime, a 3 member parliamentary delegation visited China. At a banquet, the Chinese hosts asked the Indians to explain their concept of democracy to them. Pramod Mahajan's reply was very telling. "I am from BJP, the largest single party and I am in the opposition. Congress's Mr. Sharad Pawar is from the second largest party and he is neither in the government, nor in the opposition. Maharashtra Gomantak Party's (MGP's) Mr. Ramakant Khalap is the lone member of his party and he is the law minister of India.

Welcome to the farce called representative democracy in India, which turns out governments the people did not vote for. For starters, the ruling Congress party is ruling presently because it polled 11.91 crore votes i.e. 16.61% of the total Indian electorate in 2009. Not very representative, is it? A system which is based on first-past-the-post principle can turn out some absurd results and our election data is full of examples that show a wide variation between percentage votes polled and percentage seats won.

Election results generally show a "clean sweep" or a "disastrous rout". Let's look at Election 1977 when the Congress had to bow out for the first time in independent India's history. From the 85 Lok Sabha seats in UP, Congress secured 24.99% of the vote,

yet drew a blank and Indira Gandhi was defeated in her own Rae Bareilly constituency and this was treated as a major defeat for the Congress. But just 28 months later, in 1980, Congress secured 35.9% of the vote i.e. 11% more and its seat count jumped from 0 to 51 and a total rout became a sweeping victory. In other words, a vote increase of 11% led to a seat share increase of 60%. As if this is not bizarre, just look at the vote share and the seat share of Congress, Janata Party (v. Charan Singh) and Janata Party (v. Jagjivan Ram) in the same UP in the same 1980. Congress, Janata (S) and Janata got 35.9%, 29.02% and 22.57% respectively and in most sensible systems, this would count as a reasonably close tripartite contest. But the seat share of 51, 29 and 3 i.e. 60%, 34% and 3.5% points us to the deep inherent fallacy of the system. And we call this "representative" democracy.

In the 1980 general elections, Charan Singh's Janata Party (secular) got 17.55% votes and 41 seats. (7.5%) Ironically, the Janata Party got a much higher 23.6% vote but just 31 seats. (5.7%) These anomalies have grown more bizarre and more disproportionate over the years. With Janata party's 23.6% vote returning 31 seats at 4th rank, we saw a situation 16 years later in 1996, where a lesser vote share of 20.29% won by the BJP saw them get an astronomical 161 seats, ranking them #1, followed by a 13 day stint at forming the



government. And what happened on day 14? In a bizarre turn of events, an unsuspecting Indian voter saw an evenly less suspect-

In a bizarre turn of events, an unsuspecting Indian voter saw an evenly less suspecting Deve Gowda catapulted to the position of Prime Minister of India with his party winning a paltry 46 seats and a very unflattering 8.08% of popular vote.



ing Deve Gowda catapulted to the position of Prime Minister of India with his party winning a paltry 46 seats and a very unflattering 8.08% of popular vote.

Without doubt, it is the alliance arithmetic and a very heterogeneous population that causes these very unlikely results to surface. So what's wrong if the game is played according to the rules? The problem is not with the game, but with the rules. It throws up wrong results that the voters did not ask for. Take for instance, BJP's poll performance in 1999 and 2004. In 1999, NDA cruised to a convincing victory of over 300 seats. BJP's vote share was 23.75% and seats won were 182. In contrast, Congress polled 28.3% vote and won 114 seats. Interpretation of the result: Congress was trounced and BJP was a convincing victor. And 5 years later,

in the face of what was predicted to be an imminent victory for the BJP, the results that unfolded showed BJP's vote share dropping to 22.16%, i.e. by a mere 1.5%. But the seats lost due to this were a huge drop from 182 to 138. In contrast, the Congress also dropped its vote share by even more—by 1.8% to get 26.53% vote, but the seats jumped up from 114 to 145 and propelled it into the South block. The problem with these results is that pollsters, analysts, politicians and even the common man interpret results in the dichromatic scheme of victory and defeat. One would think that with such a static vote share, BJP's performance was certified as “OK” and maybe the India Shining campaign was not so bad after all. This quirky perception of going by seats and not by vote percentages gets so firmly entrenched in one's mind, that even the BJP believes it to be a rebuttal and they have stopped trying to make India gleam, let alone shine. “India was shining only in cities, not in villages”, proclaimed the pundits. Facts are simple and there for all to see—BJP pasted its worst defeats in most metros. Mumbai, Bengaluru, Hyderabad, Delhi, Kolkatta, Chennai. It gained ground in the tribal regions of Chhatisgarh and made headways in several rural areas. Arithmetic of electoral alliance was a game changer that made BJP win in 1999 and made it lose in 2004.

So what does one do in the face of such farcical results surfacing? Is there some way to compose a government in a manner that the voters asked for? Maybe it's time to look seriously at a “proportional representation” model that returns MPs in the same proportion as their vote share. But wouldn't that throw up more “hung” parliaments, considering that no party has ever crossed 50% of the vote share, not even the Congress during its all time high of 400+ seats in 1984? Maybe yes, but over a period of a couple of

elections, the newly enlightened voter would change tracks and vote decisively. The recent voting patterns point to that fact that the intelligent Indian voter has finally learnt to beat the system. Frustrated by the marginal parties playing the spoiler, the voter has learnt to throw out the trouble-makers. In Karnataka, they threw out the HD clan just so that they could vote for a stable arrangement and not a flipping-flopping No. 3 playing numero uno. In Bihar, when Paswan played spoiler

BJP's vote share dropping to 22.16%, i.e. by a mere 1.5%. But the seats lost due to this were a huge drop from 182 to 138. In contrast, the Congress also dropped its vote share by even more-by 1.8% to get 26.53% vote, but the seats jumped up from 114 to 145 and got it into the South block.



and forced the assembly to dissolve again without electing a government, the Bihari voter marched back into the polling booth 9 months later and distributed Paswan's 18% vote share and passed on 17% to Nitish Kumar and 1% to Laloo Yadav, thus ensuring a massive mandate to Nitish. So also in UP. Tired and frustrated at electing parties which did not result in stable governments, they decided to get decisive even at the cost of having to bear either Mayawati or Mulayam as their CM.

And the voters' intelligence does not stop here. They now know how to distinguish between a central election and a state election when they are conducted simultaneously. Thus, in 2009, they voted with 37.7% vehemence for Biju Janata Dal for Lok Sabha



polls and 44.16% in the assembly polls. So also in AP. TDP polled 36.46% vote in the assembly but just 25.2% in the Lok Sabha polls. The voter remembers how the National Front was quite anti-national. And the United Front was the most disunited. Left Front should have been left out and the Third Front breaks into 30 fragments every time it is forged. End result: the Indian voter is gravitating towards identifying two main players and voting for one or the other, be it at the Centre or the State. Thus, in UP, a voter chooses between SP and BSP at the state level and between INC and BJP at the national level. In other words, we seem to be heading for a bipolar polity.

So while we wait for the voter to hone his intelligence and find imaginative ways to beat a flawed system, we wonder if this is totally useless trivia. (TUT) Or is quite useless trivia (QUT)? Or partially useless trivia? (PUT) Let's wait for Elections 2014 to give us the answer and get us out of this RUT. Or maybe, we may not have to wait that long. Did you just wonder what RUT sands for? Well! It means that and nothing else. ●



# Jaya's Etch-a-sketch Moment

*It is at once easy and difficult to introduce a fellow writer, particularly one who has been a collaborator in crimes too many to recount. You could write too much and make this a rummy kind mush-fest that would make you cringe to see in print. You could also write too little and make this an impersonal blah moment, which would be a crummy sort of thing to do to an uncommonly gifted writer.*

*So here is my middle path.*

*Jaya Joshi is the mercurial maverick who is the force behind the award-winning campus magazine, Raintree. At once a driver and driven from within, she dons many roles in her professional life. A gifted communicator, writer and publicist with a sharp editorial eye, Jaya has the ability to make the most disparate group of people work together. She can also cajole, command and metabolise the laziest of slugs (yours truly included) to deliver the best within themselves, and that too with enviable ease.*

*She is a believer of the power of stories and the coexistence of light and darkness inside each of us.*

*Jaya's own writing is funny and heartbreaking, sometimes both at the same time. Although one wishes she would write more frequently (particularly for Fundamatics), when she does, it enjoys the felicity of sublime ease. As a writer she also has*

*the incredible ability to reinvent herself in multiple personae and still leave a little bit of herself in all of them. Unrequited Love is yet another one of Jaya's etch-a-sketch moments.*

*Miss Bee-of-all-bees*



# Unrequited Love

*Jaya Joshi*

Blimey!

I am a single, Indian female in my late thirties and this is not a personal ad seeking matrimony. It is actually a bit of an exposé that I am coming to terms with, as I write. In a lot of my writing (and trust me there hasn't been a lot), I have insufferably demonstrated what most average writers suffer from—an arrogance of assuming that my experiences are common to everyone else's experiences. One hopes that it is true—even if it is not always successful—in order to be a likeable writer. However, this time, I'm actually daring to take an opposite route and say something quite different. I'm hoping that my struggle to express this big revelation will not leave a puzzled countenance.

It's fresh and intense, and came to me as I was on my fifth laboured lap in the pool, all the time thinking what to put in the 1,000 or so words of this promised piece to Ms Bee-of-all-bees. Let me warn you, it may read like a self-indulgent diary entry and perhaps even leave you grinding your teeth. I apologise for that. But this is too big for me to keep it to myself and as a single, Indian female in her late thirties, you are all I have to share it with. So here it goes—I'm admitting today that I could be a long-standing devotee of unrequited love.

As someone very clever has said, all first love is unrequited because it is so huge. It is like

an explosion. It's an act of so much giving and it demands so much in return, that it is impossible for a single human being to offer it back in a mutual way. And therefore it always remains unrequited.

I have clear memories of what my first love was like. I must have been 5 then. Yes, 5, and not 15. I was waiting at the school bus stop, my hand gripping Mummy's hand, giving side glances to a boy slightly taller than me in the whitest shirt and shiniest shoes imaginable. In my head, I may have even progressed from side glances to quick short smiles. But that was it—either he moved houses or I changed schools. I'm not sure. It ended soon and didn't last long to become one of the greatest love stories of our times. My memory is like a sieve, but I still remember how those initial glances gave me enough fodder for tiny, bittersweet flashbacks every now and then. It was unrequited. Anything could have happened. The possibilities were endless.

This may have started, as the poets put it, a lifelong strain to recapture that first fine, careless rapture, which one can hope to but never accomplish.

As years went by, I continued being tortured and embittered by agonising relationships with the opposite sex. These larger-than-life romances may not have given the world of literature any unforgettable characters and or left any indelible marks on the pages of history. But to me, each one was more thrilling than the last. Filled with anguish, despair, eccentricity, personal demons, sexual weirdness and family trauma, each story had a hero. Almost like a fictional superhero, minus the cape and underpants, who brought bundles of longing and yearning, of pain, of joy.

I have also recently discovered that I may have unwittingly been a follower of Plato's ideas who has said that, “no human thing



is of serious importance”. In such a conflicting scenario, if one is trying to find a perfect partner in the form of a simple human being, it can only lead to a series of serious slippery slopes. And I have to confess that there were some, till Steve walked into my life.

Steve or Stephen Fry to you, is the Jeeves from the series Jeeves & Wooster, the General Melchett from Blackadder. You may have seen him punching his best friend, Hugh Laurie in the long-running show called A Bit of Fry & Laurie. You may have heard his moist and sticky and fine and fluffy voice as the narrator of all seven of the Harry Potter books. You may have appreciated his intellectual curiosity in his documentaries on manic depression, HIV and wildlife among endless others. You may have seen him debate with staunch religious leaders on Christianity, homosexuality and the greatness of god. You may have read his excruciatingly honest autobiographies, and seduced by his love for the English language. This lord of language, in his own words, may have made you bubble and froth and slobber and cream

with the joy of language. Without being a pedantic guardian, he has yoked impossible words for the sound-sex of it and used it generously to excite and please. From the joys of swearing to the importance of unbelief, if you do a quick search on Stephen Fry, it is almost certain you will come across his views—erudite and articulate—on just about everything. To you, he may be a writer, actor, comedian, philanthropist; in other words, your usual, well-known public figure. But to me, he is Steve—toweringly tall (6 feet, 5 inches), with a crooked nose.

Steve is half Hungarian and half English, and was expelled from more than one school and went to jail for credit card theft at 17. He gained a scholarship for Queen’s College at Cambridge where he met his comedy collaborator and best friend, Hugh Laurie. His friendship with Hugh—a comic love affair—is a legendary phenomenon that pleasant fairy tales are made of. He is a Macintosh fanatic, a Sherlockian, a lover of Wodehouse and worshipper of Oscar Wilde. He is of Jewish descent, and one of history’s

most controversial composers, Wagner, is one of his favourites. He flies his own classic bi-plane and when in London, he drives a dark green London cab. He has appetites and addictions. He suffers from bi-polar disorder and I am not sure if I know any of my other closest friends as tenderly and intimately as I know him. This intensely amiable and plummy-voiced, eloquent man is the voice in my head and he speaks to me with the closeness and honesty of a friend and lover.

I can spend the next 5,000 words and still not hail him enough as the master of literature, comedy, curiosity and generousness. If his only contributions would have been *A Bit of Fry & Laurie* and *Jeeves & Wooster*, he would have assured his place in the history for being the best and the brightest. But that he gave us those and so much more to devour on, is our good fortune and a personal treasure for me. His words, presence and voice have awoken me to the possibilities of ideas, and his rhythms and mannerisms are deep within me. He is everything I could ever ask for in a man. He is, ladies and gentlemen, the love of my life. Only, he is not aware of it and also, he is gay. But that has never been a deterrent from dreaming of him and participating in a series of exciting and alarming fantasies. He has tickled me emotionally and intellectually and given me exquisite, keen and almost unendurable pleasures.

Steve knows he's always seen as confident, quintessentially English and at ease in any surroundings. Inside, he says (in his second autobiography, *The Fry Chronicles*), there's an often terrified, half-Jew poof, horrified by the unattractiveness of his body, unable to smile sweetly without looking smug, knowing he's been given a second chance and filled with terror at the thought of blowing it. I find this level of humility from a man of his stature fascinating, and it touches me to the core. It lets me be a bit more benign to myself

and look at myself a little more gently.

You may argue that I have ended up befriending, loving and falling hopelessly in love with an almost fictional character who I may never meet. It's true. I may never get to meet him but his overpowering screen and literary persona has never stopped him from talking to me and reaching out to me directly. To me, he is essentially kind and decent, unfiltered and genuine. When public images are mostly burnished and censored and groomed, it's his openness and vulnerability that makes him the real deal.

Steve was with me on my fifth laboured lap in the pool. I was mentally preparing an adequately complicated and negative response to the request from Ms Bee-of-all-bees to review any of my favourite Stephen Fry's work. I was, am and always will be hugely incapable of so much as even attempting to review him or his work. I am so attached to Steve that it will never be objective. I wince at any unsavoury remark that I hear or read about him. I can only love him.

And while this clash was going on, Steve slipped in and questioned this phenomenon, this love. In my mind there wasn't a question, so I remained quiet. He suggested it could be one-sided and that I may have become a fan of it. He was right, but I couldn't agree with him. He brings me loud hysterical laughs, makes me cry and keeps me curious and questioning. He has addressed a need and conflict I've had for so many years with such ease that it is almost unbelievable. In him, I have found that illusive company that lets me be with the person I love while fiercely guarding my space as any self-respecting single person should. And if the price one has to pay for all this is unrequited love, then I would choose that every time over anything else. I'll live. ●





## To see the future, you must sometimes turn to the past.

As Asia's oldest exchange and India's first, the BSE has played an important role in India's financial history. Building on that rich past, the BSE is committed to being an important part of India's future. Today the BSE trades on a variety of market segments and offers several advanced technology services. With the technologies now in place and an innovation-driven strategy to move forward, a bright new future is just around the corner.

Market Segments: Equities • Delivery-based Derivatives • Securities Lending & Borrowing  
• Mutual Fund Platforms • Exchange-traded Funds.

Technology Services: Internet-based Trading • Co-location Services • Mobile-based Trading  
• Real-time Risk Management • Smart Order Routing.



## **BSE – India's Economic Barometer**

### **Introduction**

Standing tall on Dalal Street is one of India's best known landmarks – BSE. An institution that spans 3 centuries, the story of BSE is the story of the Indian economy. Asia's first stock exchange has been a pioneer in promoting an investing culture among Indians and boasts of several highs that dot its 138-year old history.

### **History**

BSE traces its origins to Mumbai's business hub, where a group of Indian brokers congregated under banyan trees and began trading securities. The group eventually moved to Dalal Street in 1874 and in 1875 became an official organization known as 'The Native Share & Stock Brokers Association'. BSE developed the SENSEX in 1986, widely tracked today as the bellwether index of the Indian economy. Historically, an open outcry floor trading exchange, BSE switched to an electronic trading system in 1995 in a record fifty days. In 2000 the BSE opened its Derivatives market, trading SENSEX Futures contracts followed by SENSEX Options, along with Equity Derivatives in 2001 and 2002 respectively. Today BSE operates across multiple segments like Equities, Derivatives, Mutual funds, Corporate Debt, ETFs, Corporate and Data services, Education and Depository services. BSE also has presence in currency derivatives and power derivatives through affiliate partners.

The change in the exchange's official name from the erstwhile Bombay Stock Exchange to BSE, is reflective of a deeper transformation that began

several years ago that dovetailed into BSE strategy for the future.

### **Indian markets**

India is one of the fastest growing economies globally, with tremendous future potential given its robust demographics. Large aspiring middle-class spread across tier 1 and 2 cities, 50% of population under the age of 25 years, service and consumption-led economy, proven successes in several retail-driven initiatives like retail sector and mobile telephony are some of the key demographics that characterize India's potential. Despite slowdown in growth, political uncertainty in policy roll-outs and the gloomy global influences, India continues to attract foreign capital on the basis of its inherent strengths. With one of the highest savings rates in the world, Indians are a species that safeguards its future. Traditional asset classes that Indians invest in are fixed deposits, gold and real estate – all typified by their low-risk, assured-return nature. Several efforts are on all possible fronts to drive financial inclusion, on the back of increasing financial literacy to inculcate an equities investing mindset among the Indian polity.

### **BSE today**

BSE boasts of the largest list of listed companies globally – over 5000, huge member base of over 1400 and a market capitalization of USD 1.2 Trillion (June 2012) with an average daily turnover of USD 8.7 Billion. With a recent revival of sorts in the Derivatives segment (Futures and Options contracts offered on stocks and indices), it is today globally the 3<sup>rd</sup> most liquid exchange for Index

option contracts, as per July 2012 WFE rankings.

BSE has grown organically as well as inorganically in its quest for diversification and includes subsidiaries like Central Depository Services (I) Ltd., Indian Clearing Corporation Ltd., BSE Institute Ltd., a technology services provider (Marketplace Technologies Ltd.) and a proxy-advisory firm (Institutional Investor Advisory Services (I) Ltd.). BSE provides investors with an end-to-end, integrated transaction processing, with services ranging across the spectrum – from pre-trade order management to trading, real-time risk management to post-trade clearing, and settlement through a Central Counterparty mechanism along with a nationwide depository for facilitating the securities transactions in a dematerialized form.

BSE offers trading not only through the more traditional trading software and internet based trading; but also through mobile phones, a new channel which has a tremendous penetration in India currently.

A new category of investors, Qualified Financial Institutions (QFI), are now allowed in India; the first QFI transaction in India was conducted through BSE in July, earlier this year.

As India's leading stock exchange, BSE is an iconic institution and symbolic of India's economic prowess and resilience and continues to be a port-of-call for several high-level dignitaries from a multitude of fields. With a new tagline – *Experience The New* – BSE is well poised to step into new frontiers of the financial markets in terms of technology, products and distribution.



# Tales from a Toymaker



Many of us toy with ideas, but here's a man who ideates with toys. Thanks to Arvind Gupta many a children in India finally have the opportunity to be free from the tedium of rote science learning in school and escape to a delightful world of creative vibrant science explored through the medium of toys. He has demonstrated to the world that humble materials like common household items and even trash from a dumpster can be converted to objects of delight, if only you embrace your creativity. There are over 700 different models of 'Toys from Trash' available in his website that are available for use for interested parents and educationists. After visiting more than 2000 schools in his career and with a bag full of awards: including a distinguished alumnus award from his alma mater IIT Kanpur and Indian Academy of Sciences, Indira Gandhi Prize 2008, Third World Academy of Science regional prize 2010 to name only a few, Arvind is perhaps India's best known Science Crusader.

His journey from building trucks for TELCO to building toys began way back in 1978 and it is an enlivening tale in itself. He shares his memoirs of his student years in IITK and what came afterwards, with you all in "A Fist full of Soil".

Ezebee





*"And somewhere there are engineers helping others fly faster than sound. But, where are the engineers helping those who must live on the ground?"*

My parents never went to school. My father was a businessman who was perpetually in debt. My mother hailed from an otherwise highly educated family. It was this exposure of hers to the importance of education, and her determination to achieve this end at every cost, that saw me get my schooling from the best English Convent in Bareilly (UP).

I did well in school and topped my district in the Intermediate Board Exams. After 12th, I got into IIT with an AIR of 218. Following the herd, I too chose Electrical Engineering at IIT Kanpur.

Coming from a poor small town, IIT/K opened up a new magical world for me – a world full of bright peers and wonderful opportunities. Be it running the aeromodeling and auto-club at IIT/K for a full three years along with my friend Akhilesh Agarwal or voraciously reading all the books and newspapers that I could issue from the library, I went about making the most of whatever opportunities I got. After all, these weren't things I'd had back at home. All 5-years, I got a merit-cum-means scholarship. So, it was cheaper for my poor parents to send me to IIT, than to keep me at home!

The 1970's was, globally, a decade of political volatility. There was the spirit of revolution in the air. And as it happened, I was drawn to political activism right in my first year. My lab instructor V.G. Jadhav told me that the

# A Fistful Of Soil

**Arvind Gupta**

A good institute does something to you without you knowing it. It slowly creeps and seeps under your skin - every pore of it.



Director had rusticated Prof. A. P. Shukla - a distinguished physicist from Princeton for his left-leaning activism with the Karamchari Sangh. In protest, the students decided on a march. I was perhaps the youngest among those who decided to join in.

We marched from one hostel to another. As a young novice I was the only one shouting, "Comrades come out! Protest!" Some of the PG students got jittery at the word "comrade" and asked me to shut up. Back then, I was too naive to understand the political ramifications of "comrade". To me it simply meant a friend. We ended the march by pissing in front of the Director's House. This was perhaps my first explicit political act!

I'd always regarded pseudo-intellectual tea-stall talk regarding 'class conflict' and "seizure of state power" as trivial and vain. To me, the welfare of the mess servants was a more pertinent issue that deserved attention. "Why don't we do something about the plight of the mess servants?" I would ask, "They serve us from early morning till late



at night. Still their children don't get admission in either the elite Campus School or the Central School." Some of us placed more faith in small positive action than in empty rhetoric. We were doers. So, I joined a group called SAHYOG - which helped teach the children of the mess servants. We went from room- to- room collecting Rs 5/- per month pleading with hostel mates to "help a poor child go to school". Some people were kind and paid. Others slammed the door on our face and threw us out. I taught for a long time in the Opportunity School - a makeshift school for the underprivileged run in a Type II quarter.

In TA-204 we swore not to make a "silly" project which would gather dust and ultimately mangle into rust. We decided to do something "socially useful" for the community. So Akhilesh Agarwal and I made a 'see-saw' for the Opportunity School. I spent the last 3-years in Hall V where I taught at least a dozen children from the Nankari village. They finally cleared their High School Exams!

Around 1970 Dr. Man Mohan Choudhary started the Le Montage - a film club. In five years we saw just about every film by Kurosawa, Bergman, Fellini, de Sica and Satyajit

After every workshop I see smiles on the faces of the children. There is gleam in their eyes. These have been my most fulfilling moments.



Ray. We saw *Wages of Fear* and *The Bicycle Thieves* at least thrice. We saw the world's best cinema and listened to the country's best musicians. All this had a profound effect on our sensibilities! Several extra-mural lectures were delivered by luminaries - Dr. Anil Sadgopal, Noble Laureate Gunnar Myrdal and Hindi writer Bhishma Sahni. Additionally, the many social science courses - Philosophy, Political Science, and Economics challenged us to view issues from different angles and look beyond narrow technical viewpoint. A good institute does something to you without you knowing it. It slowly creeps and seeps under your skin - every pore of it.

In 1972, Prof. D. Balasubramanian invited Dr. Anil Sadgopal to recount his experiences of teaching science to village children in Madhya Pradesh. This lecture stirred me deeply.

In 1975, I joined Telco (now Tata Motors) / Pune as a trainee. After two years I decided that I was not born to make trucks. So, in 1978, I took one year off to work for the Hoshangabad Science Teaching Programme. This programme aimed at revitalizing the learning of hitherto “rote” science through activities - using local, low-cost materials. During the first month I designed the Match-stick Mecanno, using bits of cycle-valve tube and matchsticks to make 3-D structures. This hooked me to school science for life...

Laurie Baker had been my college day icon. He was the only living architect who had touched the lives of the poor. He used local materials, local designs to build very affordable houses for the poorest fishermen. I spent four splendid months working with this great man.

Back at Telco, there were too many questions plaguing me. “Why do people who toil the hardest, do the most back breaking work get paid the least?” So, in 1980, I left Telco and joined the “Vidushak Karkhana” – a commune run by a group of sensitive IITians (Dunu Roy, Sudhindra Seshadri and Sanjeev Ghotge) in the tribal district of Shahdol. The Spartan life we lived and diverse political discussions we had there gave me the opportunity to explore some of my deepest queries.

From 1981- 83, I worked with a trade union of miners in Chattisgarh. I wanted to understand their life- their hardships. Those three years were tough but deeply enriching. Many times the only meal was rice with salt; and bed was the union office floor. I brought out the union’s newspaper “Mitan” – and sold it on the mine gates. I also helped the union run a garage for repairing trucks and taught in their school. Through this I gained first hand experience of the deep struggle in the lives of the poor.

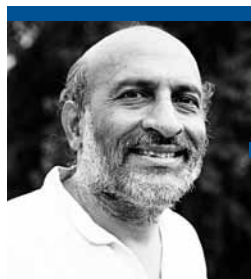
In 1984 I shifted back to Pune. Not encum-

bered by any parental expectations, I was free to chart my own course. Since then, I have pursued my passions – designing low-cost science toys and writing science activity books. Coming from the BIMARU Hindi belt, I have been acutely aware of the dearth of good material in Hindi. Over the years, I have translated over a hundred books on education, peace, science, mathematics and great children’s literature into Hindi. I have also presented over 120 films for the NCERT which have been repeatedly beamed on Doordarshan.

I have been privileged to conduct workshops in over 3000 schools across the country – many of them municipal and poor schools. After every workshop I see smiles on the faces of the children. There is gleam in their eyes. These have been my most fulfilling moments.

The educational terrain in our country is very harsh – almost barren. Even a good seed will wilt away in the absence of any soil. There is very little soil to nurture our young minds. We have a small historic role. Whatever be our circumstances, we have a humble task - to create a fistful of soil. Therein lies hope. ●

*Cartoon courtesy Prof Jean Pierre Petit*



**Arvind Gupta**  
B.Tech (EE) 1970-  
75, IIT Kanpur

*All his books and  
science toys can be  
freely downloaded  
from his website*

*<http://arvindguptatoys.com>*

*E-mail: [arvindtoys@gmail.com](mailto:arvindtoys@gmail.com)*



# The N-eww Pharticle

**Anil Gandhi**

In a hastily arranged press conference at the headquarters of the Beano group, the head of public relations, Paris Hilton, walked up to the podium, and announced, “We have made a discovery last week that will forever change the world of Pharticle Psychics». And then she went on to describe the elusive Stinky Pharton that was theorized by the Nobel Prize winning psychic, Biggs Moron, years ago. The half life of the Stinky Pharton has been the subject of much debate in recent years and has given many a scientist a bad stomach. Normally, this pharticle is short lived. However, new findings suggest that under certain conditions it may live long enough to cause death and destruction in the immediate vicinity. With the destructive potential in mind, the Union of Concerned Scientists issued a directive that any scientist working on the Stinky Pharton must ensure double containment procedures. They cited a recent incident when, erroneously, the Stinky Pharton was let loose in a grocery store aisle with a mushroom cloud that would shame Hiroshima.

In the meantime, ruthless Mexican drug cartels and the Russian mafia have expressed interest in the Stinky Pharton to replace the less-than-efficient and aging torture methods. The epitomy of this interest by the underworld was captured on the cover of the latest issue of Terrorist International Magazine,

titled “Stink ‘em up». Separately, the FBI has been concerned that if this top secret research finding were to fall into the wrong hands, a terrorist could put together a dirty bomb rather easily. Addressing security concerns, Paris Hilton, said, “We are now following strict security protocols, gentlemen. All lentils and beans (and especially Lima beans) have been sequestered in silos in the Yuck Ah mountain, under 10 feet of concrete.» The sequestration of lentils, however, has caused grave concerns for PPL (Phart Propulsion Lab) in Pasadena, California and it is rumored that the mission to MARS may be postponed until better propulsion methods could be found. Under water tests, though, continue. ●



**Dr. Anil Gandhi**

*Dr. Anil Gandhi is a data scientist and an entrepreneur.*

*His current interests include using data to predict the future of using data to predict the future. In his spare time he data mines to improve performance metrics in semiconductor and other manufacturing. You can admire his work by e-mailing to him at [mindrate@gmail.com](mailto:mindrate@gmail.com).*

# The Coming Tsunami in Education

*Rajanikanth S. Shastri*

With the adoption of technology in education, there is a revolution in the making. The changes it will bring about will be so extensive, that we would be hard pressed to imagine the changes that will unfold. Learning occurs within students' minds and the traditional approach of imparting knowledge in higher education through "Brick and Mortar" methods like classroom discourses will be literally turned on its head! Instead of students going to college, we will see colleges going to students. The space-time continuum of teacher and student being at the same place at the same time will be obliterated. Recorded lectures, automated courses and testing will enable 'deliver once, reuse many times,' any time, anywhere, and by anyone.

Accompanying this revolution are immense and unprecedented opportunities for India's IITs to improve and reduce the cost of imparting education as well as to reach out to students who wanted to but did not score an admission to this haloed institute of learning.

IIT Bombay's Eklavya Project, which is spearheaded by Prof DB Phatak, is aimed at taking IIT Bombay outside the confines of its Powai campus and to improve the quality of education across the country. The IIT-B Spoken Tutorial Project is another such initiative that provides an overview of free Open Source software.

The IITs are unique in that they can evolve

into a consortium of inter-connected universities that leverage each others' strengths. There is no other institution of this sort in the world today that is dedicated solely to technology education and research.

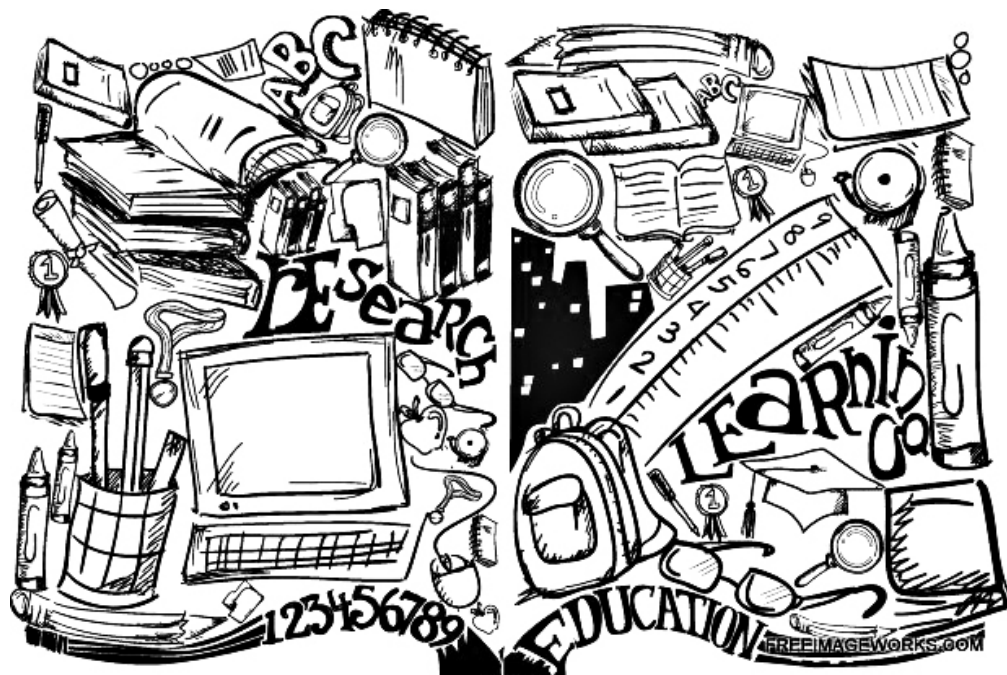
## *The Upcoming Paradigm Shift*

Traditional classroom-based education will still be the case for school-going children. Vocational courses and site training will also continue and the importance of labs will also not diminish. But the paradigm of a student going to college will change into the college reaching out to the student. Extended education (that includes distance learning, automated learning, access to lectures etc.) is a very fast growing segment in education. Search "Online Degree" on Google and you will get an idea of what is in store.

To be sure, this won't diminish the importance of students congregating in the common place called college. Social interaction would still be important and necessary for the evolution of the student. The importance of labs and research facilities for subjects that require such facilities will continue to be important. The impact of this revolution, thus, will mostly be felt in theoretical knowledge.

## *The Vista of e-learning*

As mentioned earlier, learning occurs in



The space-time continuum of teacher and student being at the same place at the same time will be obliterated. Recorded lectures, automated courses and testing will enable 'deliver once, reuse many times,' any time, anywhere, and by anyone.



students' minds. The established delivery mechanism today is to transfer knowledge in classrooms. The objective remains the same, with technology only changing the delivery mechanism. How technology will revolutionize education like we have never envisaged before doesn't stop with interactive learning; there could very well be knowledge transference that could occur through a man-machine interface! Who knows, there

may come a time when a student puts on a helmet, goes to sleep and wakes up a genius. But let's stick with the near future for now, and see some examples:

## IIT-Bombay's Eklavya Portal

The phenomenal rise in the number of engineering colleges has not been matched by the requisite infrastructure and resources, leave alone dedicated and competent faculty. The Eklavya Project spearheaded by Prof DB Phatak, Subrao Nilekani Chair Professor of Department of Computer Science & Engineering, IIT Bombay, aims to fill this gap with the Eklavya Portal.

## IIT-Bombay's Spoken Tutorial Project

ITT-Bombay is offering a “Spoken Tutorial” program that provides an overview of Open Source products such as Linux, OpenSQL, PHP etc. complete with tests and certification.

## The Udacity Project

Udacity was founded by three roboticists associated with Stanford University, who believed that most educational value in their university classes could instead be offered online. A few weeks later, over 1.6 lakh students from more than 190 countries enrolled in their first class, “Introduction to Artificial Intelligence.” The online students do not get Stanford grades or credit, but are ranked in comparison with other online students and receive a “statement of accom-

Each IIT could focus on a specific area that is unique to it and leverage the other IITs for the overlapping curriculum. For instance IIT-Kharagpur offers degrees in Architecture and Agricultural Engineering. This would result in optimal use of funding and resources.



plishment.” This example underscores the reach of, and interest in courses offered on-line.

### *MIT Automated Curriculum*

MIT (Massachusetts; not Manipur, Manipal or Madras) has initiated a fully automated accredited course that can be taken for free by any student anywhere. While this is being offered on an experimental basis for one subject, it is quite likely to be expanded to an entire major. Currently, students are awarded a certificate after finishing the course and completing online tests. By offering an “automated curriculum,” MIT has taken e-learning one step further. Let us extrapolate what MIT could offer, and why? It will result in a “caste” system that differentiates those who have a degree from attending the institute,

from those who have instead a certificate from attending remotely.

Why would MIT do so? For starters, it will not “cannibalize” enrollment into MIT. This initiative targets those students worldwide who can’t attend in person. It would instead take away students from other universities. If industry values a certificate from MIT compared to a degree from a lesser-known college, then students may opt for the certificate. Further, one does not expect MIT to do this for altruistic reasons; there is an opportunity to “monetize” as well. MIT can franchise centers that will be responsible for conducting the tests. You go to the center to take the test. If you are talking about millions of students paying to take a test, that adds up to significant revenue. These centers can offer enhanced services like real labs at a fraction of the cost. The net result is that the cost of delivery is reduced with some of the savings passed on to students. Cheaper, better and recognized by a premier University: the certificate would be hard for students to pass on.

### *The Impact of e-learning:*

The student will have a choice of accessing the best lectures and the onus to learn will be on the student and excuses of a bad professor will no longer hold. The “Academy of You” - Udemy is offering both paid and free courses. An existing college might decide to sign up with another college or form a consortium with other colleges or affiliate itself with another university like MIT. This would reduce its need for “teaching” faculty or eliminate the teaching faculty altogether and employ teaching facilitators instead. In doing so, it will enable the college to deliver education at a reduced cost. This way, the impact of e-learning will threaten the very existence of smaller colleges. Some colleges might close their doors or become the extension of the

university they are affiliated to, by providing space for students to gather, mingle and do their group projects and lab work.

While these initiatives are in their nascent stages, they are being fought tooth and nail in some universities by entrenched and tenured faculty, who see this as a threat to their very existence. The extent by which e-learning impacts a college or university would be determined by the policies adopted by the colleges.

### *The opportunity for IITs:*

The undergraduate program is the jewel in IITs' crown. It is the UG alumni that have brought most name and fame to IITs. Getting on the e-learning bandwagon expeditiously will enable the IITs to improve the UG experience and also enable the faculty to focus on research and interaction with industry.

Technology presents an opportunity for the IITs to look at themselves as a distributed and hyper-connected learning institution, which leverages each others' strengths and also reaches out to students who couldn't score an admission. The IITs can establish extension facilities in existing colleges, where students can attend and then obtain a degree or diploma issued by the IIT.

Take for example a core course at IIT such as Fluid Mechanics 101:

Why can't it be taught by the very best -- say five professors -- regardless of where they are and have students from all IITs, and other affiliated colleges as well, attend these lectures real time or on their own time?

Doing so will reduce the burden of recruiting teaching faculty which is a big challenge currently and which will not change. It will also help students learn from the best of the best professors.

Tutorials and group discussions could take place with a local or remote tutor. In the US, post-graduate students, working towards their Master's degree are awarded scholarships to serve as Teaching Assistants to conduct Tutorials and Labs.

Why not set one exam paper and have all the students take it at the same time?

Each IIT could focus on a specific area that is unique to it and leverage the other IITs for the overlapping curriculum. For instance IIT-Kharagpur offers degrees in Architecture and Agricultural Engineering. This would result in optimal use of funding and resources.

Additionally, each IIT can forge relationships with selected Universities overseas and in doing so feed into the inter-connected consortium of IITs on the one hand and feed out to other colleges on the other, to form an extensive hyper-connected technology educational web.

Universities are going to expand their reach by either affiliating or merging with other universities and this is where the IITs, due to their nature and structure, have a unique competitive advantage. The biggest of these is an established feeder system that ensures an abundant supply of bright minds constituting the best of the best.

### *Conclusions*

The only thing standing in the way of the above is resistance caused by skepticism, human frailty and insecurity. As an activist in the field of education said, liberalization unleashed Lakshmi, now we need to unleash Saraswati, in reference to the stranglehold India's government has on Colleges and Universities. With the aid of technology, Saraswati will unleash herself, and there is no stopping her.

### *Acknowledgement:*



I would like to thank Bakul Shah my batch mate who provided a number of pointers to articles and web sites that helped in writing this article. ●

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**Rajanikanth  
(Rajan) S. Shastri  
– B.Tech EE, C75**

*Rajanikanth (Rajan) S. Shastri – B.Tech EE, C75, MS Computer Engineering, Syracuse Univ. NY, -1978, retired from a career in high-tech that spanned Intel and Gould Computer Sytems. In 2005 he relocated to India, much to the chagrin of his three children. Having built his dream beach house in a rural part of the Konkan Coast in Uttara Kanada (UK), Karnataka, he wishes to engage in educational initiatives and other activist endeavours.*

## Hos-Tales from H-10

*To remind you what we said two issues ago, HOSTALES is not gujju for hostels. It is about tales from your hostel days. Magical memories that stay on forever, even as subsequent incidents in life jade and fade away into oblivion. This section of Fundamatics seeks to make you reminiscence about some memorable incidents and share them with your fellow alumni. Not surprisingly, most memories gravitate towards Hostel 10 and its inmates. But to our pleasant surprise, we discovered that inmates of Hostel 10 have tales to tell as well. And these anecdotes from girls who passed out (or maybe they didn't pass out, they just graduated) between 2007 and 2010 just proves Cyndi Lauper who sang out..."Girls just want to have fun".*

*Fundabees*

### Hos-Tale 10/1: Ullu ka patha

3 years ago, on a humid October evening, I returned to hostel from my evening jog and decided to take a quick shower before dinner. I sauntered into the bathroom with my bucket and placed it under the hot water tap in the common area. As I went into the cubicle to hang my towel, I was welcomed by an uninvited guest – perched prim and proper on the shower rod – sending a quick shiver down my spine with her red eyes, razor-sharp claws and hooked beak! She was indeed a pretty barn owl but not a very happy one



I was welcomed by an uninvited guest – perched prim and proper on the shower rod – sending a quick shiver down my spine with her red eyes, razor-sharp claws and hooked beak!



right then. I left the hot water overflowing and rushed out of the bathroom. I returned within 2 minutes with my camera and a dozen giggling hostel-mates. However, Ms Owl was perplexed by the clicks & flashes

of the H10 Paparazzi. Like any celebrity, she too made a dash for it and hid behind the geyser until the screaming & excitement died out. By the next morning, Ms Owl had left the building! A wise owl indeed!

*Hos-Tale 10/2:* Chhup Chhup ke!

One of my wingies had had a frequent visitor over the past few months – her new boyfriend – who brought her a bounty of gifts every time. As wingies, we enjoyed the

While my wingie brought  
her parents to her room, we  
quickly snuck her boyfriend  
out of hostel from the stairs at  
the back and this has a well-  
kept secret all these years –  
unless her parents get hold of  
Fundamatics.



presents – decorating our rooms with the flowers, feasting on the chocolates & wine while listening to her love struck stories! On one such day when her boyfriend was in H10, my wingie got a sudden call from her parents who were waiting at the H10 gate to pay her a surprise visit! She got the fright of her life and ran into my room in panic. Each of us wingies took turns to stall her uninvited guests while she quickly cleaned up her room ‘literally’. She showed up 10 minutes later to sign them in. When I ran up to my room, I was taken aback to see her boyfriend hiding out in my room along with 2 of my friends. While my wingie brought her parents to her room, we quickly snuck her boyfriend out of hostel from the stairs at the back and this has a well-kept secret all these years – unless her parents get hold of Fundamatics.

*Hos-Tale 10/3:* Fashcomp

A new era. A new decade in H10 gave birth to some interesting ‘traditions’ in our very own H10. We’d just settled into hostel and campus life and we starting second semester when our seniors sprung a surprise on us – it was called ‘Fashcomp’ – the Inter-wing Fashion Competition! This was no mean fashion show – it was H10’s ultimate display of beauty, dynamism, grace & oomph – with all the Munnis, Sheilas and Chamelis coming out in the open to vie for the Perfect 10 crown. While the seniors enjoyed every moment of this fashion show, the freshies looked on with wide eyes and open mouths as they got initiated into this ‘tradition’ of H10. Was this really the sacred institute whose portals they had entered after a two year struggle against the demon called ‘JEE’? We got our answer when we became fourthies. Without realising it, we had made the transition ourselves! Soon, we were scandalizing little freshies with Fashcomp and many more such ‘traditions’!

*Collected from 4 – 5 H-10 hostelites from the  
batches of 2007 to 2010*



*With the campaigning for President in YOU ESS AY in full swing, Politico Bee is all abuzz and flew to the land of Milk and Honey and has filed in this report.*

The sluggish economy and lack luster employment reports present a barrier to President Obama and his Democratic Party. The Republican Party and their candidate Mitt Romney, stumble into one gaffe after another. It doesn't help their cause to be obsessed with Anal and Vaginal politics aimed at dictating what people can and cannot do with their bodies and their love life.

John McCain is running around citing the refrain of a Beach Boys Song, saying, "Bomb, Bomb, Bomb, Bomb Iran"

Vice President Biden speaking to a predominantly Black audience said that the Republicans want to "unchain Wall Street" and "put y'all in chains". The Republicans were quick to retort that Biden is insinuating that the Republicans were going to bring back Slavery. Others said that Biden mistook the fact that the Republican Party wished to "chain" Romney for he was blundering into one gaffe after another. He insulted the Brits in London, by criticizing their preparedness for the Olympics, earning him the name "Mitt the Twit"

## Campaign 2012 Tamasha

### *Night Time has fallen*

*by Yusuf Islam, formerly Cat Stevens  
(Sung to the tune of Morning Has Broken)*

*Night Time has fallen, the sun has gone down*

*Black Bird has spoken, his tired old song  
Bin Laden long gone and GM is thriving  
Praise for his woman who loves him a lot*

*Fighting for veterans, fighting for women  
Fighting for students and the Middle Class  
Praise for the sweetness of the rose garden  
Sprung by Bill Clinton, in the White House*

*Minus the tax breaks, minus the loop holes  
Born of the one light, he wants fair play  
Raise with elation, the rate of taxation  
Take from the rich and spread it around*

*Night Time has fallen, the sun has gone down*

*Black Bird has spoken, his tired old song*

*Praise for the changing, praise for the hoping*

*Asking the people, for another chance.*

*Then there's this prison, he promised to close*

*Millions of houses on the verge of foreclose  
Citizens united is a huge a travesty,  
This so called decision not my cup of tea.*

*Night Time has fallen, the sun has gone down*

*Black Bird has spoken, his tired old song  
Praise for the gay folks, Praise for the aliens*

*Trodden to dust where, Republicans pass.*

Things continue to heat up in the Middle East with the Arab Spring turning into Winter and making matters worse is the threat of Iran building an Atomic Bomb.

Unchained Mitt the Twit made some preemptive remarks before all the facts of the US consulate in Libya were available prompting Obama to comment that, "He has a tendency to shoot first then aim".



*Israel PM, Netanyahu, President Obama and Challenger Romney took part in a Public debate.*

**Netanyahu:** Establish a definitive Red Line.

**Romney:** Obama is a failed leader for not defining a Red Line. I will when I am President. Uh? It is same same as his position only different.

**Obama:** We will not permit Iran to build a Bomb. All options are on the table. And this chair is taken.

**Netanyahu:** Iran is six months away from assembling one. They are in the Red Zone.

**CIA:** Our intelligence indicates they are further away.

**Netanyahu:** No red line means no action.

**Obama:** Economic sanctions are working.

**Netanyahu:** These crazies having a bomb is a threat to the world.

**Obama:** We will act decisively.

*Politico Bee was a "Bee on the Wall" and*

*overheard Obama (on speakerphone) with Netanyahu in a Private conversation:*

**Obama:** You lead and we will support you.

**Netanyahu:** You lead and we will follow.

**Obama:** *Apres vous sil vous plait.*

**Netanyahu:** *Apres vous sil vous plait.*

**Obama:** You are not going to sucker me into taking action first

**Netanyahu:** Are you, are you not the Protector of Israel?

**Obama:** I am not God.

**Netanyahu:** Then who will protect us?

**Obama:** I will have flexibility after the elections.

**Netanyahu:** I hope you lose!

**Obama:** Remember what the chair asked Clint to tell me?

**Netanyahu:** Same to you.

**Obama:** I'm glad we agree.





*reproduced with Permission from Hindustan Times*

Then out of the blue a video got released where Romney, at a fund raiser, spoke disparagingly about 47% of people in the US who pay no Income Tax, considered themselves victims, depended on government dole and felt they were entitled to housing, healthcare etc.

Romney blasted the release of the tape taken at a Boca Raton fundraiser. He said it was a gross invasion of privacy taken at a Private event. He cited the precedence of the "Big Fit over Little Tits" wherein the French Court has ruled against the magazine that published pictures of British Royalty sun bathing topless. He claimed that pictures taken at a private event or place requires the permission of the persons involved before they can be released.

He intends to sue the person involved and all those who broadcasted it. It is alleged that it was Jimmy Carter's grandson who took and released the video. "He made fun of my Grand Pappy, and that made

me mad. If Dubbya could invade Iraq to revenge his Pappy, this action is justified." "I approve of this action." said Jimmy Carter.

"But, Governor you have asked for the entire video to be released," said a member of the press. "I don't recall saying that, and if I did, I retract it. I stand by what I said in the video. I don't retract that" replied Romney.

In the video Romney says that America is a business. He plans to load it up with debt, bankrupt it and enrich himself and his investors. "This is an opportunity of a life time for you." he said, "And for those 47% who rely on the government, they are out of luck. They can move to Europe. France is a great place to go to, I have been there."

"What if you lose?" asked someone. "I am loading up my campaign with debt, pay myself handsomely and then bankrupt it. Win or Lose, it is a WIN/WIN situation for me. I agree with Obama. I too like to spread the wealth around, to people like us and invite you to join me."

Reports show Romney leading in the polls amongst the top 1% - 99% for him to 1% for Obama.

Obama confessed that Washington cannot be changed from the inside and that it has to be changed from the outside. Romney seized the opportunity to state that he agrees and that we should send Obama outside so that he can continue his good work.

Nosey Bee gave Obama a call to say, that in India Team Anna tried to change Dilli from the outside, and that didn't work. Now Team Anna is split with Arvind Kejriwal intending to go inside and Anna choosing to stay outside.

# LiL Nuggets - Lessons in Life

*By LetItBee*

You've probably heard the old fable about two jigri dosts; an Ant and a Cricket. Cricket sings with abandon all through summer, while Ant diligently works and stores food for the winter. Ant keeps bugging his friend Cricket to do the same but is ignored. As winter arrives, Cricket is out in the cold, Ant takes pity on him and invites him into his home, and admonishes Cricket saying, "I told you so", and to be better prepared next winter.

The hidden moral of the story is if you want to sing like a Cricket all year long, move to where it doesn't get too cold, (i.e. where there is opportunity) and more importantly take the time to multi-task; "Work like an Ant, so you can sing like a Cricket".

There is another LiL Nugget that is a corollary to this story and that will be told in the next issue of Fundamatics.

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ANYTHING  
I CAN ONLY  
MAKE THEM  
THINK"**  
Socrates

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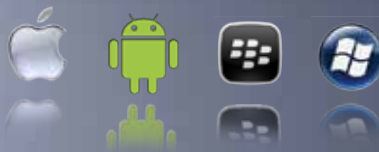
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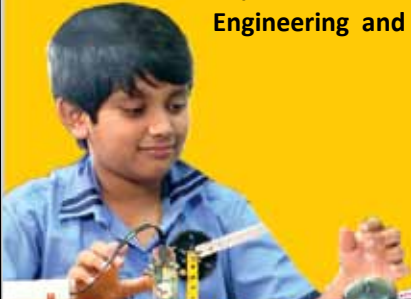
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## M& B: V 2003, A Spotlight on the Archetypical Love Bite

*Ashima Goyal, fondly called Ashi by her friends, was the most jumpy (read 'enthu') punter of her batch in H-10. From Soc Secy for H10 in her 2nd year to MoodI CG for Informals in her 3rd year to IITB Athletics team at inter-IITs and participating in PAFs, this girl was unstoppable. Not to mention, she was a '9 pointer' in Elec, no mean feat either. No surprise then, put mildly, that non-trivial number of guys across several batches heaved self-confessed love for this damsel from Jaipur. The one to succeed was none other than her close friend from Bansal classes in Kota, Sikander.*

*Sikander, or "Sikki" to his friends was a happy-go-lucky stud from Udaipur, Least known as a sincere academic and best known to his peers as an ace swimmer, an exceptional dancer and a troublemaker-in-chief. Thanks to a heady mix of good looks and an impish charm, the strapping Sikander could swim and dance his way into many a girl's heart - a talent that he faithfully exercised both on and off-campus, throughout his four-year tryst with Chemical Engineering.*

*The sincerity, will and heart then, with which he pursued Ashima amidst these numerous distractions, almost belies his "bad boy" reputation. It stays true though, both to Sikander's habit of cloaking his predominantly romantic side with a less favourable one and to the paradoxical beauty of Sikander*

*and Ashima's romance. If it is true that opposites attract, it has never held truer than for this couple. An out-of control, bold brat who, quite inexplicably, managed to charm the sincere and lady-like Ashima into asking HIM out. No surprise though, as Sikander was known to have an uncanny ability to get work done without being the one actually doing it! Sikki and Ashi's love story was right out of a Bollywood movie and you got to read on to find out more...*

Noseybee

I know this is supposed to be a campus love story, but mine actually has a short prelude to it. Personally, I think that phase had more masala than anything else. Hence, I'll start from the start.

It all began a year before we took the JEE. Sikander and I met for the first time at Anshul's birthday party and, somehow, ended up talking a lot that night. To-date, Sikander claims that he's been in love with me ever since. That's something I still find incredulous, but he insists that he's been trying to 'patao' me then onwards. Whew... Guys, I tell you! They never stop trying (<evil grin>and lying </evil grin>)!

I still remember the letter that he wrote to me for New Year's then, dripping with honey and coated in butter. And the incredible fact is that, just so it doesn't seem odd, he wrote a similar letter to my best friend as well! We, being girls, obviously read each other's letter and nearly cried laughing.

In the pre-JEE days, Neha and I used to go jogging at 6am. For almost a month, Sikander joined us. I learnt later from his roommate that he would get up early to join us and then, as soon as he was back, he'd sleep like a log!

Despite all of this, there were no real fireworks in the 12th standard. We gave the



*Ashima and Sikander 'then'*

Any sane person will tell you  
that warning a girl against  
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accomplished.



JEE and went our separate ways. He never said anything and I never suspected anything (being a girl isn't easy at all). In the meantime, I found myself a new boyfriend. This guy, who eventually landed up at BHU, had the guts to ask me out. And, of course, I said a 'yes'. God alone knows why Sikander never expressed himself then. Perhaps this is why I still cannot believe that he loved me at first-sight...

Call it fate or whatever else you will – Sikander and I met again at IITB during counseling and then again during registration. Of course, by then I was literally single and figuratively committed. Thus, the first two years were pretty uneventful except for coffee shack hangouts and some occasional parties. There was this one incident, however. During Hostel 10 fete in the 1st

year, I'd received an anonymous song request and a message saying "Let me sleep". This, I later realized, was from Sikander and is very important to this story because when I finally proposed, (yes I did!) this is what I used!

I always hung out with this one bunch of boys. For some reason I have always found it easier to make friends with boys than girls. While I often cogitate on whether something is fundamentally wrong with me, I'd bet that the boys beg to differ! There was this one day that I randomly told them that I wanted to try alcohol; and before I knew it, we had a booze bash in my hostel room.

Somewhere during the third sem, I called it off with my BHU boyfriend. This, in many ways, opened the floodgates...

Fast forward to the end of Mood Indigo 2001- The CG party. As you all probably are more than aware, the CG party is notorious for the obvious reasons. To add to the adventure, I was the only girl CG that year. And I really wanted to attend the party. It was a team thing, after all! Sikander tried very hard to talk me out of it, but finally resigned to my insistence. After all, we girls have marvelous powers of persuasion. However, he did thoroughly caution me to not drink too much. And that was where he erred! Any sane person will tell you that warning a girl against doing something is the surest way of seeing the task accomplished. And I, being the epitome of enthusiasm, was the master of this art!

I have very vague recollections of that night. I remember being drunk. I remember people trying to get H-10 gossip out of me. And then I remember Sikander and Shanky getting into the OAT arena and pulling me out of there. The whole time I kept saying "Let me go, I want to be in there! I don't want to go to hostel!" Sikander walked me

through H3, H5, and Staff-C just so that I don't think I was going to hostel 10. After that, I've no memory of the further happenings that night. But Sikander says that he'd said so much to me that night that he's happy I don't remember a word of it. We met more often thereafter.

Then came the insti elections, and I fostered GSAA dreams. We had long debates over it. Ultimately, when I decided to contest, he took me around to meet more seniors who could 'advise'. Anyway, that whole month was very confusing for me. I actually laugh now when I remember that one month when I had my brief brush with 'insti poltugiri'.

Then, a day before nominations, I decided to pull out. We were both sitting in SOM foyer that day, when he opened his heart out and told me that he loved me. At that time, all I said was "That's okay, but I don't think there is any future for us." I still cannot believe how I could have been so mean!

Then started the 'Pataofy Ashima, Part- 2' phase. If only I had all that shaayari that he wrote for me to quote here! Unfortunately, it's all lying in a box under my bed at my parent's place.

This age-old trick worked like a charm on me. I was thrilled at being the inspiration of original shaayari- who can resist that! After almost three months, one night, I confessed to Ramya (my roommate since the first year), "I like Sikander. I think I love him but I don't see us going beyond IIT and so I don't want to say this to him." It was then that she offered some life-changing advice for which I'll be ever-grateful. She told me to enjoy the time as long as it lasted and cross the bridge when it came.

Thence started the most amazing time of my life.

After that night's dinner, I called up H-3



*Ashima and Sikander 'now'*

internal (there were no cell phones back then). I remember how I was jumping with excitement and impatience while they made the announcement and Sikander came down to take the call. I know I struggled, but I managed asking in a very plain voice if he could come to my hostel right then. And he did. I have no idea what he was expecting, but when I went down on my knees and said, "Will you let me come out of your dreams and into your life", he had this look which I couldn't read. And then he asked me, "Are you trying to propose?!"

The rest, my friends, is history. As Nicholas Sparks has aptly put it

"So it's not gonna be easy. It's going to be really hard; we're gonna have to work at this everyday, but I want to do that because I want you. I want all of you, forever, everyday. You and me... everyday." ●



# R&D Wishlist

## 10 Innovations We Wish We Had In Our IIT Days

**Madanmohan Rao**

### 1. RLC Hangover Pill (Patent RLCHP-810\*)

This superpill would help deal with painful (ouch!) hangovers resulting from underestimating the power of *Pachas's* and *Sou's* from the mercilessly efficient Thomas of RLC.

### 2. Multilingual Abuse Converter (Patent MAC-DKBoseDKBose)

Shout out any swear word at H3 and get it translated in real-time into any of India's 40+ languages and 400+ dialects! Patent MAC-FockYew will also translate it into East Asian languages.

### 3. Instant Pondy Generator (Patent IPG-810\*)

Attached to the old cyclostyle machines, this peripheral will accept as input any parameters about desired partners (including number of partners) and amount of time you have on your hands (so to speak) and generate pondies of appropriate themes and thickness. Patent IPG+ will generate double-sided pondies for the environmentally conscious.

### 4. Cattle Stun Gun, Pocket Edition (Patent CSG-PE)

This small stun gun will help temporarily immobilise the menacing stud bulls roaming around the corridors of the academic buildings, terrorising keenu students and making sure that the backloggers stay back.

### 5. PG-Detector Kit (Patent PGDK)

This dual patent consists of RFID chips embedded in PGs and pen-sized remote scanners held by UGs, thus immediately helping the real IIT-ians distinguish the wanna-be's from a distance.

### 6. Augmented Reality Mess Food Enhancers (Patent ARMFE)

For those having a tough time digesting the painfully inedible mess food, these augment reality enhancers can help disguise mess food as *avante garde* French food or sophisticated Italian dishes. A far cry from passing off onions as "Russian salad!"

### 7. Virtual Reality 10-Pointer Immersion Booths (Patent VR10PIB)

For those of us who could never ever visualise what life would be like as a 10-pointer, these virtual reality booths could mentally transpond us into the minds of the likes of Pandurang Nayak. How the f\*\*\* did he do it -- we may never understand, but at least we can empathise!

### 8. Hostel 10 Weekend Cloner (Patent H10WC)

For all the frustrated male denizens of Hostels 1-9, this patent would help create 9 clones of each Hostel 10 inmate, so there could be better socialisation possibilities and fantasies on weekends. Patent H10WC+ would create double the number of clones, and Patent H10WC++ would create triple the number of clones of H10 residents -- so IIT males could dream wildly impossible dreams about being outnumbered by females on campus!

### 9. Inter-Hostel Geo-mapped Social Media (Patent IHGSM)

Come on, there are so many girls hostels in 50 km, 100 km and 1,000 km radius of IIT

Bombay! This hostel-crawler app would identify the best girls hostels for weekday/ weekend exchanges and socials, for progressively higher fees. Profiles of female residents would include spirituality, entrepreneurship index and multitasking potential.

#### ***10. Power Grid Trip Stimulators (Patent PGTS)***

Whenever an impossibly tough end-sem exam approaches, a critical mass of concerned students can help trigger off a trip of the power grid, thus validating claims of inadequate electricity for night-time mugging for the exam and postponing the bloody event. ●



***Dr Madanmohan  
Rao  
H4, CSE***

*Dr Madanmohan  
Rao (H4, CSE,):  
Formerly the  
communications*

*director at the United Nations Inter Press Service bureau in New York , Madan is a consultant and an author based in Bangalore. He is a research advisor at the Asian Media Information and Communication Centre (AMIC) and the editor of a five book series which includes The Asia Pacific Internet Handbook, The Knowledge Management Chronicles, The Global Citizen etc. He can be followed on Twitter at @MadanRao and reached via email at [madan@techsparks.com](mailto:madan@techsparks.com)*

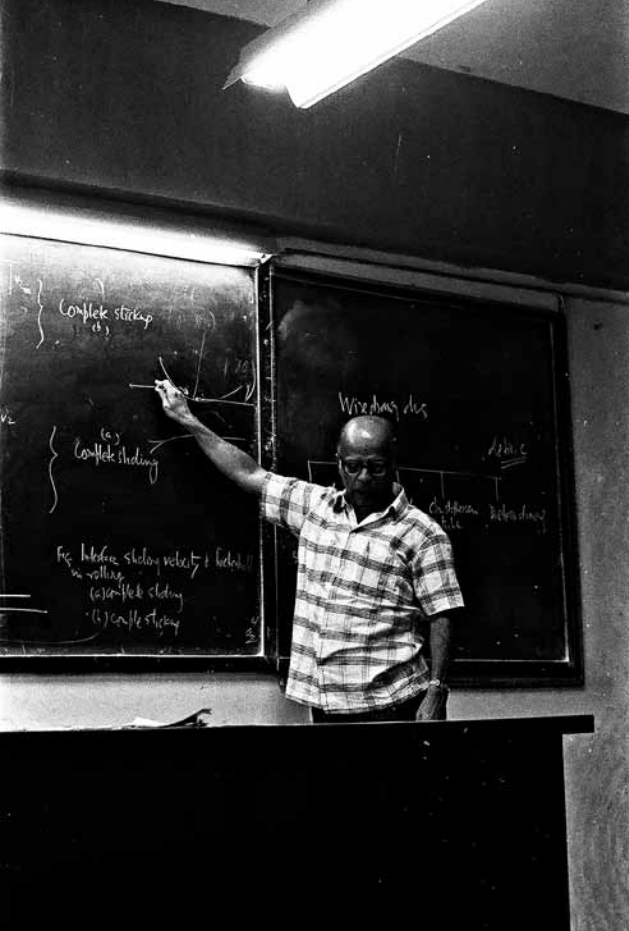


# Dhobi Offices and Dark Rooms

*IITB in the 60's*

*Sailesh Kapadia*

- Not only did we not have personal computers but we also did not have calculators. The only aid for calculations was a slide rule.
- The only undergraduates were in the five Engineering Departments (Chemical, Civil, Electrical, Mechanical and Metallurgical). The only students in science streams (Physics and Chemistry) and mathematics were in Post Graduate courses.
- The most common mode of travel on the campus was by walking on foot and the next step up was having a bicycle. There were less than five scooters owned by students on campus and in the later sixties there were a couple, who brought their parents' car on campus for a few days.
- EVERY undergraduate had the same curriculum for the first two and a half years and this included Surveying (Civil Engineering Department), Work shop and Drafting (Mechanical Engineering Department). Workshop consisted of Fitting, Carpentry and Moulding in the First Year; Tin smithy, Welding and Forging in the Second Year and working on Lathes etc in the first term of the Third year. People lugged their T-squares for the drafting classes to the main building. The drafting professor kept track of the progress of the drawings after each session and made sure that he penalized people who GT'd (glass "topo"ing in which a drawing is kept on a glass with a light underneath and the image is traced on another drawing sheet which is clipped to the original drawing). I was surprised to read that people do not learn CAD as a standard course there instead of the old drafting. May be they do not do drafting either with this new four year curriculum instead of the original five year curriculum.
- There was no textbook for Organic Chemistry. The only source was class notes and cyclostyled (there was not Xerox then either) copies of Prof Mehta's notes that were handed down from batch to batch.
- Electrostatics was the Physics in Second Year and the textbook was written by E.R.Peck. The entire book dealt with the concepts of electrostatics in Vectors and we did not have Vector Analysis as a math subject until Third Year! Finally they came out with Halliday and Resnick which became the Physics Text for Second year.
- Many people could not afford these textbooks and the only source were the reference copies in the Library. People usually took copious notes in class and relied on them for their exam preparations.
- Prof. N.R. Kamath (popularly referred to as NRK) taught a "History of Technology" course in the first semester to all first



year students in one group, in the Lecture Theater on Wednesday mornings. He was well respected and liked by ALL students (not just those who were in Chemical Engineering) and his most famous and well remembered saying was: “Where there is no knowledge of the past, there cannot be a vision for the future”. That is the reason, he said, he taught the course despite all his work demands as Chair of Chemical Engineering and Deputy Director of IIT.

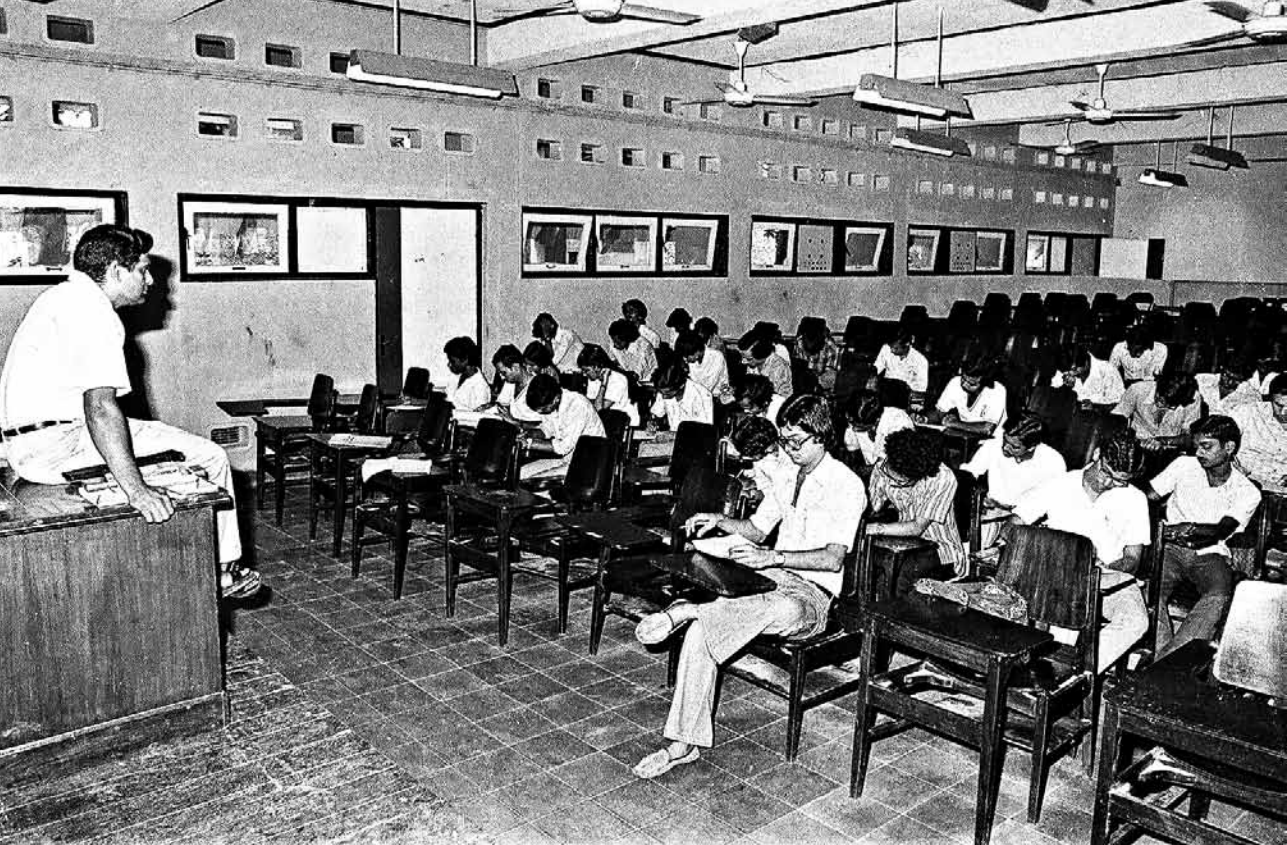
- The first computer on campus came in 1967 and was commissioned a couple of months after the first class began in July. It was in Russian and used what we were told was “autocode”. Fortunately, it could understand only the first four letters of every command so we only had to know the first four letters of each command. I think “Povtorik” means READ. Anyway, we spent most of the time (and got graded

Dr. Sukhatme, who was assigned to teach us Heat Transfer. He started with something or the other that needed the Navier-stokes equation. When we all looked blank (another something we had missed being taught the previous year due to the strike etc), he went ahead and derived it and the derivation covered two black boards. We were IMPRESSED and knew that this one was going to go far. Time has proven that he did.



on) developing process flow charts for a program. When we came to the US after graduation, IBM had just introduced the 360 mainframe computer and we had to program in Fortran (whose commands were, thankfully, in English).

- Welding was discontinued as a curriculum requirement for Workshops after one student (sex and name will remain anonymous) did not religiously use the face-mask to shelter eyes from the Ultraviolet rays from the welding arc and had eye trouble after going to the hostel.
- There were two “accelerated” batches, which graduated in December 1963 and December 1964. This was in response to the emergency declared with the confrontation with China in Ladakh. These people had a constricted summer vacation prior to their last term.
- People were not able to easily change



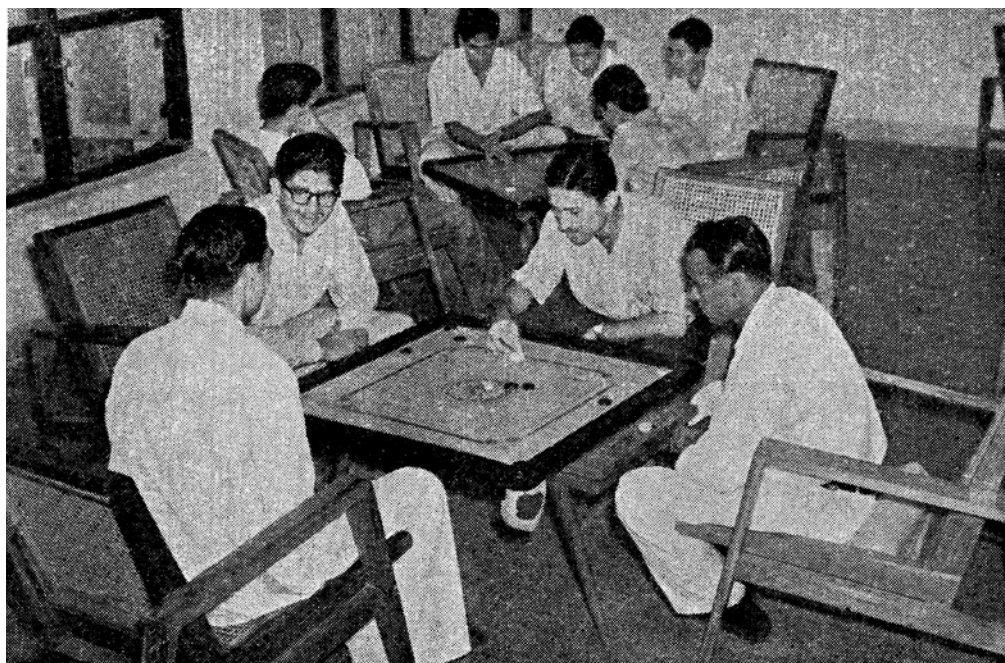
majors. This was done on an exception basis and the only known instance at that time was Deepak Swarup who transferred from Civil to Mechanical. This transfer was based on his outstanding performance in the Inter-IIT where he helped Bombay win the track events. This story about someone transferring from Physics to an Engineering curriculum would have been impossible to believe in those days.

- With the India-China War, NCC started at Powai in the 1964-65 academic year. The NCC quarters were in a structure across from the Gymkhana and were later built opposite to the space between Hostel 2 and Hostel 3.
- There was one of these US-PhD profs who joined right after the strike summer and people had missed part of the curriculum. His first statement was that, in order to succeed in his class, one would need to have a very analytical mind OR a good memory for the various derivations. He then started

teaching some advanced concept (the details are omitted to keep the individual unnamed) and was informed that we had missed the starting equation in the previous year. So he offered to show the derivation of that equation and had some struggles before coming up with the end of the derivation. "Someone" from the class commented that perhaps this Prof did not have either the required analytical mind or a perfect memory. I think I got a (unjustifiably, in my biased opinion) lower than expected grade in that class).

- On the other hand, we had a fresh MIT PhD join the Mechanical Engineering Department, Dr. Sukhatme, who was assigned to teach us Heat Transfer. He started with something or the other that needed the Navier-stokes equation. When we all looked blank (another something we had missed being taught the previous year due to the strike etc), he went ahead and derived it and the derivation covered





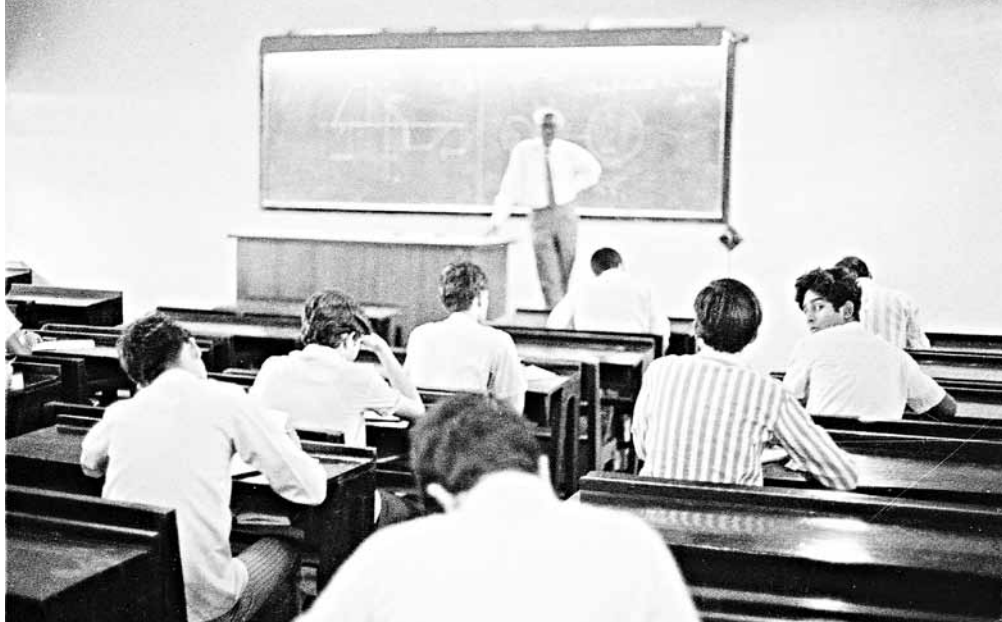
There was a mess strike in all the hostels at the end of the 1964-65 year and everyone was sent home from the hostels.



two black boards. We were IMPRESSED and knew that this one was going to go far. Time has proven that he did.

- We also had some other dedicated and talented people with PhD's from the US. Two names that come to mind are Dr. Thyagarajan in Physics (Optics) and Dr. Chatterjee in Civil (stress analyses of bridges etc).
- But we identified with and had the highest respect for our locally trained professors (whether or not they went to Russia for a quick PhD as a part of the Russian aid to start IIT-B). There was an element of desipride in those days.

- Prof. M. N. Gopalan taught us Math in First Year. There was some incident and he was a little annoyed and left the class. The next class he wrote something in Sanskrit on the board and translated it for most of us who did not understand it to mean, "Even warriors who have sinews of steel have hearts that can be bruised with rose petals" (I would love to know the original Sanskrit version). This is because there was a mention in the last issue of Fundamentals where someone mentioned that he was quite religious. I readily believe that assertion.
- There was a Prof. Venkatraman who taught us Chemistry in First Year. One of his favourite expressions was: "Nexta we proceeda to discuss....." He also had a clear vision of what he expected from us. "It is not the Professor's duty to TEACH you people, but to merely create an interest in some concepts and ideas so that you can go home and study from various sources



and learn the important lessons to pass my course”. He was strict but well respected, and therefore, well-liked.

- There were many comments in the last issue on Prof. M.S. Kamath who taught Motors and Generators to Mechanical Engineering students in the 3rd year and many others too, I am sure. He had a remarkable memory. He had memorized the last names of all the students in the class. He would start reciting the names as he entered the class, taking roll-call. He would note the ones who were NOT present and the entire exercise was completed within a couple of minutes and he would have his stuff arranged on the desk in the mean time (talk about multi-tasking) and start teaching. All his exam questions had numbers that could be calculated easily and were round numbers so the trick was in solving the problem by laying it out logically and not getting lost in slide-rule manipulation (we had just started using slide rules then). He was strict and demanding (no bamboozling him on answering his questions) and therefore VERY well respected.
- Another interesting incident was in one of these steam engine/turbine courses. In order to help us practice using steam tables (I guess the students do not have to do any of

this sort of stuff nowadays with computers and so forth) an example was created with numbers pulled from the air. The objective was to calculate the dryness fraction (as steam condenses, moisture is in the form of a liquid and not gaseous steam which has much higher heat content). With all kinds of slide-rule manipulation and references to the steam tables and so on, the answer was 125% dryness fraction. Everyone was a little stunned and amused until the Professor explained that this meant that the steam was SUPERHEATED so it could give up a certain amount of heat and still remain in the gaseous phase and continue to possess the latent heat of evaporation for conversion to work.

### General

- At the current location of the swimming pool, we used to have a shed. This was our “Dark Room” for making black and white prints from negatives (color film was introduced in the US at that time but was too expensive in India and there were no easily available commercial outlets for developing the films and making prints etc). We used to have to sign out for a key to the hut from P. T. Singh or his designee and then go to the shed at night (to ensure darkness) and played with the photographic paper and the





enlarger to make prints and enlargements. It was just something to explore and nothing serious artistic content came out of it that I am aware of.

- Each Hostel had a room (Nos. 1, 2 & 3) or a duplex (Nos. 4 through 7) for the “Dhobi”’s office. People went there and gave their slacks (and sometimes, shirts) for laundering and picked them up the following week. The reason for mentioning this is that we had more rooms than students so could spare them for dhobis. We also had a cobbler setting up shop in Hostel 5 (I do not know if had arranged to live in one of the rooms or whether he used to commute). His hangout was below the staircase of the last wing in Hostel 5 (later called “Lord’s Wing”).
- Powai Lake walks were frequently taken by folks desiring solitude and sometimes a group from a wing went for a walk to take a break from their studies at night. There were no known co-ed walks at powai in those days and there were not too many buildings along the road so that the scene was fairly peaceful. They have built a number of staff quarters there now.
- There was a mess strike in all the hostels at the end of the 1964-65 year and everyone

“You say you went to St. Xavier’s College. Did you know any dames?” And the answer given was: “Not Knowing Meaning Dames”. That was the last question. He was asked to leave in disgust as the ragers did not feel it would be entertaining enough to rag him further.



was sent home from the hostels. Then Brigadier Bose, the Director, split up the Hostel Messes into FOUR messes (we used to have two prior to that: One was a non-vegetarian North Indian style mess and the other used to be a Vegetarian South Indian style mess) so that the number of employees in each mess was below 12 and so could not unionize. The students came back half at a time for six weeks each (third and fourth yearites first and the freshers and second yearites next). So the summer of 1965 was a little “different” for the people then. The final year folks had graduated in December 1964 so they were not affected by the strike.

- Groups frequently did swimming at Vihar,

particularly on weekends. It was considered safe in those days. We walked along the pipeline behind Hostel 4 to go there. There was NO SWIMMING POOL on campus. One had to belong to one of the city pools to swim if one desired to so on weekends etc.

- While the official student Magazine “Spectra” had just begun to be published, a group of people aligned with Elias Elijah, EE-65, H-5, created a spoof and called it “Rejestr”. Junior residents in the Hostel were asked to “SELL” it to freshers and others for rupee one per copy. I happened to become one of the best salesmen in terms of rupees collected.
- A popular slang used as a put down was “PJ” which was supposed to be the short version of Poor Joke. However it was often used as an adjective and some individuals were denigrated as being PJ’s.
- People who did not have (or pretended they did not have) a good command over English often got to escape from a long ragging session. One instance was someone who was asked: “You way you went to St.Xavier’s College. Did you know any dames?” And the answer given was :”Not Knowing Meaning Dames”. That was the last question. He was asked to leave in disgust as the raggers did not feel it would be entertaining enough to rag him further.
- A popular question asked to freshers during ragging was the square root of 0.9 and may stumbled and said 0.3 out of nervousness.



**Sailesh Kapadia**

**ME-1968, H-5**

*Sailesh Kapadia, is now retired, graduated with a B. Tech in Mechanical*

*Engineering in 1968 and lived in Hostel 5. After graduating, he went to the US and got and MSME and an MBA and worked for a number of companies in various capacities and consulted as a Six Sigma Black Belt and ISO Auditor for the last decade and a half. He started the Pittsburgh Chapter of the IITB Alumni Association a decade ago and still helps the current Chair of the Chapter, Kalpesh Upadhye. He has always been willing to help students and visitors from IIT-B who go to the various Universities in Pittsburgh.*



Student Alumni Relations Cell (SARC) organised the 2nd Student Alumni Meet (SAM) on the 6<sup>th</sup> and 7<sup>th</sup> of October with great fanfare. It was an all-inclusive festival aimed at bridging the gap between the students and the alumni, with a variety of events being organised over the stretch of 2 days. The pre-event online game “SARCasm” and the institute wide publicity with posters and flexes ensured a reasonably good buzz and wide participation, including even by the PG students.

SAM took a giant leap in terms of the scale of the event by including various clubs and bodies across the institute. Not surprisingly, the events practically covered all aspects of the relation building with the alumni. In this regard, several initiatives in form of events such as “Core Weekend”, conducted in collaboration with the Career Cell (part of the Academic Council), and “Mock Interviews” (a workshop and interview session in collaboration with the Institute Placement Team) covered the career ambitions of the students and how to pursue them. With the ideology that alumni are the most treasured institute resources for experience and wisdom sharing, both the sessions were very well received. As an extension of academics, a “Tech fair” was organised on both the days for alumni visitors to gain insight into the level and scale of technical activities and projects students involve themselves in

outside the classroom.

To abandon the path of a traditional corporate career that most IITians choose, a session on “Beyond The Horizon” was organised to display the courage and involvement of alumni who’ve followed their heart and passion and made a living out of it. With alumni belonging to a variety of domains ranging from social activists to health care experts, mountaineering enthusiasts to artists, the sessions provided a refreshingly diverse perspective to the students. This was followed by an equally engaging Q&A session, with students asking the alumni the source of their motivation and enthusiasm. Another session on “Power of Innovation” left the audience enthused on how they could easily build another Facebook or Google from India if only they resorted to critical thinking and followed the same scientific approach that their professors inculcate in the IITB classrooms.

On the lighter side, the “Sports Meet”, previously known as “SPASM”, was inculcated into the SAM structure and similar events and sports competitions were organised. The role of the SARC team and Sports Council, working in cohesion, was instrumental in managing the large scale meet. Though the mid-October thunders and rains washed out several outdoor games, indoor games such as basketball, played in the new Syntel



Gymkhana, kept the sportsman spirit running high; students (both boys and girls) squared off against their alumni counterparts. In the broader perspective, a foundation to the first Institute Basketball League was also laid.

In Parallel, cultural interactive sessions were organised to involve alumni and their family with students to mutually learn and enjoy performing and non-performing arts in a non-competitive environment, as part of the “Cultural Meet”.

The ASMP Mentor-Mentee lunch served to “Break The Ice” and continued the legacy from last year as being the exclusive platform for face-to-face interaction of the student-alumni pairs. Both days saw a significant participation from both parties. All speculation and doubt regarding the requirement of such an event was laid to rest when mentors from previous phases also came down to meet their mentees of last year. This was undoubtedly the biggest USP of the event and strengthened the ground-breaking concept that the best discussions happen over a full stomach!

The second half of Day 2 had a **stand-up comedy** performance by Rivaldo followed by a Q&A and interactive session as to how and what led a student to move from an “engineer” to an “entertainment engineer”. One of the memorable quotes from the session

by Rivaldo was, “I was a shy person. But the stage takes away the shyness and has built a confidence in me which nothing else in my life could”.

The event came to an end with the flagship event- the “Panel Discussion” on “The Unfulfilled Dream: Vision Behind the IITs”. With an elite panel including Prof Phatak and Mr Satish Joshi among the seniors and Antariksh Bothale among the recent graduates, the discussion saw wider participation with both student and faculty forming a part of the audience. The enriching discussion on the structure and contribution of IITB to society and the nation was beautifully depicted with collective contribution from the panellists and the audience.

With this, the Student Alumni Meet ended on a high, laying the foundation of a phenomenon serving as the biggest platform for such large scale student and alumni interaction and leaving behind an unprecedented legacy of coming together and jointly celebrating the IITBian of yesterday and today. In due course of time, the SAM is bound to become the most anticipated meet of the year by all stakeholders of IIT Bombay, –be it students, faculty or alumni !!

All the major sessions were video recorded and would be uploaded soon.

*For more details on individual events please visit our website <http://sam.sarc-iitb.org>*

# Thank You

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**Accountants:** You counted, calculated, discussed, argued and fought. You tell us that *Fundamatics* is not only a fun magazine but also a money spinner. It spun 5 lacs in 4 issues. We like what you say. We like your counting abilities. We like you.

**PV Krishna, Aishwarya Ramakrishnan & Parul Gupta:** You are all, what shall we say, a bee-come-lately. You have taken off a hive load of work from overworked, under-slept and harangued bees. God bless you. We like you.

**Tejas Suma Shyam:** We are all typo prone and grammo prone. You give us "proof" that English really is a phunny language. When our F7 keys fail, we turn to you. We like you.

**IITBHF:** You asked us to ship you gazillion copies of *Fundamatics*. That shows you have good taste. Send a complimentary copy to Obama and Mitt and send the bill to us. We like you.

**Deadlines and Headlines:** This time, we missed neither of you. We like you.

**Awards:** We know you beckon us. Soon we will come galloping on a horse and take you away. You like us.

**CARS:** Contributors, Advertisers, Readers and Subscribers. You pay our bills. We LOVE you. Triple your numbers by December. We will love you five times triple!

**Deal of the season:** Tattoo "*Fundamatics*" on your collarbone- free with a special 10 year subscription of *Fundamatics*. You will like this because we know you like us.



# Creative Bees at Fundamatics

## Illustration



**Shreyas Navare**  
C'08, SJMSOM,  
H-13

*Shreyas Navare: (C'08, SJMSOM, H-13), Mumbai, Senior Manager,*

*Marketing and Corporate Communications at a private bank. He freelances as a Editorial Cartoonist for Hindustan Times. He has covered elections in 6 Indian states through the eyes of a cartoonist on behalf of HT. Shreyas has held many cartoon exhibitions, two of which were inaugurated by Dr. A. P. J. Abdul Kalam. His first solo international cartoon exhibition was held recently at Bangkok.*

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## Design

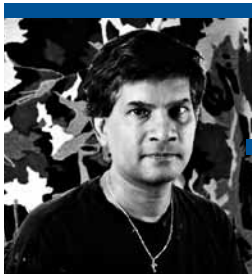


**Anand Prahlad**  
C'07, IDC, H-8

*Anand Prahlad is an independent graphic designer and artist. When not design-*

*ing books, magazines, corporate identities or illustrating, he is an active gardener, culinary expert and amateur musician.*

*He runs [www.thenewvitruvianman.com](http://www.thenewvitruvianman.com), where he writes and illustrates articles on design, gastronomy and music.*



**Derek Monteiro**  
M. Sc. Physics,  
C'84

*Derek Philip Monteiro: M. Sc. Physics, C'84, started pursuing his love*

*for art, even when he was at IIT Bombay. A Mumbai based self-taught artist, he is completely at ease with a variety of colour media, including oils, acrylics, oil pastels, ink, and more. Derek has a fine track record built over the last two and a half decades and his paintings have been sold all over the globe. He has a unique sense of humour and describes his art as "Marvellous Nonsense". Scattered across the magazine are samples of his art which he has been kind enough to share with us. Derek can be reached at [giggle\\_ashram@yahoo.co.in](mailto:giggle_ashram@yahoo.co.in) and his art is available on [www.buyonlineart.com](http://www.buyonlineart.com)*

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