

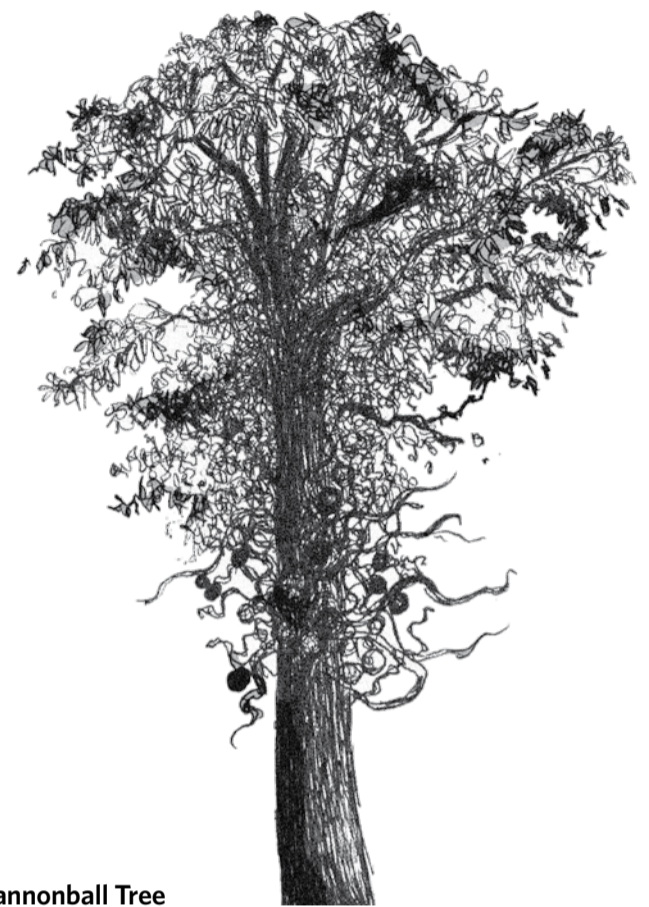


PERSPECTIVE

## Rules of the Game ■ S.N. JHA Current in-charge, Gymkhana



Illustration by Farweej Bhutia, IDC



Cannonball Tree

Every morning, when I sit down with my cup of tea and the newspaper, I usually turn to the sports page first. More often than not, it records people's accomplishments while the front page is nothing but a daily litany of failures, at the individual level and in governance.

It is a curious paradox, that while physical education is considered an integral part of our modern education system in India, it is still mostly taken for granted — a statutory requirement of the government so that schools incorporate PE classes in the time table and provide facilities for students to play games regularly. The same trend continues when students reach college. A sport is considered a supplementary activity that students can indulge in if they so desire but never as an integral part of the college curriculum. In fact, while most people would accept that exposure to sports and physical activity builds not just one's health but also character, very few people realise why it is kept in the curriculum, be it in school, but even more so at the college level. In the minds of most modern parents and even educational institutions, sports and games pursued after passing out from school are to be encouraged at best only for those who want to pursue it professionally, and at the very least as a recreational activity. It is perhaps for these reasons that participation of young adults in sports and regular physical education starts decreasing drastically once they are out of school. It is of little wonder, then, that ours is not a sports-minded nation!

It is a scientific fact that the growth pattern of human beings has two distinct phases. First is the phase of structural growth, when the height and size of vital organs increases. This phase is more or less complete by the age of 18 years, and physical development in this phase is

easily perceivable since we can measure these attributes externally. The second phase is when functional maturity of the body grows, which reaches its peak by 23 to 25 years. Development in this phase is hidden and therefore cannot be measured easily. So for large sections of our population, if they are not visiting the doctor for a medical problem they consider themselves physically fit.

It is precisely this mindset that permeates even institutions of higher education and contributes to the general impression that Physical Education is needed only for children when they are young and growing. There is scant awareness that in addition to structural growth, organic growth is equally important, and it is an integral part of the general health and well-being of young adults.

In fact, how often have we asked ourselves this question: "Are sports and physical activity a part and parcel of an IIT education?" Is it a well-integrated part of the daily ritual of the denizens of this campus?

Ours is a campus blessed with hills, lakes bordering our flanks and open spaces of land in between; one can always indulge in physical activities safely, and at one's own convenient time. At the same time, it is situated at the heart of India's most developed mega-city, Mumbai; people here have access to all sorts of gadgets to get their work done, both at home and at office, thus enjoying the best of both worlds.

However, life is becoming increasingly sedentary over here as well. Few people realise the importance of regular physical activity in creating and maintaining organic vigour, so crucial for maintaining a long and healthy lifestyle.

Of this issue's tree, it's said that it would be useful to have signs fixed to its trunk warning bystanders of falling skull-crushers. With good reason, too: the fruit of this tree, from which its common name derives, is uncannily cannonball-like, spherical, heavy and hard; for one of these to come down on your head wouldn't be entirely free from danger. The tree's large, perfumed, fleshy flowers are just as gorgeous as its fruit is plain-looking, aflame in reds and yellows and pinks, and so bizarrely constructed they look almost fake. Another remarkable quirk of the cannonball (*Kailashpati* in Marathi, *Shivalingam* in Hindi; *Couroupita guianensis* taxonomically) is the way it bears its flowers and fruits not among its foliage but on long, curvy tentacles that sprout directly from its trunk, so that looking up the tree's bole can have a surreal, science-fiction feel to it. In build the tree favours height over width, casting only a modest shade, while its long, evergreen leaves are so elegant as to make it eye-catching even without its store of curiosities. We have a few fine specimens of these unusual trees on campus, including one at the entrance to the Staff Club and another tucked away in IDC's inner courtyard; they are in season now, so this is a good time to view their flashy displays.

Getting into good educational institutions like IIT is extremely difficult due to the limited number of seats available. Students become involved in entrance examinations and in preparing for their professional careers at a relatively early age. So even in schools, most students neglect participation in regular sports programmes. This in turn adversely affects their physical fitness and even physical efficiency. We might be able to take care of our health to some extent through advanced medical care facilities, but our physical fitness levels continue to remain low, in turn affecting our physical as well as organic growth.

(contd. overleaf)

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## Profiles of Sports Achievers



**VIJIT JALAN**, a 5<sup>th</sup> year student of Chemistry is the current Sports Secretary of IITB. He is a central defender of the institute hockey team that won gold for two consecutive years at the Inter-IIT Sports Meet. Their latest victory was special as they stayed unconquered, winning the gold without conceding a single goal for the entire tournament. Vijit started playing hockey from class

4 onwards. He took a brief sabbatical from the sport in class 7 and 8, when he veered towards table tennis. He still plays TT in the hostel and in SAC, but hockey remains his first love and he has participated in every Inter-IIT from the time he joined the institute. Vijit also enjoys playing squash although he rues the condition of the institute's lone squash court, grossly inadequate both in terms of its condition as well as the number of people it is expected to cater to. As the Sports secretary, he adds: "The increase in student intake has adversely affected the sports infrastructure available at the institute, which is unable to cater to the increased numbers. It is true that there has been an addition of three new tennis courts to which a brand new gymkhana will be added soon. But some sports still continue to suffer, for instance, squash (for which there is only one court for the entire institute, that too in poor condition), cricket (lack of pitch preparation, lack of nets, etc.) and basketball — its courts are in a truly lamentable condition."



**SHRUTI REDDY** is a campus resident who was initiated into swimming by her father, Dr. P. M. Reddy, who has been coaching generations of students at IIT Bombay. Shruti first jumped into the blue waters when she was all of three months old. After nearly drowning when she was around three years old at the deep end of the campus' pool, she modestly said that she was "very

reluctant" to go back to the pool. Shruti seriously began swimming when she was nine years old, and throughout her school years at Kendriya Vidyalaya, she represented the state at various national level sports meets. A typical day would involve three hours of training and on days when she would be preparing for sports meets, this would be extended to around four hours, to accommodate exercises and weight training. She smilingly adds how her friends would adjust their birthday celebrations around her training schedule so that she could make it to them. She was also selected four times for the annual Asia Pacific Swimming and Diving Championship. Because of her tender years, Shruti's parents felt she would find it very difficult to handle an international sports event; this coupled with a lack of funds meant that she was able to represent India only once, when it was held in New Delhi in 1999. In 2000, she was awarded the Best Swimmer Award by the Swimming Federation of India. Currently, Shruti is pursuing a postgraduate diploma in Management from SIESCOMS in Pharmaceutical Management. Her hectic schedule leaves her no time for swimming, but she takes a dip once a while when the waters call.



**VIPUL VIKRAM**, a 5<sup>th</sup> year student of Civil Engineering here discovered the joy of playing volleyball when he was in class 8. Soon, he was playing in inter-school tournaments both at the state and national level. The pressure of preparing for JEE meant that sports took a backseat in senior secondary level, but once he was in IIT Bombay, it did not take him too long to get back on the court.

He started playing from his second year onwards and last year, he was the captain of the volleyball team in the Inter-IIT Sports Meet. The team had been languishing with a bronze medal for quite a while now but they managed a better showing last year, when the team secured a silver medal. Vipul is also captain of the Hostel 13 volleyball team and last year, the team secured a gold medal for the first time in the history of H13. Vipul plays soccer and is into athletics as well, and hopes to make it into the athletics team this year. His one crib — there is no court to practice on during the monsoon months, as the indoor court is cornered by the badminton players.



### PERSPECTIVE

## Rules of the Game

(continued from page 1)

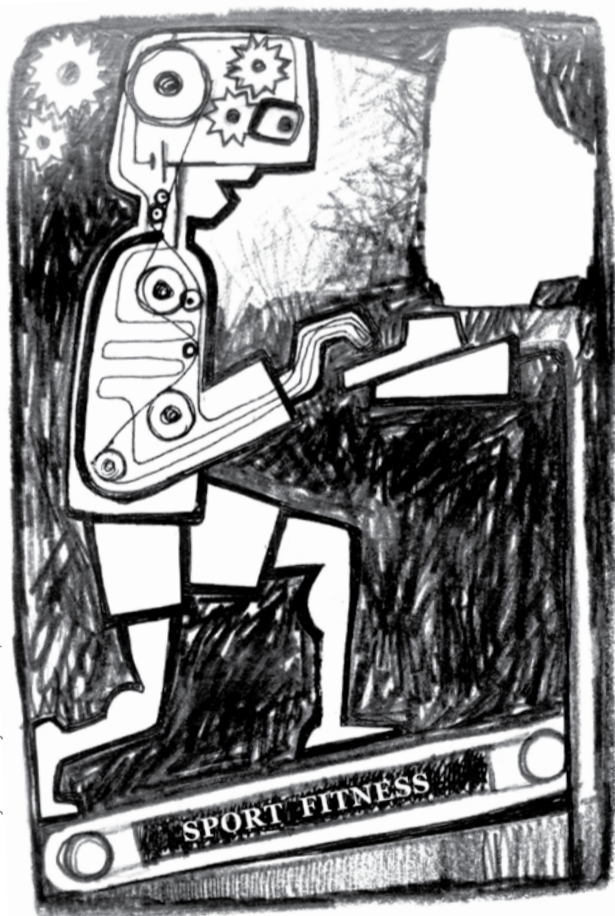


Illustration by Chimmayee Samant, IDC

Students reach IIT Bombay after a rigorous study programme. At their preparatory stage, they are often studying for 10 to 12 hours a day, for two to three years, starting from 15 years onwards when growth spurts remain high. To make matters worse, in order to recover from the exhaustion of long hours of study most students try to supplement their diet with highly nutritive food items. On one hand, food intake remains good and on the other, physical activity remains minimal due to lack of time.

**There is hardly a culture of sports and physical activity amongst elite students of our country.**

Thus, students tend to become overweight and lethargic. This is particularly evident for postgraduate students whose involvement in sports is already on a downward curve during their undergraduate years, for reasons explained earlier. The same is true in the case of most Ph.D students.

All these factors contribute to creating a scenario where there is hardly a culture of sports and physical activity amongst elite students of our country. Awareness remains low, with little or no experience in sports and even less knowledge about the importance of physical fitness in leading a healthy and meaningful life. In school, they might have been encouraged to participate in sports, but they were not taught that the experience gained there could be continued, so that optimum physical fitness levels could be maintained throughout their life.

Recreation is only possible when you have the concept of leisure. Students nowadays are an ambitious lot, driven

**Our aim is to equip them with physical prowess by participating in various sports activities and inculcating in them a clear understanding that development and maintenance of physical fitness is a life-long process.**

by the need to further their careers. So even when they leave the institute, their demanding, high-profile jobs mean that there is little time set aside for recreational activities. What little time is available is spent in passive recreational activities like watching TV or just relaxing with friends, which makes their life even more sedentary. Physical fitness is the first casualty in such a lifestyle. They have little physical prowess left to enjoy the fruits of their hard-earned money to its fullest.

**In addition to structural growth, organic growth is equally important, and it is an integral part of the general health and well-being of young adults.**





**SRIRANG SOHONI** started playing tennis on campus at the tennis club three years ago, and discovered to his surprise that this was a sport he enjoyed. Encouraged by his potential, Dr. Jha took him under his tutelage and soon Srirang was representing the state in tennis in the under-10 category. He has travelled extensively within the state, playing at tournaments in Pune,

Nagpur, Solapur and Mumbai, to name a few. He also represented Kendriya Vidyalaya, IIT Bombay as part of the Western region contingent for a National Meet in Hyderabad. He is currently placed third in the state rankings (based on the number of total points he has earned). When he is playing in the tennis circuit, his day usually starts at 5:30 am, with a round of practice and training before he goes to school later in the morning. Srirang enjoys and participates in a variety of sports, and this monsoon, he has discovered hiking and is taking it up seriously. When asked about picking up other sports, he seemed quite open about learning them in the near future. Going by his current track record, he will probably excel in them as well.



The first instances of swimming that **SIDDHARTH RAO-DEB** remembers are ones when he and his mother 'cooled off' on lazy, hot summer afternoons in the pool. The love of swimming grew as he began to enjoy the sport. After all, it's the only sport you can pursue even in heavy rains. He was sensitive to weather changes and would fall ill often but once he got into swimming, the coughs and

colds reduced considerably. Under Dr. Reddy's tutelage at IIT's swimming pool, Siddharth has won many medals at regional and national swimming meets. At the Mumbai district level, he is the reigning breaststroke champion for his age group. Last year at the Maharashtra State Aquatics Championships, he won a gold medal in the 100 metres breaststroke event and a bronze medal in the 4x50 metres medley relay and represented the state of Maharashtra at the Swimming Federation of India Championship, Goa (under-12 category). He has travelled extensively within the state and country through Kendriya Vidyalaya sports competitions as well. "Swimming calms me down. It helps me deal with other stresses in life. Before important events, I always prefer to go to the pool to cool off and relax."



**SIDDHARTHA DAS** is a 5<sup>th</sup> year student of Civil Engineering at IIT Bombay, but a better introduction would be: Siddhartha Das is an enthusiastic midfielder for IITB's football team. He first kicked off in class 4 in school and for a while, he was also interested in badminton. He seriously took up football when he came to the institute, and has been a part of the winning streak that

the institute's football team has been on, winning gold at the past three editions of Inter-IIT Sports meets. When asked about the status of football on campus, he was very upbeat. "Football is very popular at the institute. There's lots of competition — hostels play individually and also participate against each other and then of course, there is the Inter-IIT." With their track record at the previous sports meets, Siddhartha believes that his batch has been the most successful football team. He also attributed the success and popularity of the game to the coaches, Dr. Jha and Mr. Aman and added that "The institute has also supported us resource-wise. We have been provided with tracksuits, studs, shin guards, etc. and we are thankful to have such a great playing field as well."

We have a greater responsibility towards our students and even towards campus residents in improving their physical fitness awareness once they join IIT. Our aim is to equip them with physical prowess by participating in various sports activities and inculcating in them a clear understanding that development and maintenance of physical fitness is a life-long process. This can be achieved by hard exercise alone, which many people don't like. However, playing sports with family and friends does introduce an element of fun, so it seems less like an exercise and more

an enjoyable activity that can be sustained on a long-term basis. It is not even necessary that people indulge in long hours of daily sports practice, at the cost of their academic commitments, or to become champions. It ought to be a reflective, self-imposed, disciplined commitment to sports and physical fitness.

To conclude, I would like to reiterate that today's is a "push button civilisation" where most tasks can be accomplished by pushing a button or turning keys. The very definition

of a "good life" has become less physical and more gadget-centric, designed to accomplish all our daily work efficiently and effortlessly. But all this comes at a certain cost; a price paid with declining physical fitness levels and increasing instances of various lifestyle diseases. Unless concerted efforts are made to reverse this trend, the future interest of the general health and well-being of the nation is bleak indeed. ■

## A Bit of This and a Bit of That

■ JAYA JOSHI



I'm going to present this issue of *Raintree* with a few important wishes. A big thank you to D. Uday Kumar from the Industrial Design Centre for giving us the new Rupee symbol, and once again putting IIT Bombay's name in the pages of history. A prominent national columnist says, 'the newly-minted symbol is strong, neat, international and assertive'. Uday, who is now Prof. Uday Kumar at IIT Guwahati, incidentally has been a huge hit in the media and we're proud of all the noises it's making. In my PR history, the last time a media deluge this big happened was when I had organised a press meet for Mr. Bill Clinton's first visit to India. Looking back, there were two things that were different. First, with Mr. Clinton, I had enough notice and was fully prepared for it but for Uday Kumar's announcement, when I woke up on the 15<sup>th</sup> of July, I had no clue that my phone that day would exclusively be taking calls for Uday from more than 150 media personnel from around the world. Second, the press meet with Mr. Clinton was a job but with Uday, it was a job with a great sense of pride. We're proud of you, Uday and wish you all the best!

The team at *Raintree* also wishes a warm welcome to all the freshies and good bye to all the passing out students. You're both on the verge of something new and exciting. Make the most of it and have a great time!

The theme of this issue is on the spirit of sports at IIT Bombay. The lead piece is written by Mr. S. N. Jha, our very own philosopher of sports. The two of us once had an interesting discussion on winning and playing and I was happy when he agreed to write this piece. If you're wondering why we chose sports for this issue, his article will hopefully tell you. Also don't miss the Random Meanderings this time. Sent by our alumnus Rajendra Laad, it looks at the same subject of winning and playing in a light-hearted way. As always, the issue comes filled with brilliant illustrations, photographs, poems and stories. I'll be interested to have your comments, so don't forget to write in.

And before I sign off, I just want to say, what's with the rains? This is my third consecutive monsoon here and the thing that I like best about the Bombay monsoon is that it cannot be predicted. Look at it this year and how starkly different it is from last year. It's spirited, strong and somewhat cynical. This cynicism does create havocs for the planners, but then it's a lesson in preparedness that it's been trying to teach them for many years now. Anyhow, the campus is all lush with mostly green and very little brown. Despite the leaking roofs and damp and mouldy walls, I hope you're enjoying the rains as much as I am. ■



INBOX

# Letters to the Editor



A special mention should be made of the recent Anniversary issue of *Raintree*, which you have sent me. It is devoted to the rich ecology and other habitat in our vast and picturesque campus. Yes, I recall vividly my friend and colleague Prof. G. C. De's outdoor jaunts.

Though viewed as a 'contrarian' by many colleagues (example: how many of us would write letters longhand and send it by snail mail in this day and age?!), Prof. G. C. De had a streak of originality; he combined an indoor profession like teaching and research with a robust outdoor hobby like bird-watching. I had accompanied him for a couple of trips in early 1962-63 and then gave up. To keep pace with him needed missionary zeal. I liked your article too. Parakeets seem to find a friendly host in you. That they come in pairs adds a touch of romance. My wife says: "Ms Jaya is lucky; in our days we had only lizards and cockroaches visiting us in our ground floor flat." Wishing you success and best wishes.

**M.V. HARIHARAN**

Received the latest issue of *Raintree* and was impressed by its heft — intellectual as well as corporal. The articles are interesting as ever, but the use of so much paper to spread awareness about ecology/sustainability seems akin to using a loudspeaker to tell people that noise pollution is really bad for them. Please do consider making this an online only publication with limited copies printed for visibility. Most people on campus have access to computers and internet and a few articles for leisurely reading can easily be printed by individuals.

**PRITA PANT**

Congratulations for creating such a wonderful newsletter. I really enjoy reading the articles and would be happy if you could write a little more about the Academy's activities in the campus. We'll be happy to assist you in this regard.

**ANASUYA BANERJI**

Academy Executive Coordinator, IITB Monash Research Academy

I have liked *Raintree* from the first issue onwards in all respects. But what I like in particular is the small front page articles about trees in campus. I myself love trees a lot and really appreciate the efforts taken by the writer of those articles (the name has not been mentioned anywhere). So I wanted to convey my regards to the writer and a request to continue the good work. Looking forward to read further.

**BHAKTI JOSHI**

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

NEWS

## Uday Kumar Creates History

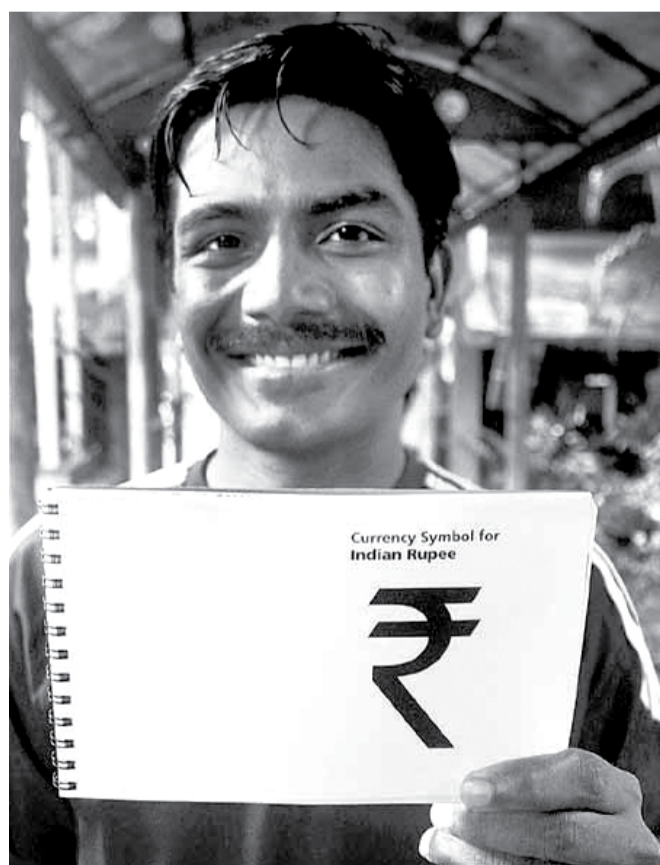
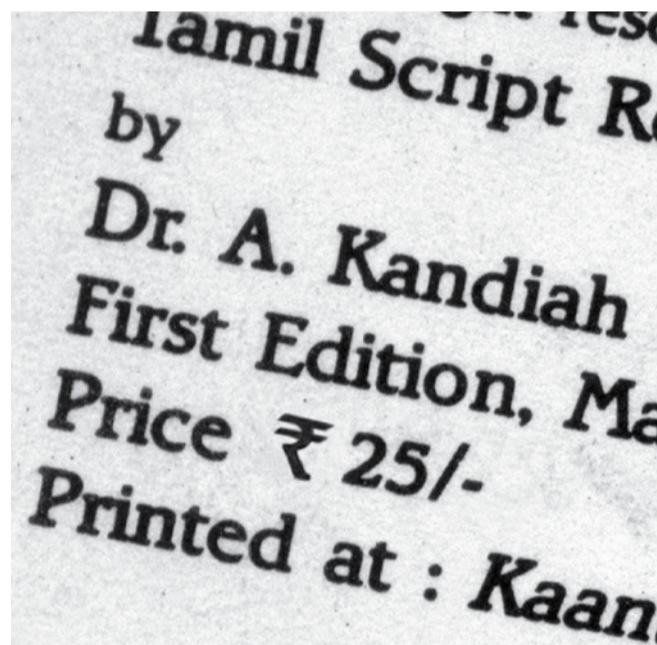
By designing the winning rupee symbol, D. Udaya Kumar has, in one stroke, immortalised his own name for posterity. Overnight, he has become the poster-boy of the press and everything that could possibly be written about him has already been covered in the mainstream newspapers and TV channels. So, instead of adding to his existing girth of accolades, we'll just talk about the thought that went into making the symbol and add our own heartiest congratulations.

The thought behind making the symbol was clear. The design had to be simple, instantly recognisable, something that registered and stuck in people's minds while being easy to adapt to. Keeping cognisance of the deep impact a simple design has over people's minds, Udaya derived the symbol from Devanagari script and integrated with the Latin script. "This amalgamation traverses boundaries across cultures giving it a universal

identity, at the same time symbolising our cultural values and ethos on a global platform."

The symbol is derived from the word *Rupaiah* in Hindi and Rupees in English. Obtaining letters from these words conveys symbol's association with our currency. Retaining the *Shiro Rekha*, which is unique to the Devanagari script and therefore our culture, instantly associates the symbol with the Indian currency while making it distinctive from other currency symbols. "The two horizontal lines with an equal negative white space (imaginary space) between them creates a foreground and background effect of three strips (tricolour). The strips subtly represent the tricolour of our Indian national flag flying at the top. The horizontal lines also denote the arithmetic sign 'equal to'." The symbol is in visual harmony with symbols like \$ € £ ₹ ¥ ¢. Did you notice its presence in the list of symbols?

We are all proud of his achievement and thank him for doing IIT Bombay and IDC proud.



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Currency Symbol for Indian Rupee

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## PERSONALITY

# In the Eye of the Tiger

Interview with **PROF. DIPAN GHOSH**, Department of Physics

Photograph by Venkat Damara, IDC

*If there ever was an Einstein look-alike in campus it would have to be Prof. Dipan Ghosh. Known throughout the institute for his plain spoken directness, Prof. Ghosh is set to retire after a distinguished career spanning more than 35 years. In this period, apart from his duties as a teacher, he has been Head of Computer Centre, Dean Resource Mobilisation and Deputy Director and has headed innumerable committees. He has been a key thinker on a number of critical issues and has made invaluable contributions to the continued growth and well-being of the institute. For his keen intellect and insightful contributions, Prof. Ghosh will be remembered here at the institute by everyone who had the good fortune to be associated with him, however briefly.*

Introduction by **DAMAYANTI BHATTACHARYA**

**NOTE** Prof. Rohit Manchanda conducted a series of interviews when he was researching the history of IIT Bombay for writing his book *Monastery, Sanctuary Laboratory: Fifty years of IIT Bombay*. One of the people he interviewed was Prof. Ghosh, who spoke extensively about his long association in various capacities within the institute. Since Prof. Manchanda could use only a small fraction of the contents in his book and there was a lot both in terms of humorous and thought-provoking content that could be shared with the campus community, we decided to reproduce excerpts from the original interview supplemented with a few additional questions from our end. We hope you have an interesting read.

**Q. Prof. Ghosh, to start at the very beginning, could you tell us a little bit about when and how you decided to join IIT Bombay as faculty?**

I joined IIT Bombay in August 1974. I had been in Bombay in 1966 as a student, when I joined TIFR for my PhD and from there in '71, I went first to England and then to the USA. In the 70s, there were not many opportunities for a person with a PhD in science. The university system was in doldrums and there were not many options for theoretical physicists like me. My decision to look towards IITB was primarily because I had spent time in Bombay and Bombay is a city that grows on you. So, when we decided to return from the USA, the IITs were the only alternatives available. My letter of appointment had a bit of historical value as this was perhaps the last document signed on the last working day of Prof. Kelkar as the Director.

**Q. What was your first impression of the institute?**

The first time I came to IITB was when I attended a conference here on Nuclear Physics as a student of TIFR. In the 60s and early 70s IIT was absolutely barren; in fact this is a matter that should be of great pride to us, the greenery that we see around us today is completely man-made. Secondly, you have to realise that the only transport to this place was from Vikhroli station or Vikhroli Bus Depot. There was one bus, 392, every half an hour, which would come inside the campus and after 9 pm, there was no means of transport at all. It was very different from TIFR, which was in South Bombay and in the hub of things. I once came here during the monsoon. Walking on the water-logged roads, it seemed as if I had shifted seamlessly from Shanti Niketan to Powai, which was as much of a village as Shanti Niketan was at that time.

**The first time I came to IITB was when I attended a conference here on Nuclear Physics as a student of TIFR. In the 60s and early 70s IIT was absolutely barren; in fact this is a matter that should be of great pride to us, the greenery that we see around us today is completely man-made.**

**Q. Tell us about your recollections from the early years. What were the kind of difficulties you faced?**

The biggest difficulty when we arrived here was housing. Even today, you find young faculty complaining over housing, but in '74, the problem was in a different order of magnitude. Before reaching here, I was informed that there was a housing problem and that I would get Staff Hostel accommodation. When I arrived, I had to face the first bureaucratic hurdle in this institute — the Institute Engineers' Office — which informed me that they had absolutely no place to give me. A colleague staying in a Type 4 Quarter house offered to host us till we got our own accommodation. But we used to eat out and after some ten days, I got fed up and went to see the Director. Prof. De had just joined then and he promised to look into it, though he told me there was no accommodation available.

**When we started our Engineering Physics programme, we had to do a tremendous amount of lobbying. A lot of people said "What is this Engineering Physics? It is neither Engineering nor Physics". But we had to innovate for survival.**

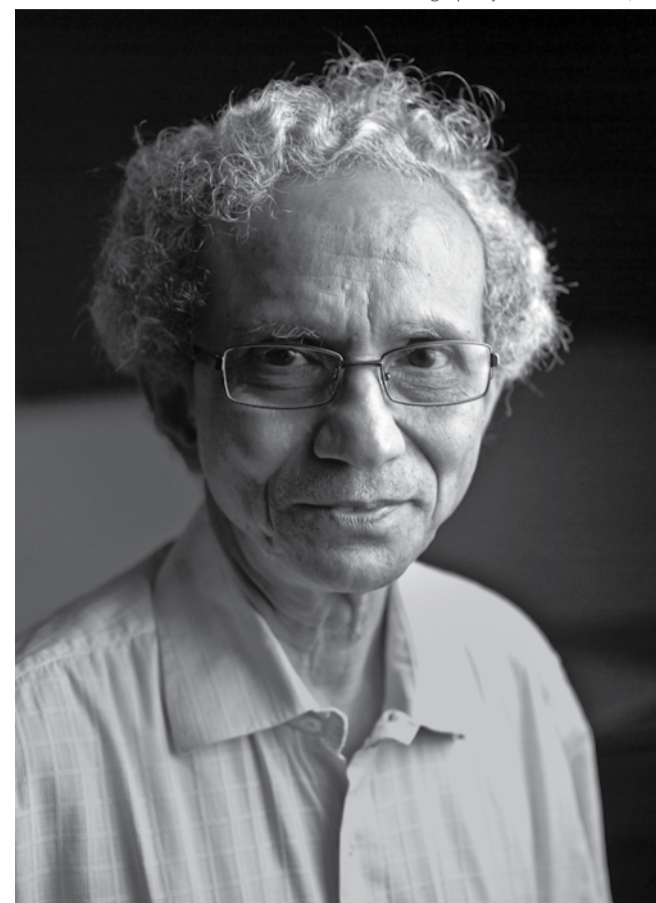
The same night my wife and I were returning to the campus after having dinner, and we came across Prof. De and Mrs. De out on a stroll along the main road. I greeted him with a hello, he recognised me because he had met me the same day. Now, you see, I introduced my wife and I forgot to tell her that he is the Director. I just said 'This is Prof. De', so then as it happens in Indian society, Prof. De and I walked together and Mrs. De and my wife lagged behind a little and were talking to each other in Bengali.

So, the conversation as I understood later went like this: Mrs. De asked my wife when we had come and my wife had replied that we were new. Mrs. De politely said that they were new too. My wife had to ask, of course, whether they had got a quarter and to her surprise Mrs. De said, yes, they had. My wife was shell-shocked and asked her how they managed to get a quarter so soon. She said, 'These people told us they will give us a quarter and they have not given it to us.' When she related this conversation to me later on, I had to tell her that she had been talking to the Director's wife!

Soon we were put up in a room in Staff Hostel 2. From there, we moved to Staff Hostel in a single room (there was no Annexe then) for the next two years. But for anyone here in 70s, such things didn't bother you. This was a time when there was no rice available in the market. We are primarily rice eaters and I still remember going to the other side of Govandi with a bag because rice was a controlled item. There was no kerosene available, no gas; in fact, the first time I got a gas cylinder was after four and a half years of being at IIT. The point is, those were difficult days for the country and anybody who had decided to come back knew exactly what they were getting into.

**Q. Any humorous incidents from the early years?**

All sorts of funny things used to happen in the hospital. When you joined the institute, you had to get a physical evaluation done. So the first day I went to see the SMO, a Dr. Bilingadi. He put the stethoscope on me and suddenly lowered his voice and asked me my name. I told him my name and then he told me — that was the hearing test! There were essentially three colours of medicines available; you either had a white medicine, a blue medicine or a red one. The answer to all your ailments was in one of these three choices. Once I went there with a sore throat (in those days, many doctors were Bengalis). They would suddenly ask, 'So shall I give you Tetracycline, Sulphur or Penicillin?'



But the most hilarious story of the hospital was when we were expecting our eldest daughter. At that point in time, our only contact was with doctors who were from the US or England. Also, all the doctors you met were males. We went to the doctor SMO, and we told him that we suspected that my wife was expecting a child, and that we would like to have it confirmed. He was absolutely taken aback by the fact that somebody had come to him to talk about such a matter. So then he told me, "My friend, you know this is a very, very difficult diagnosis to be done, and in any case the matter will anyway sort of manifest itself!"

**Q: When you joined IITB, how did you perceive it in general, with respect to it being a primary engineering institute? In that light, how were the pure science departments placed?**

To start with, physics, chemistry and mathematics were regarded as service departments; their primary function was to strengthen the scientific foundation of students who had joined IIT right out of school, and were not quite prepared to go into a five-year engineering programme. However, in the early 80s the science departments started asserting themselves. It started with early pioneers who held positions of authority at the institute. One of the first among them who I can recall is Prof. S. C. Bhattacharya, who became the Deputy Director. Then there was Prof. Hiralal and one of the earliest Dean of Academic affairs, Prof. Tyagarajan. The situation changed in the 80s and certainly in the 90s. When we started our Engineering Physics programme, we had to do a tremendous amount of lobbying. A lot of people said "What is this Engineering Physics? It is neither Engineering nor Physics". But we had to innovate for survival. A science degree was (and still is) considered commercially less viable than engineering and in 1983, when the engineering programme became a four-year stint, Engineering Physics was an engineering programme that could be completed in four years, and also fetched you a lot more money. Compare that to a science programme of five years with an uncertain future. The faculty prepared a model more like a B.Tech degree in science. Today our cut-off at JEE is much higher than many engineering departments, so it has turned out to be a reasonably successful programme. Our boys get PhD scholarships to places like MIT, Harvard, etc. And 100 percent of them get placed in good places. When we started this programme, many IITs opposed us with the argument that we were bastardising Physics. In fact, IIT Kanpur still probably maintains that, but IIT Madras has started Engineering Physics, so has IIT Delhi, albeit 15 and 20 years later than us, respectively.



## PERSONALITY

## In the Eye of the Tiger

(continued from page 1)

**Q: Please share some reflections on your own teaching: has any evolution taken place in your own style of teaching over the years, and what is your comment on the nature of interactions you have had with students over the years?**

I have taught almost every course at the Physics Department. I began my teaching in this institute with the PH 101 Mechanics course. After a break, I went back to UG teaching and I have been teaching first year students ever since. In terms of evolution, black board teaching has given way to PowerPoint teaching. But I don't necessarily believe that it is a better way of teaching. With a PowerPoint presentation, things look much better. I can add animation and all sorts of things but as teachers we tend to go too fast. Lights have to be turned down and as a result you don't have eye-to-eye contact with students. In order to be a successful teacher you need to be a good actor too! Classes, too, have become so big that the students are afraid of asking questions for fear of being laughed at. Earlier, in a class of 70, 80 or 100, you knew that when you said something and saw a hesitant face, you could probe further and find out if the student had a problem. I put all my lectures on the web, which is what most students want now. I still enjoy teaching first year students as they are the least cynical and there is brightness in their eyes. Teaching styles have changed out of necessity. We will have no alternative now but to rely on some impersonal methods, if we have to teach 900 students together. In the long run, there is bound to be a shift in the general nature of a teacher-student relationship.

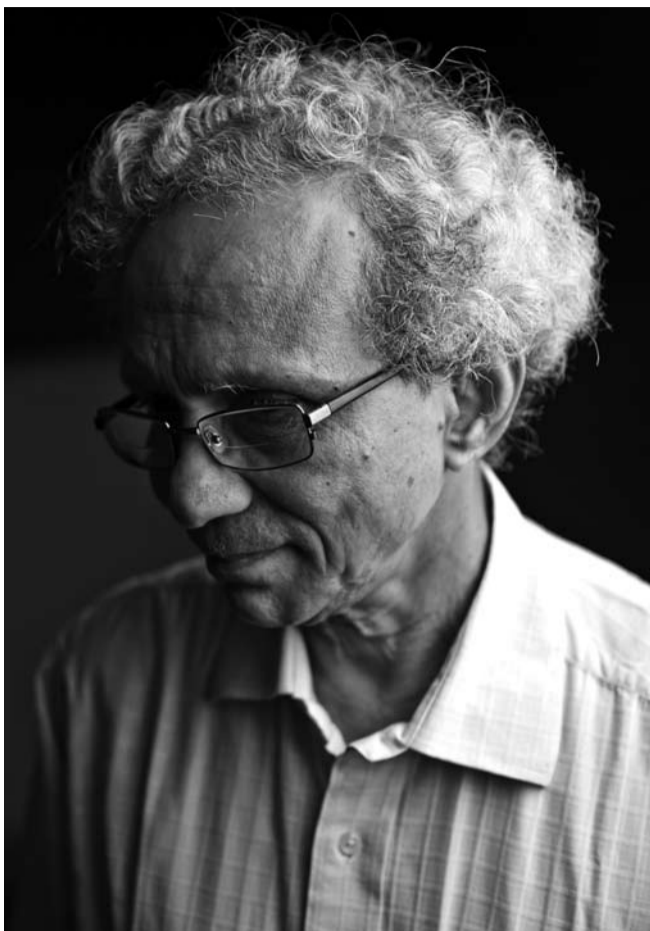
**Q: Since we are on the subject of students, why don't you tell us about your tenure as Dean of Students Affairs?**

Dean (Students Affairs) is one of the most difficult jobs I have ever handled. The problems that come up are totally unexpected and one is often unprepared for them. For instance, you might have to spend the whole night in the hospital trying to save the life of somebody who has attempted to commit suicide. Or this other time when some 40 people were in the hospital, because they had had too much *bhang* (cannabis) on Holi. The Dean (Student Affairs) has to be continuously alert and aware of what is happening. I also believe that the important role which the Dean (S.A.) plays in keeping the institute going is not recognised in many quarters.

IIT Bombay was one of the pioneering institutes in getting rid of ragging. When I took up the position as the Dean (S.A.), one of the requests that I made to Prof. Sukhatme was that we should have a zero-tolerance policy on ragging. It was gratifying that he agreed to this immediately. Along with Prof. Shevgaonkar (who was at that time the Chairman HCU and who succeeded me as the Dean later) we were able to almost bring ragging to a halt. Other student problems have their origin in the unequal sex ratio which still exists in the campus and even today poses a major problem. Drinking was a problem but drugs have become less of a problem since the 90s.

I remember a particular hostel valedictory function night when I got a call from a student saying "Sir, in Hostel 4, a film show is going on". I didn't have to be told what sort of film show it was, so Prof. Shevgaonkar and I went there but some enterprising students had informed the others that the Dean was coming. Unfortunately, since the transport in the institute wasn't good, I always had to go by my own transport which was a rather conspicuous red car; students used to say "oh, *lal gadi aa rahi hai*" (there comes the red car).

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Photograph by Venkat Damara, IDC

By the time we reached there, the students had vanished. The students used to hire the equipment from a local dealer. The next day when that fellow returned to get his equipment, I asked him for the names of the people who hired it. I still remember the General Secretary of Hostel 4 stating that everybody would be held responsible. We punished the whole hostel by telling them to sweep and clean the hostel — "*jhadu pocha sab karneka hai ek din*" (you will have to sweep and clean everything for one day).

**Q: We now come to your stint as Dean of Resource Mobilisation, which was your next major assignment.**

I think the name Dean (Resource Mobilisation) is a misnomer because the work is actually to act as the finance minister of the institute, and our primary source of finance is the Government of India. So Dean (Resource Mobilisation) does a lot of resource management of funds that usually come from a regular source — the ministry.

Mobilisation forms a small part of this work. I did do some amount of fund mobilisation but that was from alumni, since the post of Dean Alumni and Corporate Relations did not exist then.

One way to augment funds could be from alumni funding. But this has not been significantly large. After the initial basket of funds we received for Kanwal Rekhi School, Shailesh J. Mehta School and Parag Saxena Auditorium we haven't received much. What we often don't realise is that our biggest donor so far is an Indian resident, Nandan Nilekani. He has given around ₹ 25 crores but has chosen not put his name anywhere. Everyone knows about Hostel 13 but not so many people know that he and Raj Mashruwala gave money for hostel renovations. Part of that money came during my tenure. With that, we renovated the messes of all hostels with modern industrial kitchens and things like that.

But by the time the Golden Jubilee celebrations started, funds had started to taper off to roughly ₹ five crore per year. It has begun picking up now. But an important point that I would like to make here is that the alumni expect a certain amount of promptness from IIT in dealing with their money. Unfortunately, IIT's mechanism is such that we have not lived up to it. For instance, Raj Mashruwala promised \$ 3 million to be given to the Mechanical Engineering Department. But because nothing was moving there, at one point of time, he gave us a notice stating that he was withdrawing the money. Most alumni are accustomed to a corporate culture where delivery deadlines

**It has been often remarked that the IITs are known for their famous undergraduates. To be able to compare us with well-known universities abroad, the institute has to emphasise on research.**

have to be met. Ours is an academic culture, where things happen perhaps in a more relaxed mode. So this becomes a problem area as alumni are not always happy with the way we deal with last dates, delivery schedules, etc. In any case, we then talked with Raj, and eventually we were able to convince him not to withdraw the money.

**Q: A lot has happened since the Golden Jubilee and in your opinion, what are the key long-term challenges that the institute will face?**

50 years is actually not a very long time in the life of a university; what we have achieved in such a short span is very creditable. There is long road ahead with a lot of obstacles and challenges. It has been often remarked that the IITs are known for their famous undergraduates. To be able to compare us with well-known universities abroad, the institute has to emphasise on research. A conscious decision was taken on this a few years back and the population of postgraduates had become more than undergraduates. With the forced increase in our undergraduate population, this scenario is changing again. This is bound to have an adverse effect on the research front. A way to overcome this would be to induct more faculty, which is going to be one of the most challenging tasks that the institute will face in the next few years. With more and more international concerns coming and setting up their shops in India, some of them even providing excellent research facilities with corporate salaries, recruiting quality faculty is not going to be easy. Science departments are going to face tough competition in recruitments from the newly created IISERs.

## COLLEAGUE SPEAK

*Prof. Shiva Prasad and Prof. S. S. Major who have worked with Prof. Dipan Ghosh made the following observations:*

Prof. Dipan K. Ghosh joined the Department of Physics in 1974 and is now nearing the close of his innings at IITB. He has made invaluable contributions to growth of the physics department and the institute. Today, Dr. Ghosh is one of the most respected faculty members in the eyes of his colleagues, staff and students. He has been an extremely popular teacher, and has taught a variety of courses right from first year basic undergraduate courses in mechanics and modern physics to advanced electives in areas like non-linear dynamics and quantum computing. Needless to say, he has been a recipient of the best teacher award of the institute. His popularity amongst students is remarkable, especially considering that he is a strict disciplinarian and straight talker. The Ghosh-Majumdar model proposed by him as a researcher has found great utility in condensed matter physics and has now become textbook material.

Within the physics department, Prof. Ghosh has helped several generations of younger colleagues in establishing themselves in research and teaching. His ever-available counselling on any matter – be it academic or non-academic – is something truly exceptional. He has held several administrative positions at the institute, starting from warden to Deputy Director and his awareness of rules is legendary. He has served as a member of innumerable committees and has been instrumental in framing various policies and regulations of the institute. Prof. Ghosh takes enthusiastically to challenges in all fields – teaching, research or administration.



The other challenge that I see is that of eroding autonomy. During the last 35 years of my association with IITB, I have seen a gradual increase in interference from the Government. Of course, the one who pays the piper expects his tune to be played. I do not see IITs becoming even remotely independent financially. It is fashionable in IITs to compare ourselves with Harvard and MIT. The former has an endowment exceeding \$ 30 billion while the latter over \$ 10 billion.

Finally, I would like to add the challenges we face in getting quality students. IITs must offer something unique, other than its name, to make it worthwhile for students. As

Indians become more affluent, I see a large number of students going abroad for undergraduate education. Are we to become a coaching class for management schools?

**Q: On a personal front, what has been the best take-away or the highlight of the many years of your stay here?**

It is difficult to answer this question without getting sentimental. I have made a very large number of friends (and am sure, a generous number of the other kind too!) among the faculty, students and staff. I will cherish their love and affection in my golden years. Looking back, I have seen the institute grow both in stature and size during

the last 35 years and am very happy to have contributed to it in some way. To be specific, I am very happy with the role that I played in instituting the post-retirement medical facilities (PRMS) for the employees. It is a matter of regret that I could not persuade the Board to extend the benefit of the scheme to those who had retired before the scheme was approved. I am also happy to have played a role in the computer expansion of the institute by getting the entire campus connected by a fibre network when I was the Head of its Computer Centre. To sum it up, I am leaving active service with a sense of personal satisfaction and happiness. ■

## RANDOM MEANDERINGS

# Inter-IIT Sports Meet ■ RAJENDRA LAAD Alumnus, B.Tech. (1982), Electrical Engineering

## IITB beats IITM

**T**ime: December 1983, Venue: IITM home turf. IITB was leading IITM by more than 12 points towards the overall trophy awaiting the result of the tennis finals. IITB had already won the trophy, irrespective of the tennis results. The entire IITB contingent was excited and rejoicing. But alas, the final tennis game was washed by rain. The tournament was incomplete and hence no overall trophy was awarded.

For several years in a row IITM had won the overall trophy. Every other IIT hated them so much! IITM was very strong in Athletics, which carried 20 points for gold. Oh and, the point system was:

	Gold	Silver	Bronze
Game	10	5	3
Athletics	20	10	6

IITB always won several games, viz. tennis, basketball, kabaddi, cricket, table tennis, badminton. IITM would be the runners-up in several of these games. Athletics would pull them up and they would take away the trophy.

IITM has a wonderful campus! IITB campus is between two lakes, Powai and Vihar, whereas IITM is in the middle of a protected national forest. As a result, it is not uncommon to see beautiful deer (*barah singh*) strolling

around hostels. I vividly remember witnessing a flock of deer (around 70-80 of them) crossing the Hockey field from one end to the other, a little after dawn. This was in mid-November, 1983 when Pramanik from Gymkhana and I attended the pre-meet planning meeting.

This time we had a strong team for most sports except, of course, for Athletics. Everyone had practised really hard during the camp with the single objective of beating IITM. We devised several strategies this time. One of them was to plan our cheering properly. We didn't bother cheering for games we were sure to win or lose. We focused all the attention and energy on borderline games/events and pulled them across to the winning side. Looking back now, I realise that it was not fair to those teams that they almost got no audience from their own contingent. I guess it was that age!

Chennai had had drought for three years in a row and 1983 was the first year that they had some rains. Water was still rationed, not only on the campus but throughout the city as well. IITM, however, filled the swimming pool for our event in spite of complaints from the staff. I digress...

With all those strategies fully at work, they gave IITB more than 12 points over IITM. We were all so excited to beat IITM on their home turf and bring the trophy home.



Illustration by Chinmayee Samant, IDC

Well, it wasn't to be! It rained on the last day when the last game of tennis was to be played. The tournament was not finished! No overall trophy was given, only individual game/event medals. Our argument "Give the first place to IITM in tennis. IITB still wins" was in vain.

The entire Chennai city was rejoicing, and IITM was doubly rejoicing. ■

## Ye Ilaka Hamara Hai

**W**henever I see a Hindi movie with a Bihari context or hear Shatrughan Sinha's "Aye Bajrabattoo!" our train ride back from IIT Kharagpur flashes before my eyes. Bihar was and is (in)famous for its *gunda-giri* (hooliganism). IITB's football coach Jha was full of real stories from Bihar and educated us as well.

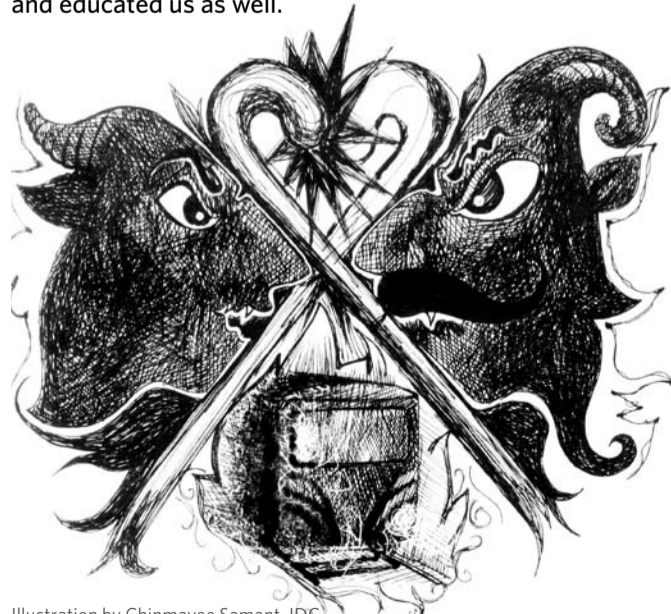


Illustration by Chinmayee Samant, IDC

IITB had a contingent of 120 students or so. As a result, we had one full bogie to ourselves and one half bogie. As expected, all the luggage, equipment, etc. was just lying in the full bogie without any supervision. The train passes through Bihar (now Jharkhand?) for five-six hours on the way from Kharagpur to Mumbai. We experienced Bihar *gunda-giri* first hand within this patch.

We loaded everything successfully in the train at Kharagpur and all of us boarded the train. Kharagpur station vibrated with IITB slogans! Our return voyage began. Within a couple of stations, we noted a couple of 17-18 year old locals hanging off our bogie. We politely suggested to them that the bogie was reserved by us and they needed to go to another bogie. They disappeared for a while and then came back again. Now we kind of scolded them and there was a verbal fight. They said, "Hamara ilaka hai ye" (this is our area) and we said, "Hamara dibba hai ye" (this is our bogie).

Anyway, they left. One more station passed. The train picked up pace and all of a sudden it stopped with a loud screech. Someone had pulled the emergency breaks! A few

folks got out of the train and were *phaating* around. Out of nowhere came 15 - 20 guys, some with bamboo sticks, and attacked them. A fight broke out! We handed hockey sticks from inside. A few more guys went out for reinforcement. Those two local boys were among them! This went on for a few minutes. Jha and Appaji (Hockey coach) were outside as well, trying to persuade the guys to get back in.

All of a sudden we saw a plume of dust at a distance and heard some noises. The TC (there was one in our bogie) immediately screamed, "Sab log undar chalo. Hum gaadi chalne wale hain. Window bandh karo, glass nahin, metal shutter se" (Everybody get inside. We're about to start the train. Close the windows with metal shutters). Somehow, all of us managed to get in while the train started slowly. We immediately picked up speed. I remember some bruises on my forearm, Appaji was bleeding and several others were bruised as well.

The TC mentioned later that the villagers would have reached us within half an hour and burnt the bogie with us inside. We were lucky! His very close TC friend was a victim of such a raid the year earlier. ■

# i-Race: Bittersweet Memories

■ MADHUR KOTHARAY Alumnus, B.Tech (1987), Electrical Engineering

The i-Race was a whacky idea right from the beginning. It was a race that could be run at multiple locations on earth, wherein everyone competed against everyone else in the world on equal footing (pun unintended); age, gender, race distance notwithstanding. I realised it was shaping up to be a true-blood IIT race when a prominent orthopaedic surgeon in Mumbai called me, "Madhur, you IITians are now making even running complicated."

As I write this, there are 10 days to go for the fifth running of i-Race. While most registrations come in the last week before the race, we are already beyond the 400 mark in registrations. So my mind goes back to those early days with many funny and not so funny episodes.

## RACE MODEL AND TECHNOLOGY

Initially, we were not sure whether the race model would work. We thought it would throw up absurd results. However, after the first race, we realised that the model went far beyond our expectations. For one, we realised that our equations fitted the world records for almost all ages within (+/-) 4%, a phenomenal level of accuracy given the massive variations in human performances over age, gender and racing distances.

Our winners also reflected that sensitivity. One winner, D. Yadav of IIT Bombay has been representing India in Athletics at the Veteran Olympics. On another occasion, Bhasker Desai of IIT Delhi, an avid marathoner, won at the age of 56 years, though in the actual race he was placed fifth. The first four were youngsters from IIT Delhi's Athletic team.

The biggest upset came when seven-year old Sonu won the third race. His performance in New Delhi was scintillating and he stood fifth amidst a sea of fast men. Before his performance, our model was fitted only for ages 14 and above. This was because there are no world records kept for younger ages. So we had to go back to the drawing board and look at the world record tables again. We found that the children's world records were kept till the 1970s after which they were abandoned as it was probably considered incorrect to push such young children for peak performances. However, when we saw how the adults' records had progressed from 1970s, we could see that our models predicted exactly the same percentage progression in children's records too. So Sonu's performance taught us that our i-Race model could incorporate young children too.

Interestingly, the World Records for all ages were difficult to obtain. You are welcome to search the web and come up with the records. Even the International Olympics Committee does not keep the world records for all ages. They keep the records grouped by age-group (40 to 45 years, etc). Thus, it is next to impossible to get the actual data, leave alone fitting. We, of course, got the data through a very interesting source, which is more accurate than the world's premier record-keeping agencies such as International Olympics Committee and World Athletic Association.

At another time, we had a controversy when the GPS systems of some key runners showed different course lengths than our measured ones. That would penalise Mumbai runners. However, we found that most GPS systems had that amount of discrepancy.

Technologically, the GPS system is composed of an array of geostationary satellites transmitting time signals. By using triangulation technique, GPS receivers calculate their exact position. However, the developers of the GPS system, the USA government, purposely introduce a minute inaccuracy into the position to avoid its use by undesirable elements for things such as missiles. Thus, GPS systems are known to have 10 metres of inaccuracy, 0.2% of a 5,000 metre race. A better idea would have been an accurate course measurement by a Jones-Oerth Device. But since we cannot have it everywhere around the world, we decided to do it with Google Maps. That way, at least the errors will be random and hopefully,

the errors will be consistent in precision (variation in different readings taken of the same course) and accuracy (deviation from actual value).

## RACE GOOF-UPS

Once, in Pune, there was no indication at a crucial fork in the road and most lead runners took a wrong turn. As a result, their times were in excess by a minute or more. Of course, Pune is the city where last year the lead runners of Pune International Marathon took a wrong turn because the lead car itself had taken a wrong route, disqualifying the eventual winners.

At another time in Pune, the time keeper used her mobile phone to count the timings. We found that out after we noticed surprisingly round finishes: 43:00; 46:00, etc.

Once in Melbourne (Australia), Chockalingam (ex-IIT Delhi), the race director for the city found himself alone at the start of the race. No one else had turned up. In the true spirit of participation, he kept his disappointment aside and ran the race alone.

In Bay Area (California), i-Race faced challenges unique to the USA. They needed permissions from the county. Also, they had to take the indemnity bonds lest someone fell sick during the race. Luckily, they had a small number of participants who were all known to the organisers.

The fourth i-Race was run over two Sundays every year, 3<sup>rd</sup> January in India and 10<sup>th</sup> January in the USA. Typically, people go on Christmas vacations in the USA and don't return by early January to run. And since the Mumbai marathon was on 17<sup>th</sup> January 2010, no one in Mumbai wanted to run on 10<sup>th</sup> January 2010. Luckily, the i-Race model allowed that leeway.

## SPONSORSHIPS

In our first running, Ultratech promised us sponsorship but did not commit to the amount. We kept following them up, hoping to get the costs of the race defrayed. On the penultimate day, the person concerned switched off his mobile phone on us. We realised that they were confusing IIT alumni with IIT students. Since many alumni organisers would be earning at least as much as the 'big-shot' Ultratech person concerned, we decided not to go to anyone for sponsorship after that. It was not worth our time to sucker up to people for a lakh or two.

On another occasion, Adidas very graciously offered to sponsor the prizes. They sent us '30% off' coupons, to be distributed to all winners as prizes. Of course, they conveniently forgot to inform us that at that time, all their shops had prominent '40% off' signboards.

## VOLUNTEERS AND BABUDOM

Volunteers were another story. Some IIT students, who were to be volunteers under the promise of a certificate and a nice t-shirt, did not turn up on the morning of the race. Some came late after the race had begun, saying they woke up late! At one time, students came for the briefing at 8 pm instead of 6 pm the night before and we had to spend thousands of rupees on their dinner (complete with ice cream), as it was 10 pm by the end of the briefing and hostel messes were closed. However, in general, volunteers were very helpful.

Mr Hebatpuria, a retired staff member of IIT Bombay and all of 72 years, would help us put up banners and race markers all along the course on the night before and then next morning, he would complete the 10,000 metres race with full energy. It was inspiring, to say the least. Once, a group of runners from Bandra came with their own volunteers. For our third and fourth races in Mumbai, we had arranged breakfast for runners in the hostel mess. The menu was yummy — full of oily *puris* and *bhajiyas*. It surely freaked out the health freaks.

In a race in Portland, a 7-year old managed the entire water station, while the elderly took off on the trail. Those



guys know how to have fun. In Portland, they have the race in the evening and then they have a potluck dinner.

In the early days, it was hard to get permissions in IIT Bombay. For example, Hostel-13 being a men's hostel, there was no way to get a toilet designated as Ladies' Toilet there without permission. Of course, we always managed to do *jugaad* in such worldly matters.

A couple of times the Mumbai race was held up because the watchman did not open the Hostel-8 Lakeside gate, which was supposed to be opened by 7 am. Even the presence of (former) director, Prof. Misra did not help in the matter.

We also remember moving half a dozen 30 kg metal barricades in the middle of the night from security office to Hostel-13, a princely 500 metres walk. This was because we got the permission to take them only at midnight before the race.

In the first i-Race, we had officials from outside who recorded the finish times. Imagine my horror when they stopped recording the finish times after the first 80 runners crossed the finish line, quoting some Olympics rules (I don't know of any. I tried finding them in Lausanne, Switzerland in their Olympics headquarters last month and they did not know of them either). Here we had a race where we were claiming that you could finish last and still win the competition. And we did not record the finish times for the last 200 runners. After this incident, we decided to do the scoring ourselves and not involve officials from outside.

One difficulty we always face is that we cannot announce the final results immediately. Since the winner of the race could be anyone at the back of the pack, we have to enter all the results before we can spot the actual winners.

## MEDIA GOOF-UPS

We had envisioned that this race would become a technology showcase platform for IITians. So in our first episode, we demonstrated the technology wherein some runners ran with GPS transmitters (in those days, mobiles did not have GPS transponders). We had those GPS transmitters transmit to mobile phones that were carried by the runners. The mobiles used GPRS technology to transmit the runner's actual location to the central website. This worked well in testing and we could show the relative positions of different runners adjusted for their abilities. Very interesting concept!

Then, on the day of the race, TV cameras arrived on the scene to record this technological marvel. As the cameras rolled and focused on the computer screens that were



to display the moving locations of runners, we realised that on Sundays between 7 and 8 am, it was downtime for Reliance Communication. So there was no internet connectivity to the website from our laptops. Of course, in true IIT style, we ran the 'simulation' recorded earlier and no one noticed, other than us, that is.

**THE FUTURE**

Even today, there are many interesting issues. We looked at RFID (Radio Frequency ID), and their global norms. However, they did not make sense as the cost of trans-receivers that would measure the runners was going too high. Can we track the runners using GPS, without adding excessive costs? That will help in checking runners taking short-cuts. Also, then we can update positions of runners on a map, adjusted to their abilities.

Can we measure height, weight and body fat percentage of runners without making them go through actual measurements? Can we use the runners' chest numbers using some form of Optical Character Recognition to track their positions and finish times? That way, we can have someone with a mobile stand at a location and click the runners. The software on the mobile would track the runner's number and update the central website along with the time stamp. That would make tracking really easy.

We can also incorporate temperature into the model, as obviously the race temperature affects the performance. But then, how do we get humidity and wind measurements to be incorporated? They are equally important variables. Maybe, some IITians could come up with interesting solutions to these problems.

The uniqueness of i-Race is that it can be run over multiple locations. The largest race of any kind currently is Bay to Breakers in San Francisco. *The San Francisco Examiner* comes out with the names of the first 10,000 finishers a day after the race every year. In 1986, nearly 1.1 lakh runners started it, which is the world record for the largest number of participants in a race.

Unfortunately, no race can grow beyond that number. After all, by the time the last participant crosses the start line of Bay to Breakers, the lead runners would have crossed the finish line. It is impossible to start so many people at one venue. If i-Race catches on as a concept, it could become the world's largest race one day, as it has no such limitation. And it will have the IIT stamp all over it. After all, Mood Indigo was just a tiny cultural programme 30 years ago. ■

**ADVENTURE**

# White Water Rafting - A Lifetime's Adventure ■ NAMASHYA SAHOO Campus Kid

It was a surprising evening when my father declared that he had planned a 4-day holiday tour to Haridwar, Rishikesh and Mussoorie. I was so excited and thrilled that I couldn't think of anything other than white water rafting. After enjoying the evening puja at Har-ki-pouri in Haridwar and the waterfall in Mussoorie, we left for Rishikesh. My mind raced enthusiastically at the thought of white water rafting on the Ganges. I had heard that it starts from Shivpuri in Rishikesh. As we had not made prior bookings for rafting, we were not hopeful that we would be accommodated instantly.

In our journey to Shivpuri, to my utter disappointment, our car ran out of diesel. We dragged the car to a couple of petrol pumps but unfortunately diesel was not available anywhere for reasons unknown. I was upset and sad thinking that chances of cancellation of our rafting plan had increased because of such silly reasons.

Out of the blue, a Tata Safari with a raft on top of it was speeding toward us. We stopped it and my father had a discussion with the people about our vehicle and our interest in going to Shivpuri. Luckily, they said they conduct river rafting and were on their way back to Shivpuri from Ram Jhula. They also said that they would be happy to drop us till Shivpuri and if we want we can avail their services. We jumped at the opportunity and went along with them.

It was a dusty ride. Roads were in a bad shape. At last we reached the place which looked like a river's mouth. The orifice was snow white and had a pleasant view from the road. A few rafts were being readied. Our raft was also unloaded from the vehicle and cleaned. Then our guide came and introduced himself as Mahesh. He handed over the equipment required during rafting - a life jacket, a helmet and an oar to my parents and me. He instructed us on how to manage on the numerous rapids on our 15 km stretch from Shivpuri to Ram Jhula. Mahesh also taught us how to sit in the raft and hold and use the oar. We put all our belongings like purse, watch, camera and shoes in an airtight bag offered by the guide. We sat comfortably in the raft in positions as instructed by the guide. He said that since we were few there were possibilities that the raft may flip. The guide and two more people joined us making it a team of six.

On the loud "Ganga maiya ki jai!" by the guide we began to row into the water. The guide told us there were five rapids in the river. As we rowed into the dangerous waters, we passed the first and the second rapids comfortably. The third looked strong and risky. My father was in the front with another person. Since the raft was very light and six people were not enough to make it stable, my father lost his balance and was swept away in the water. We were all shocked. I guess my concentration broke and I too lost balance. The water was cold and hard

because of the strong current. A lot of water went into my mouth. I tried to swim back to the raft, but was not able to as the current was too strong to let me do anything. The raft came above my head and it became impossible to surface or breathe. I tried to surface with my full strength. When the raft passed over I managed to reach the surface but the rapid was pulling me along with it very strongly. The guide threw a rope toward me. I caught hold of it and pulled myself up. Then I threw the rope to my father who was still in the rapids. He grabbed the rope and we both got back to the raft safely.

What a relief! My heart was bursting out of my chest. I was thankful to the life jacket. It saved us. Thanks to Dr. Reddy for the swimming lessons. Since I know swimming, I was confident of overcoming any untoward situation in the river. But even an expert swimmer cannot swim in such strong current.

The guide told us that we have two more rapids to go. I was scared of even thinking of those rapids now. My father requested the guide to stop in the still water and encouraged me to get into the water and overcome my fear. After swimming in the river and around the raft, we felt much more comfortable and we resumed our journey. I enjoyed the next two rapids. Our trip came to an uneventful end and I was quite happy that we could complete it. ■

**POETRY**

# Kailash patti ■ MALLIKA IYER Campus Resident



In gentle embrace your blooms hold  
 You in their soft and fragrant fold;  
 They invite the busy carpenter bee  
 To visit the flower for a nectarous fee  
 No nectar though will it find in there  
 But deposit the precious dust unaware  
 Brought from another lovely cannon ball tree  
 In its buzzing nectar-searching spree.

You will then be caught in a fruity embrace  
 Your fruits jostling with flowers for space  
 Like a gift-wrap the fruits envelop your frame  
 From whence you get your unique name  
 Tall and lovely may you go on to grow  
 And dazzle all with your striking show  
 Long after we have all gone by  
 May your evergreen beauty never die.



**SALT 'N 'PEPPER ■ DR. ARUN INAMDAR**

...Looks like someone is keen on raising the level of sports activities on the campus...!





## BOOK EXCERPT

## ... And its Torchbearers (Chapter 4.5)

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

*In the initial years of its existence, student life on campus was understandably different from the vast array of activities and entertainment options available now. Far removed from the pulsating heart of the city, the sixties were a time when life on campus was almost semi-“pastoral”. This excerpt from Monastery, Sanctuary Laboratory provides you with a glimpse of life as it was then, the innovative and sometimes eccentric means of filling up great swathes of private time available to students. Read on and be entertained.*

### ‘JUST TO KILL THE BOREDOM’

The pastoral side to students’ lives in the sixties, outside the academic area’s sphere of influence, seemed to have been brush-stroked by three defining features. One, a huge overdose of potatoes; two, a huge underdose of pre-fabricated entertainment; and three, such vast oceans of time on your hands, empty of distractions, that it could drive you to your wits’ end trying to figure out what to do with it.

That’s the operative phrase here: empty of distractions. Consider the scenario. TV signals were yet to criss-cross the skies (not even the terrestrial, Doordarshan-monopolized kind had come to Bombay); the word ‘personal’ was still two decades from wedding itself irreversibly to ‘computer’; and as for phones, even a land line was a distant dream. Nor were you in any danger, should you have strayed out of the campus, of being ambushed by diversions. Outside IIT-Bombay’s gates, all was still and quiet; nothing to ‘see’, no malls – why, not even a clutch of shops – you could fritter your time away in. One just had the campus, and its retiring surrounds.

And here was the clincher. Nor any more was there the distraction that can grow to become the most consuming of all: the company of the opposite sex. That all-defining number, the girls : boys ratio, though it might have spiralled relentlessly upward from 1:875 since 1960, yet remained pitifully low; on the IIT-Bombay campus, days together could go by without the chirp of a female voice carrying to a male student’s ear.

In this complete and utter absence of distractions, what was one to do once one’s classes were over, and one’s private time – great swathes of it, in comparison with today – had started ticking? Quite simply, you did whatever was humanly possible to fill it up; to distract yourself. (There was always the homework, of course, but it came at an amenable trickle; indeed for undergraduates it was probably lighter than it is today, the programme being a leisurely five years in duration, not four.)

Where it’s difficult to get distracted it is, as a natural corollary, just as easy to get bored. And so you had to work hard at dispelling the pall of boredom, or be very inventive at it. Bravehearts of the time recall that the most common avenues that offered relief were work, sport, socializing (with your own gender, of course), and – with impressive vengeance – hobbying.

The way the surfeit of time drove students willy-nilly into their books is evocatively sketched by Dr U.N. Gaitonde. ‘UNG’ belongs to a select group that’s been tenaciously a part of the IIT-Bombay scenery over entire decades, having spent practically all their adult lives here. Not content with having done all or most of their education here – including their bachelor’s and doctoral degrees, and often their Master’s too – they’ve enlisted themselves as faculty at the Institute. Gaitonde has thus seen the Institute, often with a wryly cocked eye, from a variety of angles – and we take his spin on the vicissitudes, and the subtle charms, of student life in the late sixties:

‘Because of the lack of entertainment, the only source of diversion in the hostel was maybe a radio set or a record player. TV was installed in my hostel in 1972-73, in my final year. There was hardly anything to do.



**As they looked then:** IIT-Bombay’s students flash their creased trousers and ironed shirts, mid-1960s. No prizes for guessing what sorts of figures a similar group would cut today.

‘From 8:00 in the evening till 10:30 absolutely nothing to do and I’m sure, many of us during the weekdays – and also during the weekends – studied just to kill the boredom. Some must have studied for the sake of studying but I think, quite a few must have studied just to kill the boredom. There was no other entertainment available. I don’t think it was a very good idea, but that was what we ended up doing.’

How well drilled this curious work ethic left some of the students, what masters of their territory it made of them, is evident from this: ‘Today, it might seem an absolutely mad idea, but many of us solved the whole of Kreyszig, the whole of Thomas, the whole of Resnick and Halliday’ during our second years. We studied all there was to study in Physics, Chemistry and Mathematics and I think in every wing, two or three students would have done this, either together or individually. We had so much time on our hands.’

What about those, never too few in number, with books the last thing on their minds? Expectedly, there was sport. Many recall having spent entire evenings, daily until dark, sharpening their skills in a range of sport, including basketball, volleyball, cricket, athletics, hockey, tennis, badminton, bridge, chess... you name it. Conspicuous by its absence throughout the decade, though, was swimming. To the chagrin of many, IIT-Bombay was perhaps the last of the IITs to get its own swimming pool (it arrived finally, many years too late, in 1979).<sup>45</sup> An early red-letter event for IIT-Bombay’s sporting enthusiasts was the hosting by the Institute of the first ever inter-IIT sports meet, from 27 to 30 December 1961, for which 200 students from its sister institutions travelled long distances to take part.

If not too drawn to sport either, the battle against vacancy became a stimulus for the deepest absorption in some or the other chosen activity. Since you really were at your wits’ end to kill time, those wits got relentlessly sharpened and honed. Passions could be pursued with single-minded intensity, so that they ended up taking on an astonishingly accomplished hue.

There were those who, fascinated by the art of rocketry, obliterated themselves (quite literally, for one of them dropped out of his B.Tech.) to the making and launching of their own rockets. There were others who, fascinated by the dynamics of private enterprise, went about floating public limited concerns in the marketplace of their own hostel wings and corridors – with resounding commercial success (for more on this, see Chapter 4.5). Yet others, possessed by the spirit of electronics, set up their own HAM and radio broadcasting stations – that again at the height of Indo-Pakistan tensions in 1965, arousing the consternation and the suspicion of the local police, causing them to move into campus to nip the misguided enterprise in the bud. One restless soul, votary of the epicurian life, fabricated his very own Coke dispensing machine: state-of-art technology for the time, and no doubt a useful status symbol to have in your room.

The lure of the arts was no less strong. There were the numbers who plunged themselves into theatre, film, writing. Student magazines of the sixties and seventies – *Technik* is a prime example – carry writing of sometimes astonishing assurance, elegant and informed, peppered with literary allusions. A film society flourished; the very first screenings took place, early sixties, in the Civil Engineering building, moving next into the Lecture Theatre and finally into the Convocation Hall. And the films shown were often whimsically offbeat, including those by the European masters of the medium. ‘Often the guy who was organizing the movies would decide,’ recalls Vasi, ‘that such-and-such movie by, say, Bunuel or Bergman, was something we simply had to see – and because there was nothing else to do, 500 people would troop along to see the movie.’

Again the ‘nothing else to do’ syndrome, resulting in its own tangential edifications: here, in the finer points of cinema.

It would appear, then, that much of the extra-curricular vitality of student life in the sixties (and it was to be true right into the eighties) owed itself to the availability of time in



**Turning lathes and turning heads:** IIT-Bombay’s early students looking rather vogueish, in their high gum boots, on the workshop floor.





Pagal Gymkhana 1 and 2

which to nurture it – aided on one hand by a stimulating academic environment and on the other by the company of some of the nation's best young talents. Further on in the book, we'll see that these circumstances bred some truly fertile minds and foreshadowed, in many cases, success stories on a national and on a global scale.

#### GUM BOOTS, F-1 DONKEY RACES, AND 'HUGE PILES OF TALENT'

With the Institute virtually an unknown quantity in the early 1960s, and armed with very little idea of what awaited them, IIT-Bombay's early students were like prospectors venturing into unmapped terrain. And they looked the heroic part, too – if only because the Institute obliged them to. 'When the time came to actually make your way to IIT,' recalls Vasi, who arrived in 1964, 'you were sent this letter saying that prospective students had to report on such and such date and bring the following. Now amongst 'the following' were all kinds of interesting things. For example they said you have to bring a hat because of the intense sun, especially in the summers – and I know at least two people who actually brought along not just hats but their Sola Topees. The other thing they insisted on bringing was gum boots, so you saw all these freshers coming in holding bags in one hand and in the other, holding a pair of gum boots. It was quite an odd sight but,' Vasi concedes, 'you did need those gum boots because right away when you came it was already monsoon, and Bombay has such fierce rains. It was muddy and squishy and I remember actually wearing my gum boots for a few days.'

But for all their practical utility, the gum boots could be a big liability, and not just in the matter of causing foot cramp. 'Obviously gum boots were very alien to the IIT culture,' Vasi explains, 'and sooner or later nobody wore them, switching over to chappals – except at the start of the next year.' Going into their second and third years, Vasi's batchmates were able to spot freshers from a distance as 'the guys wearing gum boots'. And as for the latter, betrayed by this loud advertisement of their status, they became sitting ducks – serving up for their seniors yet another go at that most dubious of diversions, a bout of ragging.

And what, inconveniences and oddities apart, was life for students like in the 60s? One outfall of being in an area like Powai, cut off from Bombay was, in Dr K.P. Madhavan's words, that 'since there weren't too many things you could do in the immediate vicinity, at least for five days a week you tended to be interned here – and naturally, you took full advantage of whatever facilities were available.'

'Facilities', of course, were being created one by one, and were necessarily limited – but students did take the fullest advantage. The 1960s seem to be high days for sport (all except organized swimming), theatre, writing, and hobbing of a great many kinds. Students acted in and directed a wide range of plays, both within the Institute and in theatres in the city. And student magazines of the time – such as *Technik* and the annual *Pragati* – carried a good amount of controlled, nuanced writing – if somewhat quaint in its Victorian flourishes. (Today, of course, it is Americanisms that hold sway, on paper and on the tongue.)



Added to which there was no little maverick activity of an undefined nature. Consider, for instance, the 'Pagal Gymkhana'. In response to an appeal for memories and photographs from the 1960s, alumnus Dr Dinesh Mohan (now on the faculty of IIT-Delhi) sent in the pictures shown on these pages and the accompanying write-up. Supplemented by Dunu Roy, they resurrect something of the timbre of the times.

*Pagal Gym 1:* We organized the 'Pagal Gymkhana'. I forget whether it was just once or twice. These pictures show the Coca Cola drinking contest (Anand Virmani in the foreground) and Brig Bose in Arab head gear.

Which still doesn't tell us what exactly the 'Pagal Gymkhana' was; and which is where Roy's account helps us along: 'This was an idea that Dinesh and I had stolen from our old school (Doon). How we got into the Student's Gymkhana in 65-66 is one of those accidents of history. The previous year the Committee, headed by Virat Sahni, had got so disillusioned with the adamant attitude of the IIT administration, headed by the formidable Brig Bose, that nobody wanted to stand for elections. So we put in our papers, much to the displeasure of our seniors, and all of us got in unopposed! It was a truly fantastic team with Dinesh heading the social and cultural side and Ashok Modak steering the sports activities. We jelled so well that together we took on the Brigadier and the result is there to see in the picture – he came to the Pagal dressed as an Arab!'

*Pagal Gym 2:* 'Top picture shows Professor T.R. Sarkari launching the festivities by running around the main field with the Pagal Gymkhana 'torch' and the bottom picture the winner of the donkey race (Tyzoan Tyabji?).'

And there we have it: pictorial evidence for what Dr S. Dixit had dubbed, some 40 years later, the 'strangest sports event'. He had gone on to describe it further: 'This was the first, and only, donkey race anyone has perhaps ever seen – Formula 1 style, complete with flag-offs, betting stalls, a running commentary – and the donkeys ridden by carefully selected students of short stature (the jockeys)'. 'Some competitors', added Dixit, 'did complete the race.'

When asked to cast his mind back to the exploit, Dunu Roy said, 'From what I recall, the animals were turfed out from the local building contractor's camp, where he was trying to construct Hostel 8.' And instantly sank back into remembrances of times past, recalling the adolescent energy at the Institute waiting to be unleashed:

'There was a huge pile of talent just waiting in IITB in all kinds of fields – theatre, debating, football, gymnastics, boxing, ham radio, electronic gizmos, aeromodelling, and so on – and I think (or like to think!) that our panel merely provided the opportunity for all that talent to let loose. And how both the seniors and juniors responded! They just whizzed off in all directions – including the iconoclastic *Rejectra*, the hugely creative inter-hostel dramatics, the fiercely competitive inter-college debates, and the building of an image of IITB slightly removed from the Intel type nerds. In fact, there was so much activity that both Dinesh and I had less than the required 40% attendance in classes. The *Pagal* was a kind of culmination of all that effort. And I think a lot of people of those years may remember it with quiet affection and ribald humour!' ■



IN THE WILDERNESS



POETRY

Monsoon

MALLIKA IYER Campus Resident



The sweet smell fills the night air  
As the Earth below me parched and dry;  
Rejoices in its re-kindled love affair  
With the daughter of the sky.

I rejoice in the first raindrops as well  
And in the fresh fragrance of the Earth;  
How sublime this simple joy I cannot tell  
That heralds a new season's birth.

The story starts with a pair of butterflies mating. It's an episode in nature rather rare to be caught on camera. This photo is by Joseph Tharion who saw these two butterflies somewhere near the Kendriya Vidyalaya school.

NEWS

Snowballing Green

The previous issue of Raintree and its focus on ecology led to a snowball effect, where several newspapers like DNA, the Indian Express, Navbharat Times and Hindustan Times covered the ecological aspects of the campus, throwing light on the campus' rare flora and fauna, its Green Campus Initiative Committee and the campus' different approaches at becoming increasingly environment friendly.

IIT-B campus houses rare fauna, flora: study

**NITKA KALINIK**  
A 50-acre Indian Institute of Technology Bombay (IITB) campus in Powai is not only a green lung but also houses several rare and disappearing species of animals, insects, birds and plants, reveals a study. A study conducted by the Environment Advisory Committee of IITB and conducted by the World Wildlife Fund for Nature from September 2008 to February 2009... The project also houses vulnerable species including...  
The campus was a marshland when IIT faculty and students began settling here in 1958. The area of the campus residents took initiative to plant trees in the campus. Pictures taken in IITBs show that the campus was still quite barren. In comparison, the campus was thriving with lush greenery by 2005, the year...



Lush green vegetation at IIT-B

we are told by JEE officials. The IITs remain the best place for an engineering education in India. "Though two students from the top 100 will drop out of the admission, most others will join IITs. In fact, we have 17 of the top 20 AIRs joining IIT Bombay," said JEE vice chairman, Avijit Chatterjee.

There is an upward spiral of aspirants from the OBC category. And the good news is that the percentages of students who don't require a relaxation of 10% in scores to qualify have increased from 990 in 2007 to 1,489 in 2010. However, this means that the 27% seats set aside for the OBC category will not get filled. The general category got 220 seats from the OBC quota this year.

Polish Delegation Visits IIT Bombay

A delegation from the Wielkopolska Region visited IIT Bombay on May 5, 2010. The delegation comprised Prof. Grzegorz Skrzypczak — Rector of the University of Life Sciences in Poznań, Prof. Jan Pikul — Vice-Rector for Science and International Relations, University of Life Sciences in Poznań, Prof. Aleksandra Rakowska — Rector for Science, Poznań University of Technology and Mr. Michał Ptaszyński — Department of Economy, Marshal Office of the Wielkopolska Region. They all met Prof. A.K. Suresh, Dean Faculty, IITB along with representatives from Energy, Chemical, Electrical, Biosciences and Design departments. This was the first time a Polish delegation visited the institute. The delegation expressed interest in the R&D and academic programmes of the institute and is keen to develop mutually beneficial partnerships with IITB.

Aaroha: Design Degree Show, 2010

The graduating batch from Industrial Design Centre (IDC), IIT Bombay held their Annual Design Degree Show titled "Aaroha" at the Industrial Design Centre, IITB, Powai and at Nehru Centre, Worli on 26 and 27 June, 2010 from 10:00 am to 5:30 pm. The show consisted of an exhibition of projects and screening of films made by the batch of 2008-2010. The exhibition at Nehru Centre was preceded by a three-day curtain raiser event at IDC from 22 to 24 June, 2010, which included project exhibitions, seminars featuring prominent names from the design world and workshops conducted by the faculty and alumni of IDC.



Design at IDC is all-encompassing and coexists in an active triadic relationship with design education, design research and design practice. The batch proudly presented their creative exploits. The exhibition was the harbinger of their arrival into the industry. The who's who from the world of design gathered to collaborate and work with the fresh talent moulded by the institute. Mobile phone applications ruled the roost at the exhibition. Students came up with speech translators (a feature you can install) to translate languages in a cell phone. Another mobile phone feature dealt with interactions between doctors on the phone with their patients affected by AIDS. The feature will make these interactions easier and will also allow them keep their identities anonymous.

2 नवम्बर 2010, मुंबई, 17 जून 2010

आईआईटी बॉम्बे नायाब पेड़ों, पक्षियों और जानवरों का घर



566 एकड़ का आईआईटी बॉम्बे, पर्वत का हाथपा किचम मुंबई के समीप जंगल को हरर के हिस्से केकरी का काम करता है। इसी ही नारा यह कई दुर्लभ और लुप्त हो रहे पक्षियों, कीड़ों, पौधों की प्रजातियों का घर भी है।  
बॉम्बे वाइल्ड लाइफ फंड द्वारा निर्धारित और पर्यावरण एजुकेशन को जोड़ें द्वारा किए गये एक मोनो के प्रारंभिक आईआईटी किचम में देखें - विदेशी प्रजातियों के 643 पौधे, पौधों की प्रजातियों का यह है। विदेशी 2008- 'पारसी' 2009 के बीच किचम गये इन मोनो में पचास पचास है किचम से 100 प्रजातियों वाइल्डलाइफ फंडेशन एक्ट, 1972 के अंतर्गत खंडों के तहत पर है। यह प्रजातियों के-जंगल और इंटरनेशनल ट्रेड इन स्पेसिफिक स्पीशियास और इंटरनेशनल वन्यजीव फंड के संरक्षण और नगर (आयुर्वेद) को निरन्तर में भी खंडों के तहत पर है।

Light Combat Helicopter's (LCH) Maiden Flight: Cause for Celebration

The LCH's maiden flight took place on May 23, 2010 at the HAL Bangaluru airport. The helicopter is fully designed by Hindustan Aeronautics Limited (HAL). Mr. B P Rao, an IITB alumnus, B.Tech (Aero) 1971, M.Tech 1973, was the Chief Designer and Overall Program Manager for the Combat Helicopter. He was in charge of basic design concepts, detailed design and release of thousands of manufacturing design drawings as well as the establishment of the Design Tech Park (dedicated co-located CAD teams and facilities). He was also responsible for the manufacture of prototypes and establishing new facilities and young teams for full-scale production of the LCH.



The concept of aaroha emerges from Indian Classical music. It is said that our music lies not as much in the notes (swar) themselves, but in the journey from one to the next. Thus, music lies in the bridges, the in-betweens, the unseen and the unsaid. Two years ago, around this time, 48 individuals had embarked on an expedition, with which they scaled the first of many peaks to come. It was not about reaching the destination as much as it was about celebrating the journey. It was as though the 48 people shared their adventures and stories from the expedition, individually and collectively. Celebrating Journeys | Celebrating Design (DDS) brought together Indian and international design students as well as professionals, to share the vision of creating a platform to pool resources, express, innovate and thereby enable young minds to progress to the next level.



## '10 Great Ideas' and IIT Bombay

The '10 Great Ideas' contest was launched on May 12, 2008 with the objective of rewarding revolutionary ideas in science and technology from across the world. Mr. Adi Godrej, Chairman, Godrej Group and a member of the IIT Bombay Advisory Council, and Prof. Ashok Misra, former Director, IITB began the contest as part of IITB's Golden Jubilee celebrations. The winners were felicitated and awarded cash prizes and certificates at the closing ceremony of the programme held at the F. C. Kohli auditorium from 4 to 6 pm. The Chief Guest was Dr. R. Chidambaram, Chief Scientific Advisor to the Government of India.



The winner, Sanjeev Shankar, who is an independent design consultant, won ₹ five lakhs for his idea of 'Ubiquitous Planting and Green Bricks' — bricks on which indigenous seeds and plants can be integrated so that plants become an intrinsic aspect of the new building blocks of large cities. He completed his B. Arch. from School of Planning and Architecture, Delhi University. He followed this with an M.Des. from IDC, IITB and an MS from Emerging Technologies and Design, Architectural Association, London, UK.

The other finalist was Prof. Dipankar with Mr. Atul Seksaria who won ₹ two lakhs for their idea 'High Efficiency Lighting'. Prof. Dipankar is adjunct faculty at Dept. of Electrical Engineering, IIT Bombay. He has a B.Tech (EE) from IITB and PhD (Physics) from Rice University, USA. Mr. Atul Seksaria is a MMS from School of Management, IITB.

These two ideas were chosen out of over the 900 ideas submitted by people across the country. The intellectual property for each idea is owned by the ideator. A list of 15 ideas (compiled by a team of IITB faculty) was given to the eminent judging duo — Dr. R. Chidambaram, Chief Scientific Advisor, Government of India and Prof. Mark Welland, Head of Nanosciences at Cambridge University. The criteria for evaluation were centred on contribution to human development and environmental impact.

## Nitin Nohria Appointed as New Dean of Harvard Business School

An IITB alumnus, Nitin Nohria, is the first Indian to become Dean of Harvard Business School. Nohria, who graduated as a chemical engineer from IIT Bombay in 1984, says that IIT taught him to think out of the box. Over the years, his changing interests have dictated his career choices. The chemical engineer went on to complete a PhD in Management from the Sloan School of Management, MIT, 1988. After this, he became the youngest professor to teach at Harvard Business School. He has co-authored 16 books and is a specialist in the area of ethics and business leadership. He has received a Distinguished Alumni Award from IITB in 2007.

"I feel humbled and privileged to follow many outstanding Deans", Nohria, 48, said on his appointment. "With business education at an inflection point, we must strive to equip future leaders with competence and character to address emerging global business and social challenges." He took up his new role from July 1, 2010. We wish him all the best.

## Aerospace R&D takes off

Unknown to many, researchers at IIT Bombay's Department of Aerospace Engineering have been quietly working on a number of research problems set to bolster indigenous capabilities. The research done by Prof. Sripad P. Mahulikar, Department of Aerospace Engineering, is a case in point. Prof. Mahulikar has uniquely contributed to research on infrared (IR) signatures of aircraft and helicopters. This is a strategic component of stealth technology. The IR radiation emitted by hot parts of the power-plant is used by heat-seeking missiles to lock-on and attack the target; hence, it is important to predict its IR signature for stealth design. Prof. Mahulikar's academic research on IR-stealth technology, co-authored by his Masters' & PhD students, has been widely accepted internationally in several prestigious journal articles. He has also masterminded the indigenous IR-suppressor for the Advanced Light Helicopter, together with an officer from the Hindustan Aeronautics Ltd., his Masters' student.

His most recent research is in the field of micro-fluidics. Microchannel-based heat exchange is a technology for cooling aircraft gas turbine blades, thus limiting combustion temperatures. However, micro-heat exchangers are not just limited to aerospace applications, for which compactness and high performance is a mission requirement. They are of contemporary interest in process intensification in several engineering disciplines. The design of micro-heat exchangers is governed by the basic understanding of the modes of heat exchange, which is largely borrowed from the conventionally-sized heat exchangers in the limit of micro-sized passages.

Surface radiative heat transfer is well known to be a loss in heat exchangers; therefore conventionally, high temperature heat exchangers are designed to suppress this radiative mode of heat exchange. Prof. Mahulikar and his team of co-workers theoretically re-visited this popular scientific belief. They proved that for micro-heat exchangers, surface radiation actually increases the heat transfer performance significantly. Consequently, the design of micro-heat exchangers should augment and not suppress the radiation heat amongst its surfaces. This path-breaking research made it to the latest issue of the prestigious AIChE Journal published by the American Institute of Chemical Engineers. Prof. Mahulikar is a recipient of the prestigious A. von Humboldt Fellowship, and is a chartered engineer of the Engineering Council London, UK with membership to the Royal Aeronautical Society, London. He has taught and collaborated with many educational institutions across the world in research, spread across Germany, Finland China, South Korea and Singapore.

## IITians and Social Change

Avanti Fellows, a not-for-profit organisation founded by six IITians in December, 2009 won the Stanford BASES Social E-Challenge competition for social entrepreneurship on May 28, 2010. Of the 100 teams that entered the competitions, Avanti was placed first among the top five finalists. They have bagged a cash prize of \$ 25,000. The founding team comprises IITB alumni Akshay Saxena, a graduate student of Harvard Business School, Krishna Ramkumar, Associate, Boston Consulting Group and four IITB undergraduates: Aishwarya Ramakrishnan, Rahul Srinivasan, Rohit Singh and Vaibhav Devanathan.

The Avanti Fellows programme supports underprivileged students with coaching for competitive exams, mentorship and financial aid through their high school and undergraduate education. As written on their website ([www.avantifellows.org](http://www.avantifellows.org)), "Avanti's mission is to ensure that bright and motivated high school students from poor homes have access to top quality undergraduate education and the means to leverage this education to its greatest potential."

## Fighting Terrorism: DRDO and IdeaForge

As all know, the quad copter which was featured in *3 Idiots* was developed by four young IITB alumni. This time, IdeaForge, the company that made the quad copter was in the news again for tying up with one of the labs of DRDO to develop 'Netra', an unmanned aerial vehicle (UAV) for aiding in anti-terrorist and counter insurgency operations. The UAV could be inducted into the armed forces by the year-end. "The UAV is capable of operating in all the conflict theatres, including urban quarters, in a situation similar to that of the 26/11 terror attacks," said Dr. Alok Mukherjee, DRDO scientist.

Amardeep Singh of IdeaForge said the UAV had been designed for area surveillance of 1.5 km Line of Sight (LOS) and with an endurance capacity of 30 minutes of battery charge. It weighs 1.5 kg, has a resolution CCD camera with a pan/tilt and zoom capability for wider surveillance. It can be fitted with thermal cameras to carry out operations at night. According to Singh, the operational altitude of the UAV is a maximum of 200 metres, and it has vertical take-off and landing capacity (VTOL). It is equipped with a wireless transmitter. Its in-built fail-safe features allow 'Netra' to return to base on loss of communication or low battery.

## IITians to Help MSRTC

The MSRTC is seeking help from IIT Bombay to redesign its current fleet of biscuit-box shaped buses. It is also appointing a committee of IITB experts to check for flaws in King Long buses, which were withdrawn from the fleet following a fire tragedy at Airoli on May 15 this year. MSRTC's Managing Director, Deepak Kapoor said that IITB experts will play a major role in the design and safety of the fleet of buses operating across the state. MSRTC plans to revamp 12,000 standard and semi-luxury buses. He added that it was high time the transport corporation changed the traditional biscuit-box shape of ST buses and gave them an international look.

"We are keen on incorporating aerodynamic features, improving the efficiency of our buses, giving them a swanky new look and a sturdy metal body which ensures safety of passengers", he said. The MSRTC has three bus building workshops in Maharashtra, where the fleet can be revamped in phases after the IITB experts come up with the final design.

## AWARDS

**PROF. MAHESH TIRUMKUDULU**, Department of Chemical Engineering, has been admitted as a Member of the National Academy of Sciences, India.

**PROF. DEEPANKAR CHOUDHURY**, Department of Civil Engineering, has been selected for the 'Asian Pacific Association for Computational Mechanics (APACM) Award, 2010 for Young Investigators in Computational Mechanics'. The award is given once in three years to recognise outstanding accomplishments through published papers by researchers below 40 years of age. The award has been given since 2004 and this is the first time that an Indian has been awarded.

**PROF. ABHAY KARANDIKAR**, Head, Computer Centre, has been selected (with another nominee) for the Hari Om Ashram Prerit Dr. Vikram Sarabhai Research Award for 2009 for his contributions and achievements in the field of Electronics, Telematics, Informatics and Automation. The award will be presented on August 12, 2010, the birth anniversary of Dr. Vikram Sarabhai. On this occasion, Prof. Karandikar will also give an Award Lecture.

**PROF. R. K. SHEVGAONKAR**, Department of Electrical Engineering (currently acting as VC, Pune University), has been named the recipient of the 2011 IEEE Undergraduate Teaching Award by the IEEE Board of Directors, with the following citation: "[This award is] for his contributions to inspirational classroom teaching and the development of outstanding textbooks and e-learning material on electromagnetic waves and transmission lines."

**PROF. PUSHPAK BHATTACHARYA**, Department of Computer Science and Engineering, has been appointed Associate Editor of the prestigious journal, ACM Transactions on Asian Language Information Processing (TALIP) — an important forum for reporting Natural Language Processing research for the period of July 1, 2010 to December 31, 2011.

**PROF. KARUNA JAIN**, Head, School of Management has been selected for the award of 'Best Professor in Operations Management' by Asia's Best B-School Awards instituted by CMO Asia. The award was presented in Singapore on July 23, 2010.

**PROF. S. BHARGAVA's** paper (co-authored with his student, Upasana Agarwal), titled "Exploring psychological contract contents in India: the employee and employer perspective" (Journal of Indian Business Research, Vol. 1 No. 4, 238-251) has been chosen by Emerald, a publishing house, as an Outstanding Research Paper in Emerald Literati Network Awards for Excellence, 2010.

**Mr. IMDAD RIZVI**, PhD student, CSRE, presented and published a paper with his supervisor titled "A Novel Technique for Automatic Extraction of Roads from High-Resolution Satellite Remotely Sensed Images" in the First International Applied Geological Congress (IAGC 2010), organised by the Islamic Azad University, Mashhad, Iran. This congress was held between April 26 and 28, 2010. He was awarded the Best Paper along with a cash prize of 20 lakh rial, which is worth ₹ 10,000. The paper has been published in the Iranian Journal of Earth Sciences.

## News from IIT Bombay Swimming Club

The Greater Mumbai Amateur Aquatic Association's (GMAAA) swimming competition was held from 14-16 May, 2010 at TATA swimming pool, Chembur, Mumbai.

Participants from IITB's swimming club were Sakshi Kale, Apurva Phale, Siddharth Rao-Deb and Siddhant Reddy. They were trained by Dr. P. M. Reddy.

Sakshi Kale secured 6<sup>th</sup> position in 100 metres breast stroke, 200 metres Individual Medley and 50 metres back stroke. Apurva Phale won the gold medal for the 200 m Individual Medley, the silver medal for 200 metres butterfly and three bronze medals for 200, 100 and 50 metres breast stroke.

Siddharth Rao-Deb won two bronze medals in 50 metres freestyle and 100 metres breast stroke, and secured 4<sup>th</sup> position in 50 metres breast stroke. Siddhant Reddy won the bronze medal in 100 metres back stroke and secured 4<sup>th</sup> position in 100 metres back stroke. Based on their performances, all the four participants were selected to represent Mumbai district at the Maharashtra State Junior Swimming Competition, which was held in the Balewadi, Pune from 7-9 June, 2010.



**APPOINTMENTS**



**PROF. SOUMYO MUKHERJI**, Department of Biosciences & Bioengineering has been appointed as the Head of the Centre for Research in Nanotechnology and Science (CRNTS) on May 10, 2010.



**DR. JOSEPH JOHN** has joined as Professor in the Department of Electrical Engineering under the Faculty Exchange Scheme on June 14, 2010.

**DR. S. ASHOK** has been appointed as a D.J. Gandhi Visiting Chair Professor in the Department of Electrical Engineering on May 19, 2010.

**PROF. PUNIT PARMANANDA**, Department of Physics has been appointed as Chairman, Sports Activities on June 16, 2010.

**RETIREMENTS**

On 31.05.2010 & 30.06.2010



**SHRI M.K. PATIL** retired after 37 years of service on May 31, 2010. He worked as Deputy Registrar, Academic Section.

*I am reminded of a few years ago when I was Dean of Academic Programmes and Mr. Patil looked after the Academic Office as the Dy. Registrar (Academic). The Institute/Academic Office was facing a lot of challenges on account of increase in student intake, development of additional infrastructure for academic purposes, the restoration and reorganisation of the Academic office, etc. Mr Patil enthusiastically and thoughtfully worked in ensuring that the institute's policies were implemented efficiently. Another aspect of him is his strength to be quick and sharp with unconventional thinking, and his very student-centric attitude. I wish him a wonderful post-IITB life, surrounded by the warmth of happy memories and the wonderful future that lies ahead of him. May his post-IITB life be as exciting as the academic and administrative life he has led so far, and may god bless him.*  
Prof. Anil Kumar Singh, Department of Chemistry



**SHRI BHAGWAT B. AHIRE** retired after 35 years of service on May 31, 2010. He worked in the institute as Jr. Tech. Supdt., Industrial Design Centre.

*He joined IIT in the Department of Metallurgical Engineering and Material Sciences in 1975 as an Attendant. Later, he joined IDC in the year 1980 as Mechanic "C". Mr. Ahire worked in the Wood Studio of IDC. He used to assist students in their projects and looked after the maintenance of IDC carpentry work.*  
Prof. G.G. Ray, Head of Department, IDC



**SHRI SARJERAO D. KAMBLE** retired after 33 years of service on May 31, 2010. He worked at the institute as Superintendent, Dept. of Humanities and Social Science.

*He was posted in our department towards the end of his career. He was a sincere and cooperative person.*  
Prof. Meenakshi Gupta, Dept. of Humanities and Social Science



**SHRI SUDHIR N. THAKUR** retired after 40 years of service on May 31, 2010. He worked in the institute as Jr. Supdt., Department of Chemical Engineering.

*He joined the IIT Bombay's Chemical Engineering Department in 1970. He has served the institute for 40 long years and has been JS (PA to Head) for more than ten years. He was given the Staff Award for distinguished service by the department in 2001. Mr. Thakur has an active interest in music, especially in Bhajans and Santwani. He is an extremely helpful and good-natured person. We wish him all the best for his retired life.*  
Prof. Anurag Mehra, Head, Chemical Engineering Department



**SHRI JAGANNATH L. WAGHMARE** retired after 35 years of service on May 31, 2010. He worked in the institute as Jr. Supdt., Administration Section.

*He was a hardworking and honest person. Mr. Waghmare was particular about his work.*  
Mr. Bhorkade, Deputy Registrar, Material Management



**SHRI NAMDEO K. KURADE** retired after 39 years of service on May 31, 2010. He worked in the institute as Jr. Supdt., Department of Mathematics.

*He was a man of few words. Whatever job was assigned to him was done efficiently, in time and with great enthusiasm. — Prof. Jugal Verma, Department of Mathematics*



**SHRI DANIEL MATHAI** retired after 34 years of service on May 31, 2010. He worked in the institute as Jr. Supdt., Industrial Design Centre.

*He joined IIT Bombay at the Dy. Director's Office in 1976. Later, he joined IDC in the year 1978 as Lower Division Clerk (LDC). Mr. Mathai worked as Jr. Supdt., and was responsible for carrying out office routine work.*  
Prof. G.G. Ray, Head of Department, IDC



**SHRI MANOHAR L. BHANDARE** retired after 37 years of service on May 31, 2010. He worked in the institute as Jr. Lab. Asst., Department of Electrical Engineering.



**SHRI VISHNU N. GORULE** retired after 39 years of service on May 31, 2010. He worked in the institute as Library Asst., (SG), Central Library.

*He was punctual and regular, enthusiastic and sincere about his work. He exhibited exemplary services during his tenure and rendered the best services to readers. His association with the Central Library of this institute has been well appreciated. Being a good social counsellor, Mr. Gorule helped many families in overcoming conflicts and in arranging many marriages. He also was a nature lover and originally being a farmer, he took a lot of effort to maintain the garden within and surrounding the library. We all wish him happy and healthy retired life.*  
Dr. Phadke, Assistant Librarian, Central Library



**SHRI VIJAY B. KHAPNE** retired after 40 years of service on May 31, 2010. He worked in the institute as Mechanical Assistant (SG), Department of Electrical Engineering.

*For the last ten years, he worked in Wadhvani Electronics Lab in the EE department. He was always courteous, helpful regarding work. He was popular among his juniors because of his friendly attitude.*  
Prof. Mahesh Patil, Department of Electrical Engineering



**SHRI MANOHAR B. SAWANT** retired after 38 years of service on May 31, 2010. He worked in the institute as Mechanical Assistant (Grade I), Department of Mechanical Engineering.

*He was a sincere and hardworking person who served IIT Bombay for a long time.*  
Prof. S.V. Prabhu, Mechanical Engineering Department



**SHRI UTTAM D. KADAM** retired after 34 years of service on May 31, 2010. He worked in the institute as Watchman (SG), Security Section.

*He was very punctual about his work and worked hard at his job. — Mr. Vijay Kumar, Security Officer*



**SHRI LAXMAN G. WAKODE** retired after 34 years of service on May 31, 2010. He worked in the institute as Watchman (SG), Security Section.

*He took his work seriously and cooperated well with colleagues. — Mr. Vijay Kumar, Security Officer*



**SHRI BAPUSAHEB V. KAMBLE** retired after 35 years of service on May 31, 2010. He worked in the institute as Watchman (SG), Security Section.

*I remember Mr. Kamble was awarded the Excellent Employee award for his hard work during IIT's Golden Jubilee celebrations. This shows how particular he was about carrying out his duties well. He was a good security guard. — Mr. Vijay Kumar, Security Officer*



**SHRI NARAYAN S. MANE** retired after 34 years of service on May 31, 2010. He worked in the institute as Watchman (SG), Security Section.

*He too was awarded the Excellent Employee award for his work during IIT's Golden Jubilee celebrations. Mr. Mane was a good security guard and was sincere about his work. — Mr. Vijay Kumar, Security Officer*



**SHRI YADAV P. SHIVSHARAN** retired after 34 years of service on May 31, 2010. He worked in the institute as Watchman (SG), Security Section.

*Though people may not realise it, being a security guard is a tough job. He was a good security guard who took his job seriously and performed it earnestly. — Mr. Vijay Kumar, Security Officer*



**SHRI RATAN S. CHABUKSWAR** retired after 35 years of service on May 31, 2010. He worked in the institute as Helper (SG), Estate Office.

*He was a sincere and hardworking person. He used to do his work with great zeal. — Mr. Chowdhary PA System, Estate Office*



**SHRI KRISHNAKANT H. MHATRE** retired after 37 years of service on May 31, 2010. He worked in the institute as Helper (SG), Computer Centre.

*He was honest and meticulous. I have only praise for him. Mr. Mhatre was very punctual about his work.*  
Dr. Maharane, Computer Centre



**SHRI MELA D. SOLANKI** retired after 31 years of service on May 31, 2010. He worked as Sr. Cleaner, Public Health Office.

*He was a good man and helpful by nature. Mr. Solanki was a very sorted out person and was punctual about his work.*  
Mr. Tambe, Sanitary Assistant, PHO



**MS. AARTI MUKHERJEE** retired after 34 years of service on June 30, 2010. She worked in the institute as Superintendent in the Central Stores.

*Ms. Aarti Mukherjee was very particular about her work. She was helpful to her colleagues and compassionate by nature.*  
Mr. Bhorkade, Deputy Registrar, Material Management



**SHRI DATTATRAYA V. PATKAR** retired after 40 years of service on June 30, 2010. He worked in the institute. Technical Superintendent in the Industrial Design Centre.

*Having been at the Industrial Design Centre in the late 80's, mid 90's and since the early years of the new millennium, I have been associated with Patkar (that is how he is normally addressed), over two decades. I seem to conclude after all these years, that Patkar cannot utter a harsh word to anyone - even an errant student who has cornered a department camera for an unduly long time. Ever willing to oblige anyone who needed his help, it is his graceful manner that shall leave behind a quiet energy in the photo-studio, after he retires.*  
Prof. Raja Mohanty, IDC



**SHRI RAJENDRA SINGH L. TALAYAN** retired after 33 years of service on June 30, 2010. He worked in the institute as Sr. Technical Superintendent in the Department of Chemistry.

*Mr. R.S. Talayan joined the Dept. of Chemistry in August 1977 after completing his M. Tech. from IIT Delhi. He was actively involved in setting up the Central Facility Instrumentation Lab and Computer Lab, and was in charge of them. He was also involved in teaching and research activities of the department. He has been a silent worker and very helpful to faculty, students and colleagues.*  
Prof. Nand Kishore, Head of Department, Chemistry



**SHRI DNYANADEO M. MISAL** retired after 33 years of service on June 30, 2010. He worked in the institute as Jr. Superintendent in the Administrative Section.

*He was sincere, punctual and a reliable person. Towards the end of his tenure, Mr. Misal was suffering from mental illness, but in spite of that he never let his problem reflect on his work.*  
Mr. Vijay Kove, Administration Section



**SHRI BHIKU K. NILAKHE** retired after 41 years of service on June 30, 2010. He worked in the institute as Peon (SG) in the Deputy Director (AIA)'s Office.

*He was sincere, helpful and had a friendly nature. Due to his friendliness, Mr. Nilakhe was very popular amongst his colleagues and in campus. We all will miss him. Best wishes for a happy and long retired life.*  
Staff of Deputy Director's Office



**SHRI RAJARAM S. KATRE** retired after 31 years of service on June 30, 2010. He worked in the institute as Sr. Helper in the Estate Office.

*He was very thorough and punctual. There were no complaints regarding Mr. Katre during his working period.*  
Mr. Oval, Estate Office



**MS. DARIYA N. SOLANKI** retired after five years of service on June 30, 2010. She worked in the institute as Cleaner, Public Health Office.

*By nature she was a very kind and hardworking person. Though handicapped, she used to do all the work assigned to her. She never complained about anything.*  
Mr. Tambe, Sanitary Assistant, PHO



THE UPSIDE OF DOWN

# Ode to a River Watcher ■ SWEETIE AHLUWALIA



While in Hampi, I came across a person who called himself a river-watcher. When I asked what that meant, the reply was not greatly helpful.

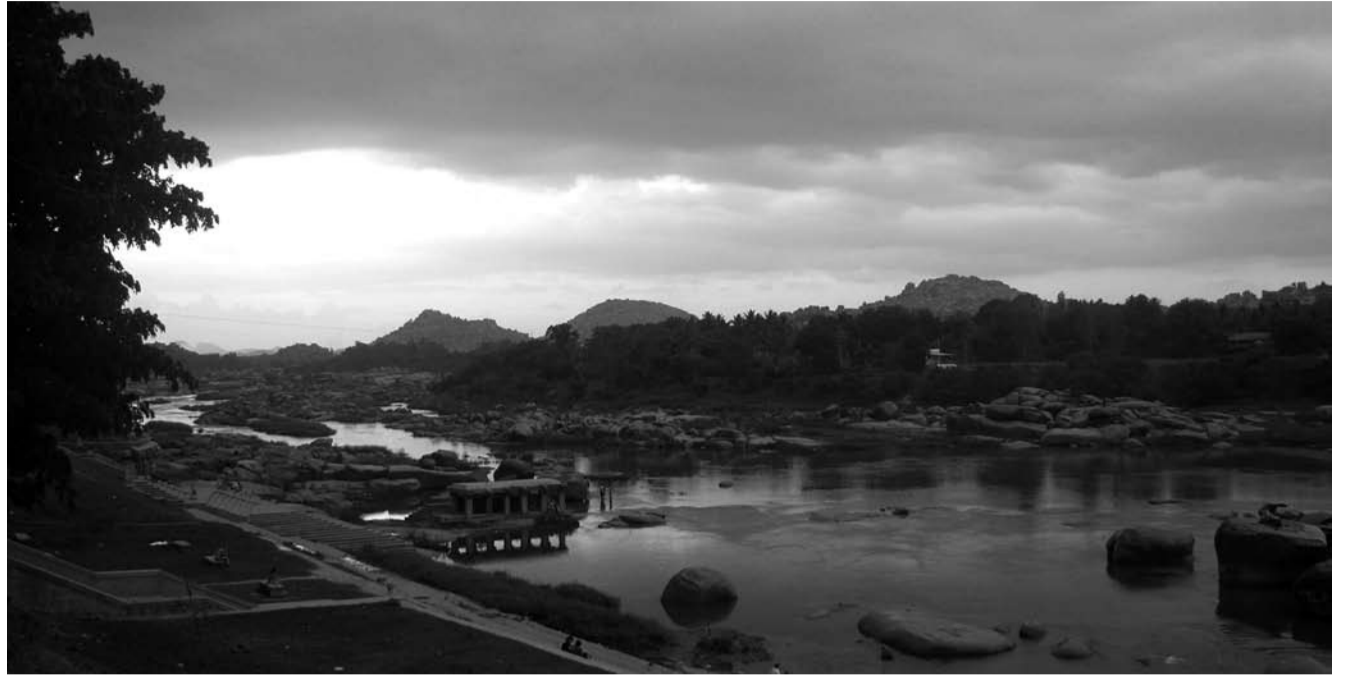
“A river-watcher, watches the river.”

I was reading one of Steinbeck’s engrossing novels, in which he speaks of the ‘tune-in-the-head’.

So I asked the river-watcher, what was the tune in his head.

“It is the sound of the river, the way light falls on the waters, the manner in which the fish dart in and out of the shadows ...” said he — and I was beginning to understand a little about this river-watching stuff.

The river-watcher continued:  
 “The tune in our heads changes,  
 depending on who we are with;  
 what kinds of spaces surround us;  
 how often we walk in the hills;  
 what we eat (and drink!).  
 Watching the tides, ebb and rise;  
 or the stars mark their paths,  
 arrogant is the one who says,  
 ‘that-I-am-in-a-hurry’.”



Back in the city, (and most often, in a hurry), the river-watcher’s tune continues to haunts me.



PHOTO-ESSAY

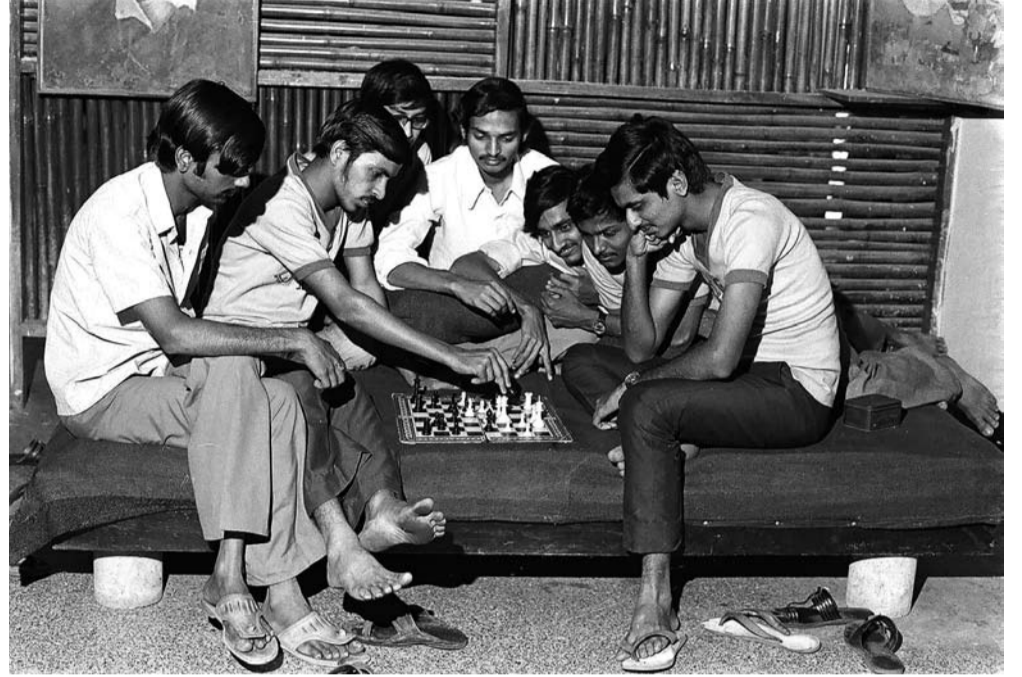
Culled from the past and present, the Photo Essay displays IIT Bombay's various sports facilities and the good use that has been made of them over the years.

As the issue is themed around Sports, we have a little competition for you. Read the captions carefully. All of them have a common characteristic. Do you know what that is?

If you do, write in to [pro@iitb.ac.in](mailto:pro@iitb.ac.in). The first one to get it right will get a surprise gift from the Raintree team. So scramble to your laptops and write in to us as quickly as you can.



Play it again, Sam.



Houston, we have a problem.



Do you feel lucky, punk?



Crisis, what crisis?



Hell hath no fury like a woman scorned.

Send in your articles, photographs, etchings, poetry, or anything else you would want portrayed in the magazine to [pro@iitb.ac.in](mailto:pro@iitb.ac.in).

MAILING ADDRESS