

The Quarterly BITSians  
BITSunami Team & S Nagarajan (IAS Topper)

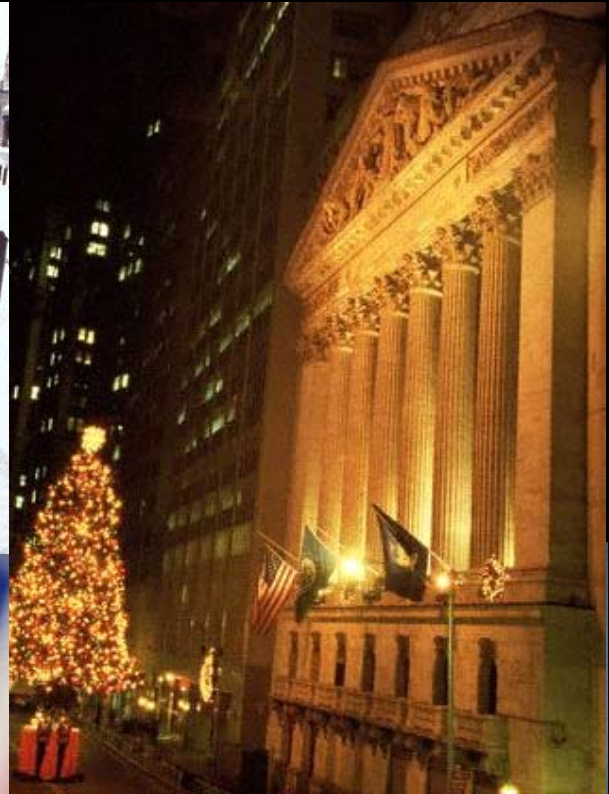
The BITSAA Edition

# Sandpaper [2.0]

Fall 2005

BITS, Pileri, Alumni Magazine

## BITSians on Wall Street



Private Equity • Investment Banking • Hedge Funds • Sales & Trading

# Sandpaper [2.0]

Fall 2005 Issue

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# BITSAA SANDPAPER VISION

Focus on the BITSian community - alumni, students and administration.

Build a close knit BITSian *community* by promoting

Increase BITS brand equity

*participation*, evoking feelings of nostalgia, *pride* and

An emphasis on building engagement through awareness and debate

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Our news, achievements in academics, business and in the community. What's happening at BITS and at BITSAA chapters around the world

To read past issues visit the website:

<http://sandpaper.bitsaa.org/archives/archives.htm>



## About Sandpaper 2.0

# SandpaperOnline

<http://www.bitsaa.org/sandpaper/sandpaper.html>

### **BITSAA Newsletter**

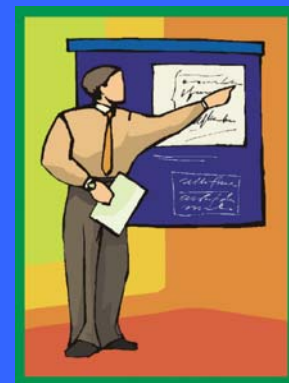
Every month we bring you a newsletter with stories about BITS and BITSAA through the Yahoo! Groups. In case you miss an edition, you can visit the Newsletter archives online and go through issues and news that you may have missed.

### **Photo Galleries**

Click on "Photo Galleries" on [www.bitsaa.org](http://www.bitsaa.org) and see photos of Pilani, cartoons, artwork and books by BITSians, as well as profiles of BITSians in business, academia and research.

### **BITSians IN ACADEMICS**

At last count, there were **208 BITSian** alums teaching as professors at universities and research institutes around the world. All details including research, emails and phone numbers are to be found on the website. Contact these professors. Start a dialogue!



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The team wishes to thank Prof Rahul Banerjee, Prof Raghurama, Prof R K Mittal, Mukul Chawla, Neel Broker, Aditi Pany as well as all those who helped us put together the **BITSians On Wall Street** article. Thanks also to everyone who sent in his or her articles. All articles that could not be included in the print version will be made available online for our readers to enjoy.

#### **JOIN THE TEAM**

*Sandpaper 2.0* is created by a global team with members spanning seven countries in four continents. It's a great place to gain organizational leadership experience, network with the alumni community and enhance your writing skills.

Please email your articles, nominations for Quarterly BITSian, letters to the editor, feedback and requests to join the team to: [smukherjee@bitsaa.org](mailto:smukherjee@bitsaa.org)

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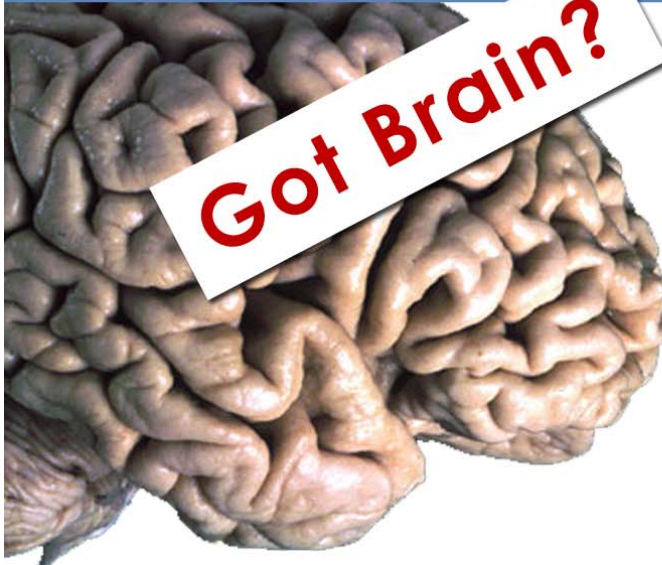
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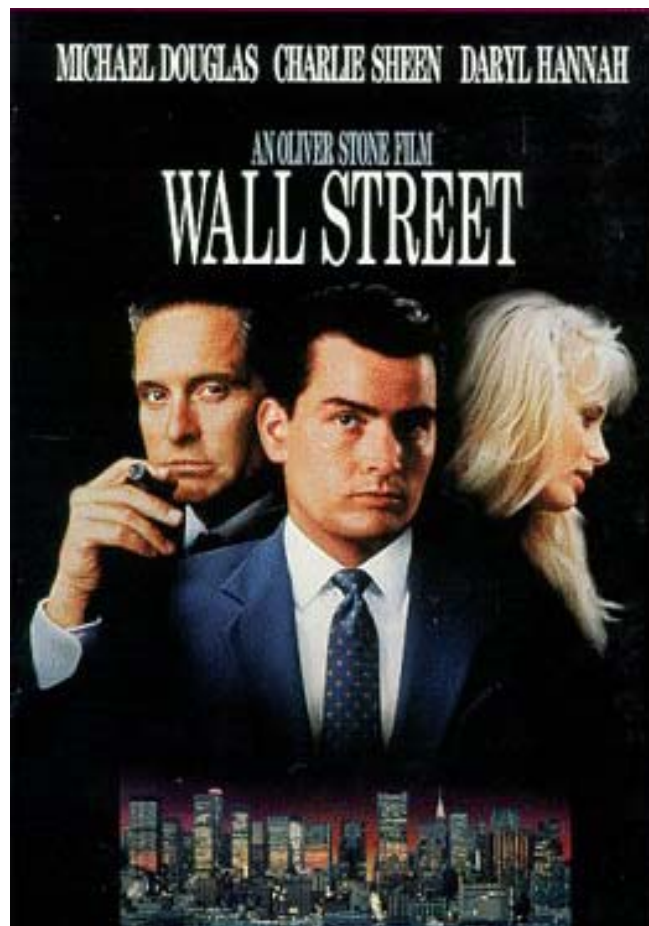
# Masters of the Universe? Barbarians at the Gate? Both?

Tom Wolfe, in his book *Bonfire of the Vanities*, called them “Masters of the Universe”. In *Barbarians at the Gate*, the implication is less flattering yet just as powerful. Investment Bankers, Traders, Equity Analysts... the list goes on. The importance of Wall Streeters to the free market can hardly be overstated. At their best, they are true market makers ensuring the flow of capital to areas where it can be most productively employed. This often has the end effect of raising standards of living and national productivity. At their worst, they symbolize greed and hyper-capitalism – a sentiment perhaps best captured in Michael Douglas’ words, “Greed is good” in the movie *Wall Street*.

In **BITSians on Wall Street**, the Sandpaper 2.0 team had the opportunity to meet and speak with many of our prominent alumni who have built careers in various functions of high finance on the Street. As always, our alumni were extremely gracious in taking the time to tell us their stories and providing us with various insights into careers on Wall Street. We spoke about topics ranging from the long hours and the lure of the lucre to the league tables and dynamic hedging.

Our goal is to inspire alums and students with a penchant for such careers to follow their dream as well as to help them chart their courses. For

others, we hope that the article makes for enjoyable, educational reading.



In addition, this issue also breaks from our tradition of awarding the **Quarterly BITSian** to individuals only. Warren Bennis, leadership guru and management educator, often reminds us “none of us is as smart as all of us”. There is perhaps no better example of this than the outstanding achievements of the **BITSunami Team**, the first group to be awarded the Quarterly BITSian.

We hope that these stories, our regular features, and other ‘extras’ on [sandpaper.bitsaa.org](http://sandpaper.bitsaa.org) help you stay connected with your BITSian heritage and spur you on to whatever it is that you

want for yourself.

Sandeep Mukherjee ('95 Phy Mech)  
Chief Editor  
November 7, 2005

THE SANDPAPER 2.0 TEAM

# BITS & BITSAA NEWS

## BITS OPTED OUT OF INDIA TODAY SURVEY

BITS opted out of India Today's survey of 2005 because of a pending court case between BITS and India Today. This explains why BITS does not figure in the India Today rankings. In 2004 when *India Today* released its rankings, it did not collect the data from BITS, Pilani even though it mentioned it did so. BITS questioned the validity of the data because there were many factual errors in India Today's description of BITS. India Today did not accept the errors and hence BITS has gone to the court against India Today and the case is still pending.

Sadly, no press reporter carried this story.



## BITS DLP MS SS STUDENT IN MICROSOFT MVP 2005 LIST

**Atul Gupta**, ME Software Systems, is one of the recipients of the Microsoft MVP (Most Valuable Professional) Award this year.

The Microsoft MVP (Most Valuable Professional) Award is given out each year to outstanding members of a Microsoft online Developer Forum.

**Atul Gupta**, currently working with Infosys Technologies Limited as a Technical Architect, has close to 9 years of work experience on Microsoft technology projects across business domains.



Atul Gupta

## SUBODH KARNIK LEADING THE WAY AT ATA HOLDINGS

ATA Holdings has announced **Subodh Karnik**, a BITS alum, as Senior Vice President and Chief Commercial Officer. ATA Holdings Corporation is an Indianapolis-based holding company with six wholly owned subsidiaries specializing in aviation and travel industries.

## BITS ALUMNUS BECOMES MD OF NYLIM

**Harish Kumar**, BITS alum, has been appointed the Managing Director and Head of Growth Portfolios at Equity Investors Group of New York Life Investment Management LLC (NYLIM). Dr. Kumar, who has bachelor's degree in Mechanical Engineering from BITS, is a CFA charter holder.

## BITSIAN IAS TOPPER

**S Nagarajan**, a BITS alumnus, has topped the 2005 civil services exams conducted by the Union Public Service Commission. Nagarajan was ranked first out of 422 candidates (also see Quarterly BITSian).



Krishnamurthy Surysekar

## EXCELLENCE IN RESEARCH

**Dr. Krishnamurthy Surysekar** (\*76), currently the Assistant Professor, School of Accounting, College of Business Administration, Florida International University, has been awarded the *Florida International University Faculty Award for Excellence in Research - 2005*.

## VIVEK PAUL JOINS TEXAS PACIFIC GROUP

**Vivek Paul** has quit Wipro and joined Texas Pacific Group (TPG), one of the world's largest Private Equity firms as a



Partner. At TPG Ventures, he will focus on Technology & Life Sciences investments.

Vivek Paul also sits on the Board of Directors of Electronic Arts.

## BITSIANS MOVE AT CISCO

**Prem Jain** senior vice president at Cisco recently announced his retirement. Meanwhile, **Pankaj Patel** (ex SVP at Redback) has been promoted to senior vice president, Broadband Edge & Mid-Range Routing Business Unit. He holds an MS in EE from the University of Wisconsin-Madison and a BE from BITS, Pilani, India.



Pankaj Patel

## BITSIAN'S BOOK ON GLOBAL OUTSOURCING

**Suresh Sharma** has published a book on Global Outsourcing, which serves as a comprehensive reference guide that takes managers through the necessary milestones for successful execution.

Suresh has led multiple global business, technology, and process improvement initiatives at General Electric (GE) over the past decade within the



(right) Arvind Mathew

Energy and Corporate R&D divisions.

## ARVIND MATHEW APPOINTED MD, FORD INDIA

**Arvind Mathew** took over as the Managing Director of the company from August 1. He is now Vice-President and Executive Director (India programs implementation and supply).

## ARJUN VALLURI LANCO GLOBAL AS CEO

Lanco Global Systems Limited (LGSL) has brought in **Arjun Valluri** (ex-BITSian) as director and Chief Executive Officer of LGSL. Mr. Valluri, founder chairman of Intelligroup Inc (first IT company from India to be listed on the Nasdaq), later left it. He then acquired a 'substantial' shareholding in LGSI. The combined turnover of these companies would be about \$22 million.

## ARVIND SINGH, SPEAKS AT CITIZENSHIP CEREMONY

The U.S. Citizenship and Immigration Services (USCIS) organized the "Celebrate Citizenship, Celebrate America"



Arvind Singh

ceremony the week of July 4<sup>th</sup>. The keynote speaker for the ceremony was **Arvind J. Singh**, an Indian national who became a United States citizen last year. Arvind is a serial entrepreneur who has lived the "American Dream" since '91.

Arvind has an MS from the Birla Institute Of Technology and Science (BITS) in Pilani, India.

## BITSIANS FINISH RUNNERS-UP IN IMAGINE CUP 2005

**Ishan Shukla** and **Mayur Karthik**, BITS, Pilani's contestants at Imagine Cup 2005, competed and got the Second Position and award of \$4000 in the Imagine Cup 2005. **Ishan** and **Mayur** showed typical BITSian gumption in meeting the challenges posed by the other teams and getting on top with little fuss.

## PRABODH VYAS APPOINTED GIGABYTE MD

**Prabodh Vyas** (EEE) has been appointed MD of Gigabyte Technology (India), a joint

venture between D-Link India and Gigabyte Technologies, Taiwan. Prabodh, earlier the Director-Sales & Marketing, D-Link India, has over 28 years of experience.

### DARING TO DREAM BIG

**Rajesh Hukku**, CEO of i-flex (recently taken over by Oracle) was successful in powering i-flex to become one of the largest financial software majors, with revenues of \$185 million, net profit of \$40 million and a market share of \$1 billion in the financial year 2004.

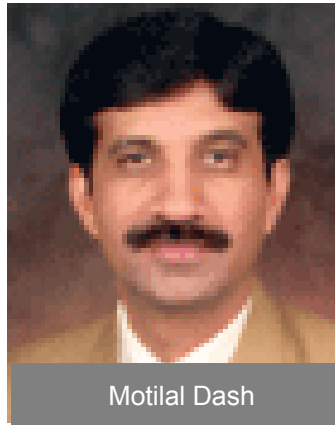


### BITS '64-69 BATCH STORMS INTO LIMCA BOOK OF RECORDS

BITS, Pilani's batch of '64 has stormed its way into the Limca Book of Records for creating a World Record number of Alumni Meets of a Single Batch: a feat that does us all proud. The feat has been listed in by the Limca Book of Records 2005 (pp. 156).

### DR. MOTILAL DASH CONFERRED INDIRA GANDHI NSS AWARD

**Dr. Motilal Dash**, Assistant Professor, Humanistic Studies Group, BITS, Pilani, has been conferred the Indira Gandhi National Service Scheme (NSS) Award, for the academic year 2004-05. Join us in congratulating Dr. Dash on his tremendous achievement!



Motilal Dash

### PROJECT DESERT BLOOM

BITS Pilani has established a Centre for Desert Development Technologies C-DDT and has joined hands with Jacob Blaustein Institute for Desert Research BIDR Negev Israel in

a mission to develop world-class desert development technologies, titled Project Desert Bloom. The C-DDT at BITS Pilani aims to develop in the desert world class technologies for water and energy conservation in irrigation systems, rain water harvesting and water distribution systems. This is one more jewel in the crown of BITS, whose pioneering work for the society proves that the reputation of an educational institution is not merely based on its admission and placement statistics but based on its Social Engineering efforts too.

### BITSIAN SECURES TOP SINGAPORE ACCOLADE

The head of Asia-Pacific operations of Satyam Computer Services Ltd. (NYSE:SAY), Mr. **Virender Aggarwal**, today became the first Indian national to receive the prestigious International Management Action Award ("IMAA") from Singapore. "His success clearly demonstrates his outstanding management capabilities, especially his skills in managing diversity," the IMAA said in its citation.



## MASALA & SPICE

### BITSIAN PRODUCED H1BEES CREATES HISTORY

Geeksta rap is making way for Curry Rock!

Srikanth Devarajan, Kartik Venkataramanan, Devesh Satyavolu and Srivatsa Srinivasan, were not unlike many others who have left India over the past decade on the H-1B visa, a guest worker program for highly skilled professionals. They wore glasses and mustaches and collared shirts. They could

exterminate Y2K bugs and code Java and link Unix. However, as they toiled in cubicles, they dreamed of keyboards of a different sort, of a world where C-sharp is just a musical note, not computer code. Then their worlds became one.

Their collaboration resulted in the creation of their first music album, H1Bees. The album, named after the US visa given to foreign workers with high-tech skills and recorded in a suburban basement-turned-studio, was released on September 10. Its music is "a

mix of Indian and Western beats with lyrics exploring the high-tech immigrant's experience in the United States." The music is written by Srikanth Devarajan and performed by aspiring Rock-and-Roll musicians who arrived in the United States to work in the computer and software industry. "The album, which will be sold via South Asian Web sites and stores for \$6, boasts songs in English, Hindi and Tamil." Producer **Vatsa** and lyricist **Devesh Satyavolu** are both BITSian alums.

## ANOTHER BITSIAN TURNS DIRECTOR

After BITSian **Manishankar**, who shot to fame with 16 December, it is now the turn of Sivakumar, another BITSian, to grab the arclights. Sivakumar,

who earlier worked with Mani Ratnam as assistant director, is set to direct his first movie Chukkallo Chandrudu. He has already managed to hit the headlines by pulling off a casting coup by bringing together today's A-list stars like Siddharth, Saloni, Charmi to share screen space with veterans like ANR and Waheeda Rehman. In keeping with the string of trendy flicks churned out these days, the movie is supposed to be an energetic youth techno flick. The muhurat of this film was held at State Art Gallery in Madapur on the morning of 24th August. We wish the BITSian director the best as we eagerly wait to see how this film shapes up and performs at the box office.

◆

BY **DILIP D SOUZA ('87 Eco INSTRU)**

## Fits BITS

In business, in the community and in every other realm of life, BITSians continue to make an impact in eclectic ways.



Things have a curious way of going round. A couple years ago, a few of us organized a BITS alumni meet here in Bombay. Among various things, we came up with the idea of honoring two BITSians at the meet. One, someone who has done well in technology or the corporate world, as might be expected of a normal BITS graduate. Two, someone who has done well in a completely different realm, as might not be expected of a normal BITS graduate.

Then again, given that celebrated broad-based BITS education, the second might also be expected.

In any case, for our "off-the-usual-track" honoree at that meet, we chose **Shashi Warriar**: the 1981 MA Economics graduate who has taken to writing thrillers and novels. (Check his little gem, "Hangman's Journal"). One year later, we had another Bombay alumni gathering, and we did the same thing again. This time, our choice was Ramesh Ramanathan, the once-high-flying Citibank executive who now runs the citizens' organization Janaagraha in Bangalore.

It was a good start, those two. We wanted this to become something of a Bombay alumni meet tradition. Which it might have, but for one problem. We have had no more Bombay alumni meets. Just those two.

Nevertheless, in early October this year, I was tickled to find myself on a panel with Shashi Warriar -- and then, less than 48 hours later, on a panel with Ramesh Ramanathan. Tickled because it's hardly as if I'm on panels all the time; yet these two in quick succession featured three BITSians, and these two in particular.

Why were they on these panels? Warriar won first prize in an Indian Express/Citizens for Peace essay competition on new ways of looking at secularism. As part of the prize distribution function, he and I were part of a panel discussing the themes that had emerged from the contest. Then Ramanathan and I were the speakers at a seminar session on democracy and peoples' participation, a subject he is eminently qualified to explore.

And as I sat behind tables listening to Warriar and then Ramanathan, they will forgive me for admitting here that I didn't give them quite my full attention. Because a part of my mind was marveling at the coincidence of it all; then marveling some more at the paths these random BITSians have taken over the years; then marveling still more at how these paths managed to converge for a brief spell, only two days apart. And I marvel most that it is BITS that underlies all this. BITS, the good old "engineering" college.

I don't mean to sound my little trumpet here, but with that said, consider some events from the first ten months of this fifth year of the 21<sup>st</sup> Century. Ramanathan's Janaagraha embarked on a major effort to check the veracity of Bangalore's electoral rolls. BITSians won two major writing competitions in India -- me, the Outlook/Picador confiction prize last February; and Warriar, this Indian Express/CfP prize in October. After the tsunami, BITS alumni in Chennai adopted two Tamil Nadu villages and put in motion some carefully considered long-term development plans there. As part of that, curiously enough, they actually were involved in the effort to set a Guinness record by planting over 250,000 trees in a day. What's more, the old record of some 80,000 trees had a BITS connection as well: the District Collector who suggested it in 2002, **Sudeep Jain**, is a BITS alumnus. And just for good measure, **S Nagarajan**, yet another BITS alumnus, topped the Civil Services exam this year.

There's plenty more where all that came from, I'm sure. But I'll stop there. That's an eclectic enough list of achievement.

We all like to look back on our alma mater days with rose-tinted nostalgia, and understandably. In hindsight, everything about BITS -- calculus classes to practice school to endless cups of *chai* -- invariably seems terrific to us. Of course, at the backs

of our minds we know it likely wasn't and isn't quite as rose-tinted as all that. Yet I imagine the greatest tribute to BITS, to the kind of education we all got there, lies in the great variety of paths its alumni have taken.

So you'll find the telecom tycoon, but also the novelist. The venture capitalist, but also the effective and respected bureaucrat. The highly rated business professor, but also the guys who find innovative ways to clean up after a tsunami. There's nothing very profound in pointing all this out, I know; and besides, to readers of these pages it's all familiar anyway. Still, there was something delicious in the very act of sharing public space with two of these off-track alumni within two days. There was also a quiet satisfaction in knowing that we had picked these two to honor, at our gatherings. And then, sitting on that panel with Warriar beside me, I remembered one final delicious detail. When we invited Warriar to our alumni meet, he arrived in style. He drove up from Coimbatore -- on a gleaming Royal Enfield Bullet motorbike.

Fits BITS, wouldn't you say?

◆  
*Dilip can be reached at [ddd@rediff.co.in](mailto:ddd@rediff.co.in)*



"Ready to play?" from the BITS-TiE Golf Event, 2005



BY ANUPENDRA SHARMA ('87 ECO INSTRU) AND SANDEEP MUKHERJEE ('95 PHY-MECH)

# BITSians On Wall Street

BITSians are increasing in numbers on Wall Street as well as in the world's major financial centers in San Francisco, Houston, Singapore, Mumbai and London. Advising companies on multibillion-dollar mergers and acquisitions, financing new companies, acquiring mature businesses, taking companies public and much more. This article discusses BITSians working in Investment Banking, Equity Research, Sales & Trading, Private Equity, Asset Management and Hedge Funds.



In his classic book, “Liar’s Poker”, Michael Lewis described Wall Street as being a street with a river at one end and a graveyard at the other. He says that those who work there will end up in one or the other.

I am thankful to report that our investigations did not uncover anyone headed even remotely in either direction. Every few years there is a major shakeout on the Street, but right now there is a heady optimism, as the Street recruits in record numbers to keep pace with business.

Wall Street is physically no longer the centre of America’s high finance that has been written and captured in books, magazines and film. The Street is steeped in history, which makes for great reading, but not for 21<sup>st</sup> century architecture needed for the world’s most powerful financial corporations. In recent years, much of that action has shifted to Park Avenue in Midtown where spanking new buildings have come up. Morgan Stanley, Lehman Brothers and Bear Stearns have all built brand new facilities.

The world’s most powerful hedge funds have moved even further afar to Greenwich. As the world’s trading goes electronic, and much of the trades pulse below the city, completing billions of transactions in the blink of an eye, the New York Stock Exchange, sitting proudly on Wall Street, will disappear in the future.

Wall Street is critical to America’s future. The US capital markets are the most efficient in the world, which allows capital to move rapidly throughout the system. The ability to invest in companies, liquidate as

necessary, and trade in small quanta, allows capital to move rapidly within the system. Without Wall Street, America would not been able to rapidly take advantage of new technologies, trends, and create productive, efficient companies.

On an early fall morning, if you stand at the 4/5/6 subway stop, you can see financiers go about their business, their dark suits in sharp contrast to the fluttering American red and blue flags and the early morning golden rays of the sun slanting through the tall grey buildings. Inside the Stock Exchange, the bell rings and America opens for business.

## Investment Banking

Pfizer buys Warner Lambert for \$84 billion. JPMorgan buys BankOne for \$60 billion. Teva buys Ivax for \$7.4 billion.

As corporate growth slows and markets grow more competitive, buying seems to be an easy way to take on the competition. With cheap financing, multi-billion dollar hedge funds and stalled stock markets, these prices appear low. Mergers are hot on the Street, and Investment Bankers are working long hours to provide deals and financings.

Investment Banking is a narrow definition typically used on the Street for advisory and financing work.

Investment banks are financial institutions that provide a wide range of

services that includes advisory, financing, sales, trading, research, money management and private wealth management.

High profile mergers are the bread and butter business of the world's largest Investment Banks such as Goldman Sachs, Citigroup and Morgan Stanley. These firms help companies execute mergers & acquisitions transactions by advising their clients on the valuations, taking them through a due diligence process, and negotiating the terms of the agreements that are needed to buy a company.

Beyond advisory work, investment banking also includes the sale of securities to raise equity and debt. When a company goes on a road show to meet investors, and files for an IPO or a debt loan, Investment Bankers work round the clock to ensure that these companies can raise capital from the markets.

BITSians have worked in investment banking at the big firms (known as bulge bracket) such as Goldman, UBS, JPMorgan and Citigroup, as well as the boutique and mid-sized firms such as Thomas Weisel and Piper Jaffray.

There are three BITSians currently working in Investment Banking in



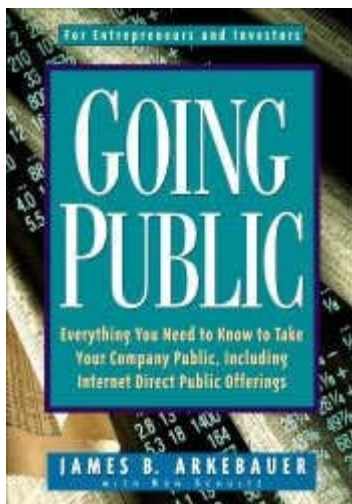
V P Rajesh - Principal in Technology M&A

the US. **Sumeet Kanwar** ('87, Wharton MBA) is an Executive Director in Healthcare M&A at UBS in New York. **VP Rajesh** ('87, Michigan MBA) is a Principal in Technology M&A at Thomas Weisel, San Francisco. **Anuraag Agarwal** ('93, Dartmouth, Masters in Engg. Management) is a generalist Vice President at Berenson & Company, a boutique investment bank in New York, executing M&A, private placements of debt



and equity, and restructuring transactions.

Investment Banking is usually divided into Product and Coverage Groups. Product groups include M&A, Leveraged Finance and Private Placements. Coverage groups include Telecoms, Healthcare, Financial Services and Real Estate. While product bankers work with a wide range of companies, they are typically execution specialists who deliver products to their clients. Coverage bankers are focussed on understanding sectors, and building a rolodex of contacts with CEOs and CFOs at a number of organizations.



Investment Banking is a very interesting, but physically gruelling job. Junior bankers (all the way up to Vice President and Principal) work most weekdays and weekends. This is because deals typically need to get done during very short windows. M&A has a high degree of confidentiality, so it needs to be done fast. Initial Public Offerings require bankers to create prospectuses, prepare management, then go on the

road with clients, meeting and educating top fund managers to buy into the stock at the time of offering. Debt deals are generally shorter, but have a similar marketing requirement. There are many other hybrid financial products which also get created and sold by investment bankers to investors through the sales arm of the bank.

Multibillion dollar deals can be completed in small periods of intense activity where timing is everything. Missed windows of opportunity can kill deals and lose millions in fees for bankers. It is a high stress job.

VP Rajesh loves the work. “As a mergers and acquisition banker, I work mostly with advising technology companies about their strategic alternatives. The goal is to negotiate best terms for a client in a given situation and execute the transaction.” VP says that he enjoys numbers, analyzing situations and sometimes, “getting to see the Wall Street Journal headlines before everyone else.” His most memorable moment in banking was on a hostile acquisition, where his team broke up an announced deal with another party.



Sumeet Kanwar’s work at UBS reflects the thought

about creating the headlines. He worked at Wall Street’s #1 Healthcare investment banking group, where UBS was the advisor to Ivax, one of the world’s largest generic pharmaceutical firms on its \$7.4 billion public acquisition by Teva Pharmaceuticals.

Investment Bankers build skills in project management – orchestrating a large group of people to a conclusion – including lawyers, tax experts, accountants as well as business team members. Bankers also develop a very strong understanding of finance and accounting. But as Anuraag Agarwal says, “the work is more about personalities and deal skills than numbers, which is what makes this work really exciting. You need to be able to understand numbers but effectively use the numbers to convey your message and argument – the numbers are just a means, not an end.”

As bankers get more senior, the focus shifts from executing and processing transactions, to bringing in business. This is a very important function at the boutique and smaller banks, who may need to work harder to attract business versus some of the larger banks.

People who work in investment banking need to develop strong skills in communications, negotiations, creating presentations, building very large and complex financial models, as well as working long hours on multiple projects, many of which will fail.



Entering investment banking requires one to demonstrate a strong passion, and interest. It is important to get to know a lot about the deals done by the investment bank, its culture, many people who work there, even before the first interview is conducted. These are sought after jobs. The hours are long – and it may be tough to balance family life with work. It is certainly not for everyone – many bankers burn out. I know of many Indians who opted out once they had children because they did not want to make the tradeoff between work and not seeing their kids.

VP Rajesh developed a gradual interest in Finance. At his first job at Citicorp Overseas Software Limited (COSL), he wrote software code for mutual funds accounting system. This

exposure was very fascinating to him and drew him closer to the field of finance. After his MBA at Michigan, he joined JPMorgan Chase. After a few years in New York, he moved to Deutsche Bank in San Francisco to focus on Technology M&A. He joined Thomas Weisel earlier this year. He says “Growth banks like TWP are best suited to address the advisory and capital market needs of technology companies that are too small for bulge brackets to bank”. He also jokes that banking was also the quickest way to pay his MBA loans.

Anuraag also advises to look at India. There has been a lot of development in the field of investment banking in the last five years in India. Besides the capital markets, there has been a considerable amount

of mergers and acquisitions activity in India. The financing markets (both from a public and private perspective) are maturing and the distressed markets are also developing. Anuraag says “ Investment banking as a profession is not as commoditized in India as it is in the West. It is an exciting time to be an investment banker in India right now and will be in the near future.”

### **Advice From Anuraag Agarwal (BITS '93) On Investment Banking**

Firstly, investment banking and other similar careers on Wall Street are mainly apprenticeship oriented – it is not about being super brilliant in solving differential equations. You need to have a good work attitude and be willing to learn. Further, you need to be able to be a good salesperson. There has to be more than just academic brilliance in your personality if you want to move ahead. Do not expect to come on Wall Street and achieve academic fulfillment (trust me I rarely use more than 2% of my gray cells!). However, if you are willing to put your head down and learn a trade, go for it!

Second, try to obtain an internship in the financial sector before deciding you want to pursue a career in investment banking. Try to get as much information as you can. Do not be swayed by the glamour – the sheen goes away very quickly when you have to routinely work for more than 100 hours per week and have no time to spend with your family. Ask yourself what kind of a



**Street Stress**

A career on The Street is exciting and rewarding. But, it is not for everyone. The Street is infamous for big egos that go with the enormous pay checks. It is also a cyclical industry with a hire & fire mentality. Investment Banks are notorious for over-hiring and then over-firing every five years. The last sizeable round of layoffs took place between 2000 and 2004, where entire divisions were decimated. It affected Indians in unusually large numbers. Some were out of work for up to three years, eventually getting back in when the market turned. Most people who on the Street are driven, ambitious, intelligent and talented. They are survivors. Careers are made or broken on the backs of single trades or deals. The pressures are enormous. Higher risks bring higher returns. But you have to be tough.

person you are. What you want to achieve professionally. What your innate motivations are. An internship will help you answer many such questions.

Third, talk to alums or other people in investment banking. I hate to use the term networking, but try to build as many relationships as you can. Do not call them for a job – but call them to gain some perspective.

Finally, remember that you start with a clean slate when you start working. Your

history at college, the 10.0 (or the 2.0 GPA) and all the extra curricular activities means nothing if you can't deliver at work. Again, you have to have a good work attitude, put your head down and be ready to learn. Every year is a needs to be started afresh!

**Private Equity**

Here's a business problem. You want to buy a store in Delhi that makes Rs10K of profit per year. The owner says – You can have it for Rs200K or 20X the Price to Earnings ratio.

Now if you gave him Rs200K from your personal savings, the 5% annual return on your investment may not seem very attractive, especially when India's stock markets are headed for the stratosphere.

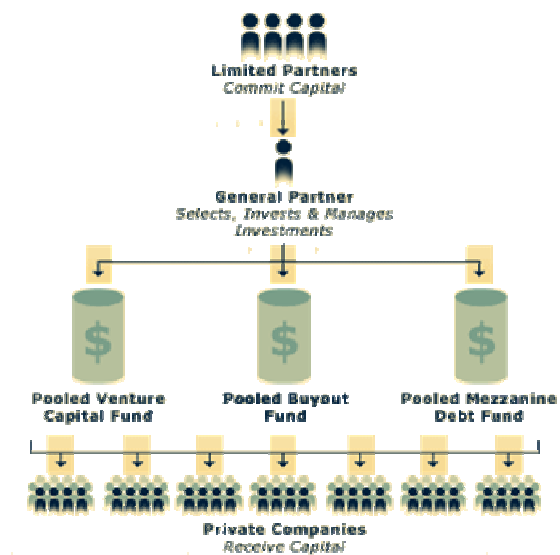
So here's the private equity spin on it. You pay Rs200K for the store, using Rs80K from your personal savings, and borrowing the remaining Rs120K from the bank. To secure the loan, you place the store as collateral.

Then you incentivize the store management by giving them some piece of the upside, or you bring in a new management team that has retail expertise to

make the store more profitable and efficient. By the end of the first year, you are finished fixing it, and it is generating Rs20K per year in profit. In six years, you have paid off Rs120K the loan, and now almost own the store. You put it back on the market and sell it for 20X earnings or Rs400K. You pocket the entire sum – a handsome profit of Rs320K on your original investment, a return of 41% over five years.

This is a simplistic example, but this is essentially how it works. If you are able to leverage up the store even further by using only Rs40K of equity and \$160 of debt, you would have generated a 73% return on your investment.

The wider definition of Private equity includes venture capital (early stage), growth capital, and Leveraged Buyouts (LBOs). LBOs typically focus on more established companies with stable cash flow characteristics that can support a high level of debt (or leverage) Private Equity



firms typically take full control of a company, sit on the Board of Directors, and act as partners to the management team to help them grow the business.

Private Equity in its current form was spearheaded by Jerome Kohlberg, Jr., and cousins Henry Kravis and George R. Roberts, all of whom had previously worked together at Bear Stearns, a large Wall Street firm. The three partners created Kohlberg Kravis Roberts, or KKR, in 1976, which has become the world's most storied private equity firm. This firm became famous in the book, *Barbarians at the Gates*, which details the takeover of RJR Nabisco. The \$25 billion deal remains the largest of all time.

Private equity firms put in anywhere between 20-50% equity, and use leverage to make up the rest of the purchase price. They seek to create value in three ways: (i) paying down debt, (ii) improving the underlying cash flow characteristics through growth and operational improvement initiatives, and (iii) exiting the business at a higher cash flow multiple than the acquisition multiple.

As the industry has matured, private equity firms have identified specific focus areas – either by size of transaction (large: >\$1 billion, mid-market: \$100 million to \$1 billion, lower middle market: \$25 million - \$100 million) by industry vertical (eg: healthcare, consumer, media and telecom, etc.), or most recently, but functional specialization (eg:

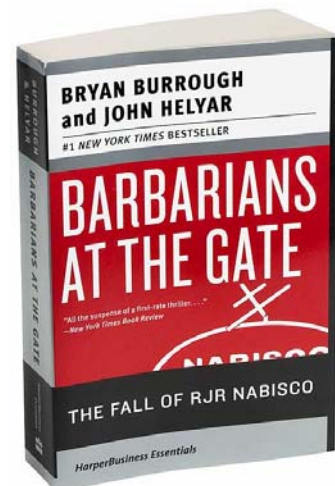
turnarounds, sourcing expertise, etc.)

The past year has seen an unprecedented growth in capital directed towards private equity, creating a universe of “mega-funds”. Recent examples include The Blackstone Group's \$10 billion fund and Warburg Pincus' \$8 billion fund. As Private Equity firms raise larger and larger funds, they are being able to buy companies that would not find buyers amongst strategic (or competitor) firms. When you add the leveraged financing you can receive, these sums become significant.

The past few years have seen a huge interest in private equity in India, with many Greenfield and global private equity firms opening shop. Examples of Greenfield funds include Chryscap and Westbridge, and examples of global private equity firms in India include Temasek, Warburg Pincus, The Blackstone Group and The Carlyle Group.

Private Equity firms have historically generated attractive returns for their investors. A recent example of a highly successful investment is Warburg Pincus' \$300 million investment in Bharti Televentures which generated \$1.3 billion in returns in a short span of time. In mature markets such as the US and western Europe, IRRs of 15-20% are typically the benchmarks set by high performing funds.

Professionals in Private Equity firms make their



money based on performance over the life of a fund (typically 5-8 years) – making it a long term game (unlike investment banking or hedge funds, where annual compensation is based upon the previous year's performance). The capital for funds are primarily raised from institutional investors such as pension funds and large financial institutions. Fund professionals earn 1-2% annually as a management fee to fund the ongoing operations. The upside comes from the “carry” – which represents 20% of the fund's profits over its life. Thus, for a \$300 million fund, with a 15% IRR over a 5 year period, the fund gains are \$300 million, resulting in a \$60 million payout to the partners of the fund.

The industry is highly relationship driven, with strong connections to the banking community as well as senior corporate professionals. John Major, the former UK Prime Minister is Chairman of Carlyle Group Europe. Texas Pacific Group hired **Vivek Paul** (1975) to its venture arm for investing in

lifesciences, but he is also focussed on doing Private Equity deals related to India. Vikram Pandit, head of Morgan Stanley's Investment Bank, recently left to start a Private Equity firm aimed at investing in India. Jack Welch has worked with Clayton Dublier & Rice, another top Private Equity firm, since he left GE.



Neel Broker (BITS '93)

**Neel Broker** currently works for a Private Equity firm in New York called ICV Capital Partners. 4 months after graduating from Pilani in 1997 he joined BT Alex. Brown (now Deutsche Bank) in New York. He spent close to 3 years with them in New York and London and then completed an MBA at Wharton. In 2002, he joined McKinsey & Company where he worked in both South East Asia and in New York. He joined ICV in May 2005.

Looking back, the biggest stumbling block Neel faced initially getting a foothold onto Wall Street in 1997 was convincing firms of the credibility of his academic credentials from BITS Pilani. Unlike the IITs, BITS had not yet developed strong brand

name recognition in the financial community, hence hirers were unsure of how much weight to place on the BITS name during the recruiting process. Eventually, what gave them comfort was the fact that Neel referenced BITS's strong college rankings in India, and explained to them that BITS was co-founded by MIT, was structured on the MIT model, and today boasts a strong alumni community in India and overseas. Additionally, Neel had already done his GMAT exam, which provided a useful metric for evaluation..

At ICV, Neel spends a bulk of his time either evaluating new acquisition opportunities, or working with ICV's existing portfolio companies on value creation initiatives. The combination of his I-Banking and consulting experience are particularly useful, since they contribute both, deal structuring and execution skills, as well as skills relating to working with management teams on diverse topics such as operations, marketing, and strategy, to ICV.

While there are few specific academic courses that he finds directly applicable on a day-to-day basis on his job, the analytical rigor, structured approach to problem solving, and the ability to multi-task and manage time efficiently are indispensable assets of his BITS education.

## HOW TO GET INTO PRIVATE EQUITY?

Private equity is rarely a "first job off campus" for anyone. Private equity firms usually have small teams, and hence expect new hires to contribute from day 1, while having a long term career horizon with the Firm. Hiring decisions are highly driven by a combination of 3 factors:

**(i) Academic and professional pedigree:** At the pre-MBA level, experience at a good investment bank remains a good route to get into Private Equity. Consulting is also becoming a breeding ground for junior private equity professionals. As more junior professionals get private equity experience pre-MBA, a high percentage of post-MBA hiring takes place from the cohort of graduates with prior private equity experience. Larger private equity firms are beginning to establish in-house operations and consulting teams for their portfolio companies, and look to consulting firms and operating executives to fill these positions,

**(ii) Relationships:** Referrals are a common way to get one's foot into the door. Unlike larger banks or consulting firms, private equity firms have a small margin for error in their hiring decisions, given their small size and infrequent hiring cycles. In private equity, as on Wall Street in general, the most powerful qualification is having a good professional reputation with mentors willing to stand behind you and "blow your trumpet" for you.

**(iii) Timing:** Hiring cycles for post-MBA hires at small to mid size firms are closely tied to the raising of a new fund. Hence, the process can often be frustrating since although one may have the right pedigree and right relationships, it may be a few years before a new position opens up at one's "dream fund".

**McKinsey&Company**

McKinsey has been another firm from where a number of people have ended up in Private Equity. Neel Broker and Manish Sinha (see Hedge Fund article) both worked at McKinsey prior to joining the financial services industry. Manish Sinha says "You would find many Management Consultants, especially McKinsey alums in Private Equity. Private Equity in addition to financial analysis and valuation calls for understanding industry trends, segmentation, strategic positioning and operational efficiency improvements as the PE firm takes on a more active role in the companies they buy. In my view Mck experience comes in handy."

**Equity & Fixed Income Research**

Mary Meeker. Henry Blodget. These are just two equity analysts (one famous, one infamous) on Wall Street who have at one time or the other been household names in the United States. Another who briefly became famous

was Ashok Kumar, a fixed income analysts at Lehman, who correctly predicted the 2000 collapse with a sell on Amazon.

The work of Research analysts is critical because it guides the direction of flow of money on Wall Street. Experts in the field supply analysis, information, advice to clients, and predict future trends. Some analysts on Wall Street are followed very closely and hugely respected for predicting markets and stocks correctly for years.

**Equity Research** analysts are sector experts, and spend their entire lives covering up to 20 companies in one or two related sectors at any point in time. The workload is cyclical, and revolves around the quarterly earnings announcements that are so closely watched. Analysts often appear on CNBC and MSNBC, giving their impressions about a stock. Well respected analysts have a lot of clout in the marketplace, and make the stock move up or down depending on their ratings.

**Fixed Income Research** analysts are the less glamorous peers. These analysts research the publicly traded debt of companies, which is an enormous market in itself. Fixed Income Analysts analyze company fundamentals. The work becomes more exciting in

distressed situations (when companies approach bankruptcy – a common phenomenon in recent times) and hedge funds place bets on where these companies will end up. Small bits of news can cause large fluctuations in price. The issuance of debt, changes in capital structure or newsworthy events trigger reports from the analysts. Up to four All-Star analysts in every sector are named by IDD and the Wall Street Journal every year.

**WHAT ANALYSTS DO?**

Analysts have high stress jobs. Bold calls on companies, good or bad, can create instant recognition, and trigger the flow of billions of dollars. Henry Blodget made a \$400 price target call on Amazon which came true and made him the most famous equity analyst of all time. In July 2005, Matt Simmons appears to have made a wrong call that

**CREDIT SUISSE EQUITY RESEARCH** | **FIRST BOSTON** | **MMM OUTPERFORM\*** Price (28 Nov 04): \$0.16 (US\$) | 29 November 2004 | American/UK/US/Canada Specialty Chemicals

**INITIATION**

**3M to Post-it (growth and high margins)**

**INITIATING COVERAGE WITH AN OUTPERFORM AND A \$22 PRICE TARGET**  
We are initiating coverage of 3M with an outperform rating and a 12-month price target of \$22. We believe a number of factors will help 3M outperform the specialty chemical subsector over the next 12 months, including our long-term view, our diversified product portfolio, our strong growth of 20-25% in 2004 and double digit growth in 2005 as the company benefits from new products, continued efficiency gains tied to the 2002 restructuring program, a relatively strong global economy and leverage to faster growth countries. These drivers should also help 3M to post returns that exceed their recent high levels in 2003. With these two things in the company's favor in conjunction with the recent pull back in the stock from mid-2004 (owing to concerns about a slow down in the European & Japanese, Japanese and China markets), we believe 3M offers investors a compelling investment profile at this time.

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**Praveen Chakravarthy**, has had an extraordinary start to his Wall Street career. He was promoted to Director in less than three years of graduating from Wharton. He has become in-charge of Thomas Weisel, India. Praveen put together a business plan, presented it to the Executive Committee and the Board. His most memorable moment came when he mustered the courage to tell Mr. Weisel personally that the business was under pressure, and proposed a solution to set up the India operations. He says his success is due to his ability to be pro active and bold in putting his views across.

Praveen has important advice or BITSians. He says “Most people, especially Indians are very wary of putting their views across strongly which can be the biggest stumbling block in this business. In my business, I only get paid for my views. I do not get paid for not taking a stand.”

oil would hit \$100 per barrel, but it put him on every newspaper, TV station and channel in the world. Can you handle that kind of pressure?

Analysts create financial models to value the companies they cover, and try to calculate the quarterly

earnings per share, which drives the share price. Since investors, many of whom are large financial institutions, depend on these reports, there is a great deal of stress not to get this figure too far wrong.

Investment banks hold investor conferences all year round, where CEOs and CFOs come together with investment managers and other analysts to talk up their companies, and provide a short and long term outlook for their business.

Analysts spend a lot of time talking to the market as they move further up in their career. They talk to industry experts, CEOs and CFOs of the companies they cover, and competitors as well to understand how the dynamics of the industry are shaping up. The ability to connect with with powerful and influential people, build a meaningful relationship and provide intelligent insights is a very useful skill.

There is a lot of writing involved. Short reports are produced once a quarter on each company, and significantly longer ones at least once a year. When coverage is first initiated on the company, the report can contain very interesting details on the strategy,

markets and products of the company, running up to 100 pages. One analyst said he spends the whole day talking to people. Come 6 PM, he unplugs his computer and starts writing late into the evening.

## WHY JOIN RESEARCH?

Research allows one to develop excellent domain expertise about a group of companies in great detail (end markets, consumers, suppliers, competition, profitability, risks, managements, track records) and then performs financial analysis to determine the price targets. This information is usually communicated through written research reports, TV interviews as well as one-one discussions with portfolio managers looking for investment ideas.

Research is a good area for BITSians especially those who have specific domain expertise, and/or are looking for a switch. Research is a way to build strong domain expertise. The industry offers flexibility to move over to the Money Management or Hedge Fund side of the business, like Arun Kumar. There are many Indians, especially in the high-tech sectors such as Software, Hardware and Semiconductors.

## BITSIANS AND RESEARCH

There are four BITSians in Equity Research in the US, but none in Fixed Income Research. **Wamsi Mohan** ('90, Kellogg MBA 2003)

works at Merrill Lynch covering Enterprise Hardware companies.

**Rajesh Raju** ('89, MBA Chicago 2001) covers Infrastructure Software companies at Robert Baird.

**Sumit Dhanda** ('87) works in Semiconductors Research at Bank of America. **Praveen Chakravarthy** ('90, Wharton MBA 2002) relocated from San Francisco to Mumbai in October 2005 as Director and Head of Thomas Weisel India, to start up the operations there.

Wamsi joined Equity Research because he was tired of engineering. He was excited by the financial markets. But getting an equity research job right out of school wasn't easy. Instead, he went to a corporate finance group, but later moved when the opportunity came.

Rajesh Raju started out in investment banking, then moved to Equity Research. Praveen had a defining moment when he was sitting in the Corporate Finance class by Prof. Franklin Allen. He says "I truly understood the meaning and power of the "Invisible Hand" as postulated by the great Adam Smith."

## LOVE RESEARCH?

The BITSians we spoke to love their jobs. Praveen says "My job involves analytics, strategy, operations and vision. I cannot think of a more complete job."

Rajesh Raju reiterates "Great thing about following the markets is that there is

something new everyday. I tend to compare "Markets" to "Golf", you can get better at it, can never master it. So you are constantly learning and getting humbled along the way."

Wamsi is racing up the learning curve. He says "I really enjoy the aspect that each day brings something new. No one knows what news might occur on a given day which might impact the stock prices. To quickly absorb the news and translate that to financial impact is key to the job. Macro changes include tendency to ramp up outsourcing in areas of pure number crunching. "

## WINDS OF CHANGE

In December 2002, the economics of the Research industry changed forever, as regulation rebuilt the Chinese Wall. Eliot Spitzer went after the banks and broke the cozy relationship between investment banks and research. The top banks paid \$1.4 billion in fines.

The problem was essentially one of conflict of interest. Research is supposed to be independent. But in the pre-Spitzer days, investment bankers executed the IPOs, and the research analysts talked up the stock to the investors. The banks with the most influential analysts were chosen by companies to run their IPOs. Everyone on the Street got rich. The highest paid analysts were the ones who could talk up a stock to investors. Everyone was selling stock and being compensated for it. Jack Grubman got paid \$20

million a year to provide investors with "independent advice".

But when the telecom and tech bubble burst, shareholders were left holding worthless stock. That's when the backlash started and Eliot Spitzer sprung into action.

Eliot Spitzer's settlement has recreated the Chinese Wall. VP Rajesh (Investment Banking) and Praveen Chakravarthy (Equity Research) are at the same firm but cannot talk business with each other.

Since Research is back to writing and selling what it writes (that retails at approx. \$8 per page), this has resulted in an industry shakeout. There is a close relationship with Sales & Trading. Funds reward good research with trading of stock and bonds through the firms; this subsidizes the research.

As the bulge bracket firms pared their ranks to focus on covering only large companies, smaller independent firms have sprung up to cover the mid-tier and small-cap sectors. While these were intended to give customers more choice, they have largely struggled. India is beginning to take advantage of the significant opportunities in offshoring by setting up research back office operations, or even independent shops to reduce the costs of research. **WS Ravishankar** ('87) and **Sandeep Talwar** ('87) run one such firm in India.

Wamsi echoes the changes on the Street. "Sell-side analyst



slots on the street have been shrinking since the bubble days; because of the new regulatory environment the economics are not as attractive for investment banks, most are running lean research shops.”

Praveen has a more aggressive take. He says “I postulate that this model will break very soon and different models will emerge. So, people looking for a job as a Equity Research Analyst will have to be aware of what they get into and be prepared to change dynamically with new business models that will emerge.

Because of these changes, BITSi

ans should think long and hard about the changes on Wall Street. Broadly, declining trading commissions, separation of investment banking and research and the “push” model of current Wall Street research is under severe pressure.

Stephen Castellano, a former researcher predicts that hedge funds are going to acquire

many of these independent research firms. This year a quarter of Wall Street income will come from servicing Hedge Funds. The sheer size and competitiveness of hedge funds makes it difficult to beat the market, hedge funds may have to acquire more resources, including some of these research firms.

## WHAT AFTER RESEARCH?

Equity Research can be a good long term career. For those seeking a move after a few years, good analysts can move into the more lucrative buy-side into asset management research or hedge fund analyst positions. Here, they may eventually evolve into managing funds. Analysts with strong C-level networks within industries have also joined investment banking.

## HOW TO GET INTO EQUITY RESEARCH

The MBA is instrumental in switching careers, into the Research industry. A CFA is

also very relevant for the Research qualification if one does not have an MBA.

For those looking to get into research, start running a small stock portfolio, have three stocks or bonds at any time that are your buy or sell recommendations and keep a close watch on the macro and micro forces impacting at least two sectors. Only if you live and breathe the markets, read a lot and demonstrate passion, can you enter this industry.

## Investment Management

Investment management (also known as Asset Mgmt, Fund Mgmt or Money Management) describes the business of managing savings by investing them in various securities and assets to provide returns to investors.

Investment management companies in the US control over \$9 trillion in assets. Of this, approximately \$8 trillion is held by 8,300 mutual funds, and the rest by closed end and exchange traded funds. Hedge funds (which are largely unregistered) control close to \$1 trillion in assets through 7,000 hedge funds. George Soros (Soros), Julian Robertson (Tiger) are famous names. Steve Feinberg, Cereberus, the world’s largest hedge fund has control over more revenues than Coke or Exxon Mobil.

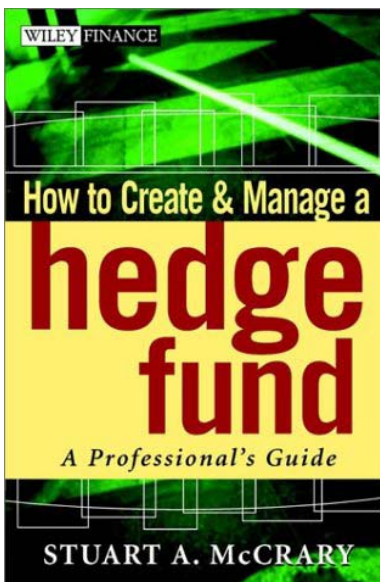
The rest of the Investment Management industry also has famous superstars including the legendary superstars - Peter Lynch (Manager of Fidelity

Investments) and John Bogle (Founder and CEO of Vanguard).

Capital is increasingly becoming global as investors are looking to various parts of the world to diversify their investments. The flow of money around the world is also becoming much easier given the easier convertibility of various currencies into one another, a more global workforce, and much improved financial instruments that allow this flow of money (technology clearly has an important role in this trend). A Partner at a top fund recently said that America's biggest export is fast becoming capital, not goods or services.

Investment vehicles known as hedge funds have resulted in a significant move into the sector of both people and capital. Hedge funds have arrived in very large numbers as increasingly wealthy and sophisticated investors look to generate absolute returns that are uncorrelated to broader market returns. This is a sector that is fraught with risk due to the unregulated nature of the industry, and high profile bankruptcies and meltdowns.

Hedge funds use aggressive strategies that are not allowed for most mutual funds. This allows them to raise the risk profile and the rewards. Hedging strategies tries to reduce the rewards within predictable outcomes. Only accredited investors with \$250,000 in income and net worth of over \$1 million are allowed to invest in hedge funds.



### HEDGE FUNDS - JUST A NEW PAYOUT MECHANISM?

Hedge funds receive 1-2% management fees, and 20% of the profits. This structure is similar to the PE and VC industry. However, some Hedge Fund managers with outstanding records keep up to 40% of the profits. When there are three partners running a \$5 billion fund that makes a 40% profit in a year, that's \$300 million per partner. No wonder experts from so many different fields have ended up in Hedge Funds – Nobel Prize winners, Research Analysts, Mutual Fund managers, Private Equity and Hedge Fund managers.

There are five BITSians in the Hedge Fund Industry in the US. **Anand Haridh** ('84, Wharton MBA), **Pradeep Kumar**

('84, PhD Economics, Alabama, Drake), **Sanjay Rajpal** ('84, PhD Mathematics, Dartmouth), **Manish Sinha** ('89, PhD Mechanical, Johns Hopkins, Litespeed) and **Adri Guha** ('88, APM Capital).

There are three BITSians in Investment Management. **Harish Kumar** (Mech, PhD Columbia Business School) is a Managing Director at New York Life Investment Management. **Krishna Memani** is a Managing Director at Putnam Investments (Edward Jones Group) responsible for Fixed Income Mutual Funds. **Rajesh Chelapurath** ('88, MBA Tulane, CEERA Investments) is the CEO of his own company, a Registered Investment Advisor based in Houston.

### TRACING THEIR PATHS

**Anand Haridh** joined Merrill Lynch Capital Markets in the Strategic Solutions and New Products Group straight out of Wharton. This was a small high profile group that



**Pradeep Kumar**

Portfolio manager at Drake Investments – a \$3B global fixed income hedge fund





Anand Haridh

“Persistence and stamina more than anything else are key ingredients for success on Wall Street”

worked with selected clients often discretely. The hugely profitable group worked across products (equity, debt, cash, derivatives) which was rare in Wall Street in the 90s. He played a key role in building what is now a multi-billion dollar market in preferred securities in Europe. In the process his group financed much of the corporate consolidation in Europe in the late 1990s.

Anand says willingness to move to London gave him the big break. “I got an opportunity to start this group at Merrill Lynch in Europe along with a senior banker. Not many of my peers wanted to move to London - New York was the preferred place. I took the opportunity and it paid off as the business took off.” At Goldman, due to his past experience, he invests across the capital structure which requires both debt and equity markets experience as well as a more "event/deal" oriented analysis of investments that comes from having worked in banking.

**Pradeep Kumar** was a Civil Engineer, but developed an interest in Economics and a simultaneous lack of interest in Civil Engineering. He pursued a doctorate in Economics at the University of Alabama. He also got the CFA, but he says that at the least an MS or an MBA is a must. Pradeep worked as an emerging market strategist at Citigroup for 8 years. He was a Director in the fixed income research group before he decided to quit and join Drake. Pradeep is a portfolio manager at Drake Management-a \$ 3 billion global fixed income hedge fund. He trades and manages emerging market fixed income products and currencies.

**Sanjay Rajpal** studied



Harish Kumar

His PhD at Columbia Business School was in computational finance, option pricing, bond indexation and credit derivatives.

Mathematics and Computer Science at BITS, and then completed his PhD in Math at Dartmouth, with a specialization in combinatorial geometries. He started as a Research Associate at a global investment manager. He worked there for a number of years learning about various aspects of the investment management process from technology to research to trading to portfolio management to performance attribution. Subsequently, he moved to a financial analytics startup and then moved to a mid-sized quantitative hedge fund where he co-developed their statistical arbitrage program. After rising to Research Director, he left to join a major international bank as head of a quantitative trading desk.

**Manish Sinha** did not get into Hedge Funds directly. He joined McKinsey & Co. as a Management Consultant, right after his PhD. To get into McKinsey, he took Accounting/Finance courses in Night School, got involved in extra-curricular activities while remaining faithful & diligent toward his fluid mechanics research program. He worked with McKinsey for three years, and the move to hedge funds, although unusual, was relatively easy. At Oaktree Capital Management, he learnt hedge-fund by investing as part of the Global Emerging Market Hedge Fund group.

**Harish Kumar** completed his Mechanical Engineering degree at BITS, and followed it up with an MS in Mechanical Engineering from University of Colorado at

Boulder. But he saw limited growth in engineering due to globalization, but the most developed capital markets in the world. He saw a trend to apply quantitative methods to traditional areas of Finance such as investment management, so he decided to get a PhD from the Columbia Business School. At Columbia, Harish focused his dissertation on computational finance, option pricing, bond indexation and credit derivatives. He also worked simultaneously as an Associate, Credit Derivatives at The Chase Manhattan Bank. After his PhD, he moved on to Aeltus Investment Management where he served as Quantitative Analyst and Portfolio Manager, enhancing models for all Large Cap products, as well as supporting ING/Aeltus' suite of products. Before joining Aeltus, he managed more than \$1.2 billion in Large Cap Aggressive Growth Strategy as Senior Portfolio Manager at ING Investment Management and led a team responsible for managing Large Cap Disciplined Core and Large Cap Dividend Growth Strategies. One of the main obstacles was the transition from a Quantitative analyst to being a money manager. Investors are particular about who they give their assets to; they want a seasoned professional with good track records. Harish says "A strong backing from senior management and the desire to retain me assisted me in making the transition." Now Harish is Managing Director and Head of Growth Portfolios at Equity Investors Group. This role entails the development, growth and

management of multiple strategies in domestic growth equities.



**Rajesh Chelapurath**

Started his own firm – Ceera Investments, LLC

**Rajesh Chelapurath** worked at Larsen & Toubro for a few years after graduating from BITS and then obtained an MBA from Tulane University to get the academic training he needed to make the career transition to finance. At business school, Rajesh decided to focus on buy-side money management because he wanted to evaluate and invest in different businesses and the managers who run these businesses and make managerial decisions. He also saw this career as a flexible lifestyle choice, where he could work from anywhere in the world if he were to set up his own firm and make it a success. Rajesh, who was part of a team that managed over \$100 million in assets at Burnham Securities as AMD, left to start his own firm (Ceera Investments, LLC; [www.ceera.com](http://www.ceera.com)) this year. As portfolio manager at Ceera, he manages investments for various types

of clients. Rajesh's value-based investment philosophy revolves heavily around the thoughts and teachings of investing legends such as Warren Buffett, Philip Fisher, Ben Graham, and Peter Lynch. He is also the Chief Investment Officer of the BITSAA Investment Committee that oversees the surplus funds / endowments of BITSAA International.

## LIFE IN THE INVESTMENT MANAGEMENT INDUSTRY

Hedge Funds are very entrepreneurial but within a structured environment – kind of best of both worlds. Anand says the day goes by very quickly and the earnings potential is of course tremendous. On the flip side, you work with big egos and constant tense environment can wear you down quickly. Asset management is going through a shift from relative to absolute returns and this is affecting money flow in a fundamental way.

Harish says "On a day to day basis, my job involves decision making in buying and selling equities for the client's portfolios and assist the company in gathering and retaining assets through presentations to clients, both in the retail and institutional community."

Harish loves his job because new situations present themselves everyday. There is constant change and challenges to adapt. Harish says "There has been a tremendous growth in alternative strategies, also

known as “hedge funds” which has resulted in increasing volatility and efficiency in the equity markets. Technology has influenced investment management in a huge way, affecting everything - from the speed of information flow to trading methodologies. The days where brokers could generate huge revenues from being middlemen are gone with the rise of electronic exchanges.”

Anand says “On a day to day basis, I research investment ideas, talk to other market participants and trade. I usually check up on Asian markets late night before going to bed. I am up early in the morning to commute to New York and get my reading done during the commute.”

## QUALIFICATIONS AND SKILLS

The advice differed between professionals, but a lot of the messages were similar.

Harish advises that one should get an advanced degree in finance. Do an internship at a Wall Street firm. Network with Wall Street professionals.

Sandeep says “I felt that my lack of formal education in finance would be a major stumbling block, but the reality turned out to be quite different. There is room on Wall Street for all sorts of backgrounds! It is, however, critically important to choose the right work environment.” The MBA is the degree of choice, especially if it is from a good school. Wharton probably has the highest

number of people working in the industry. The CFA could be considered as a way to supplement particular sector expertise with financial skills that can lead to a career in research and fund management. However, with CFA one has to use other means such as networking to get a break into Wall Street.

The PhD is more relevant if one wants to go into fixed income research or advanced modeling. Harish agrees “An advanced degree in quantitative methods in Finance is essential in what I do.”

Sanjay does not believe his area of specialization in Math is directly relevant to quantitative trading, but he says that it is the entire process of original research and the discipline of formal proofs that is more useful. According to him, “Understanding the markets is a continuous research process that involves a certain level of scientific rigor so that one can be extremely objective about one’s beliefs.”

**Manish Sinha** agrees. He did not apply any core engineering skill sets in his career. Instead, several skill sets he honed along the way proved to be invaluable. It was primarily the analytical and quantitative skills that he developed as an engineer/researcher.

In hindsight, none of the BITSians felt that the discipline/degree mattered as much if one was determined to enter the industry. Being an engineer has its advantages on Wall Street

since engineers can “slice and dice” real world issues. But persistence, passion and hard work are bigger predictors of success for those wanting to get in.

So what does it take to win in this industry? Anand says “In terms of stumbling block, you are competing with people with extensive friends and family network within the industry. Without such advantages, mistakes are inevitable. By not giving up easily and keeping at it day in and day out, you eventually come out OK.”

Sanjay says “a quantitative background with strong computing skills tends to be quite useful in my field. The traits that probably matter the most are a deep interest in markets, flexible thinking, and perseverance.”

Anand advises that one should “Talk to people and do your research. It can be a very satisfying and remunerative career for those with the aptitude. If you are early on your career, the major investment banks are recruiting heavily again and can provide the right entry



**Manish Sinha**

What matters most - “deep interest in markets, flexible thinking, and perseverance”

platform to a career in finance. For others, history is full examples of late bloomers. Wall Street has many people such as doctors, math professors and meteorologists who have made a switch to Wall Street later on life.”

## **HEDGE FUNDS HEADED FOR MELTDOWN?**

On the positive, there is fundamental shift in investment management from relative to absolute returns which favours hedge funds. However, as Hedge Funds have become so large, and the competition has increased, it has been harder to generate adequate returns for many. This has resulted in diversification. Capital is heading for offshore markets. Hedge Funds have gotten into the Private Equity and Venture Capital game with more capital than there are good ideas. This is turning some Hedge Funds into full-service sources of capital – and even investing in real estate developments.

Hedge Funds first caused a panic in the markets when Long-Term Capital Management started to melt down with exposure to over \$1 trillion in securities. This almost caused the start of a major collapse in the US markets, resulting in the Federal Reserve to move in to bail out the company. There was another recent collapse, with Bayou Management LLC. Since hedge funds use derivative securities, the collapse of one fund could lead to a series of effects Hedge Funds first caused a panic in the markets

when Long-Term Capital Management started to melt down with exposure to over \$1 trillion in securities. This almost caused the start of a major collapse in the US markets, resulting in the Federal Reserve to move in to bail out the company. There was another recent collapse, with Bayou Management LLC. Since hedge funds use derivative securities, the collapse of one fund could lead to a series of effects across the industry. SEC is trying to rein in funds. SEC registration is going to be mandatory.

## **THE FUTURE OF INVESTMENT MANAGEMENT**

In the West, the aging population needs to manage its retirement savings. In countries like India and China, only a fraction of personal net worth is invested in the financial markets but increasing. Both of this means there will be demand for talent to manage money. There are also related jobs in investment management such as risk management, marketing and distribution of mutual funds, personal financial planning which are all set to grow, particularly in India.

Manish says “India has been “hot” in recent times as the equity market has taken off. There has been a lot of funds/liquidity flowing through to India. Action on the private equity front and distressed debt side is also picking up as many reputed global firms are in the midst of opening offices in India.”

## **JOINING INVESTMENT MANAGEMENT**

The most important aspect of getting into the field is networking. It should continue to grow after one has entered Wall Street. Since Wall Street is an apprenticeship business, the first salary, the first sign on bonus is not important. Where you work and who you work with is the most important. BITSian seniors want more people to join Wall Street, so they are willing to help.

There are other things that one must do. Read as much as possible on history, recent events etc. in financial markets and do some basic reading on macroeconomics. This is easy to digest without financial knowledge. Suggestions on this would include The Great Crash of 1929 (Galbraith), History of Financial Euphoria (Galbraith), Bull (Mahar), You can be a Stock Market Genius (Greenblatt) etc. Skip sections that seem totally unfamiliar but see how interesting you find all of this. If one finds this interesting, then read more technical books such as Graham Dodd. But to make this step forward, one needs basic accounting skills that can be got by taking a few classes to get the basics.

For those already involved in a specific industry and wishing to migrate to finance using that industry knowledge, I would suggest them trying to get the “big picture” of the industry through extra reading. Read industry reports by say



Economist or ask a friend in the brokerage industry for industry reports. If you can talk about your own company objectively from a financial perspective (margins, leverage, valuation etc), then you are most of the way there. This can then provide the basis to start talking to people about careers in the money business. For example, "The Prize" is an excellent read on the politics and economics of the oil industry.

For those who can afford it, set aside a pool of money for investing. Document each trade/investment you make along with your rationale for the investment. Build the portfolio and you can use that as a basis for discussion.

Reinventing oneself is necessary in any field these days. Ability to work under pressure, quick thinking, global perspective – these are all transferable and sought after skills that you hone in this industry. They just need to be repackaged if you want to or are forced to change careers.

## **Sales And Trading (S&T)**

Wall Street conjures up pictures of men in colourful jackets, screaming buy and sell, making strange hand gestures, and electronic tickers running across the screen. Millions are being made and lost as the seconds roll by. Its adrenaline



pumping action. This is the Wall Street most of us know.

Some remnants of this picture remain – in the pits of Chicago, but it is disappearing quickly. Much of the trading has moved off the trading floor. Men and women in suits, sipping lattes behind desks on trading floors that are larger than football fields. There is a buzz in the air, but not the same noise and action that was reminiscent of the 80s. A lot of the trading is done by computers.

Welcome to the future of trading on Wall Street.

Trading is an instinct. The best traders in the world can “feel” the market even though it has moved to the computer screens.

If you look at the securities industry as a whole there are two major divisions – equities and fixed income. Fixed Income gets its name

from securities that have a fixed coupon on the notional, like government bonds. However the fixed income market is much bigger and more complex than equities. It broadly includes credit and interest rates. Over the last few years, fixed income has powered the profits on Wall Street as Equities sputtered after 2000.

Sales brings in business to the firm – from other financial institutions that are looking to buy and sell securities. Trading execute orders that sales brings into the bank. Sales people are out selling when they are not in the office taking orders. Cultural fit and an ability to sell helps in this business. Very simplistically, Traders make money when they buy low and sell high.

## **IMPORTANCE OF S&T**

Over the past few years, S&T has overtaken investment

banking (advisory/equities/debt) in terms of being a source of profits for the bank. This is due to the enormous volumes of trading being generated by hedge funds, who have made the markets very efficient, but also due to the enormous amounts of capital that the banks have risked on a daily basis through their own superstar proprietary traders.

## **BITSIANS IN S&T**

There is one BITSian in Sales – **Rajiv Rangarajan** ('00, IIM-B MBA, Deutsche), and five in trading. **Sreenivas Kopparapu** ('93, Pace MBA, Barclays), **Karthik Krishna** ('93, IIM-C MBA, Deutsche), **Siddharth Swarup** ('91, Columbia MBA, Merrill Lynch), **Nirav Shah** ('93, Lehman) and **Prasanth Subramanian** ('98, IIM-C MBA, Lehman).

**Srinivas Kopparaju** worked at Wipro in the finance and banking vertical, which made him quite interested in the field. With the money he saved from his Wipro job, he bought a one way ticket to the US (and an F1 visa) and landed at his brother's place. He found a job pretty quickly at a Quantitative Analytics firm in NYC, where he worked full-time, while studying full-time at Pace University. He completed the MBA in 3 years. After completing his MBA, he found a job at Donaldson, Lufkin & Jenrette in research and eventually transitioned into trading. He says he wishes he had applied to a better business school.

**Karthik Krishna** was a software engineer before his

MBA. Deutsche was the first firm to make him a summer



**Srinivas Kopparapu**

After an MBA, he joined Donaldson, Lufkin & Jenrette in research, eventually transitioning to trading

offer at IIM-C. He says the interesting paychecks made it difficult to resist. He is currently a Vice President in the Emerging Markets Structured Products Group.

**Siddharth Swarup** pursued a Masters in Chem Engg at the National University of Singapore after doing a BE in Chemical at BITS. He then worked for an Environmental Consulting firm in Hong Kong and London for about 4 years. While in London, he met some people who were interning at Goldman Sachs in their Fixed Income division and that's where he learnt about the field. It sounded quite interesting. So he decided to give both the MBA and finance career a shot. He is now an Associate in Credit Derivatives Trading at Merrill Lynch.

**Rajiv Rangarajan** did Mech at BITS. He got exposed to Finance during his MBA at IIM Bangalore. The courses

and projects he did at IIM Bangalore shaped this decision. His favourite course in MBA was macroeconomics, where he authored an interesting paper on monetary policy which got published in the IIM management review. That was the real turning point. Post MBA, he joined Deutsche Bank in June 2004 as a senior analyst. After completing their global graduate program in London, he moved to work in New York, completing short rotations in different functional areas before he joined his current position in sales – Selling Interest Rates Products to Hedge Funds. Only one year into Deutsche, he is handling really big accounts very early in his career.

## **LIFE IN S&T**

Sales & Trading is a weekday job. Though it is as pressured – there are budgets and quotas to be met, positions that could win or lose millions of dollars, the job starts at 630 and ends at 6pm. And no one comes in on weekends – unlike the bankers and research analysts who have work to do even when the markets are closed.

Rajiv works in Fixed Income Sales and Trading. Within fixed income, he works with interest rate products – these are instruments that depend on the level of interest rates in the economy. There are several instruments that are derived from interest rates – and are called derivatives. Examples are swaps, options on interest rates and so on and so forth. His group is called Cross Rates Sales,

which sells different interest rates products to Hedge funds across the world. Hedge funds are large investment houses that use capital from its investors in risky financial instruments. They take a lot of risk and hence are termed to be levered (ie even though they may have \$10 million in capital, they would have a potential exposure of 10 times that figure). Rajiv's job is to provide liquidity to his clients who might want to trade these instruments and also suggest innovative trade ideas. He says "I tread a very fine line between managing client relationships and keeping the traders happy."

Karthik works with Governments, Central Banks, Hedge Funds, Corporates/Banks in the Latin American/Carribbean region to design and execute structured products in order to manage, hedge and transform the risks in their books in the most efficient and profitable way. He does a lot of work with derivatives technology.

Srinivas runs the Emerging Markets Credit Derivatives Trading for Barclays. Credit Derivatives are one of the hottest areas on Wall Street or "the cutting edge in global fixed income and the new frontier in finance" as Srinivas likes to describe it. His job involves market making and proprietary trading in Emerging Market sovereigns and corporates. The business also has a highly structured component to it which involves devising and implementing investment, risk management and balance sheet solutions for Barclays' global client

base involving emerging market countries or corporations.

Siddharth also works in structured Credit Derivatives. He trades options on Credit Default Swap contracts, first-to-default baskets and other correlation products such as CDOs. He prices and risk manages these securities. In derivatives trading, he works on the cutting edge of financial innovation. The work is highly competitive and one requiring quick decisions, which Siddharth says he thrives. "It brings out the best in me", he says. He starts work early (before 7am) and is usually done by 7pm. He never works weekends which gives him time to pursue non-work interests.

The widespread acceptance of Credit Derivatives greatly increased the liquidity of this business. Siddharth says that "Global clients have begun to recognize the merits of the products. Since, these are fairly complex financial products it has taken a while to gain acceptance." The market has grown at an extremely fast rate. Hedge funds have emerged as the biggest players in these credit derivative products. This has also increased the competition within the industry requiring reinvention and continuous innovation.

## **QUALIFICATIONS AND SKILLS**

Karthik believes that one should have (i) A lot quantitative and analytical skills, (ii) Cross disciplinary – Statistics, Legal, Marketing and (iii) Most importantly,

interpersonal skills and trustworthiness which are critical in winning and maintaining business. In terms of degrees, PhDs and MBAs. Karthik says BITS helped by giving him a lot of exposure, competitive spirit and the essence of camaraderie.

Siddharth credits the MBA. "The MBA has definitely helped in this both in terms of securing the job and being able to successfully do it. MBA/CFA are probably good degrees to have in my field if you decide to move into the field rather than starting into it after undergrad." But he says that there are a lot of people who have just college degrees and no advanced degrees and end up being very successful in this job.

## **FUTURE OF S&T IN INDIA**

The Indian Bond market is a USD 200bn market. Not too many countries can boast of a bond market that is 40% of the GDP. The Indian equities are also the darling of US investors who think the future is in India, China and Japan. Hence there has been a lot of activity from domestic and overseas investors and the Indian markets have proven their stability in the face of intense activity.

Fixed Income sales and trading is very nascent in India. The liquidity in these instruments is very limited and due to absence of hedge funds or other investment houses that can take risky bets, the market for derivatives in general is small. However as the



government deregulates the financial services sector, this sector should pick up. The opportunity to exploit proven market ideas and practices is very alluring.

### **KEY TRAITS TO TRADING**

You have to be willing to work under pressure. This is an extremely fast market, and there is no room for error. In terms of other traits, Karthik says technical aspects are clearly vital. So are Ethics, since you are deal with someone else's money. Communication skills and clarity of thought are very important in converting opportunities into profitable transactions.

Siddharth adds humility. Attitude is everything and having a good one can make all the difference.

Rajiv believes students should seek information aggressively. Cocooned in Pilani, Goa, Dubai, we know nothing of Wall Street. But there is a lot that one can read and learn independently. If this is of interest, seek as much information as you can. Tap into your alumni pool. He encourages students to get in touch. More importantly, he says that students should be willing to take risks early in their career – not the tried and tested path. Think through all the alternatives you have (like an MBA or doing a one yr Masters in Finance from a US school even if it means taking a big loan) and go with what you really want to do. Even if it doesn't click, because it is so early in your career, you can reverse them. Be a go getter – Aggression is very valued

on Wall Street. Be well mannered but not too docile. You must have the urge to learn and explore new things all the time. The early years are always rough but if you can ride them out – you'll be a winner (no pain, no gain!).

### **WHAT AFTER S&T**

Karthik believes that he will go back one day in the role of an investor in small businesses. Those businesses have the highest growth prospects. Rajiv says he may go back to India at some point, but at this stage he has no plans. With India growing, it is likely that at some points all the alums would get ample opportunities. Srinivas says he will continue to build the Barclays business in India over time.



**The First BITSAA Wall Street Gathering in New York. October, 2005**  
Front (L to R): Rajiv Rangarajan, Manish Sinha, Pradeep Sinha, Anand Haridh and Wamsi Mohan  
Back (L to R): Karthik Krishna, Neel Broker, Anuraag Agarwal and Siddharth Swarup



**Our Alumni in High Finance**

<b>Name</b>	<b>Department</b>	<b>Company</b>	<b>Location</b>
Vivek Pandita	Venture Capital	Eastward Capital	Boston
Rajesh Chelapurath	Asset Management	Ceera Investments	Houston
Janardan Menon	Equity Research, Semiconductors	Dresdner Kleinwort Wasserstein	London
Aashish Bhide	Venture Capital	View Group	Mumbai
Ajay Gupta	Global Energy & Utilities Group	Morgan Stanley	Mumbai
Ajay Mahajan	Sales & Trading	Yes Bank	Mumbai
Alok Gupta	Investment Banking	Yes Bank	Mumbai
Aru Arumugam	Private Equity	Merlion	Mumbai
Jugal Parekh	Currency Options Trading (Derivatives)	HDFC Bank	Mumbai
Padmanabh Sinha	Private Equity	Temasek Holdings	Mumbai
Pradeep Mirchandani	Equity Research	Salomon Smith Barney	Mumbai
Ravi Menon	Investment Banking	HSBC	Mumbai
Sandeep Talwar	Asset Management	Banyan Tree Advisors	Mumbai
Sanjeev Kaushik	Investment Banking	Lehman Brothers	Mumbai
Sashi Krishnan	Asset Management	Chola Mutual Fund	Mumbai
Srinivasa Alluri	Venture Capital	ICICI Ventures	Mumbai
Sunil Mehra		Merrill Lynch	Mumbai
Vikas Khattar	Equity Origination and Capital Markets	Merrill Lynch	Mumbai
WS Ravishankar	Asset Management	Banyan Tree Advisors	Mumbai
Adri Guha	Hedge Fund	APM Capital	New York
Anandh Haridh	Proprietary Investments	Deutsche Bank	New York
Anuraag Agarwal	Investment Banking	Berenson Minella	New York
Harish Kumar	Asset Management	NY Life	New York
Kamal Kasera	Trading	Goldman Sachs	New York
Karthik Krishna	Fixed Income Trading	Deutsche Bank	New York
Manish Sinha	Hedge Fund	Litespeed Partners	New York
Neel Broker	Private Equity	ICV Capital	New York
Nirav Shah	Trading	Lehman Brothers	New York
Pradeep Kumar	Hedge Fund	Drake Investments	New York
Prasanth Subramanian	Mortgage Strategies	Lehman Brothers	New York
Rajesh Raju	Equity Research	Robert W Baird	New York
Rajiv Rangarajan	Fixed Income	Deutsche Bank	New York
Sanjay Rajpal	GM Equity Prop Trading	Deutsche Bank	New York
Siddharth Swarup	structured credit/correlation trading	Merrill Lynch	New York
Sreenivas Koppurapu	Credit Trading	Barclays	New York
Sumeet Kanwar	Healthcare Investment Banking	UBS	New York
Sumit Dhanda	Equity Research, Semiconductors	Bank of America	New York
Wamsi Mohan	Equity Research, Enterprise Hardware	Merrill Lynch	New York
Vivek Paul	Private Equity	Texas Pacific Group	San Francisco
Praveen Chakravarty	Equity Research	Thomas Weisel	San Francisco
Rahul Chandra	Venture Capital	Undisclosed	San Francisco
Rajesh Vaishno	Investment Banking	Thomas Weisel	San Francisco
Rajeev Kannan	Structured Finance	Sumitomo Mitsui Banking Corporation	Singapore

BY RAHUL CHETTRI (BITS '75)

## You Only Live Twice: A Tale Of Renewal

Musings on the nuances of our BITSian journey.

There once was a group of people with a simple notion – to go back in space and time on a journey of rediscovery. And if, along the way, the path led them through the delights that are to be had by raising a glass with a friend, then they were more than adequately prepared to take that path. And so they converged on the place of their youth, some travelling under the star-lit night of the North Indian skies, others braving the dust and heat of the semi-arid landscape.

But I get ahead of myself. The tale actually begins thirty years ago, when members of the very same group braved the very same passage through the hinterland to arrive dusty, bedraggled, and bewildered at the gates of a great institution. Those first memorable steps would lead them into an adventure like no other. One where they would enter as boys and girls, and would leave as men and women. Confident, poised, accomplished, world-aware. In short, they left as leaders.

But the adventure offered more than the opportunity to acquire the qualities of leadership. So much more. Here were formed bonds of deep friendship, appreciation of the uniqueness of us all as individuals, and the beginnings of the understanding of our purpose in the vastness of the Cosmos. Here were enjoyed the simple pleasures of sipping a hot beverage on a chilly winter's night. Here were spent hours in that pastime known to them as

*lachha-ing*, where topics of discussion ranged from the profound to the mundane, from the nature of God to the nature of girls, from music to philosophy, from food to girls, from the sublime to the erotic, from things that made them laugh to girls, from... well, you get the idea.

Some went on to wield great influence in matters of State. Others became champions of industry. Still others became the shapers of young minds in internationally renowned institutions of learning. All went on to raise families. Yet through all the challenges of life they retained their sense of place, staying grounded in the simple truths to leading a good life. And that, so many years later, is what brought them back on their journey of rediscovery. And so they embarked, in carloads and busloads, going back to the place where they all learned the important lessons of life.

When they met it was like a clash of the Titans. It seemed like neither hell nor high water would be able to keep them apart, such was the depths of their enthusiasm and joy.



Despite the effects of time and ample supplies of good food they recognized each other instantly, and pounced on each other for warm embraces as their spouses looked on with mild amusement. The halls echoed with the sounds of laughter and the slapping of backs and, yes, *gaalis* spoken with the utmost affection for friends not seen for twenty-five years – as if in gentle reproach to the target of the swearwords for having stayed away for so long. The years melted away in a velvety smoothness, creating a placid tide on which they all floated. Old ties were immediately re-established, new ties formed. And all through it they caught up and reminisced and took pleasure in the company of people who shared a common, life-shaping experience. They were rambunctious and raucous, yet reflective and thoughtful. They sang and danced, but shared their life stories. They drank through the night, but were courteous and mindful of the wives and children of their classmates.

## NOSTALGIA

And then began the exploration of their old hunting grounds. Bhavan rooms were revisited, the new occupants regaled with stories of by-gone days. Classrooms were peeked into, bringing back a flood of memories. The Insti, the new Library, the Museum and its lawns, the Saraswati *mandir* were all examined under a critical eye and deemed to have become none the worse for the passage of time. But most of all they congregated in droves at their familiar watering holes - Connaught, Nutan, Skylab. Alas the PO Canteen and Bank Canteens were no more, and the places that had remained open were not the same. But then, neither were any of them. So it was with some wistfulness that they sipped their coffee and snacked on *dosas* and sat on plastic chairs, and remembered the days when Vinod's served piping hot *chai* and *samosas*, and they took their ease on *modas* and watched the pretty girls walk by.

In between it all they gathered once more in the dining hall that many of them had shared. There were the old favourites - *aaloo parathas* with *peeli daal* and *dahi*, *raajma* with *phulke ki roti*, *pulao* and French fries, the ever-popular fruit cream and cassata, even *supaari* and *paan* at the end of the meal. The quantities were generous, the service prompt and courteous. But the quality? You ask. What about the quality? Judging by the way they were putting away the food and the satisfied looks on their faces when they pushed away their plates, it was evident that they had no complaints. Was it because the quality of the food had actually improved in the intervening years? Or was it the

nostalgia that made the food taste Oh, So delicious?

There were felicitations and honouring of those that had guided us through the treacherous straits of academia. Speeches and acknowledgements, gift-giving and hand-shaking. And afterwards they partied. And how they partied! Some of their own were in the spotlight, belting out tunes of yesteryear, heartened by the enthusiasm of the crowds, paying little heed to the rust on their fingers from years of lack of practice. And what they gave to the audience, the audience surely gave back. With cheers and encouragement and calls for encores, they let their hair down and gave themselves to the night. And when the music was over and they'd turned out the lights they realized the evening was still young. As was the spirit inside them. And so they trooped back to the lawns, guitars and bottles in hand, and crooned the night away. Some even greeted the dawn with glasses of steaming *chai* in the now-quiet marketplace outside campus.



The Rs. 1.05 formula: One *samosa*, two *jalebis* and a *chai* at the PO canteen.

Daylight brought a sense of dread at what was to come. The single word that would capture the essence of the journey is “renewal” of friendships, of faith in each other and in themselves, of confidence that their life’s voyage had not been in vain. And for these things they were grateful to the Institution that had fostered them and nurtured them at its bosom. And for these things they held their heads high, even as they partied with heavy hearts. How then, shall this tale end? Shall it end in the bittersweet of parting? Or in the promise of tomorrows to come? Or perhaps in the divine merging of the two? None has said it better than a member of that select group:  
*Jis raaste se hum guzare the Aaj  
phir wohi mo-de pe khaday hain  
Kya din the, kya raat(ein) Ab jab  
mil rahe hain yahin par To dil se  
pooch Yeh hui na baat?*

◆  
*Rahul can be reached for  
comment at  
rahulxchettri@yahoo.com.*

BY HEMANTA KUMAR SARMAH ('78 CIVIL)

## The Dridge

One of the many *chota* stories from our Pilani days. Nutan, BC, ANC... add this one to your BITSian vocabulary. A story about a bull, although this one's not quite the Wall Street kind.

The name Dridge sounds absurd, doesn't it? But being a BITSian, this is a part of a very common vocabulary created by groups over the years in Pilani. This term was known or rather dreaded by some of the '78 batch students of VK, Bhagirath, and RPA messes.

There was a branch of UCO bank near the RP Bhavan and the post office was nearby too. The bank had an open canteen, naturally named the bank canteen or BC for short. There was a small passage way near the BC through which we could go to *Nutan*. A retired army *Jat* opened a *chai* shop in the lane, near the hockey field, in between *Nutan* and BC. We used to frequent this place only in the evening and at night because for us VKites C'not was too far and there was the added danger of being ragged while the BC was hardly visited by seniors! We named this joint IC or intermediate canteen. The owner used to make the best tea around campus.

The Dridge loomed large across that area especially near the BC

gate, mostly at night. Any guesses as to what it was...?

It was actually a fully grown bull! It used to reign supreme



among the cows in the area during the day but at night it chose to stroll about in the vicinity of the BC as the latter was deserted at night. Its name, *dridge*, was the contribution of one of my classmates who always had this habit of exclaiming "Hoosh" when he was surprised by anything or, for that matter, anyone. One night when we were returning from a movie at *Jayshree*, we encountered the bull at its *musth*. It charged us and our friend, as usual, exclaimed

"Hoosh! It's dridge, run, *bhai*, run!".

'Dridge' was a term given for 'degenerating' in hobbies like playing cards (bridge), smoking(!?) etc. The name became an instant hit and the bull became known as Dridge among us for years to come. Whenever we used to cross BC at night, we first checked to see whether *dridge* was around. The less brave among us chose to take the longer route via the main entrance to go to *Nutan* at night. Memories of *dridge* and its charges still rake up roars of laughter during our get-togethers and it will be remembered

by us for long.

◆ Hemanta is a '78 batch Civil engineer from Guwahati, Assam and. He is an active member of our '83 batch. At his last reunion at BITS in 2003, he, not surprisingly, found a lot of changes on campus as well as in the students. This in his words is a "chota story about one of those nostalgic moments". He can be reached for comment at [hksarmah@yahoo.com](mailto:hksarmah@yahoo.com)



BY ANINDITA DUTTA ('03 BIO) IN CONVERSATION WITH DR RAHUL BANERJEE

## CSD – Entering An Era Of Collaborative Research

From Grid Computing to collaboration with MIT, some of the CSD's recent initiatives have the potential to position BITS Pilani as the largest provider of science and technology-based education in India.

Among the prominent initiatives is The Grid Computing initiative, in the area of next generation networking (IPv6 included). The aim is to build an architecture that would allow the grid computing application sitting in the application layer to be able to transparently utilize the quality of service, enhancements as defined by the recent flow level specification for the IPv6.

### GRID COMPUTING

An umbrella project known as "Project Grid One" was launched by BITS last year. In

its first phase, partly funded by Microsoft Research, the group aims to build a heterogeneous, IPv6-QoS aware campus wide grid comprising of 1000 subscribed nodes (out of an estimated capacity of 5000 nodes on campus). This is using a heterogeneous combination of hardware and software platforms atop an IPv4/IPv6 dual stack enabled Giga bit backbone. It involves building a medium-sized campus-wide grid involving several Server-class systems, about 3000 PCs class systems, used inside the institute's laboratories and

based) micro grid amongst themselves. As part of the work planned in this phase, various devices like pocket PC's, pocket PC phones and other PDS running on variants of Intel-X-Scale processors and select processors from Texas Instruments would be used. Next, the plan is to develop identical campus-wide grid islands in the other campuses of BITS Pilani and interconnect these grid islands to form a larger multi-campus grid environment with built in capability of IPv6-QoS awareness.

This would be hooked into other research grids in different parts of the world; those who volunteer to either adopt the Grid One architecture or allow a translation facility based mechanism for hooking to their existing infrastructure. Since grid computing is an umbrella research project like the "Project IPv6@BITS" (<http://ipv6@bits-pilani.ac.in>), it has several sub projects separately planned as its other components. Most prominent of this is the telemedicine project meant for rural and semi urban health support system assistance. This project has been named "i-charak".

The image shows the MIT iCampus logo, which consists of a stylized 'i' made of three overlapping squares. To the right of the logo is a navigation menu with the following items: iCampus, projects, themes, news, and gallery. Below the logo and menu is a text box that reads: "MIT iCampus, sponsored by Microsoft Research, is aimed at achieving broad, substantial, and sustainable impact on higher education through information technology. iCampus incubates innovations for labs, classrooms, and campus communities at MIT and promotes their dissemination around the world."

faculty chambers, large number of student-owned PCs in their hostel rooms and many of the staff-owned PCs / Laptops etc.

As part of the work planned in the second phase, mobile access components will be able to selectively use the grid apart from forming an ad hoc (intermittent connectivity

**Website**  
[discovery.bits-pilani.ac.in/gridone/index.htm](http://discovery.bits-pilani.ac.in/gridone/index.htm)

## MIT BITS PILANI iCAMPUS

The MIT iCampus is aimed at achieving broad, substantial, and sustainable on higher education through information technology. iCampus incubates innovations for labs, classrooms, and campus communities at MIT and promotes their dissemination around the world. BITS Pilani has been identified as an **iCampus Hub Institution** in India under the Memorandum of Understanding between the two institutions taking effect the 1<sup>st</sup> of October, headed by **Dr. Philip Long** from MIT and **Dr. Rahul Banerjee** from BITS Pilani. The BITS-MIT collaborated iCampus originated as a research and development project when MIT (with funding from Microsoft Research) started developing collaborative technology, under their iCampus initiative, allowing over the network learning facilities to be made available both on campus and off campus. It also permits those that do not have adequate infrastructural facilities, expensive lab equipment, or domain expertise in select areas etc to be able to connect to iCampus project sites and utilize these recourses even remotely. In addition to adaptation, co-development and deployment of iLabs, iMOAT and xTutor for its own students as well as helping several other interested institutions of higher learning in the country to use these resources, BITS Pilani shall carry out joint collaborative research with researchers at MIT under the broad agreement between the two institutions.

### Website

[discovery.bits-pilani.ac.in/icampus/index.htm](http://discovery.bits-pilani.ac.in/icampus/index.htm)

## BITS VIRTUAL UNIVERSITY

BITS Pilani is heralded as the pioneer of Science and Technology based education through its off-campus collaborative and distance learning programs. Currently distance learning caters to more than 10,000 students all over the country; all of who are employed and sponsored professionals in industries, research laboratories and select educational institutions. Quite a large number of these students derive colossal benefits from the services provided by BITS virtual university

[\(<http://vu.bits-pilani.ac.in>\)](http://vu.bits-pilani.ac.in) which provides the following:

- Asynchronous interactive as well as non-interactive learning environment using web based lessons, soft tutors and animation tools.
- Desktop (internet based - 64 kbps and above at the individual user's end) live interactive lecture sessions for 300 students for every single course offered through the distance learning mode  
[\(<http://202.54.26.115/bits/portal/dlpd>\)](http://202.54.26.115/bits/portal/dlpd)
- Live interactive (internet based) group discussion facility
- Live interactive (internet based) tutorial facility.
- Web based seminar facility for up to 1500 students at a time
- Live interactive project meeting over the internet

with a participation capacity of 100 students.

- Students who miss these sessions can use the on-demand capability of the system to see the recorded events.

The facility also allows in addition to the above, the following:

- Asking on-line questions of objective type, descriptive type
- Taking on-line polls
- Web-casting of an event
- Use of internal expressway services that allows automatic server selection, spread over different continents around the world, based on some pre-determined parameter values in a dynamic way.

The **Live Interactive Sessions** are a vital part of this endeavor and this constituent portal is an easy-to-use interface, which allows application-sharing facilities while in the LIVE mode. It also allows the user to ask questions using voice or text, participate in group discussions, attend seminars, meetings, tutorials – all through the web-browser and an Internet connection. If any first-time user has trouble during sessions, she can click the 'Help' tab to learn using the facility. In addition, there is a pre-recorded on-demand tutorial on using the facility accessible from the 'On-Demand' tab.

### WEBSITE

<http://202.54.26.115/bits/portal/dlpd/default.asp>

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BY HIMABINDU CHITTA ('02 CHEM)

## Evaluation pattern at BITS – a new story

A revamped test schedule, with tutorials and mid-sems, replaces the long withstanding three-test scheme and there's already a lot of speculation about the reasons for the change. Our conversation with the Vice Chancellor, Dr. S Venkateshwaran

Six courses, with two tutorials and three lectures a week in each. Halfway through the semester, three days of grueling mid-semester examinations. Then more *tuts* and finally the compress. No, this is not the schedule of a EEE CDCite but that of the hapless BITSian first year student. Along with the distinction of being the first batch of students to have come through the BITSAT, the newcomers are also the first on whom the new evaluation methods are being piloted.

### REASONS FOR THE CHANGE

The administration's take on this

is, predictably, more holistic. We learnt from the VC, **Dr. S. Venkateshwaran** that a change in teaching methods had been on the cards for a long time now. "**That was the idea behind building the Lecture Theatre Complex,**" he revealed, explaining that the new evaluation system is modeled on that of the IITs. Students now have a limited number of large lecture sections, where experienced professors emphasize conceptual learning. The tutorial sessions are intended to encourage application of these concepts, and help students develop problem-solving skills. It is felt

that such a dual emphasis would make the student truly competent in a subject.

This explains why a single professor handles Chemistry I for the entire first year batch, while new faculty members take on the tutorial sessions in smaller, more interactive sessions. Those familiar with the structure of EEE CDC courses will remember that certain courses like Digital Electronics have always been structured this way. Two professors take the lecture sessions while the weekly tutorials see new lecturers and TAs in action.

Most significant, perhaps, is the fact that the new lecture-tutorial system of teaching has been extended, in one form or another, to several second year courses and all CDCs except those of Computer Science and Information Systems (these disciplines have heavy course weightage



Lecture theatre complex

for online assignments, which cannot be effectively substituted with tutorials).

## WHY ARE STUDENTS COMPLAINING?

Critics of the previous system believe that the idea of regular tutorials forces students to remain up-to-date with what is being taught - for sure, a positive development. In stark contrast, the entrenched BITSian tradition is to study the night before a test, and to count on the next test to go well if you fail to perform well in one. Fourth and fifth yearites on campus can be heard reminiscing about the "good old days" when classes could be bunked en masse and BOSM was not spent in the shadow of the approaching midsems.

Therefore, BITSians are learning more than they ever have. How can that be a bad thing? Well, for starters, the total number of hours spent in class has gone up to 32 per week per first year student. There are twelve tutorials per week - so many, in short, that they are no longer taken seriously, or

prepared for. Moreover, if one does badly in the mid-sem, there is no hope of redemption. It is a win-all, lose-all situation.

**"Fourth and fifth yearites on campus can be heard reminiscing about the "good old days" when classes could be bunked en masse and BOSM was not spent in the shadow of the approaching midsems."**

Though no one in the administration will openly admit it, observers suspect that the real reason for the change in teaching and evaluation was the desire to improve attendance. The higher-ups had hoped that the new system would phase out students absconding from classes, appearing before the familiar BITSian saga of classes, and appearing before professors merely to write tests and collect papers. Sadly, however, nothing of the sort seems to have been

accomplished. Classes remain steadfastly empty, and students have taken to attending only the tutorial components.

Another theory circulated in secret is that the administration wanted less emphasis on extra-curricular activities in BITS. The first yearites burdened with the additional workload, can now hardly spend time getting to know seniors and batch mates in clubs and departments. The mid sems happen barely ten days before Oasis, which is the focal point of BITSian social and cultural life. Work for Oasis usually gathers steam just about a fortnight prior to the fest, and it is very unlikely that the timing of the mid sems is a coincidence.

## NO EXTRA-CURRICULARS?

The jury is still out on the new system and whether it will continue to hold sway in semesters to come. As for the regular tutorials, no one says they are a bad idea. However, reducing the number per week might make students take the components more seriously. It would also reduce the pressing demands on their time, and allow them to relax and engage in activities that aid their all-round development. After all, BITS has always prided itself on producing students who excel at anything they choose to take on. A uni-dimensional education is certainly not conducive to developing such talent. A careful and critical assessment of the new system is in order, and incorporating this system's benefits into a newer, more balanced model would be a healthier change.

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No need to *guss* classes?



By VERNON FERNANDEZ (04' EEE) AND SANDIP GANGAKHEDKAR ('05 EEE)

## BITSAT Review

For the administration, BITSAT '05 was a great success. Conducted in 14 centers all over India, it truly reflected the nationalized outlook that BITS Pilani has always desired. A pioneering venture, BITSAT '05 has already changed from being a prototype to being a model that will probably remain in place for years to come.

BITSAT '05 was announced at a press conference on 15<sup>th</sup> December, 2004. The last date for the receipt of applications was 31<sup>st</sup> January '05. Approximately 57,000 applications were received. 48,435 candidates appeared for the exam at centers all over the country. 11,611 of these were female. 1400 candidates were successful, 800 in Pilani and 600 in Goa.

Each candidate was given a choice of centre and of date and time. This gave the students a lot of flexibility, as they had to appear for other competitive exams as well. Faculty in charge of PS and professors on campus also took on the responsibility of overseeing the procedure in the respective centers.

### DEMOGRAPHICS

The post BITSAT demographics give a rosy picture of regional parity etc., which was missing in the normalized percentage

#### About the BITSAT

BITSAT '05 tested skills in five areas – Mathematics, Physics, Chemistry, English and Logical Reasoning. The three-hour test was on 450 marks. It contained multiple choice questions. Each question carried 3 marks with no associated negative marking. The weightage was 135 marks for Math, 120 each for Physics and Chemistry and 75 for English and Logical Reasoning. For those who attempted all the 150 questions in the stipulated time, a bonus of 12 questions were unlocked.



BITSAT Test Center

procedure followed by BITS Pilani. This new, more cosmopolitan crowd is strongly in tandem with what BITS Pilani has always valued – intellectual and regional diversity. One odd fact however, is the surprisingly low percentage of girls, 14% in Pilani, admitted this year. The factors that contributed to this

drastic skewing are varied and subject to much debate, prominent among them being the existing educational system which promotes the ‘coaching class’ culture where guys get more preference and flexibility for going to the “renowned” coaching classes. This coupled with a patriarchal societal system, which tends to favour boys and thereby put girls at a disadvantage in competitive exams like IIT JEE, AIEEE etc. Another factor could be the lack of awareness about the various educational avenues in BITS, like MMS and B. Pharm. However, the institute plans to take affirmative action to remedy this problem. Where the authorities feel that the initiative to send more girls should come from their parents our VC Prof.

**S Venkateswaran** says that the institute is, looking to increase the number of girl participation in the test by introducing certain incentives like reservation quota for girls etc. Much of it is still in the process of discussion.

## PROBLEMS

One might wonder how ride through the first ever-online test was- a bumpy and rutted one or was it a smooth sailing experience? **Prof. Raghurama**, Dean Admissions and Placement believes that it was the latter, where problems faced, in terms of software, security, management were close to none or at least ones that had been expected. However, he adds that the mammoth task of pulling off an online entrance of this stature has its own challenges. Meeting

these challenges and bettering the given norms comes as part of the responsibility of organizing a completely new entrance test, and improvements are in the offing. Nothing tangible, so far, has been decided but we can look forward to a possible increase in the numbers of centers, increasing software efficiency etc.

## BITS – THE ROLE MODEL?

One avenue, which BITS still holds its mark, is its acknowledgement of 12<sup>th</sup> standard result, which had been relegated to the background with increasing emphasis on entrance exams. Admission to the toppers from every board was granted this year too in spite of an entrance exam and 17 board

toppers from the 2005 batch are now on campus. The required cut-off in the 12<sup>th</sup> exam was 80% in addition to the BITSAT score, which reiterates BITS' stance on this issue. Recently the IIT's have introduced a 60% cut off for entrances. Emulating BITS should we say? Prof Raghurama smiles and says, "We can't be sure but if they are, then the institute is happy that others are also waking up to the importance of school results".

With the BITS administration being highly satisfied with the whole process, BITSAT will most certainly be conducted next year with necessary improvements and new features.



## BITSAT – A Freshman Perspective

Anticipation and fear dominated my senses as I entered the test-centre for the all important, much-vaunted BITSAT 2005 exam. The swank and plush building called 'Eduquity Career Technologies' in the elite area of Marol, Andheri East, was going to be the battlefield. The warriors? A fully-armored, battle-ready brigade of 40. Except that there were no sides- everyone pitted against everyone else... Phew! Sounds much more than just a war... guerrilla warfare, maybe.

Being an objective, multiple-choice test, speed and accuracy were the main keys to success. A race against time, BITSAT '05 was a well-structured exam with unconventional testing areas like English Proficiency and Logical Reasoning. It was this part that made BITSAT '05 different from the other routine examinations like AIEEE, IITJEE, State CET's, etc. The smooth flow of proceedings was marred by a few complaints about mistakes in a few questions. The invigilators could do nothing beyond noting the ID numbers of the respective candidates.

As the seconds ticked and the minutes flowed, the warriors were deep in thought, fervently clicking away... some to glory, some to doom... The stakes were too high; no compromises could be made...

I heaved a sigh of relief as the final bell rang. The joy of having finished the last of my exams pushed the more immediate concern over my BITSAT performance into oblivion. The BITSAT was unique in many ways. It certainly gave me more freedom than any other exam. Right from the date and time of the examination to the order of answering, everything was decided by me... The true mettle of the candidate was tested by a plethora of carefully crafted questions from a very vast database. In retrospect, BITSAT seems largely representative of our life at BITS!

By SINDHU ANAND ('03 BIO)

## Pharmacy Group

Pharmaceutics and Biotechnology are set to revolutionize the Health Sector. Many start-ups in the Pharma sector, the Pharma stocks booming, overwhelming research with new discoveries almost every day, all these signal bigger days for the Industry. What is our very own Pharmacy Group doing in the face of these exciting new prospects? The topics raised during a talk with Prof R Mahesh, Group Leader, Pharmacy Group, mirrored the excitement in the Pharma field globally.

The Pharmacy Group of BITS, Pilani is one of the few early schools of Pharmacy in India. Established in 1950, under the able leadership of (Late) Prof. M. L. Schroff, Father of Pharmacy Education in India, it has blossomed into one of the most sought after Schools of Pharmacy in India. The Pharmacy Council of India has granted permission this year to increase the uptake of students to 60 in the B. Pharm program (the maximum permitted to any college of Pharmacy) owing to the huge demand for the program. The M. Pharm course is one of the best in India, with around 800 applicants contesting every year, for the 12-15 available seats. More than 50% of the Ph.D students on campus belong to the Pharmacy Group.

The 20 strong faculty includes **Prof R N Saha** who was awarded the Best Pharmacy Teacher in India for the year 2005.

The group has raised 1.4 crore with the Institute pitching in another crore. Vision 2008 is to gear up for the huge growth expected in the sector,

and aims to explore new areas of research such as – Design and development of new bioactive molecules: (anti-inflammatory, anti-hypertensive, anti-convulsant, anti-psychotic, anti-bacterial, anti-viral, anti-AIDS and 5-HT, Dopamine receptor modulators).

The other objectives of Vision 2008 are to obtain modern industrial manufacturing equipment per latest GMP and ICH guidelines for training of students (UG & PG) and adding Industry sponsored projects.

Prof. R Mahesh emphasizes that all the Programs and CDC's are industry oriented and are reviewed every year to meet current demands of the industry. Practice School is not the only bridge between the School of Pharmacy and the Industry. Several research grants have been obtained from well-known Pharma companies. Several technology transfer programs have borne fruitful results. A first ever of its kind, technology transfer venture, with IPCA Laboratories Mumbai, yielded the drugs Zerodol-CR and Movon-CR. Under the project sponsored by IPCA, the group has designed a novel controlled release tablet Aceclofenac, a

### INDUSTRY LINKAGE



BITS Pharmacy Group

non-steroidal anti-inflammatory drug that is used for management of arthritis, joint pains, analgesia and inflammatory diseases. The tablet design, based on bio-erodible matrix technology, will release the drug at a constant rate for uniform availability over a period. So the tablet can be taken only once a day, instead of the

normal twice a day course, making for better patient compliance. The product was developed by Prof. R.N. Saha and his research team and has already been introduced in the market. The Group Leader's pride was obvious while presenting the yellow label on the tablet cover, which says, "Manufactured under Technical Collaboration of IPCA Laboratories Ltd., with BITS Pilani." Technology has been transferred in another project by the same company for the development of novel controlled release tablet of Nimulside, the product is soon to be launched by the company. The other projects making formulations soon to hit the market are oral tablet of selective combination of drugs and development of aqueous injection for selective analgesic drugs. The group also under takes routine drug testing for various Pharmaceutical Industries. It is also actively involved in Consultancy activities in the areas of GMP system implementation, process optimization and validation, design and evaluation of optimal drug delivery systems. The Group has also conducted Human Resource Development



International Symposium on Public Health

programs for Dr. Reddy's laboratories, Hyderabad, LV Prasad Eye Institute, Hyderabad, Shankara Netralaya, Chennai, Srides Acro Labs, Bangalore and Institute of Cardio-Vascular Diseases, Chennai. The strong Academia-Industry symbiosis is quite incredible. This relationship has not only given our students an edge and a rare exposure but has also added to the brand value of the BITS Pharmacy degree in the Industry. The group has shown the way for something that is so wanting in the present day education system, to integrate teaching and research with the current Industry needs.

## COURSES AND LABORATORIES

In terms of course structure and projects, Prof R Mahesh says that more emphasis has been given to Clinical pharmacy. The layman's view of looking at a pharmacist as a drug storekeeper is what they want to change, radically! Students undertake case studies at Birla Sarvajanik Hospital and Medical Center where they analyze each case, speak to the patients to obtain additional information and

suggest changes if any to the prescription along with proper references and diagnostic tests validating the required change. This report is submitted to the physician and serves to augment the treatment.

It has received financial assistance under **Special Assistance Programme (SAP)**

of UGC at the level of Department Research Support (DRS) with financial assistance of Rs 32,60,000 for three years period. The Department of Science and Technology, Government of India has given a grant of Rs. 35,00,000 to strengthen post-graduate research.

There are around 7 laboratories with the **Central Analytical Laboratory** housing the most sophisticated instruments like NMR, HPLC, FT-IR spectrophotometer, Spectrofluorimeter, Atomic absorption Spectrophotometer, High Vacuum Lyophilizer, Digital Plethysmometer, Differential Scanning Colorimeter, Pharmacol (Animal monitoring and Tracking system) to name a few. The other laboratories are-

- **Industrial Pharmacy Laboratory**

Facilities for pharmaceutical formulation manufacturing (tablets, capsules, ointments, liquid orals, parenterals) and in-process quality control procedures



- **Formulation Development and Pharmacokinetics laboratory:** Facility for design and development of Novel and Controlled drug delivery systems
- **Pharmacology and Physiology Laboratory:** Facility for screening and evaluation of NCE's
- **Synthetic Medicinal Chemistry Laboratory** Facility for design, synthesis and process optimisation of potential anti-psychotic, anti-microbial, anti-cancer, anti-viral and anti-inflammatory agents
- **Radio-Isotope Laboratory:** Facility for gamma scintigraphy, gamma spectrophotometry, Beta counter study of reaction kinetics using radio labelled probes and estimation of radio probes by atomic absorption spectrophotometer.
- **Molecular Biotechnology Laboratory:** Facility for nucleic acid and protein isolation and purification, rDNA manipulations, Cloning experiments, DNA sequencing, PCR, Gel

Electrophoresis and Gel Documentation System

A new addition has been the **Animal Farm** a visit to which left me in total awe! The place situated right behind FD III is extremely well maintained and has 1100 experimental mice along with experimental rats, rabbits and guinea pigs. The sparkling floor and glass doors, a well-furnished laboratory, neatly stacked rows and rows of animals, a small operation theatre all seem to usher in an era of change in BITSian labs.

## OTHER ACTIVITIES

### International Symposium cum Workshop on Recent Advances in Drug Design and Drug Delivery System

The Group conducted an International Symposium cum Workshop on Recent Advances in Drug Design and Drug Delivery System during 24-27 February 2005 in collaboration with Molecular Design and Information Technology Centre (MDIT), University of Toronto, Ontario, Canada and was supported by Seascope- A Tripos Inc. It was co-sponsored by University Grants Commission (UGC), New Delhi, India.

With the main objective of holding deliberations on recent advances in drug design, computer aided drug design (CADD), medicinal and pharmaceutical technology the event attracted many experts and resource personnel from

India, USA and Canada.

### International Symposium on Public Health

The Pharmacy Group with the Biological Sciences Group in collaboration with Uniformed Services University of Health Science, Bethesda organized an International Symposium on Public Health Education- International Scenario and Challenges during 9-11 April 2005. The focus of the symposium was on the need to impart quality education in the area of public health, curriculum design and course development. As a development of this discussion, an M.Phil course is being introduced by BITS. The programme is aimed at developing public health administrators with expertise in related areas of community health in collaboration with Uniformed Services University of Health sciences, Bethesda, Armed Forces Medical College, (AFMC) Pune and Christian Medical College, (CMC) Vellore.

### MORE INFORMATION

Email: [rmahesh@bits-pilani.ac.in](mailto:rmahesh@bits-pilani.ac.in)

<http://discovery.bits-pilani.ac.in/discipline/pharmacy>

The Group conducts routine Health Awareness camps, Health Checks and organizes lectures and seminars. Pharmacy communiqué is a magazine brought out the group about recent trends,

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**Animal Farm**

1100 experimental mice living in harmony with rats, rabbits, and guinea pigs

BY THE SANDPAPER2.0 TEAM

## Back to BITS

BITS Pilani – a place we’ve all fallen in love with. Sometimes, all of us hope that we can come back, and re-live those days. Here are a few of our faculty doing exactly that. Get to know these faculty members: BITSians then, and BITSians, now.

### PROF L K MAHESHWARI

**Professor Maheshwari** obtained his ME and PhD in Electrical and Electronics Engineering from BITS Pilani in 1971. He was offered a teaching position at both REC Tiruchinapally and at BITS Pilani, but decided to remain at BITS. Since then, he has been an integral part of the EEE faculty as well as one of the pillars of the administration. He is currently the Director of the BITS Pilani campus.



Prof L K Maheshwari

Professor Maheshwari feels that the changes in BITS since 1965 are two-fold. First, society has changed and become more open. In those days, BITS had a uniform for students and girls and boys were not permitted to speak to each other. Anyone caught violating this rule was fined! Other similar restrictions

were placed upon students, which are absent today. He feels that this change is for the better, since an open and free environment is more conducive to students thinking and learning on their own.

The second important change is the improvement of infrastructure. Even in the 1970s, BITS was one of the foremost institutions in the nation with respect to infrastructure. The flexible education system, laboratory facilities and collaboration with foreign universities such as MIT meant that BITS was a name to contend with in the field of education. Even today, infrastructure continues to improve, with the Library, Lecture Theatre Complex and now the Student Activities Centre. The primary issue with infrastructure, says the Director, is that no one utilizes it well. “The Library has a seating capacity of 1200,” he says with a smile, “but I have hardly seen more than a few odd people inside. To all those who complain about what we don’t have in BITS, I’d like to say, first use what we do have.”

Finally, how can alumni in other parts of the world give something back? “Don’t contribute money, give your time instead,” he insists. He quotes the campus-wide LAN – NEURON as an example of the active involvement of BITSian alumni in improving student life at BITS. This alumni involvement is continuing through other projects.

Three 1968 Chemical Engineering graduates are currently pioneering a “Desert Development Technology” programme to improve agriculture in the desert.

If not through a live project, alumni can be guest faculty in BITS. Guest faculty may teach for a week, a month, a semester or a year, as per their choice and convenience. “Once they are in India, BITS Pilani will take care of their every need,” Professor Maheshwari says with a smile. “If they are willing to come back and actually interact with BITSians here on campus, we are more than willing to make the teaching experience worth their while. We can arrange for them to attend conferences in India and broaden their own horizons, while they help our students broaden theirs.” He urges alumni to help BITSians fine-tune their entrepreneurial skills. He feels that with their hands-on experience and knowledge of the industry, alumni can turn an amateurish idea into a successful business venture. He is also optimistic about recent mentoring programs that have been begun by alumni groups. He sums it up all in two words, “Be involved.”

### PROF S BALASUBRAMANIAM

**Prof. S Balasubramaniam** completed his BE (Hons) from the EEE department, BITS, Pilani in 1970, and further went on to complete his ME as well from the EEE department in 1972. After a working and teaching experience of 26 years, he joined the BITS faculty in 1998.



**Prof S Balasubramaniam**

He is currently Group Leader of the EEE department at BITS.

After he completed his advanced studies from BITS, he joined the Microwave Division of the *Indian Space Research Organization* (ISRO), Ahmedabad as a Microwave Engineer. He was involved in the system design, system integration and environmental qualification of the Satellite Microwave Radiometer (SAMIR), which was one of the primary payloads on board the BHASKARA – I, used for the measurement of sea state and sea roughness. SAMIR was India's First remote sensing payload and sent the First remotely sensed data from BHASKARA-I. He was also part of the second launch campaign during November 1981. He later joined the *ISRO Satellite Center* at Bangalore. Here as project manager, he formed a team for radio frequency and microwave work. After substantial R&D experience, he joined the Bangalore University. It was during this time that he met **Prof. Gopalan**, who had been

the placement officer when he was a student at BITS. He was motivated to involve himself in the Distance Learning Programme Division (DLPD) of the Institute, following which he joined BITS, Pilani as Associate Professor in November 1998.

Prof. Balasubramaniam has handled courses related hardcore to communication, such as *Communication Systems, Circuits and Signals, Satellite Communication, Mobile Telecom Networks, Advanced Digital*

*Communication, Mobile and Personal Communication and Radio Frequency Microelectronics*, which are specifically his areas of interest. Believing firmly in the fact that each course should be supplemented by a lab component, he set up the Communications Lab, the RF & Microwave Lab and the Digital Signal Processing Lab at BITS. He is one of the Research Advisors for the research projects undertaken by BITS, under the BITS-NOKIA Research Collaboration. He has also published various research papers, the latest of which concentrate on Mobile Networks.

Prof. Balasubramaniam explains there is now a need in the industry in the fields of Power Electronics, RF & Microwave, Power Systems, Electromagnetic Fields and Waves, et cetera for which personnel need to be trained and motivated. The advent of wireless applications will need students and professionals with sound knowledge and background in these fields. In India, just as in the field of mobile communication, there is a tremendous need in ISRO, defence and other industries, for which workers have to be trained. If people join BITS to undertake sponsored research

work, faculty can ensure that problems are addressed exactly in the critical areas. The best people who are already familiar with the system are, of course, the alumni. According to him, today's students are more interested in specializing in a narrow area, which is probably due to a larger quantum of peer pressure. Keeping this in mind, the prospects for alumni in BITS are tremendous. Teaching now requires people with the background and with experience.

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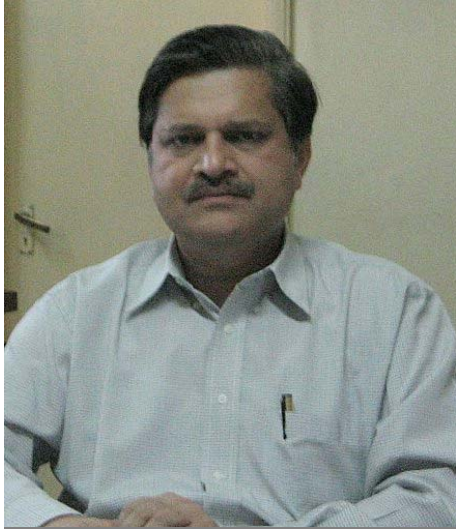
## DR. R K MITTAL

**Dr. R K Mittal** joined BITS in 1968, for his Bachelor's degree in Mechanical. He also completed his Master's in *Mechanical Engineering* during the years 1973-'75. Even though he received other job offers at the time, he decided to teach at BITS and went on to complete his PhD here. He is now the Dean of the *Academic Regulation and Counseling Division* (ARCD) as well as the President of the *BITS Alumni Association*, BITSAA.

Dr. Mittal has been associated with the institute for nearly two decades and he thinks the teachers at BITS receive the best of everything. The kind of freedom that the BITS style of education gives a teacher cannot be found anywhere else. A congenial environment, which is conducive to research, and the facilities available ensure that the teachers are not hindered in any way. He feels that Pilani has no lack of facilities due to its location. Indeed, it has everything a metro can offer.

As president of BITSAA, Dr Mittal is often asked by alumni as to how they can contribute to BITS. Unlike US universities, BITS never asks for a yearly donation. In his own words, "The IITs may be cash-strapped, but we certainly aren't." He feels that more than monetary contributions, intellectual inputs from alumni would





Prof R K Mittal

be more beneficial. Alumni who wish to take a sabbatical are always welcome to come to BITS for a semester or two. BITS could always offer a course in their area of specialization for that period. He assures alumni that they will be provided furnished accommodation and compensated for their input. Any alumnus is always welcome to return to BITS.

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## DR. S. GURUNARAYANAN

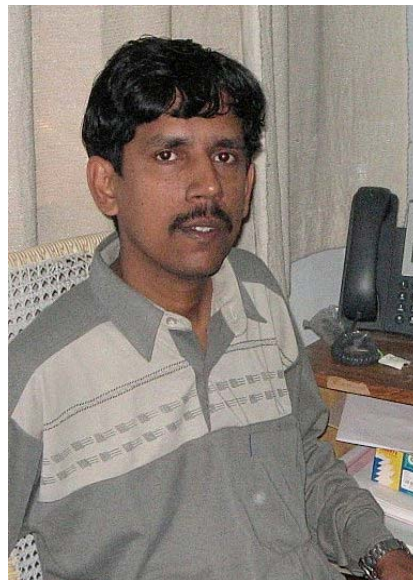
He joined BITS as a teaching assistant in 1987 after he completed his MSc. Physics programme. At BITS, he joined the ME *Systems and Information* programme in 1988, which he completed in 1990. Later on, he also did his PhD from the institute. He is currently Professor in the Instrumentation Group and Assistant Dean, Engineering Services Division at BITS.

After he had finished his MSc. programme, **Dr. Gurunaranayan** joined BITS in

the prospect of doing some higher studies and obtaining a Masters in engineering. It is with this intention that he joined as TA. Further, he believes that he had a flair for teaching as well. Part of his motivation to teach was his teachers, who had impressed him a lot during his student life. He says that his experience and position as a teacher is a tribute to those who taught him and incited him to do the same. Of course, the fact that he was selected to join the faculty as Assistant Lecturer after completion of his ME programme is witness to

this fact.

Dr. Gurunaranayan has now been



Prof S Gurunaranayan

faculty at BITS for 17 years. He has handled a variety of courses such as *Microprocessor Programming and Interfacing* (which has been revamped over the years to include newer versions of microprocessors), *Physics and Modeling of Electronic Devices*, *Analog Electronics*, *Electronic Devices and Integrated Circuits*,

*Embedded Systems Design*, *Digital Electronics and Computer Organization* and *VLSI Design and Architecture*. He has also supervised various project courses and theses.

He believes BITS provides something that many universities do not offer: a free hand in teaching. What is special about this feature is that the instructors realize that they cannot just do what they want and get away with it. With freedom comes an equal amount of responsibility, and as faculty everyone realizes this fact. It is also not necessary that people have to stick to his discipline or field of study while teaching in the institute. For him, every course has been a learning experience. The courses he has taught and those he is currently teaching differ significantly from the ones he studied in his ME. Thus his teaching experience has helped him learn a lot.

BITS Pilani holds many prospects for an alumnus. BITS welcomes alumni participation to improve its teaching expertise. There is also much scope for growth, with the current level of industry participation and research facilities available in the institute. Lab facilities have also come a long way with the advent of sponsored labs, such as the OLAB, which create facilities conducive for research. The inbuilt flexibility of the system should also impress the alumni. Apart from this, the alumni could also help in Practice School and Distance Learning Programmes of the institute. An effective and useful way to “give back” to your alma mater!

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BY ABHIJIT KUMAR ('04 CSE)

BITS Pilani | Dubai Campus

## Oasis to Oasis

Tracing the journey from small town Central India to the urbane Dubai in pursuit of a great education.

When I first read about BITS-Pilani opening their first offshore campus in Dubai, I must admit I was a little apprehensive. It took me half a dozen calls to the Admissions Officer and the Student's Affairs to be completely convinced of the sound infrastructure, meticulous planning and enormous support from Pilani that had gone into realizing the vision that was BITS-Pilani Dubai Campus (BPDC). A prestigious collaboration with one the largest group of companies locally had also ensured stability, facilities and backing for large-scale expansion, in a region not known for its educational centers. The stage was all set for the students to carry forward the high standards that were part of the BITS name.

The orientation was on Sep 7<sup>th</sup>, 2000 and the sixty odd students (an all-Indian outfit) who joined BPDC were quick to realize the foundations, the expectations and the pros & cons of being a first batch. Although we missed out on guidance from seniors (which dawned much later when we had our juniors) and a few facilities (which improved with each batch), we also had a very personal rapport with the Dean **Prof. Ramachandran** and our staff, few of whom were BITSians. In addition, being much smaller in number, our batch had an amazing level of spirit, unity and cooperation. The official inaugural ceremony



was in November, and was done by Dr. K.K. Birla, who amidst his speech read out the then **Prime Minister, Shri Vajpayee's** letter to the students of BPDC.

Most of the school-kid attitude was replaced by our newfound goals with BPDC and our Dean's inspirational counseling provided a great boost and direction for all of us. The remaining part of our first year passed rather uneventfully, due to a variety of reasons from homesickness, hostel culture, adjusting to mall city, exchange rates or just plain studies. The BPDC branding in India was still at the start of a steeply rising graph. I remember how all of us volunteered to help by giving our India phone numbers. Students on vacation, from Delhi to Hyderabad, Bombay to Cuttack spoke to several aspiring students and parents, explaining everything from admission procedures, education loan schemes, VISA requirements, faculty and prospects. We were keen to make a good first impression.

With a fresh intake of students in 2001, the equation changed a bit,

with a reflection of déjà vu, plans for more activities, a fuller hostel, and new stories from India and a little bit of our version of the Arabian hospitality. The sessions with our Dean were still something all of us really looked forward to, and a new wave of being senior students added more expectations from us. Visits from **Dr. K.K. Birla, Prof. Venkateswaran** and later the visit of the Honorable President of India, **Dr. Abdul Kalam**, further instilled a sense of pride and responsibility amongst all of us. On a personal note, I began to find enormous relaxation and freshness in the strong doses of rock music that the frontbenchers pumped in all the time. This formed the backdrop for most of my late night study sessions and the stages of Need for Speed.

I strongly believe that a BITSian hostel would always have the same flavor, irrespective of geography. Midnight oil was always in – if it was not searching for cheeky material for assignments, it was the Quiz on Thermodynamics or the latest Khan extravaganza. There was always something – from Limp Bizkit to Jagjit Singh, from CGPA to distant plans for Masters. The elaborate birthday celebrations had to be one-

of-a-kind, and ditto for the wee-hour World Cup matches which were marked by a good attendance.

Our PS-I program was highly successful, with many positive figures, and these reflected on the next intake of students and an exponential increase in the number of stations. Due to lesser academic pressure during PS, a new level of socializing set in – College Road shows, mass counseling sessions, Driving Licenses, beach football, bus rides, budget eateries and in-house parties; we had them all. *Onam*, *Christmas*, *Eid* and *Iftar* were all redefined to mean colorful, high-energy celebrations attended by everyone. I particularly want to mention two events in Dubai. First, the splendid *Navaratri* celebrations, of which *dandiya* was the highlight (and to which our batch has been a regular for the last four years). Second, an underground rock concert that proved that even the heaviest rains could not dampen the spirits of the hundreds (including yours truly) who nudged the local bands to proceed with the show.

As our time at BPDC drew closer to the end, I slowly began



to comprehend what I would be missing – the jogging with **Manish** behind the hostel, playing chess with Anna, the group studies in the hostel, news with **Nachiket**, *dandiya* with **Charles**, lab assignments with **Abhishek** and the plethora of activities that were now built into the BPDC culture. In addition, although the nostalgia was always playing in the background, we tried to face the next episodes of campus recruitment and college applications. As a batch, we probably missed a senior's advice most at this stage. While some were keen to go back to India and cash on the explosive market growth, some chose to apply to the fleet of new and enterprising companies that participated. By

God's grace, I was amongst the first to be recruited on campus along with my long time pal lab/hostel/class mate Abhishek. Some chose to apply individually.

The graduation ceremony was very impressive, and it is not uncommon to feel weak at heart, on your G-day. Anyone could tell that the faculty (especially those from Day 1 onwards) were probably just as emotional as the first batch. BPDC, now set for its sixth intake of students (still predominantly Indian), is a well established name in the academic circles, and has an impressive new campus in the Knowledge Village campus, adjacent to the Dubai Internet City and Media City.

Now scattered all over, from Masters, to Media, Consultancy, Banking, Oil, Software Engineering, Marketing and Sales, we go that little extra to stay connected. We often have small or medium reunions mostly in Dubai, and have planned a small one in Delhi later this year. Rains still don't stop us from cheering at concerts.

◆  
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BY DILEEPAN NARAYANAN ('00 MECH)

## A Month of Bhavan's Night

The ruling hands of BITS, Pilani have said a firm 'no' to Bhavans' Nights. But, does the newer bunch know what it feels like to celebrate a Bhavan's night? I recount, without tempering for the sake of political correctness, the naive pride of then: how it felt to celebrate a Bhavan's night -- the contagious Bhavan enthu and the vicious Bhavan spirit -- when the Bhavan was the first yearite's home and there was little beyond.

It was the time when Mal did not like walls. And, people left their slippers outside IPC when they wanted a newer pair. One had to hand over one's ID card outside the *audi*, to watch a RAF movie. Voices were often heard, calling out, "317, phone call! Holding," or "318, gate call," from near the common room -- there were no mobile phones. It was the year when aeroplanes learnt to fly through buildings, but Team India had not learnt to huddle. It was the time when Bhavans celebrated Bhavan's Nights. It was the year of 'Nihil Ultra 2K++'.

"The Bhavan's night," cried our H-rep, spread-eagling to the ground, "will, this year, be a Bhavan's week!" We freshers hailed him, lifted him up, and, in keeping with the jollity of the occasion, gave him another round of bumps. The talent that had been put on display, on that day of Freshers' Welcome, apparently, had prompted him to make such an epoch-making proclamation. Moreover, there, began the talk of Gandhi's Bhavan's Night.

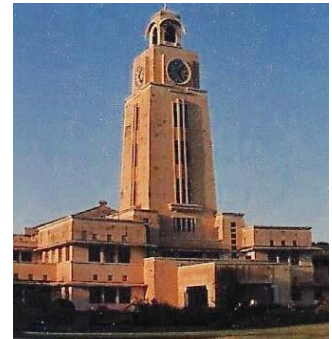
Came the second semester: junta *ghotted* for tests, played QT

cricket, guessed classes, but discussed the Bhavan's Night more than it discussed girls. As the propitious hour neared -- a month before the usual Bhavan's Night week -- the pressures of preparations having to be soon embarked on were mounting. The seniors, in a common room meeting, announced that our proposal for a Bhavan's night had been approved by them (few of us recollected such a proposal having been made, but cheered nevertheless), and decreed us to begin our preparations. "This is your Bhavan's night," they insightfully added, "And there will be no intervention from us seniors in the planning." "But, you have our full support, always," they vouched, reassuringly.

The first step incumbent on us was the task of electing a coordinator -- the coord, so to speak. The common room, where all the first-yearites had assembled for the purpose, remained silent for a minute. A fellow's hand went up. "I want to be the coord." His wingies cheered. "Go *ra*," they shouted; they were *gults*. Then, another hand went up. Both the

candidates came forward, their entourages not far behind, and got into severe deliberations. The cheering slowly gave way to a chaotic babble. "He, for sure, has political ambitions," one fellow hissed from behind, looking askance at the second candidate, "I am sure he is going to nominate himself for H-Rep next year." After hushed parleys, the second candidate came forward and declared himself the coord. The audience let out a confused cheer. "The decision was taken in the best interests of our bhavan," he announced, putting things into perspective. "This will be the best Bhavan's Night, ever!" he proclaimed. And he became our coord.

When we had to decide on a date for the event, the coord put his foot down -- we would perform after all the Bhavans had had their turns. The last would be the grandest, he vowed. This criterion was singularly instrumental in the choice of the auspicious date. "But what shall we call our Bhavan's night?" a studious looking chap asked, overwhelmed by the prospect. In the next meeting, two guys came





up with names, but junta felt they were too comprehensible to evoke awe. Then someone came up with Nihil Ultra 2001. The Coord rather liked it, probably because it was more Greek than Latin. Moreover, it could then be captioned, much like big-budget Bollywood flicks. Then, a CP-I (Computer Programming I) stud observed that 2k++ would sound more fundoo than 2001! Whatever the name, “Nihil Ultra 2k++, *Nothing Beyond*” soon became the apple of every Gandhiite’s eye.

Often, furtive emergency meetings were held in the common rooms, and the heftiest person stood at the doors to guard our secrets against spies from Krishna and Vyas. Raging issues were discussed: some were thwarted by firm opinions; many still raged. Shankar decided, rather prudently, that the best way to bid farewell to their seniors was not a Bhavan’s night. And so the people decided not to inconvenience it by dragging it into the discussions.

Soon summer was beginning to blaze his way through the desert. And, with a mere week separating us from the Bhavans’ Nights, things got hotter than ever. One night, while leaving the mess after the grub, we chanced to find quite a crowd outside the mess. Three fellows were crying, four were bawling their lungs out, and many others were unmistakably chagrined! “The posters!” the wailers wailed, punctuating their wails with less-than-pleasant details of the miscreants’ lineages. Apparently, some malefactors had torn down the posters that the Gandhiites had put up in the messes to advertise the occasion. The posters themselves had not been less talked about. Furious tirades had raged over them.

Some creative souls had wanted to write a ‘for’ loop of C++ code to allegorize the countdown to the Bhavan’s night. Some, who heard the cathartic proposal, did not hesitate to show the world that they were miffed. Nevertheless, clearly, CP-I had played on the minds of more than a few, and to a greater extent than one would imagine. And the posters in the messes flashed exactly that: ten lines of C++ code! Coming back to the spat itself, the arraigned were some inmates of Krishna, Gandhi’s neighbor.

Krishna! The very mention of Krishna Bhavan evoked a sense of bonhomie in the Gandhiites. I mean, instantly the Gandhiites all fraternally bonded amongst themselves, and voiced, in no kind terms, that Krishna Bhavan would willingly create all the trouble in the world during the Bhavan’s night, if they could help it. The two Bhavans had already squared up against each other in the Basketball courts, although they did not play in the basketball matches. The biggest fingers had been raised accusingly at each other -- often, literally -- and vile unfounded rumors often coursed themselves into the veins of both inmates and, sometimes, boiled some blood.

The Krishnites denied that they had torn away any poster, but the poor fellow who claimed to have seen it pleaded them guilty. They made it clear that they did not think much of any of our posters, anyway. “Surf Ultra: *Something beyond*,” they chanted, when they saw a Gandhiite. And the Gandhiite mocked in retort, “Jai Krishna!” And that irked them no end. But, honestly, we never quite knew why they shouted, “Jai Krishna,” -- some scoffed that it

made them resemble a certain band which helped build bridges to Lanka with stones, while most others were a little more circumspect in their criticism -- when they could have chosen to shout virtually anything! But the Krishna seniors said it often, and were proud that they said it often enough. And the juniors were proud because the seniors were proud to say it. Anyway, the issues of the poster seemed to only stretch themselves into posterity.

Meanwhile, budget limits imposed by the Wardens had been well exceeded. It was decided that we would build caves leading up to the quadrangle arena. Night-outs followed night-outs, and classes were totally gussed, to say nothing about tests. And so caves were built and makeshift stages appeared out of wing cots. We were to have a number of dances (one among which they called a shadow dance), and a mime whose singular motive, in keeping with the drift of things, was give back all the flak we had got. And, the boys had already invited the girls; there was a lot at stake!

When the gates opened to Nihil Ultra 2K++, the excitement among the fanatical supporters of all Bhavans was palpable. The Krishnites too arrived, rebelliously encoded in black shirts and black *lungis*, ashes and vermilion generously smeared on the foreheads, and flaunting a C++ primer out to the crowds -- an obvious insinuation at the posters. And then they all shouted, “Jai Krishna!” and, a strange peace descending upon their faces, settled down to watch the show.

The happenings off stage were as dramatic as those on stage



## CREATIVE & HUMOR

themselves. The electricity played truant -- in a manner that only it is capable of -- and suddenly, in the middle of a dance, there was a power cut; the entire quadrangle was plunged in darkness! A huge roar went up and continued until one of the guys, nicknamed after the electrician Mangi Lal himself, ingeniously pulled out wires from the Bogs which were connected to the insti generator! In a desperate rearguard measure, the think-tank decided to advance the shadow-dance to the semi-darkness, and hope that the power was restored before the dance ended. C-Lawns would have, that day, heard the cheers and sighs of relief when the power did, in fact, get back in time.

One would have expected sanity to be restored to the

proceedings. But the Gods had already charted out another course of action. One of the comperes, while introducing the next event -- the mime --, for no pressing reason, accosted the Krishnites with, "I am sure you Men in Black will have something to say about it!" The 'Men in Black', who had remained as well behaved as petted puppies till then, all jumped up at the mention, threw their C++ books into the air and charged forward with their war cry. And, needless to say, the quadrangle was thrown into anarchy. It took a great deal of exaggerated apologising to appease their tickled Krishnite spirit, before normality prevailed. The show, by itself, captured everyone's imagination. Nihil Ultra, despite its acrimonious interludes, was a success.

Tired inmates of Gandhi were woken up early next morning by a certain chap from Krishna. Apparently, in the mayhem that had occurred the previous night, his C++ book had been lost! He had a CP-I compre soon, he said, and implored us -- rather politely, I thought -- to return it if we found it by chance. People assured him (with a similar politeness) they would, if they chanced upon it. Nihil Ultra was talked about by everyone for the next few days. Gandhiites and Krishnites gradually warmed up to each other. But I find myself unable to rule out hearing about a certain inmate of Krishna who had to write his CP-I open-book compre without a book.

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By Prasenjit Chaudhuri ('84 Chemical)

## Wall Street

Wall Street received its name from a stockade or wall, built in 1653 by Dutch colonists to protect the settled area south of it from assault by the English and the native population in America.

In the 18<sup>th</sup> century, the US economy was based on manufacturing, and stockbrokers were regarded as little more than intermediaries were. Brokers would hold informal meetings at coffee houses and street-corners, often congregating around light posts. When brokers wanted to place trades, children hanging out of nearby windows would write down the buy, sell orders, and then pass them onto the clerks inside to start the necessary paperwork.

It was not until May 17, 1792 that seeds of a more formal stock exchange organization were planted. Under a Buttonwood tree (known today as a Sycamore), 24 of the more successful brokers signed the Buttonwood Agreement, which set forth trading hours and the fixed commission system. On Feb 25, 1817, this private club evolved into the New York Stock Exchange (NYSE), occupying the second floor of 40 Wall St., for an annual rent of \$200.

But those who could not afford the \$20 membership fee still traded on the street curbs. As trading activity increased, the shouting became so loud that special hand signals were introduced. (For an up-close feel of the early commodities trading & hedging activity, look up a DVD copy of the *Mayor of Casterbridge*)

In 1920, these traders formed the New York Club and moved indoors to the building where it still resides (and where hand signals were used for decades afterwards). This Curb Market was renamed the American Stock Exchange (AMEX) in 1953.

## New Stuff on Campus

### WAVES '05

BITS-Goa campus presented its first cultural fest WAVES '05 on 2nd & 3rd April. The programme was co-ordinated by Dr.N.N.Ghosh, the faculty-in-charge for cultural activities. The great work done by the cultural representatives and the co-operation from the students made WAVES a grand success.

### STUDENTS UNION

With a fully functional Students Union this semester, the union has already taken over the arduous task of organizing programs for the festivals with the President, Vice President, and Gen Sec taking overall responsibility and the treasurer allotting funds for all programs. Group discussions, paper presentations etc organized by the union is in the offing. Each hostel also has a representative for sports, cultural activities and hostel and mess maintenance.

### INFRASTRUCTURE

With the auditorium in BITS being close to completion, the grand edifice, built in a typical Portuguese architecture, has a seating capacity of 2100. An additional 400 more seats is on the cards. The library and SAC – Students Activity Centre – is fully functional and shuttle badminton courts, gym, TT courts, a basketball court are ready as well. Net connectivity Net is available in the hostels though owing to a slight problem with the server is not available in the new hostels and one of the old ones for which serious efforts are on the move.

The inauguration of BITS Pilani, Goa Campus by Indian Prime Minister Manmohan Singh, scheduled for Oct. 15, 2005, was tentatively postponed to the first week of November.

## BITSian Women In the Community

Chandra Anil Philanthropist, *Saathi*, AID-India

2003 - Present: Full-time AID Saathi, based in Chennai.

1995 - 2002: Employed with Wipro Infotech, IIT Bombay , SCM Microsystems

1991 - 1995: B.E. in Instrumentation Engineering, BITS Pilani, 1995

Chandra Anil is the joint coordinator of the 40 strong AID, Chennai team, along with Ravishankar Arunachalam. She volunteered for 3 years from 2000 to 2003 for AID-India in Chennai. This motivated her to quit the IT field in 2003, to work on development projects full time. Inherently interested in education, she was part of the coordination team for the *Makkal Palli Iyakkam* education programme that was active in around 250 villages in TamilNadu.

She worked towards setting up around 60 primary education centers in Chennai catering to 1000 children. Coordinating these initiatives involved conceptualizing the programme structure, training, field visits and local youth group and volunteer motivation. At AID-Chennai, she has been coordinating the primary education programmes in TamilNadu where AID has a direct presence as well as programmes with other groups in around 300 villages. For education initiatives, she coordinates with the Pratham network in India, sharing resources, ideas and adapting them in programmes.

BY MEENAKSHI CHATTERJEE ('00 PHY-EEE)

## The Looking Glass

Mirabilis lives alone. Deserted by her husband, left by her ambitious son and with a senile mother in an asylum, she lives with memories, in a society that has no family unity. Her dignity is her last reserve of strength. She would have passed her days, sitting in a bench in Manakim Park, chatting about inconsequential things with Mrs. Johnson, had she not bought the Looking Glass. However, what did she see in it?

Mirabilis Meredith started licking. Her grandmother had given her the name. Her mom was never good at child-raising and it was because of her grandma that she grew up to into herself. Now she was forty-seven. She stayed at the blue house in the corner of Mienie Street, all by herself. Her husband had forsaken her and her son was away at the university earning a graduate degree. Mirabilis bore the pains that life inflicted upon her with immense stoicism. Her estrangement, her only son's departure, her sequestered life-all had blown over her while she stood firm like the rock. Only recently were things being different.

It had all started a week back. Mirabilis was returning after an invigorating walk from Manakim Park in the evening when she chanced upon the man. Not a man really, a tramp. She noticed him because of his steadfastly piercing look at her. Mirabilis was discomfited-naturally. She would not be stared at. Mirabilis made no bones to hide her displeasure. Fuming with indignation within, she started walking towards the offender. When she was almost in front of him, her fortitude faltered.

The tramp hadn't taken his eyes off her. He was really ugly. It

appeared as if God had used a hammer instead of a chisel to carve his features. She was wondering how to upbraid him when the silence between them was abruptly shattered.

"How much for the mirror?"

"What?" Mirabilis was too surprised to believe her ears.

"You heard me. How much?" The tramp was least perturbed.

"I will not be addressed to like this and why will I buy a mirror from you anyway?" She was amazed at the man's barefaced audacity.

"You will."

His terse reply left her baffled. How was the man so sure?

"Show me your stupid mirror and let me decide." She had nothing to lose after all.

"Can't. You can only see it after you possess it. It's special."

The tramp paused for sometime before continuing.

"Let's fix the price at seventy-seven cents. You can't get it cheaper than this. What say?"

It was true. Nothing today came at the price of cents. The mirror must be really useless or perhaps

cracked - Mirabilis thought to herself. She agreed. Come to think of it now, she wondered what drove her to buy it in the first place. She had never done anything so thoughtless before.

The coins exchanged hands. The tramp counted them one by one while Mirabilis stood waiting. Satisfied that he hadn't been cheated, he took out a rectangular object wrapped in a tardy brown paper. The sides were torn and it was a wonder how the thing was in one piece.

"Here you are."

"Now listen carefully to what I have to... No! Don't open it!"

Mirabilis' hands were arrested in midair by the loud shriek of the tramp. She had been trying to get the thing out.

"I told you its special." He glowered at her for disobedience.

"Open it when you reach home. Not before that. The mirror isn't ordinary." He took a deep breath before proceeding.

"When you are alone and thinking of people whom you haven't seen for ages, whose faces are just a blur in your mind, look into this mirror. Think of the person you want to see, and the mirror will hold up

the face of that person as it is on that day. If there is only darkness that meets your eye, then be sure that the person is dead. Never will the mirror show you your face. There are other mirrors to take care of that.”

Mirabilis was still holding the package when he disappeared.

It had been a week since that encounter. She had managed to throw the brown paper package at a corner of her room without giving it a second thought. Today was her birthday and there had been no one to wish her. Her son had forgotten yet again. Her mom was senile and barely aware of herself to be able to wish Mirabilis. Her husband wouldn't remember her, leave alone her birthday! She had no caring neighbors. In short, she felt her loneliness acutely today. It was then that she saw the mirror.

Mirabilis Meredith started licking her lips. Whenever she was excited, she did it almost unconsciously. It had been an embarrassment to her husband and son but she couldn't help it.

Her hands were trembling when the paper came out and fell on the floor. She looked eagerly at the mirror. What a disappointment! The mirror she held was no different from the one on her table. Very common. She was about to dismiss the tramp's words as stories of a demented mind when she noticed something peculiar. She couldn't see her face even though the mirror was at level with it. Mirabilis moved it up and down, sideways and even turned it over. Still no face. Maybe the tramp wasn't blabbering after all. She decided to check for herself.

“Let me think of my mom.”

Mirabilis had been to her mom only yesterday, and so she knew exactly how she looked. She couldn't think of anybody else to prove the veracity of the tramp's claims. She shut her eyes tight and opened it too quickly to peer into the mirror.

A most astounding thing happened. Hazes seem to clear from the mirror's surface. A light illuminated the mirror from within. It was as if a bulb was lighted inside. Then her mother's visage floated up! It was wrinkled and pale. The poor woman looked very ill. Mirabilis felt a pang of guilt at having sent her to the asylum. Maybe she ought to visit her again. She was still looking at her mother's frailness when it hit her.

“The tramp had been right! My God! I can see faces! What an extraordinary thing this is!”

“Whom do I want to see now? She mused.

“Of course, Ron!” It had been close to six years since she last saw her son.

She again squinted at the mirror to get a glimpse of her only child.

The same swirling haze and the sudden eruption of light occurred before her son's face floated up. He had put on weight. Maybe he had taken up drinking. The eyes were puffy and he had developed a second chin. Her son looked so much like his father. He was looking at her with a vacant expression.

“Ron, it's me, your mom. Can you hear me, dear?”

Only silence ensued. His eyes kept blinking.

Mirabilis let out a sigh. She had expected too much out of seventy-seven cents! It was a mirror after all and not a telephone!

“What about grandma?” Her grandmother had been dead a decade ago. Mirabilis wanted to see the darkness the tramp had talked about. She was still judging his statements.

This time the light blinked once and then went off. The mirror was enveloped in inscrutable darkness. “Is death equivalent to darkness,” she questioned. “I am thinking too much,” she chided herself. Her grandma was dead and the mirror was dark and both indicated to only one thing. The tramp had been right.

“Wouldn't I love to see my husband now? I wonder if he still keeps his mistress.”

Mirabilis looked immediately in the mirror and there was a countenance squinting at her. She couldn't recognize it. It was repulsive. The hair had thinned and stuck at the head in clumps. Gray fuzz covered the chin in a most unbecoming fashion. The head seemed disproportionately large for the skeletal torso. His features had blunted in a way that reminded you of hammer strikes. Only the eyes were limpid and as piercing as ever.

With a shock Mirabilis realized that her husband and the tramp looked uncannily similar! No! They were one and the same!

“Oh my God! My husband a tramp!” The shock almost bowled her over. No, I must be wrong.



Gregor had been handsome in his youth, one of the reasons why Mirabilis had chosen him over other eligible suitors. Her grandma had gifted them a fortune in their wedding. Mirabilis often blamed Gregor of marrying her for her money. Initially he had denied. Later he stopped refuting her incessant accusations. Things became worse when rumors of his affair surfaced. Mirabilis Meredith was a woman of honor and adultery was a sin she would never forgive. Gregor disappeared one day -- never to return. Until now.

“Why didn’t you come to me at least once, dear?” His sorry and pale face made her forget the sorrow that he had given her. She was ready to forgive and forget. “I will let bygones be bygones. Come to me. I need you. Come to me.”

**ANURADHA GUPTA ('86 MMS)**

## Lost

...in every which way

This October in Delhi on my way to Faridabad,  
Looking for directions in the dark,  
I who had progressed from buses to cars with drivers at that...  
*We knew we were lost!*  
*I didn't know how badly I was too,*  
*And learnt that at a terrible cost...*  
As the driver halted abruptly,  
A cyclist behind us bumped the car and fell off,  
He was obviously badly hurt,  
In a split second-  
No fighting, no threatening, just dusted away the dirt,  
Just picked up his cycle and rode away-  
I could have helped him, apprised him of his rights  
But fear for my child and myself made me hesitate  
It sure was dark-  
And he didn't wait,  
He who was also somebody's child.  
My hesitation left me feeling shallow and defiled.  
Anger I would have understood, I carry so much of it myself,  
But...  
the mute acceptance of a spirit that had died.  
The driver said, “Shall we proceed”, looked through the rear view mirror,  
Questioningly at the wreck who sat in the chauffeur driven car and cried.



Mirabilis shut her eyes as tears poured down. She saw herself cooped up for days in her house with not a soul to talk to, with no one to share her food with, with nobody to shower her love on. She cut a sorry picture in her own mind. Without realizing, she opened her eyes and looked into the mirror. It was too late before she remembered the tramp's words. Never will the mirror show you your face. There are other mirrors to take care of that.

Mirabilis shrieked impulsively as darkness enveloped the mirror's surface. Immediately she became aware of her surroundings. People were staring at her. Mrs. Johnson looked disturbed.

“Is everything fine, dear?” Her voice was trembling.

Mirabilis couldn't answer. She wasn't aware of the fact that her imagination was so fertile. The children had stopped playing to get a look at what was going on. Mirabilis was still in Manakim Park.

She got up to leave.

“I am... not feeling well. Excuse me.”

She left hurriedly. I must see the doctor. Get a grip on yourself. She rebuked herself. She never noticed when she had turned the bend. She was jolted when her eyes met the steady piercing gaze of the ugly looking man. The tramp.



BY PRASENJIT CHAUDHURI ('84 CHEMICAL)

## Hedge Funds

Mathematicians, physicists, financial engineers, economics Nobel laureates, and even the occasional Field's medal winner – the world of hedge funds attracts them all.

Today, Wall St. as we know it is a virtual continuum tying four cities (collectively known as money centers - NY, London, Hong Kong, Tokyo) together electronically, in a 24-hour work day. Wall Street opens when Tokyo is heading to bed, and preceded in succession by HK and London markets.

Contrary to glamorous folklore, foundations for Wall Street's mystique were laid by pioneering work from Black, Merton and Scholes back in the early '70s (winning the 1997 Nobel prizes). The heart of it lives in a world not open to public view or even the business press. This is the world of hedge funds (also see **BITSians on Wall Street**) and proprietary traders. Citizens include mathematicians, physicists, financial engineers and the occasional economics laureate and even the occasional Field's medal winner.

During a recent conversation with a Wall Street proprietary trader and a fellow BITSian, I had the chance to learn more. Our friend graduated dual Maths. & CS from BITS and earned a Masters & PhD in Mathematics from a well-known US university. He currently heads the proprietary quantitative trading desk at a major international bank. We respect his request for

anonymity in order to comply with SEC guidelines.

### Why are hedge funds and private equity so much in the news lately?

The negative performance of the stock market in the years 2000-2002 and its mediocre performance this year, as well as a regime of historically low interest rates has created an uncertain investment environment for institutional investors in the traditional (also known as "long only") stock and



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bond investments. Traditional stock or bond funds target relative returns and seek to outperform a specific underlying market (defined by passive benchmark indices – such as the S&P 500 & the MSCI Barra). In contrast, hedge funds and private equity funds (also called alternative investments) target absolute returns with much of their performance driven by the

active management skills of the fund manager. As a result institutional investors are increasingly adding more risk exposure through investments that meet their long-term assets growth goals. Hedge funds and private equity funds (which provide this opportunity to increase risk exposure) have therefore seen a marked increase in capital entrusted to them. The business press naturally followed.

### Tell me about the various roles in a hedge fund

**Portfolio Manager:** He/she makes investment decisions for the firm and implements the firm's trading strategies. They oversee research & trading, and build and analyze new trading models while improving existing ones. Although their backgrounds range from the arts/humanities to the sciences, they tend to be numerate, creative and thorough.

**Trader:** In some hedge funds, the "Traders" role is the same as a "Portfolio-manager", while in others it typically refers to execution traders (i.e., those who primarily execute trades within preset performance parameters).

**Quant:** Their main job is to carry out quantitative research, develop and implement various quantitative models, and review academic research. They work closely with traders and/or

portfolio managers, and are required to have strong communication skills. Typically they would have an advanced degree in a quantitative discipline, solid computing skills, some experience with a statistical software package like S-Plus or Matlab and a very strong academic track record.

**Software Developer:** They develop research and trading applications, integrate real-time and historical data feeds, build database applications and deploy quantitative models and libraries. They typically have some quantitative background, good programming skills and prior experience with financial applications. Many quantitative traders even started their careers on the software side.

### **What makes proprietary trading different from other financial trading activities on Wall St.?**

There are basically two types of traders: flow traders and proprietary traders. The “flow” refers to client order flow. Flow traders trade on behalf of the bank’s clients with the bank’s salespeople acting as intermediaries between the two parties. They are primarily concerned with market making and hedging. On the other hand, proprietary traders trade on behalf of the bank i.e., they trade the bank’s own capital.

### **Are hedge funds serving a useful purpose for financial markets?**

Absolutely. They provide diversification for investors (their returns tend to have low correlations with traditional funds) and make the markets more efficient. Many will argue that they add liquidity to the markets, although clearly there

are times when they exacerbate liquidity problems as well.

### **Why do hedge funds charge higher fees relative to traditional long-only funds?**

Any investment’s risk can be decomposed into market (passive) risk and residual (active) risk. As you know, the expected return of market risk is called “beta” while the expected return of active risk is called “alpha”. By definition active risk is uncorrelated to market risk. Investors in traditional funds primarily target beta while investors in alternative investments primarily target alpha. The overall risk-reward profile of a traditional portfolio can be greatly enhanced by adding some active risk to it without significantly increasing its aggregate risk.

Any common investor can take advantage of beta (by investing in a garden variety index fund) paying a small management fee. On the other hand, achieving a “real” alpha is very valuable to any investor looking for above-market returns. It is here that hedge fund investors pay skilled managers high fees for getting exposure to what they consider desirable active risk, for their portfolio.

### **Hedge funds have often been labeled “high-risk” in recent times.**

People tend to think of hedge funds as risky schemes largely due to negative publicity from a few bad apples. From time to time, there have been firms that indulged in accounting irregularities or frauds. There are several publicized examples of poor risk management. However, you shouldn’t expect all hedge funds to make money for their investors. In any industry at any given time there

will always be below average firms. Rigorous due diligence on the part of investors is therefore critically important.

### **Where do you see this industry heading in the future?**

The hedge fund industry is rapidly evolving from one that’s focused on a few niche strategies to a much broader one covering a wider universe of investment opportunities. It is clear that the game is getting harder. Therefore older business models built around one or two main trading strategies are giving way to newer business models that involve multiple businesses. It is a natural evolution from a simple business model to a more complex one where various differentiated units (think of them as imperfectly correlated revenue streams) interact and are integrated into one body through an adaptive learning process.

It is not surprising to see hedge funds introduce new products and forge into non-traditional investment areas even for their taste. The obvious goal is to diversify their revenue streams and to create new ones. Those who do not invest in their future are not going to last long in this space.

Although this has been a relatively tough year for the industry as measured by the average performance of hedge funds, this is part of the industry’s evolutionary process. Below average managers get eliminated from the business and the bar is raised for the industry as a whole.

While on one hand the industry is maturing, it’s also the kind of tough environment that usually leads to major innovations and break-through. There is still a lot

## Business & Strategy

of creative energy in this space today and its changing old forms and shapes. In some ways, the hedge fund industry is also beginning to look as if it's getting closer to the mainstream. One thing however will remain

the same - investors should always bet on people and their businesses, not appearances or business labels.

◆  
*Prasenjit Chaudhuri ("Prassy") is a consulting partner with a*

*strategy consulting firm ZeroDelta.Org.*

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## BITSian Women in Business

### **Anuradha Parthasarathy (Anu), Founder, Global Executive Talent**

Anuradha (Anu) Parthasarathy is the Founder and CEO of Global Executive Talent, a senior executive search firm finding leadership talent for US-based companies going offshore and Asia-based companies making forays into the US market. Global Executive Talent is based in Menlo Park, CA.

Anu is an industry veteran in cross-border executive search and offshoring, and has helped build leadership teams for several successful companies in the US and India. **She** brings to her clients a deep knowledge of the local markets, a strong rolodex of contacts, and sound judgment in the selection and hiring process. In the 1990s Anu founded and built Nexus Search Consultants as the No.1 Search Firm for the Technology Sector, out of Bangalore, India. Her clients at Nexus included technology giants such as Autodesk, Cadence, Compaq, CA, 3COM, Cisco, Epson, HP, IBM, Sanyo, SUN and Siemens, as also start ups such as Aspect, Aztec, Entevo, IDEA, Silicon Automation, Sierra and Talisma.

In 2000 Anu co-founded e4e in the US. e4e provides business process and engineering outsourcing services through its portfolio companies. As the Vice President HR at e4e, **she** helped find senior executive talent for e4e portfolio companies including Aztec, iSeva, iCelerate, Vinciti and Vigyanix.

Prior to founding Nexus, Anu was the Head of Marketing for Wipro's International Operations Division. She has been an impressive speaker at Stanford and various offshoring Conferences.

Anu is a management graduate from BITS Pilani, India. She enjoys reading, and also spends time advising people in companies facing the offshore challenge. Anu lives in the San Francisco bay area with her husband and two sons.



BITSAA-Detroit chapter get-together, 2005



BY SANDHYA KRISHNAN ('99 INFORMATION SYSTEMS)

## BITSians At India's Best B-schools

Life at b-schools is significantly different from that in Pilani. More night-outs, tighter schedules, stricter grades and fewer people on campus can make the transition tough. Amidst the deadlines, projects, case studies and presentations, how do BITSians cope? Does being a BITSian make a difference? We find out from students and alumni at India's top B-schools: IIMs, XLRI, and the ISB.

Approximately 500 BITSians write the B-school tests every year. While most of these are final year students, the others are those waiting to take a break from corporate life. The number of calls from the top colleges varies every year but many of these calls are converted to final admissions. Most successful students believe being a BITSian has a lot to do with making it through and the reasons don't just stop with the brand name. It has more to do with the attitude, the adaptability and the personality that a BITSian carries out of Pilani.

Being a BITSian can also have its downsides. There's a pretty big reputation to live up to. You are automatically deemed to understand all complex mathematical problems and it's tough to accept that you really don't. However, of course, it's not long before everyone forgets which college you are from.

Of course, there are BITSians everywhere - but how many exactly?

IIM-A has five in the first year batch and seven in the second year. The second year batch has a good mix, BITSians who graduated in different years. All the first year BITSians at IIM A are from the batch of 2000.



At IIM B, BITSians are all over the place. There are 21 BITSians in the first year- from the batches of 1996-2005. IIM C has four BITSians in the first year and only one in the second year.

The number of BITSians at XLRI seems to be growing steadily. From none in 2003, there were two in 2004 and this year there are four, one from 97 batch, two each from the 99 and 2000 batches and one from the 2001 batch. It can be odd when

your junior at BITS is your senior here!

ISB also is attracting a lot of BITSian talent lately. This year, its one-year PG programme has ten from the desert. It is possibly

the only top b-school to have married BITSians in class.

So what really is the transition to a b-school student like? One major issue every BITSian faces is the attendance. From a life of late mornings (who attended

those common hours anyway?), sleepy afternoons and zero percent attendance, B-school life is a rude wake-up call.

According to this author the 90 minute long classes were the most difficult to digest- even worse than the late night ones. Life at Pilani has sure spoiled us rotten.

BITSians don't really hang out together in these schools. For one, most don't have the time. Another reason is we are a breed of people who easily gel in with other groups of people - so we



## **BITS & B-school**

*A recipe for business success*

CVL Srinivas, Managing Director of Maxus India, manages the agency's operations across the Asia-Pacific. A mechanical engineer from BITS, Pilani, with a management degree from XLRI, Srinivas took charge of Maxus India early 2004. Prior to heading Maxus, Srinivas was the COO, north & south at Madison Media – an agency he joined in mid-1998.

He was part of the start-up team that set up Fulcrum in 1995, and spent a year before that at Lowe (then Lintas) working largely on brand Brooke Bond. Maxus is the media-buying arm of the WPP Group and its blue-chip clients in India included Titan, Britannia, Hero Honda, Hutch, and Walt Disney.

don't really see the need of hanging out together. "Some of them I don't see them for days. It's a tough place and offers people no time for such gatherings" says Kartik Laxman, PGDBM Batch of 2007 at IIM A. But, of course, there are always the few moments when everyone just comes together for a few minutes of Pilani 'psenti'. At a recently held XL-IIMC



(L to R) Rajesh (IIMC), Sandeep (XLRI), Vikram (IIMC) and Sandhya (XLRI), BITS' 99, came together at the XLRI-IIMC meet this year.

meet in Kolkata, BITSians who had never met at Pilani warmed up to reminisce days from college. While the background reverberated with slogans against each other's B-schools, BITS laccha happened with full gusto.

The hectic life maybe another issue that can be a little difficult to take. In one term of three months we do the amount of work which is done in two years at BITS. Projects, case studies, assignments, and submission keep us perennially running from the group to the professor to the printer and all the way back. At ISB things only get worse- the whole two year course being compressed to one. 'But then we party hard too – with professional DJs and a lot of booze!' says Raghini Rajaram (PGP Batch of 2006 at ISB). At XLRI too partying is taken very seriously. Called 'wet nites', they happen the night before every national holiday and last till 6 am. In that aspect XLRI among IIMs is a lot like BITS among IITs.

BITSians also tend to participate a lot in non-academic activities. There is usually at least one BITSian who holds a significant post in most of these schools. They pass on games of purely BITSian culture like 'Beg, Borrow, Steal' and are often found at the helm of organizing events. At times even the sacred BITSian lingo is passed along packaged with the Pilani culture. The quizzing scenes at ISB and XLRI are dominated by Ramkrishnan (Batch of 2006-PGP) and Lalith Krishnan (Batch of 2006-PGDBM and BOB 2002) respectively. We seem to lead the pack in theatre too. At XLRI, three ex-EDC members are planning to do a play they acted in while at Pilani.

## **OTHER HARD-HITTING REALITIES**

The mess food at B-schools is much better say some while the others still swear by Sharma's, Nagarji's and Sunday special grubs. Hardly anyone has seen the breakfast table at their B-schools and the most missed

dishes seem to be *kela rabdi* and *dahi vada*.

The B-schools have relatively less number of students. While the IIMs have about 400 in each batch, XLRI has just 180. As a result of the various group projects and team presentations, there is a lot of interaction among the students in each batch. On a lighter vein – according to the BITSian guys at ISB, the girls are better looking there than at BITS. A view shared by men at XLRI too. “The choice is much better here

though the numbers are small – maybe it’s the more equal distribution” smiles Sandeep (Batch of 2007 –PGDBM). Some others beg to differ. “Only in IIMC did I realized the value of BITS girls” says Gaurav Shah (Batch of 2003 PGDBM) with a distinct sigh. The BITSian women at these schools don’t seem to have an opinion on this topic but I’m told that they keep a good distance from the BITSian men whenever possible!.

The big question at the end of the article – would these MBA grads prefer to call themselves BITSians first or by the names of these prestigious B-schools? Some paused and thought for seconds, some gave confused smiles and some rolled their eyes and looked at the ceiling. Then, after a few seconds, they all came up with the same answer- you can take someone out of Pilani but you cant take Pilani out of them.



### Life and work at IIMB – by Madhurjya Bannerjee ('01 Instru)

The transition from BITS Pilani to IIM Bangalore was never expected to be a cakewalk. But neither did I realize that it'll be one of the toughest in my life. After all, how different could it be? I never knew that I was to face the biggest culture shock of my life.

The difference in the lifestyles at the two places is immense. First shock was the attendance. After four years in Pilani when you suddenly realize that this time your grades also depend on your attendance, things begin to seem scary.

The difference does not end there. The workload is something we haven't faced even in our CDC year. The last month of the CDC semesters were always hectic with innumerable assignments, but that is the norm of life at an IIM. Deadlines come at all odd hours and here unfortunately they are absolutely non-negotiable. Professionalism is the buzz word and they begin with punctuality. And no one dares break the rule here for there is no second chance to rectify a mistake. Only the 'learning'; so as not to repeat it again.

A huge difference is perhaps in the approach towards extra-curricular activities. IIM B perhaps boasts of the greatest thrust in extra curricular activities amongst the Big Three in the Indian Management Education. But the working here is starkly dissimilar to the way departments and clubs function at Pilani. At Pilani, I have seen students miss their classes in order to complete the work at the department. I would not say that I support it but definitely no one can deny the effect of the element called 'heart' in the way things function at Pilani. At the IIMs you see cool, efficient 'managerial' organizational skills. The time management is the first major achievement that a BITSian can learn here. Things get done and all glitches are smoothed out as efficiently as possible. But somewhere, the magic of working night after night at SUB seems to be missing.

The way the courses are handled is a study in contrast by itself. The importance is on the application of what we learn rather than what we can recollect from text books. The tutorials conducted by senior students are used to take care of all the questions that one might have regarding specific portions of the course. The effectiveness of the tutorials is any day better than the ones held at graduate schools across the country. But one thing becomes clear as the trimester draws to a close. The only reason that today we can say that we'll survive the grind of a B-school is because at BITS Pilani we have learnt how to face any kind of adversity that might come our way.

BOOK REVIEW BY PRASENJIT CHAUDHURI ('84 CHEM)

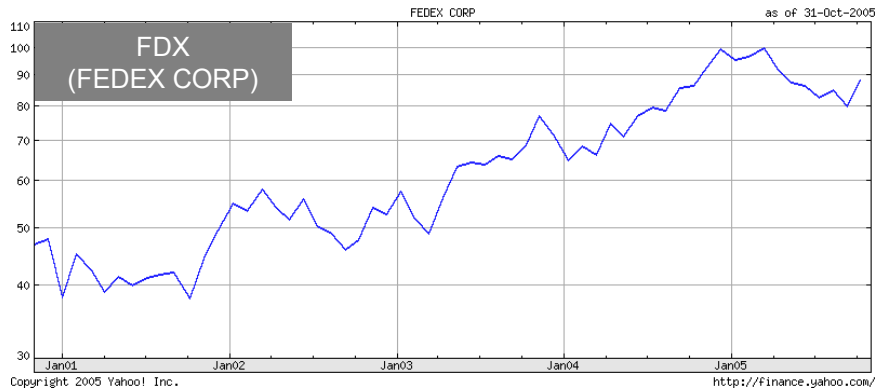
## Fedex Delivers

How the World's leading shipping company keeps innovating and outperforming the competition.

Warren Bennis, Dorothy Hutton, Clay Christensen, Prahalad and Hamel have written volumes in papers and books about innovation, leadership, managing change, and customer orientation. As a BITS alumni, its therefore easy to pass up on newly published pulp, that appear to recycle yet another human resource concept or a management methodology lined with consultant-speak.

As an insider at FedEx since its early founding days however, Madan Birla (BITS batch of 1966) had a unique opportunity to experience first-hand what one normally learns from management books or business school cases. His recently published book "*FedEx Delivers*" became more valuable as I discovered he was a part of the same arena where the ideas in his book played out, this arena happened to be one of the most successful and innovative companies in the world, and that stuff found in business books are written not by insider veterans but by external observers paid for their efforts.

**High-IQ employees don't add up to become a high-IQ company.** Its common knowledge today that the smartest people gravitate towards companies that offer them the best challenges, not necessarily the biggest pay-packet. There is no better place to observe this in real-time than the stretch of land between San Jose & San Francisco, we like to call Silicon Valley.



Frequently the most innovative and successful companies run out of steam and leadership inspiration, and turn into also-rans. And all too often, bright innovative minds that followed the inspiration of their leaders into the company now follow the pied-piper out towards the next new thing.

Aggressive companies looking to survive without an inspired leader rush to implement innovation by rote, turning ideas of vision and leadership into topics for cocktail conversations and words to embellish annual reports, than to build long-lasting enterprises.

The good news about innovative companies is that they always grow and thrive. But the bad news is that uninspired companies don't simply die and fade away. They continue to linger on for years (consuming scarce financial resources best allocated to new innovative ideas and inspired leaders), until they are euthanized via liquidation, a bankruptcy proceeding or sell-off at bargain basement prices to salvage any remaining useful assets. Does anyone remember Polaroid and Xerox as industry-leaders?

### **How did FedEx sustain its long innings of leadership and innovation?**

To start with, Fred Smith (he founded the FedEx business from concepts developed in his Yale project thesis) continues his commitment to sustain FedEx's success and culture even after 25 years. It was after all his own idea that gave birth to a new industry. Yet he could have cashed out his billions at any time over the period. Having proven that his model for operational excellence works, Fred left day-to-day management to his team, and chose to focus on ensuring ways to make FedEx continues to lead its field. Strains of this attitude are reminiscent of founders at many successful mature organizations – Microsoft & Wal-Mart, and more recently – Dell & Infosys.

**"Moment of truth" ...is being face-to-face with a satisfied customer.** All FedEx employee checks have a phrase printed on their backs – "a satisfied customer made this possible".



FedEx used this to focus its ship towards the high goal -100% customer satisfaction after every interaction & transaction, and 100% service performance within the time commitment for the service selected by the customer. Some of this came from the realm of Six-Sigma practices where a 99% service level would have resulted in only about 95% of customers receiving their packages on time. With three million packages flowing through the system every night, 99% would leave 30,000 unhappy customers everyday.

Perhaps the best tribute to FedEx was paid in an inspired line from the movie *The Runaway Bride* – “wherever she’s going, she will be there by 10:30 AM tomorrow morning” – Julia Roberts hitched a getaway ride on a FedEx van.

***The five dimensions of an innovation culture.*** Madan Birla’s thesis identifies five stages that characterize organizations with an innovation gene, and five leadership responsibilities to build them as well.

***Stage 1 – Engaged people:*** Employees want to be valued members of a winning team on a mission to make things happen. Leaders need to support this by involving people and helping them understand issues such as “what is my business strategy?; “how do I relate this to my area of work?; “what’s in it for me?; etc

***Stage 2 – Growing people:*** Solutions derived from thought processes that the mind has used for years are unlikely to help create solutions to new problems. New connections are required for out-of-the-box thinking by making new

conceptual connections. Sensitive leaders bring in new skill-sets to a team charged with an objective that expands the knowledge base and ability of the group as a whole.

***Stage 3 – Secure people:*** Secure persona better handle rejection of their ideas at work because they are not dependent on a career as the only source of self-esteem. Development of loving relationships, spiritual life, and supportive social networks help in the process. Similar ideas have also been reiterated by gurus such as Stephen Covey earlier.

***Stage 4 – Collaborative people:*** A collaborative environment ensures that individual knowledge bases are pooled into a comprehensive organizational knowledge repository. Ofcourse the biggest blocks to this effort are the egos and organizational reward systems that reinforce a silo-mentality in managers’ minds. See below for more about how companies are using new technologies to break these silos and enable collaboration.

***Stage 5 – Committed people:*** People involved in accepting and developing the idea will be naturally excited about implementing the change. Others kept outside the planning loop will be frightened and resistant on a personal level, undermining all change efforts. *This reality has spawned a new industry in “change-management consulting”.*

***Where do we go from here?*** Madan Birla delves into many practices to ensure employees are eager and challenged to be innovative. He was directly involved at FedEx in creating many new practices such as -

***Rewards and culture:*** Having the right set of rewards and

culture to support and nurture innovation. He provides several techniques to develop this.

***Write a corporate Permission Statement, not a mission statement.*** A set of principles-some articulated some tacit-that allows people to act on their own for the good of the company. It is vital that employees feel secure in expressing their ideas. Managers must in turn feel secure in accepting new and unfamiliar ideas, especially if the ideas expressed are different from theirs.

***Celebrate failed projects.*** Let employees know that you fully embrace the potential for failure as part of innovation. When failures occur, managers in innovative organizations applaud the initiative and focus on what was learnt, instead of casting blame.

***Enforce enterprise-wide collaborations.*** Given our history of evolution in the cubicle culture, tossing responsibility over the wall has been programmed in our DNA. Collaboration is therefore easier said than done. However, new practices and use of the newer emerging technologies bring this closer to reality.

***Where are the new enterprise technologies taking us?***

Because the growth and productivity of organizations are more dependent than ever on effectiveness of human performance, corporations choosing to ignore this do so at a cost to themselves. The new business measures to replace return-on-assets are *Return-on-Ideas-&-Innovation; Return-on-Initiative; and Return-on-Interpersonal-Relationships*. Its possible to measure these today, and new emerging enterprise

## Business & Strategy

technologies are embedding this into their newest products. Here's a sampling of a few: *NetMeeting & Go-to Meeting*: Leave the peanuts and unpalatable airline food to wide-eyed tourists. Tired business folks are meeting online, making decisions online, even dating online.

*Social Networks Analysis* : Often the contact sport of choice for top executives and salespeople, its now the turn of product designers, simulation modelers, R&D white-coats, network-hackers and the procurement and recruiting departments to enter the game. "I know something, or I know someone who knows something". Companies track social networks (on *Orkut* and *Ryze*) developed by employees and how they bring these to bear on problem-solving teams and skunk-works. Value is placed on employees forming the highest quality professional networks, while easing out those spending time exchanging knitting-designs online.

*Virtual Design*: Large product firms with distributed global design operations no longer have the luxury to fly in teams for weeks to connect design components of their concept cars and create the latest prototype. They see each other on a whiteboard window across 11 time zones, and walk around their concept product in a virtual-reality theater often reaching out

deep into it to make adjustments, virtually.

**Epilogue:** I recently asked Madan a few questions of my own to better understand his favorite company. Here is an extract.

*Fred Smith (the founder) still works at FedEx. What are your thoughts on the effectiveness of succession planning at FedEx?* FedEx has a strong promotion-from-within policy. Most of the senior management (as I mentioned in the book) started their career sorting packages or entry level professionals. FedEx Corp is a holding company managing 4 Operating Companies. There is a rich pool of talent and there are often management transfers between Operating Companies, e.g., the Chief Operating Officer of FedEx Kinkos was a Senior Vice President in FedEx Express.

*"How did the dot-com era influence FedEx's view of the business environment?"*

The dot com played a very positive and powerful role in expansion of business in FedEx. The Home Delivery Service was specifically put in place for Internet shipments. The FedEx Web site was expanded globally to make it easier to do business with FedEx. Of course, lots of internal processes were streamlined and automated using the web.

*Tell me about your best*

*memories at BITS, and how did it influence your life?*

The single most positive BITS experience that helped on day one in the US and continues to help even today was the study habits / academic requirements, (preparing for the second year exams meant refreshing the first year material also; the final year exams meant reviewing all five years' material. After that (grind,) going to the graduate school in US was a breeze, just studying for mid-semester exams. The other positive experience was the value of 'shared experiences' in building close relationships.

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*Madan Birla (1966 batch) completed his Mech. Engg. at BITS Pilani. He went to the Illinois Institute of Technology (IIT) Chicago for his MS in Industrial Engg. While working for RCA he continued graduate work in Business at Butler University. He moved to Memphis to join FedEx, and also added a MS degree in Counseling from the Univ. of Memphis under his belt. He is a recipient of the the highest recognition for Leadership Excellence at FedEx. Madan is available to speak at executive forums and reached at mbirla@earthlink.net. "FedEx Delivers" is available online at Amazon.com (Hardcover: 215 pages; John Wiley & Sons; June 10, 2005).*



BY USHA RAJAGOPALAN

# The Writer's Market

A guide for aspiring authors on how to get their works – books, articles, plays, poetry, short stories etc. published...an excerpt from Usha's book, 'Get published!'

Creative writing has always been an unpredictable profession. The uncertainty lies as much in the writer's faith in his or her continued ability to write as in the reception from a publisher to what he/she has written. We have heard, tales of writers whose piles of rejection slips are higher than their piles of manuscript. Then there are also the success stories of those who hit the bull's eye with the very first novel. We hear about publishers clamouring for the manuscript and offering millions as advance. Examples of these are far too well known to be repeated here. The figures that are quoted by way of royalties, film rights, etc., are mind-boggling and would tempt most people to throw their hats in the ring.

There is no formula to write a masterpiece but it is possible to offer some tips on how to ensure that your typescript does not find its way to the editor's dustbin. The secret lies in the work that you do after the writing. If, for instance, you have written an article or a short story, study a few recent copies of the magazine that you would like to send it to. See what kind of material they publish. Does your writing match theirs or is it better? Are they likely to be interested in your subject? There is no point at all in sending a powerful feminist story to a conservative magazine. You will only be wasting precious postage and time that it will take for your story to come back.

(Sometimes it won't. Some editors do not bother to respond even after one has enclosed the all-important SASE-Self Addressed Stamped Envelope. When you don't get an answer in spite of many reminders, the only alternative is to fish out another copy of your piece and try your luck with another editor, keeping your fingers crossed.)

Uncertainty is the name of the game. Only the strong can survive in this field. If you are the sensitive, delicate, nervous or weak-at-heart type then creative writing is not for you. Not if you want to publish your work. Scribbling in a diary will do no one any harm and your ego will remain intact. The moment you are willing to show your writing to someone, even your best friend, you should be prepared for criticism. If you want to succeed as a writer then you need to develop a thick skin and the ability to remain unruffled by rejection slips; be optimistic to carry on writing despite all odds; be egoistic and tell yourself that your writing is good enough to be read by an editor (if you are beset by doubts about what you have written you will never send it out!); but also develop the humility to think that you can improve as a writer and learn from the works of the masters; be hard to please about the quality of your work; be ambitious; and above all, be disciplined enough to write something everyday even if you

have to erase whatever you had written the previous day. Unlike other careers it is not easy to make a living as a full-time creative writer, at least not in our country and not till you produce that phenomenal bestseller or have a syndicated column in a few leading newspapers. To be able to find a publisher willing to take on your manuscript or an editor willing to support your regular column you need to establish yourself as a writer first. A situation more vexing than the chicken and egg problem.

Publishing is a business like any other. The publisher will obviously be interested in keeping the maximum profit possible from a book to himself since his firm depends on the income generated from publishing. At the same time, he cannot survive without the author. Royalties vary from publisher to publisher, and may be paid on net prices (published price minus discount) or published prices. The writer may get anything from 10 or 7.5 per cent of the net or published price on books sold though some publishers offer a lower percentage to first-time writers. If the cost of a book is Rs 100, as its author you may get Rs 10 from each book sold. If the bookseller was able to sell 1000 copies of your book then you will get Rs 10 x 1000, i.e. Rs 10,000. The rest of the amount, i.e. 90 per cent (or more) is shared between the publisher who has spent his money on



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producing the book and the bookseller who is responsible for effecting the sales. The process of book publishing involves you, as the author, the publisher and the bookseller. Publications such as newspapers and journals have different rates for contributors. Two short stories of similar length may not fetch you the same amount from two magazines. The effort should obviously be to get the maximum for your work. One freelancer I know has her own ranking for the newspapers that she writes for based on what they pay. A prolific 'middler', she sends one first to the newspaper that pays the most; when it is rejected she sends it to the second paper and then the third and so on till almost all her middle column articles have been carried by some newspaper or the other! The only exceptions are those which she feels are 'really not good enough'.

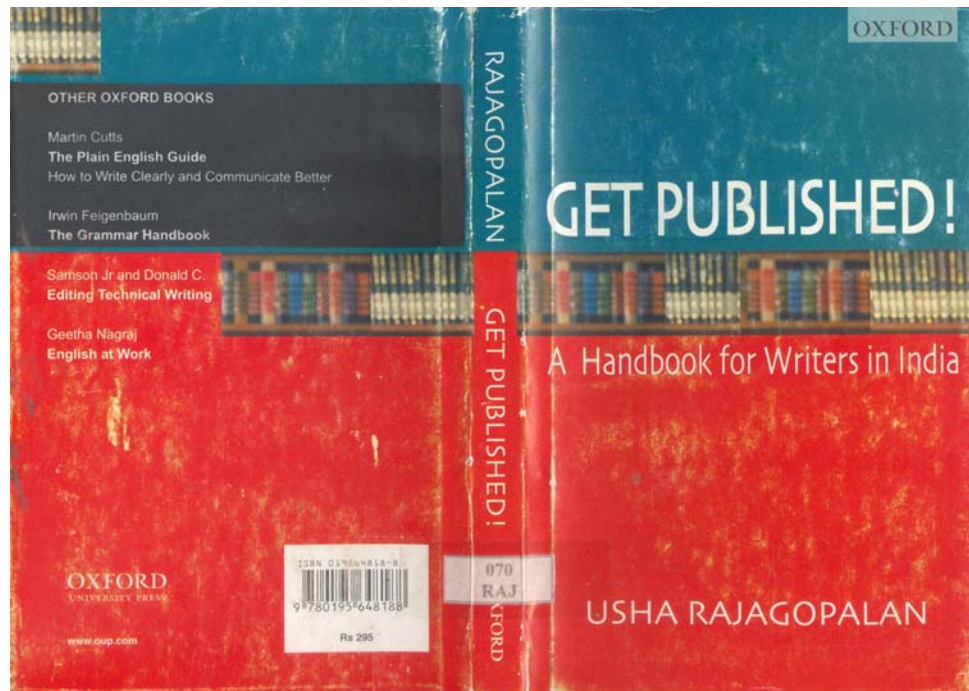
Another lesson to be learnt from my friend is to be honest enough to realize and accept when your writing is 'really not good'. It is often difficult though not impossible to be able to assess your own work. If you are truly honest, you will read your work as if someone else has written it and feel free to criticize, think of how to improve it, what to change, what to delete and what to add. Ultimately, your writing should satisfy you, the critic. Initially though, this will be difficult and it maybe more practical for you to get someone (whose impartial opinion you value) to read what you have

written and give an honest appraisal. Think twice before you approach an established author for this task. Without doubt they will be extremely busy with their own work and will not want to spare time to vet the maiden effort of someone they don't even know. If, by some freak chance, you have written on the very plot that the author was contemplating then it can turn to be a potentially embarrassing situation.

Writers are touchy people and editors, even more so. You obviously cannot mail any trash to an editor hoping that s/he will accept it but, at the same time, if your contribution appears to be reasonably good then there is no reason for you to hold on to it. Quite often, a beginner is too harsh on himself. By this you are only denying yourself the chance to see your name in print for it is likely that the editor was looking for just the kind of article you did not send! Does this mean that luck is a factor I have omitted in my list? Yes, because luck has as much or as

little a role to play in creative writing as it has in any other profession. An actor may get a lucky break in films but a writer has to write in order to succeed. Indeed, more than luck, perseverance and discipline are the virtues that cannot be overemphasized for a writer. Without a typescript or at least a book proposal, you cannot even approach an editor or publisher.

However strong your belief that your colleague got his or her book published thanks to an uncle who knows the editor's grandfather, the truth is : good writing will get noticed and accepted. It is really a question of finding the right publisher. The difference between you and your friend is probably that of time taken to locate one. Diligent research and lots of patience will help. One of the first requisites for a writer is not to wait for that divine moment of inspiration. It is possible that a stray remark overheard in a crowded bus stand could trigger off a chain of thought resulting in a brilliant





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short story but if you hover hopefully around large groups of people you are merely wasting your time. The only alternative is to approach this task of creation methodically, at and for a certain time everyday and attempt to write something even if you feel that your mind is a total blank. It is this discipline together with ruthless revision and craftsmanship which produces that one good piece of writing out of a worthless pile of junk. Inspiration may work-but not always and not for everyone.

Another friend is convinced that if he ever got the time he could write a novel to beat all other contemporary novels. This is like saying that you will bathe in the sea when the waves have ceased. All of us have to play different roles at the same time; that of a writer will just have to be fitted in somehow. Gurcharan Das, before switching to full-time writing, was a very dynamic, high-profile executive and a successful playwright (of course, he has also written a novel and many articles!). Shobha De is a mother of six and has a line of best-selling novels to her credit. Sitakant Mahapatra and Upamanyu Chatterjee are busy bureaucrats and prolific writers. Girish Karnad's achievements are too diverse and many to be listed here.

If you want to turn professional or earn your livelihood from writing, it may be necessary for you to branch into more kinds of writing than just one. However versatile you may be, it may still be a good idea to work in a regular job for a while and build up a bank account before turning to full-time writing. Writing in some genres, in fact, may not even be easily accepted by a publisher. Poetry is one such.

Triumph, for a poet as indeed for any writer, is publishing his first book. But, though there may be many poets in our midst, there are few publishers willing to spend money on a collection of poems. This is ironic, considering that poetry is read and written by a wide spectrum of people-from prime ministers to beauty queens. School children may balk at writing the mandatory essay but not verse. If your intent is to publish individual poems then there are more than enough avenues. Sunday newspaper supplements and general interest magazines devote some space for poems. My research revealed that poetry magazines far outnumber any other form, except those catering to general interest. Getting your poems published in these should go a long way in boosting your morale though it will not line your pocket. The idea that poetry will not sell does not match the presence of so many poetry journals. It is true that most of them have a small readership but a very committed and interested one. This is one of the unexplained paradoxes of Indian publishing.

Short story collections stand a much better chance than poetry. Several leading publishers such as HarperCollins and Disha (an unit of Orient Longman) take on short fiction. There are many periodicals too that carry fiction regularly. Katha encourages the writing of quality fiction through their annual search for excellent short stories both in regional languages as well as in English. The other reputed anthologies such as Civil Lines and Namaste are erratic. The Gentleman collection brought out by Sterling Newspapers Pvt. Ltd. is a comparative newcomer but one to be taken seriously by a short story writer.

Screenplay writing is a more difficult field, particularly for an Indian English writer. The problem is compounded by acute shortage of avenues. The television boom has inspired hacks by the dozen as is evident in the quality of the programmes. Almost all programmes in our country are in regional languages and English has little or no chance at all. This is what makes screenplay writing even more challenging: to be able to write a script that will win over a producer, and to write that unique screenplay which will test the skills of the director and the actors. If you can do this, you will be encouraged by the ever-so-slight change in the trend for the big and small screens. We do have an occasional soap opera in English and bilingual movies with an international cast.

The theatre is more welcoming. Compared to other genres of writing, Indian English drama is not as well developed but it has grown from the nascent to the budding stage. A few writers like Mahesh Dattani and Manjula Padmanabhan have carved a niche for themselves as professional Indian English playwrights. The latter hit the headlines by winning the prestigious first Onassis International Cultural Competitions Award for Theatrical Plays in 1997. Two other playwrights, Dina Mehta and Abhijat Joshi, have won the first prize in the BBC's international competition for the best radio plays. Within the country, regional language theatres may attract packed houses but there is an unequivocal (and growing) place for theatrical pieces written originally in English. The scope for these plays is expanding and

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now it is up to writers themselves to take up the challenge and write better and meaningful plays for the more receptive audiences. To quote Dattani, 'There is a necessity for more playwrights operating in the English language to express themselves through the theatre.' English in India (and in many other countries as well) is no longer the 'foreign' language that opened doors. More and more speakers consider English their mother tongue in addition to one or two regional languages. With a greater number of people turning to writing in an English that is specially theirs, of an experience that is universal, the result will be 'a version of the English language that is as unique and potent as American or Australian or Afro-Caribbean English,' says Dattani.

This is not to imply that English is the only language flourishing in our country. Not at all. Writing in regional languages attracts a greater number of readers now than ever before. They not only want to read what is written in their own language, either in the original script or in translation but also masterpieces in other languages. This has led to a spurt in the volume and quality of translations. The apparently insatiable demand

from publishing houses and readers indicates the gold mine in regional

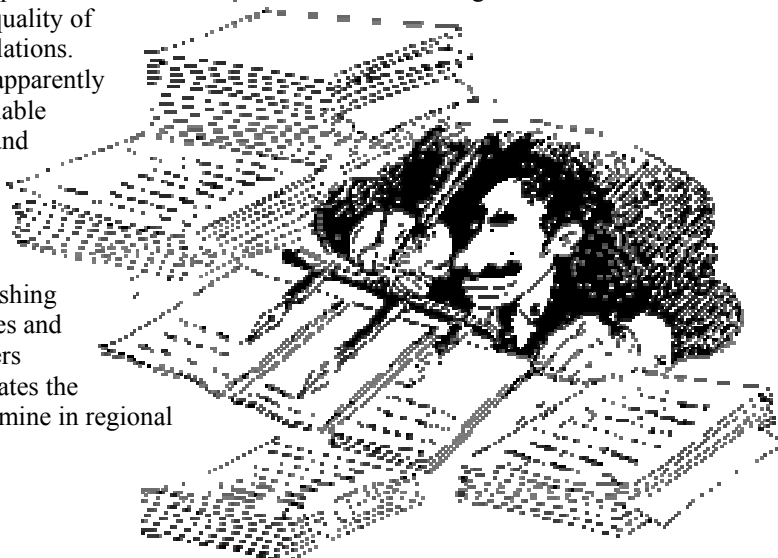
language literature. In the words of Professor Satchidanandan, Secretary, Sahitya Akademi, "Indian English writing alone cannot cater to the needs of the book market in India nor satisfy the sensibility of the Indian readers of books in English. There is also an increasing awareness of the literary value of writing in the languages that reflects Indian life in its real depth and variety." In fact, the days when one took pride in knowing only English are over. In the coming years it may even be important for an Indian English writer to have the same command and depth in at least one regional language. This enables one to have access to the best of two worlds, two cultures.

A good translation brings out the essence of the original language in addition to the meaning. What the reader is looking for is not just the framework of a story or the gist of a poem but the feeling of words, their nuances and myriad associations. Although this may sound strange, in the final analysis, the job of the translator is probably more crucial than that of the writer. The task of bringing a work to life in another language is daunting because the translator

must also inspire, according to Professor Satchidanandan, "... a whole new generation of urban readers who have by circumstances been deprived of their languages and would like to be acquainted with their literatures." It is not just urban readers within the country who seek this 'acquaintance' but also readers abroad to whom people like Arundhati Roy or Manjula Padmanabhan are only representatives of a rich native culture and literature.

In the pages that follow, several well-known authors have talked about how they go about this all-important task of writing. Remember that even the best advice will remain mere words on paper unless you are prepared to act on it. One cannot be called a writer till one begins to write and keeps writing.

*From Get Published! (Oxford Univ. Press, 2001). Usha Rajagopalan is a writer and homemaker. After her MA in English Literature from Kerala University, she has worked as radio announcer and programmer, teacher, executive assistant to the Chairman, National Dairy Development Board, editorial assistant, Comparative Indian Literature (a comprehensive work in two volumes) and editor at the Indian Institute of Management, Ahmedabad. She resigned from regular employment in order to bring up her two children and pursue her interest in creative writing.*



BY PRAKASH MANLEY ('98 E&I)

## We who are not as others

The average BITSian is mysterious to say the least... squirms out of bed at 11 AM, oozes into the nearest redi for unhealthy munchies, plays cricket, misses CDC classes, strips for public amusement once every year, smokes, gets sloshed, falls in love too quick, falls out of it faster, gets sloshed some more. It has to be more than just the brand name that motivates this creature to dream so big and achieve so much in the real world.

That day in October '98 when we got our fresher's welcome at Gandhi Bhavan, was the happiest in my life. The freshers from all other Bhavans had officially been declared first yearites a fortnight earlier and we'd just about had it with their paedomorphic rodomontade. My four years of dissipation began that night. It began with room ransacking, followed by an intensely competitive water fight. I understand that some BITSian generations remained uninitiated with the ransacking tradition. It's when the seniors' get together to zap all your 'nerdy' clothes and school supplies on the night of your fresher's welcome (and I, along with at least 80% of you reading this article *were* nerds before BITS).

The next stage of our metamorphosis lasted longer. At that point we enrolled in extra-curricular departments or sports teams to ensure food and freebies during Oasis, APOGEE or BOSM, but without even knowing it, we were entering institutions that were to shape our persona and soft skills over the next few years, through hands on lessons in human behaviour, teamwork, time/money management and leadership. In my opinion, this stage of BITSian metamorphosis is one of the reasons our colleagues

from the IITs do better at research... UNDER BITSian leaders (Anyone from the Bits2school network will vouch for me on this one). From time to time I thought of allowing my academic alter ego some intellectual stimulation, but he, for the major part, suffered malnutrition. I had entered a vicious cycle of extra-curriculars, entertainment, courtship, victuals, and whisky. And by choosing Art-n-Dee / PAP as my department, I had ensured that I got the biggest possible slice of extra-curriculars. When I occasionally paused for a breather amidst this sick cycle carousel, I always wondered what I would be doing in four years' time. This madness has to stop sometime. What happens then??? I carried this concern with me till that immensely hot day in May '02 however, when I graduated and watched 'em shut the door on me.

That year was arguably the worst ever for campus placement featuring the likes of 'Loharu Precision Screws' and many of us second-sem-on folks found our first jobs attending interviews outside BITS. The BITSian fraternity was an immense source of support and encouragement through these trying times. Following this, at our first jobs and grad schools

the occasional insecure desi colleague tried to sequester BITSians and IITians because of an "attitude problem" he/she had found us to display. I don't know how many of you have been marginalized in this way but I think we might be treated this way because we are naturally more self-assured and confident, and sometimes this tends to get across as arrogance. Personally, my self-assurance comes from knowing that I can survive anything if I've survived a proper fresher's period at Pilani and not squealed. I recently got together with some wingies of mine. I hadn't met some of them since May 2001. Now most of you will agree that in the years since graduating from Pilani, you mellowed out a little... Stopped using the %&#\* as frequently, at least. I'm guilty of the same. Yet, when a bunch of bums who together lifted an inter-wing QT cricket tournament under floodlights six years ago get together in a remote old cabin in the Shenandoah Valley, sanity is severely compromised. We sang, we swore, we *laccha*-ed, we barbequed, we played cricket, and we '*combined-crash*'ed. A CC, where I live now, is mistaken for a gay gangbang, but this has to be one of the stronger BITSian traditions, especially practiced

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before tests, or in the Controlz and Rec 'n Acc booths and in Artndee's M17 during Oasis and APOGEE. Some of my more famous D's came about following a night-out session before a winter test-series that first took me to ANC, and then transformed into a CC. But before I digress further, I must mention that a BITSian reunion of this kind (when you're still lucky enough to be bachelors) is really good for the soul and I would highly recommend it.

There are so many great stories you tend to forget if not refreshed periodically, like my CoStAA body meeting with our beloved GSu who blew a fuse when we suggested screening LD movies to raise funds for APOGEE '01. He strongly suggested that we CoStAAns get our behinds on the BITS cable channel and do a cabaret instead. I always admired him for making a single-handed effort at restricting a belligerent bunch of BITSians. Though we

were going with the flow then, and didn't want to break the tradition of screening LD movies at the auditorium, quiet retrospective thought tells me that *'American Pie'* and *'Wild Things'* had no business echoing down those Hallowed Halls during a nationally acclaimed *'Academic'* festival. The other story we refreshed in vivid detail at this particular get-together of ours was one of the worst executed Bhavan's nights any of you have ever seen... Gandhi night '99 (*'Saturnalia... Beauty amidst Chaos'* it pleased us to call it). Now, I'm not being entirely disloyal... We had a smashing stage and backdrop and a terrific common room entrance, but when our first program began, one Bhavan senior stepped up to me and said

(I'll probably remember these words for as long as I live), "Machaan, I don't know how to tell your buddies this, but it's not very cool to rehearse on stage during the actual program".

My befuddled response was "Ooo aah... They aren't rehearsing, umm... 'tis the real thing we're seein". He said "Oh! uhh... wokay" before he skedaddled out of the Bhavan to save his dignity. This goes to all the '98 batch folks who lived in MB, Shankar, Vyas, Krishna, Ram or wherever in the 1998-99 academic year... You will all forever be undecided on which of your Bhavan's nights was the best that year, but we at Gandhi will confidently tell you that ours *was* the worst ever, and we are proud of it. We even have far more memories of it so there.

Each of us has actively participated in organizational activities whether it was Bhavan's night or Music night, Sangamam, BOSM, Interface, Oasis or APOGEE. I have discussed this with several batch-mates and other BITSians who graduated recently (class of 2002 and later), and many think what they have seen of the corporate world is on the same lines as what we experienced at Pilani. I always liked to think of BITS as a cocoon, or a play school, where we were delivered a lot of life lessons in a comfortable, friendly setting.



Prakash Manley & Co. during their *laccha* session

Like we'd been given play money and asked to do small tasks that are represented in real-life at a much larger scale. There were no real dangers if you made a mistake... If you were fired from a post, your life didn't come crashing down; if you were incompetent, the worst that could happen to you was verbal mayhem at GSu's office; apart from it all, you had a lot of fun learning. Please feel free to correct me if I'm wrong, but my opinion is that the soundest principles we maintain in our lives are from lessons we enjoyed learning, or had hands on experience with. This may be why many of us have better human skills than Mech. Sol fundamentals, and it seems logical to me that once a person has developed the core of a good human being, he can add on other functions with relative ease, and is better equipped overall, to handle the hurdles of a world that's predominantly human.

◆  
*Prakash can be reached at [maverick\\_manley@yahoo.com](mailto:maverick_manley@yahoo.com)*



BY **BUVANA DAYANANDAN ('86 MMS)**

# Confessions of a BITSian Woman

Tips from a BITSian on making one's career work while striking a work-personal life balance.

My name is **Buvana Dayanandan** and I am a 34 year old woman with a wonderful family and 2 beautiful children - 5 and 2. The past five years of my life have primarily been about being a mom. I am sure many women of my age can relate to that. Prior to having kids, I had a flourishing career in a consulting firm specializing in projects for Wall Street firms where I grew from being a Consultant to a Technical Services/Business development Manager with a portfolio of engagements at JP Morgan, JW Seligman, AIG, Chase etc. Subsequent to that, I made a conscious choice of taking a slow-down in my career upon having the kids, as well as moving to the West Coast owing to my husband's (also an BITSIAN) job at Juniper Networks. Through all these life changes I had consciously put my career in the back burner, and took some consulting assignments at Cisco Systems, a very family friendly place - working from home, flexible timings etc.

I don't regret my choices one bit. However, now that the child bearing years are behind me, my hunger and passion for self growth and achievement come back at me with a fury. Now, I am a full time employee at a high tech firm trying to make a mark and perform roles that are strategic and progressive. It is not easy, with the kids. The balance between trying to be 100% at work and giving 100% as a mom is not easy to achieve.



Day by day, I evaluate my performance in each of these areas and some days I can say I did wonderfully and some days terrible at both. But these are some of the realities of life. Interestingly, I did try to be a stay-at-home mom but found that it was not for me. So, for all those young women out there- especially from BITS, we know we are as good as other men (and women) in their undisrupted careers.

How do I make it work? I work a relatively short day at work- 9 to 6 and then catch up on some more work after the kids go to sleep. I have also hired a nanny to help me with the pick up of the kids from school and hence allowing me to be late at work if there is a need to be on-site. My husband and I stagger our work timings, I try to leave early so that he can drop the kids at school and I come home to

feed them dinner while he is working late at work. Bottom line, being the spouse of a working mother, puts pressure on the men folk too. Hence, a very good understanding of roles and responsibilities is imperative to make it work.

Be aware that being a woman does pose some real-life challenges especially with family, children and pure societal pressures.

Here are the key takeaways from my post BITSian life experiences that I would like to share with the women as well as interested men:

- If you have plans for graduate studies, chalk them out clearly and take into consideration things such as education loans etc. It was not financially viable for my family to sponsor my education abroad so I took some education loans.

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- **Clear communication with your family about your plans:** This is so that they can consider those early on. Setting expectations, even with parents, is not a bad idea at all; along the lines of 'I want to work for at least a couple of years before getting married etc.' I do realize that it is not that acceptable for some families that are very conservative. Once you are married, of course, you have to work with your husband about your plans.

- **Communicate your goals:** Hope that he is aware of your long-term goals-career, children etc. and you are jointly planning your goals (just as he should plan his). After all, if your career takes off, he may have to be a househusband taking care of the kids!

- **Be aggressive in your pre-children years:** Then set the stage for cruise control during the childbearing years. Stick with the company that you had been prior to having your children so you could



plateau at that level and take off from there after the child bearing is over.

- **Pick companies carefully:** Try to choose companies around the time you are ready for a family; try to be with a company that is very family friendly. Having said that, now even Management consulting firms such as Booz Allen Hamilton, are known for their women friendly work policies.

### To Dos

- ❑ Make your husband aware of your goals
- ❑ Be aggressive in your pre-children years
- ❑ Know your key values
- ❑ Enlist the help of your spouse from the beginning
- ❑ Pick companies that value work-life balance

- Be clear on a long term strategy and the kind of work that you like to do. It is especially important for women, since if you are like me, who like a sense of achievement both in their career as well as in their family.

- **Know your key values:** Very important – know what motivates you? Don't get swayed by what society expects you to do especially about your being a mother or a woman. As a mother, you will always do the right for your child; be it a stay-at-home or a fulltime working mother. You and only you can know what works best for you.

- **Enlist the help of your spouse from the beginning (before and after kids):** These are changing times with more families where both parents work. We need our husband/significant other's support. After all, child rearing is a responsibility of both parents. We are the first generation of women who have these challenges especially since many of us live abroad and do not have the support structure of parents to help us take care of the kids and realize our professional goals. I have a friend who has her parents living with her and they drive to drop and pick the kids from school and most of us know what a luxury that is and one that most of us don't have. So, for all you men that are reading this article, your support and understanding is paramount to the success of your woman. Behind every successful woman, is a man that helps out and works at making the whole work-life balance viable?

One may ask if that dilutes both parties' abilities to reach further since it is a balancing act. That may be true in the short term. What makes it work is communicating clearly with each other and it's so much about splitting responsibilities 50/50. Life is a relay race where one partner makes up for the other and hopefully, the team wins in the end.

- Above all, realize it is not going to be easy but that you along with your spouse and your support structure (nanny, parents and whoever else) could make it work and make the best out of your situation.

Good luck!

◆  
*Buvana can be reached at  
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BY RAJ R RAO ('88 BIO-CHEM)

## Embryonic Stem Cells: Promises and Challenges

Human embryonic stem cells have garnered a lot of public scrutiny primarily because of their potential for cell-based therapy for alleviation of different diseases. The potential is huge; however, there are enormous challenges for the research community. Interdisciplinary approaches are thus necessary for moving this field forward and for helping prove its potential.



The bioengineering of tissues, now called regenerative medicine, is fast emerging as a science and technology with obvious ethical and moral reasons. The hope is that specialized cell types can be obtained and used to regenerate specific body parts or organs. One of the critical issues is that of cell source and this is where embryonic stem cells are stepping into the limelight.

### EMBRYONIC STEM CELLS

These are cells that are formed in the first few stages after fertilization, from which develop all of the 220 different cell types that constitute the human body. Stem cells are thus *in vitro* equivalents of cells found in the developing embryo and have the capacity to divide indefinitely in a laboratory setting. When subjected to specific cues, they are capable of producing different cell types, and this characteristic is classically defined as 'pluripotency'. In the mouse, these cells have also been shown to produce offspring, experiments that cannot and should not be done in the human

medicine, is fast emerging as a science and technology with obvious ethical and moral reasons.

### THE PROMISE OF STEM CELLS

Stem cells have gained attention primarily because of their potential applications in the treatment of different chronic diseases and possible transplantation options. For example; one can produce neurons that secrete dopamine for use in Parkinson's patients. One can also produce

specialized islet cells for use in diabetic patients. The diseases that can be treated are thus endless. In addition to their proposed use in cell-based therapy, these cells constitute an excellent *in vitro* model system for understanding the first steps in development towards the formation of a human being. This model system also serves in understanding, prevention and treatment of birth defects. Additionally, of specific use in the pharmaceutical industry is the potential for these cells and

#### About Raj Rao

**Dr. Raj Rao** is an Assistant Professor in the Department of Chemical and Life Science Engineering at Virginia Commonwealth University School of Engineering. The work in his laboratory focuses on transcriptional profiling of human embryonic stem cells with the goal of understanding pluripotency, early differentiation and genomic instability. His work deals with the integration of basic stem cell biology and rational engineering design principles towards developing the enabling technologies for stem cell research and applications.

Dr. Rao received a BE(Hons) Chemical Engineering and MSc (Hons) Biological Sciences degree from BITS Pilani (1993), MS in Biotechnology from University of Texas at San Antonio (1996) and PhD in Biological Engineering from the University of Georgia (2001).

More information can be found at [www.egr.vcu.edu/ce/faculty/ce-faculty\\_rao.html](http://www.egr.vcu.edu/ce/faculty/ce-faculty_rao.html)

derivatives to constitute cell-based assays in the identification of drug targets and testing of potential therapeutics.

### THE STEM CELL WISH LIST

For stem cell researchers, there are some key questions that need to be addressed and these can be considered as a stem cell application wish list. Firstly, depending on the application, it is important to make as many cells of the required type as possible. Issues related to scale-up of manufacturing processes and preservation of biological products needs to be addressed. From a therapy perspective, it is important that many of these survive in an *in vivo* setting and more importantly not be subject to any rejection due to the host immune system. It is also important that they are stable in culture and *in vivo*; and once injected into the body, they should continue with the natural differentiation process. From a researcher point of view, it is useful to have a stable funding, ethical and regulatory environment. Lastly and not the

least important wish is that they be safe, when used in therapies.

### FUTURE OF STEM CELL RESEARCH

Recent studies have focused on identifying key genes and molecules that define a stem cell. These will help in not only developing methodologies for maintaining stem cells in their nascent state but also in developing directed differentiation strategies for producing specialized cell types. Numerous studies over the past few years have demonstrated the proof of principle of deriving specialized cell types. An often overlooked area of study is the genetic integrity of embryonic stem cells. It is imperative that this issue is addressed as one cannot use cells that are genetically compromised in any therapeutic setting. Our group, along with others recently published data that highlights the need for preserving the genetic integrity of human embryonic stem cell lines. Interdisciplinary approaches between scientists, clinicians and engineers are thus needed to move this fascinating field

forward. Technical advances in molecular and cell biology, combined with bioinformatics tools is providing opportunities for greater biological knowledge and understanding of stem cells. Simultaneously, advances in biomaterial and bioreactor technologies will aid in promoting applied engineering approaches to meet the needs of cell expansion, while preserving the biological attributes of the desired product.

### LAB RESEARCH

The Stem Cell Bioengineering Laboratory is located in the School of Engineering at Virginia Commonwealth University. Research in my lab is at the interface of biology and engineering, with the goal of developing the enabling technologies for stem cell research. Systems biology approaches are being used to characterize and evaluate stem cells, so that we can develop appropriate step-wise processes for differentiation. Additionally, we work on engineering micro-environments to maintain stem cells or to differentiate them into specialized cell types.



BY KRISHNAN BALASUBRAMANIAN (BITS '78)

## Computational & Mathematical Concepts in Arts & Sciences

Summary of extramural Director's lecture at IIT, Madras Aug 17, 2005

RD Burman's *mere nainaa saavan bhaadon*, sung by Kishore Kumar and a 1982 song *there mere beech main kaisa hai*

*ey Bhandon* from the movie *Ek Dhuje keliy* were both hits of their times and perhaps of all times. Then again, we have the



song *jaane kahaan gae vo din*, 1970 Raj Kapoor's *mera naam joker*. Besides being great hits do they have anything else in



**Krishnan Balasubramanian** (BITS '74) is a senior computational chemist at Lawrence Livermore National Laboratory, a professor emeritus at Arizona State University, an adjunct professor at California State University East Bay and an affiliated scientist of Lawrence Berkeley Laboratory. He received his MSc(hons) from BITS in Dec 1977, a MA and PhD from Johns Hopkins in 1980 and a post-doctoral associate with Lawrence Berkeley national Lab. He has won several honors and awards that include Alfred P. Sloan fellow, Camille & Henry Dreyfus Teacher-Scholar, Fulbright distinguished professor, elected member of International Academy of mathematical chemistry, and Lawrence Livermore exceptional service award. An author of over 500 journal publications and 2 books, Balasubramanian lives in the bay area, CA and enjoys photography, music, poetry, yoga, philosophy and hiking.

For further info, see <http://www.public.asu.edu/~baluk>

common? Well they are all similar in tune or melody, as they have a similar form in some mathematical ways or they all derive from the same Hindustani Raga Shivananjani. When we tune our ears to these songs don't we recognize a pattern or a mathematical form of melody and rhythm? This happens to be the topic of my recent lecture at IIT Madras.

Professor V. Krishnamurthy, retired deputy director and then a professor of mathematics had a strong early influence in shaping my ability to see mathematical and computational concepts in many fields, music, sculptures, movies, religion, Bollywood or Kollywood music to all branches of sciences.

One of the central themes of my IIT lecture was such mathematical and also computational concepts in arts and sciences as the first part of my talk. Quantifying similarity as in patterns of nature is part of non-numerical branches of computational science such as artificial intelligence. The field is not only of aesthetic interest

such as machine or cognitive perception of music but also of pragmatic value such as in the field of computer aided drug discovery and molecular similarity.

Who said aesthetics is only for artists and not scientists or engineers? Is it not amazing that there could be some latent mathematical form in aesthetics? Is it possible that science and arts can really come together? Well a part of my talk at IIT dealt exactly with that- the role of mathematical concepts originating from symmetry, asymmetry and duality with examples of ancient temples of Chola and Pallava of Tamil Nadu to Orissa temples. Consider one of the slides that I used in my presentation shown as Fig 1. This is from Kailasa Nadha temple located in Kancheepuram, a temple town about a 2 hour hop from Chennai. The temple stands out as a monumental piece of

sculptural aesthetics of the Pallava Empire. A recurring mathematical pattern that emerges from many of these temple sculptures is the union of concepts of symmetry, asymmetry and duality. For example there is overall symmetry of the flanking dancers and yet the niches have some asymmetry and duality built into them as if there needs to be a global balance beyond the usual symmetry. By duality I mean on one side you have an image of a young person and the other side an old. Some times you find the image of a demon and the other side an angel. In a more general sense I explored the role of symmetry, asymmetry and duality in India's versatile and rich culture, religion and philosophy. While we understand symmetry in math as invariance under point group operations such as rotation, reflection, inversion, and improper rotation, concept

## Number Theory

All numbers are created equal  
Yet some are more prime.  
But then why some are real  
And others are truly imaginary?

All numbers are created equal  
Yet all numbers are complex.  
But then why some numbers  
Are more rational than others?

All numbers are created equal  
And many numbers are integral  
But then why some are positive  
And others are negative?

All numbers are created equal  
And many numbers have values  
But then why there is a number  
That's zero like an empty tumbler?

Are there equal numbers?  
Or is it only in my slumber  
That I see transcendental numbers  
And the eternal infinity?

of duality will be developed as a juxtaposition of contrasting images, as a flanking or union of images of “demon” and “devil” or “fire” and “water” or “shiva” and “shakthi” so as to bring equilibrium or global symmetry.

Mathematical and computational Ideas were introduced in music Theory using mathematical And computer generation of ragas. A raga as we all know is the Backbone of melody and it is the most fundamental part of Indian music. So how many Ragas are really there? And are there new yet to be discovered Ragas. The answers for these intriguing questions are in combinatorics of raga formation and enumeration. This can be done systematically using polynomial generating functions called raga inventory by considering various kinds of arohan (ascent) and avarohan (descent) The coefficients of various terms in the raga inventory polynomial enumerate the various types and numbers of ragas. Then a computer code was developed to construct various ragas.

Finally it was shown that there are 262,144 non-vakra or non-kinky ragas. This means the ascent and descent have uniformly increasing and decreasing frequencies. We have created a list of such non-kinky ragas. Good news is ragas like shivaranjani, Bhoopali, Malkauns, charukesi, and so on are covered by the enumeration. But still ragas such as darbari Kanada and Sri would not be included as they are vakra ragas.

My lecture then explored quantifying similarity in the context of molecular architecture and drug design.

How does one quantify such a qualitative or aesthetic feature? One way is to develop a set of rules under which two species can be related or even 2 ragas may become related. Once the rules are in place one can define Euclidian types of distances between species or molecules and then use statistical methods such as clustering and principal component analysis.

The lecture showed that interesting amalgamation of concepts from computer science, mathematics, quantum mechanics, and biology could lead to some very unique perspectives. For example, how a complex proteome of a living organism such as rat’s liver cell can be characterized using complex algebra and how we can develop algorithms for characterizing such complex 2d-gel patterns of complex array of thousands of proteins in a cell.

My second and final part of the lecture considered Einstein’s theory of relativity and the nature of chemical bond in very heavy elements and newly discovered superheavy elements. Significant portion of my research deals with applications of relativity to the chemical bonding of molecules containing very heavy atoms. Well, we all heard that all that glitters is not gold, did you ever wonder that gold glitters because of relativity! Yes, you heard it right, but for Prof Einstein the beauty of gold would have been buried into a blackish or silverfish look. The yellow glitter of gold is attributed to relativity due to increased speeds of electrons of the gold atom. As you admire all that glittering golden jewelry, pay a tribute to Einstein for his

landmark papers on relativity. As we keep discovering new elements, many of them yet to be named such as 114 and 115 discovered at Lawrence Livermore National Lab, relativity becomes more and more important as the speeds of electrons of these elements increase resulting in a parabolic relativistic effect as the atomic number increases. I showed some exciting new properties of such very heavy species as a result of relativity.

Look at the breadth of topics that I was able to speak on, aesthetics, sculptures, music, duality, similarity, relativity, quantum mechanics, bioinformatics, and of course quantum chemistry. How in the world did I manage to talk about the theory of Hindustani and Carnatic music to Pallava architecture to relativity to drug design—all in one lecture? As I deeply ponder over this question, I transcend back in time to India, to Pilani and vividly recollect the beautiful Saraswathy Mandir and the BITS clock tower. That is the beauty and versatility of the education that we have received as students of BITS. The greatest boon that one can get to face the modern world filled with such plethora of interdisciplinary topics is truly a multidisciplinary and broad education that Pilani offered to us and continues to offer. I ended my talk with a poem that I published in the Journal of Mathematical Chemistry that summarizes a unique interdisciplinary culture that BITS cultivates.

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# The Quarterly BITSian

BY ANURADHA GUPTA ('86 MMS), K JOSEPH ('74 ECON) AND SHANKAR ANANTHANARAYANAN ('81)

## THE QUARTERLY BITSIAN BITSUNAMI TEAM

Our response to one of nature's biggest calamities – The South Asian Tsunami of December 2004. Our attempt to make a difference in the lives of people in two hard-hit Indian villages.

A lot of people have forgotten the horror of the tsunami but the BITSunami team has been toiling away – even before we chose them as Quarterly BITSians, they have managed to get a lot of media attention including our own cover story in the last issue. Venkat, the Project Coordinator, put it rather succinctly, “Our actions speak for themselves. The extensive media coverage that the project has received in newspapers like the Hindu, Indian Express, I-Newswire and various websites is doing us (BITSians and Alumni) proud.”

### WHAT IS BITSUNAMI?

BITSunami is a BITSAA project that aims at the long-term rehabilitation of two villages, *Naaluvadhpathy* and *Pushpavanam* in the *Nagapattinam* District of Tamil Nadu, India.

After the disastrous tsunami of

December 26, 2004, some members of the BITSAA Chennai chapter met at the office of **Sudeep Jain, IAS** (former collector of *Nagapattinam*, the district worst hit by the tsunami in India, and a BITS alumnus himself) in Chennai.

“Will we be able to raise funds to adopt a few villages? I can take the responsibility of executing the rehabilitation measures, restricted to constructing houses and providing for means of livelihood, like catamarans, fishing nets, etc. Each village will require roughly Rs. 20 lakhs for this basic help.” This was the introspective *modus operandi* proposed to the BITS alumni on the Jan 4<sup>th</sup> 2005 meeting, and the seeds of BITSunami were sown.

The enthusiasm of the BITSAA Chennai chapter and Sudeep's personal commitment to raise local funds and steer the initiative through the

bureaucracy led to the creation of a project report. Funding support emerged from the top corporate organizations including Wipro, HP, WeP, and Infineon. The government formally approved the BITSunami initiative in this development effort. What started as

### The BITSunami Team



**Visionary:** Sudeep Jain IAS ('86 EEE)

#### Trustees:

S C Babu ('73 ME Chemical)  
Ravin Kurian ('81)  
A Shankar ('81)  
K Srikanth ('88 Chemical)  
Joseph Antony K ('74)

#### Executive Committee

Rauf Ali ('72)  
PP Narendran ('85)  
M Subramanian (Civil)  
Rajesh Bhaskar ('90 MMS)  
Bhasker Ayer ('77 MMS)  
Dilip D'Souza ('76 EEE)

#### Project Co-ordinator:

K S Venkateshwaran ('80 Mech/MMS)

#### Advisory Committee

R Nagarajan ('64 Telecomm)  
R Parthasarthy ('86 EEE)

a desire to collect clothes, in the words of **S C Basu**, moved from relief to rehabilitation to sustainable development, and



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Boats built with the fishermen's involvement

The members meet once a week to review the progress of the BITSunami Integrated Development program and to chalk out future plans. Several visits have been made to villages to get a first hand report on the progress.

It was also observed that the girl students invariably dropped out of schools from 8<sup>th</sup> standard onwards due to the lack of

**The 2,54,464 trees planted by the BITSunami trust created a new Guinness World Record for the most trees planted on a single day.**

lead to the formation of the BITSunami Trust.

Galvanized by these efforts, **Vice-Chancellor Dr. Venkateshwaran** urged that the effort be spread over a longer period to facilitate "integrated transformation" of the two villages. He gave real impetus to the initiative by making *Nagapattinam* a Practice School station and BITS, Pilani extended wholehearted support.

## PLAN OF ACTION

BITSunami has charted development plans for every sector of the village economy, starting with sanitation and water supply, and extending to agriculture, fishing, education, et al. These plans will be implemented over a five-year period.

Though BITSunami's formal style of functioning is still emerging, it operates at three levels: Trustees, Executive Committee and Advisory Committee. The Executive Committee is led by **Venkat**, the (outgoing) Project Coordinator (Venkat is leaving for the US after doing some excellent work on this Project and we wish him luck). **Srikanth** tells us that the Committee is working out a model through which it will be able to tap the resources of the alumni as and when they can contribute with their skill-sets.

## ACHIEVEMENTS

For the nine months ending October 2005, the BITSunami team has made considerable progress on a series of fronts and contributed to the overall development of the adopted villages.

1. **Land Reclamation:** 125 acres of agricultural land at Pushpavanam, which were rendered unusable due to the sea muck layer brought in by the *tsunami*, have been cleaned up. This feat was accomplished in less than a fortnight's duration to avoid the onset of showers that would have rendered the entire land unusable.
2. **Boats:** 10 fiber reinforced plastic boats were manufactured by setting up a boat-manufacturing unit at the fishermen's colony at *Pushpavanam*.
3. **Education:** The infrastructure at schools in the two villages was grossly inadequate. The BITSunami project handed over one new school building at *Pushpavanam*, and 39 more classrooms at the other schools are under construction. Desks were arranged for the approximately 1800 students in the 12 schools. Tanks have been constructed, and linked to water sources in all 12 schools.

proper toilet facilities. Toilet Blocks for girl students were constructed in each of the 12 schools in both the villages, while ones for boy students are on their way.

4. **Housing:** Many villagers living along the coast had lost their houses to the fury of the *tsunami*. The BITSunami Trust is constructing 37 houses of 300 square feet each in the village of *Naluvedapathy*.

5. **Plantations:** To decrease the impact of future *tsunamis* thousands of tree saplings were planted in the two villages on the 2<sup>nd</sup> of October 2005. The 2,54,464 trees planted by the BITSunami trust created a new Guinness World Record for the most trees planted on a single



Endowments and scholarships created to motivate students and teachers day.

## ROAD AHEAD

With most of the activity relating to restoration of livelihood having been completed, the BITSunami team is already marching ahead. On the anvil are Village Knowledge



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Centers for both villages that will disseminate valuable information to the villagers. The team is also planning Dairy Farm Units, designed to be alternate livelihood means for the agriculture dependent villagers at the villages. Ideas for the formation of self help groups, creation and management of knowledge centers, institution of scholarships and endowments are been looked at.

### IMPACT

The achievements of the BITSunami team speak for themselves. Wipro, a corporate sponsor, which initially promised 100 lakhs, has now committed 250 lakhs to the initiative. The response of the villagers is overwhelming. Even the BITS Pilani PS program has been transformed forever. Probably for the first time, BITSians are now involving themselves in social sector projects right from their PS days.

According to **R Nagarajan**, a BITSAA Sydney member on the team, "The secret of this excellent progress is the contagious enthusiasm of the core BITSunami team. While visualizing the project and its team I had never dreamt that they would meet every Saturday

without fail for more than 2 hours. Hats off to them!"

**Rauf Ali**, the Yoda of the team with his experience in rural development jokes, "For somebody who has been involved with NGOs for decades, the interesting part is working with a bunch of techie businessmen who come into this world with no background. The perspectives are new and refreshing. Sometimes they cannot understand why biological systems do not respond to management fundas! But BITSunami is a start to something big."

**Dilip D'Souza** and **Anuradha Gupta** are now on the team. Dilip sums up very touchingly, "I don't know of any other alumni effort like this one. This really is a measure of how much the tsunami affected these Chennai folks, how much they wanted to 'do something'. But most of all, how carefully they thought through what it means to 'do something'. Not band aids and then go home but take up the challenge of the long term.



BITS PA 1 Students in a Women's Development Center

Take the building of clean, usable separate toilets for girls, it has a huge pay-off; you keep girls in school longer. Or getting a boat builder to actually set up shop in Pushpavanam right on the beach, and produce the boats and to modify the design to the specs his actual customers wanted."

The BITSunami team is a bunch of perfectly ordinary middle-class urban Indians, much like us, and yet in some ways they are doing their best to understand their country. Not necessarily thinking about it that way, but doing it anyway. There is something about ordinary people doing extraordinary things. And who am I kidding. This also touches me because of the BITS bond.



## BITSAA East Coast Event raises \$4000 for BITSunami

The BITSAA East Coast Event on 29th October 2005 at New Jersey raised \$4000 for the BITSunami project. This included \$2300 that were raised by Pavilionshop.com by the auction of elegantly framed score sheet of the India vs Pakistan 2nd Test in 1999 in which Anil Kumble took all 10 wickets in a single innings - autographed by Anil Kumble himself. The organizers were Venu Palaparathi and Renchy Thomas; the auction commenced at \$101 with Paddy Padmanabhan and Venu Palaparathi priming the interested parties ahead of the auction. As the bids climbed beyond \$2000, the people that remained in the fray were Satish Paul, Neetu Nehra, and Pragati Panday. In the end, Satish Paul of Wissen Inc. became the proud owner of the memorabilia and also the biggest contributor on the day towards BITSunami with his winning bid of \$2300. Renchy's presentation about the BITSunami Project and Paddy's repeated requests helped raise an additional \$2000.

**There is still a shortfall of Rs 8M. To contribute, please visit [www.bitsunami.in](http://www.bitsunami.in)**

BY PUSHKALA VENKATARMAN ('95 MMS)

## THE QUARTERLY BITSIAN IAS TOPPER – S NAGARAJAN

Topping the prestigious IAS exam is just the beginning for S Nagarajan. We wish him luck as he takes his integrity and his resolve to bigger and better challenges to improve India's socio-economic stature.

**S Nagarajan ('00 EEE)** leaves you with an image of a hardworking and persistent individual, an individual who has set his mind on a goal and is walking towards it resolutely.

After graduating from BITS, Nagarajan decided to follow his lifelong dream of becoming an IAS Officer. Having grown up in a district town, Nagarajan was aware of the key roles that district officers play in social development. Watching many of these officers at work, gave him an insatiable urge to join their ranks and help in India's development.

He took the Civil Services Exam right out of BITS in 2000. He did not take up a job and instead doubled his efforts when he did not clear the exam that year. In 2001, he succeeded and joined the Indian Railway Traffic Service. Though this was no mean achievement, Nagarajan would not settle for anything



less than the IAS. For the 2005 exam he went all out and was "pleasantly shocked" to realize that he had topped the exam.

He admits, "Foremost, I felt happy for getting into a service of my choice, than particularly for the first rank. It took sometime to realize that the first rank was something special. "

He had chosen Geography and Sociology as his subjects and joined coaching centers to strengthen his fundamentals: he was to compete with people who possibly had several years of experience in their fields. During his preparation, he met Sudeep Jain (86A3), the Corporation Commissioner in his hometown, who indicated it would be a long walk. He steadfastly walked on.

Nagarajan strongly believes that every Indian is at war – a war against time - to make India a developed nation. By joining the IAS and by being able to get

directly involved in public service, Nagarajan hopes to win this war.

If preparing for the exam was tough, life has only gotten tougher with the strict academy schedules for Nagarajan who

is right now in training at Mussorie. The training at the academy lasts for about 10 months. The day begins with PT at 6.00 a.m. There are daytime classes on subjects like law, management and public administration. Extracurricular activities range from firing to movies.

After this, he will be posted as a sub-divisional officer below a district. He will spend the first few years working at the district level after which he expects to be posted to the State Headquarters and then to the Central Government. Nagarajan is eagerly looking forward to the array of responsibilities in store.

Nagarajan cherishes the times that he had with his wing. Especially the junior batch Chemistry and MMS guys at Gandhi. He remembers the invigorating lectures of **Dr Gurunarayanan** (see 'Back to BITS') and **Prof SS Ranganathan**. His extra curricular activities included stints at the mess committees.

Nagarajan feels that BITS should add greater depth in the existing courses, especially in fields like biotechnology, microelectronics and specialized programs in business management. He says that BITS higher degree programs should be able to attract international students. He urges the younger BITSians to dare to experiment and follow their instincts.



BY BASHYAM RAMASAMI ('95 ENGINEERING TECHNOLOGY)

## Civil Services in India

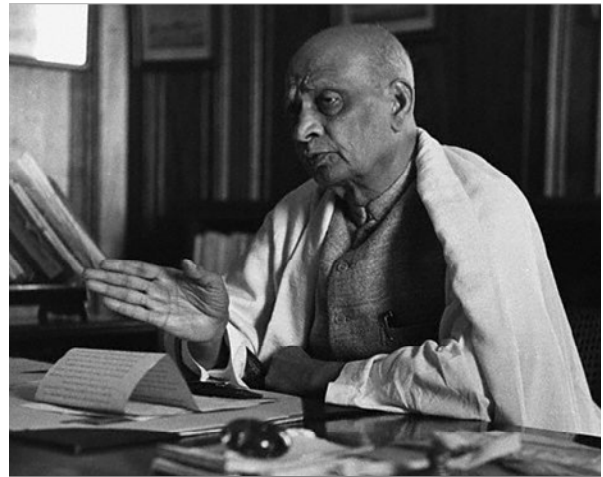
A brief on the Indian Civil Services that includes its history, the responsibilities and the lives of its officers. The article also discusses the career prospects in the civil services sector.

Growing up in a District headquarters, I have to mention the awe and respect I held towards the District collector, a member of the so-called *saahibdom* created by the British rulers of Imperial India. The collector's name would come up in many a different context. Someone invited to hoist the national flag at the district sports stadium on National holidays. The chief guest of honor at the school's annual sports day. He was just about everything – the celebrity, the administrator and the super cop – all rolled into one.

To put things into perspective, the District collector is really like the middle management in a regular corporation. He belongs to the cadre of officers referred to as the Indian Administrative Service or 'IAS' for short. The IAS and the other administrative wings of the Indian Government is one of the features left behind by the colonial administration. Previously referred to as the Imperial Civil Service, and later as the Civil Service of India and finally from 1911 as the Indian Civil Service, this group of officers was the tiny administrative elite of the British. These officers were appointed under section XXXII of the Government of India Act of 1858 in the post 'Sepoy Mutiny' era when the governance of India transferred from the East India Company completely to the Crown in England. Initially these positions

were restricted only to the 'British Sahibs' and the extensive selection process took place in London. The exam was completely in English and it required an extensive knowledge of both British Laws and Indian Geography and culture. It was not until much later that the selection exams were also held in Allahabad and it was not until 1922 when Indians were allowed to be a part of the civil service.

The IAS replaced the ICS and the pre-independence structure of all-India services, provincial or state services and central or Union government services was retained. Despite the initial resentment by Pandit Nehru and Sardar Patel towards the arm of governance under the British Raj, at the time of drafting the constitution, the need for this arm was extensively felt. Sardar Patel argued for this wing of the bureaucracy referring to it as the 'Steel Frame' and proposed that this body should be vested with the authority to speak out freely, without any fear of persecution or financial insecurity. Article 312 of the Indian Constitution led to the creation of the All India Services Act of 1951



The IAS receives a constitutional guarantee and is capable of exercising its executive power without fear of persecution. Sardar Patel, a strong proponent of this 'steel frame', considered this an essential element in unifying the nation. (Source: Wikipedia)

and the officers who make it to the All India Services, on appointment by the government of India, will be deputed to different States and are at the disposal of the respective State Governments. These services include the Indian Administrative Service, the Indian Police Service (IPS), the Indian Forest Service and the Central Service, which among others includes the most coveted Indian Foreign Service (IFS). Running the administration of a vast and diverse country like India requires efficient management of its natural, economic and human resources and that, precisely, is the responsibility of the civil services. Selection to the civil services in India has still not lost its imperial charm. Tens of thousands of young graduates even today are

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willing to rough it out and chalk their way into the Indian Administration.

Many distinguished bureaucrats who have done well in the services include foreign secretary of India, Ms Choklia Iyer, an Indian Foreign Services (IFS) officer and the first woman to occupy the post in the year 2000 as well as Ms Kiran Bedi, IPS, the super cop who mooted the concept of prison

reform in Delhi's Tihar Jail. Ms Vijayalakshmi Bidari was the topper of the Civil services exams in the year 2001. Dr P C Alexander and Mr. T N Seshan are other well-known IAS officers who rose to positions of prominence.

Civil servants not only rely on their intellectual ability but also on their people skills to be able to deal with situations. A lot of media attention adds enormous

pressure to the day to day work of a civil servant.

With rampant corruption in India, civil servants have to bring with them a lot of personal integrity to get through their job.

I would speculate that my sense of awe and my respect for the District Collectors are more than justified.



NEWS | Mission to Mars... abort?

## Kanna Rajan Quits NASA

*Kanna Rajan has quit NASA and has joined the Monterey Bay Aquarium Research Institute as Principal Researcher for Autonomy. The Sandpaper 2.0 team had the opportunity to speak with Dr Rajan about his decision as well as some of his prior experiences and about what lies ahead.*

### Why did you decide to leave NASA?

NASA is going thru some major upheaval currently. Early 2004 President Bush tasked the agency to return a wo/man on the moon by 2020 to build and ensure a sustained presence on the lunar surface in preparation to go to Mars by 2040. This is, in effect, the first time in 30 years that the agency was destination driven rather than looking around for a way to justify its large \$16 Billion budget in trying fiscal times.

With very large tasks at hand, in a tight fiscal climate with two wars (Iraq and Afghanistan) to support and with a looming federal deficit, NASA will more than likely not be able to achieve some of these goals under tremendous budgetary pressure.

To cut a long story short, it seems to me, that in this climate any kind of basic research that NASA used to be doing (far less something like Autonomous Systems [my area of interest]) is going to get the short end of the stick. After a decade of service it seemed to me, I had run out of steam in having to depend on the whims of Congress to fund basic research like what I do, which was being cut across the board anyway.

### How is the "Mission to Mars" program proceeding? What repercussions does this have for the broader society?

The robotic missions to Mars are going well. Spirit and Opportunity continue to (after 1.5 years in very hostile conditions) perform well doing excellent science and returning copious amounts of data. Future Mars missions might be in some jeopardy given the tight budgetary conditions. The next rover mission to Mars, the Mars Science Laboratory (MSL) in particular is discussing ways to alleviate the financial strain with a potential 2 year postponement of launch (from 2009) by stretching out its monies. Beyond that period it is difficult to predict what the conditions will be like for future robotic missions.

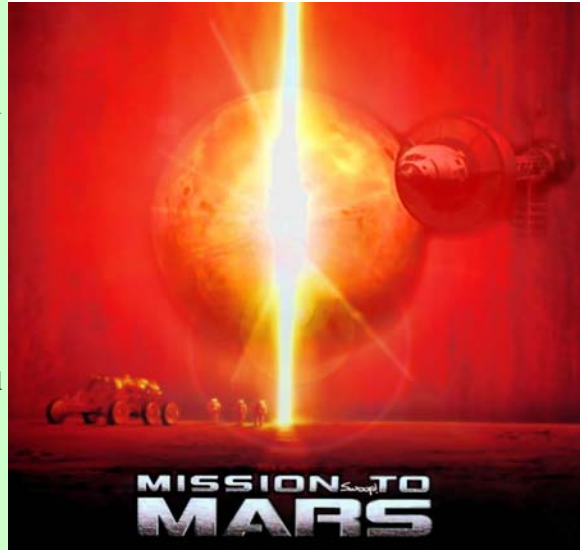
For that matter, the President's vision to go to Mars also appears to suffer from this monetary strain. While the implication of current designs for the CEV are to make ensure it enables a future human-rated Mars mission, the agency is clearly not even thinking of that eventuality at this stage and simply focusing on getting the CEV off the ground by the 2010 dateline. While this is doable, there is widespread disappointment that the agency is squandering



## The Quarterly BITSian

its money in trying to do something that has been done before and perhaps even repeat the mistakes of the past in the process. Further, the new direction has come with large layoffs in the very able contractor workforce at the agency and is now eating into the civil service (or tenured) personnel. Imminent Reductions in Force (RIF's) of civil service employees at the 3 research centers (Ames in California, Glenn in Ohio and Langley in Virginia) do not bode well not just for the people involved but for the long term health of the agency and its fundamental and applied research areas. The impact to flight centers (Johnson in Houston, Goddard in Maryland and Kennedy in Florida) have been somewhat less; however even the Jet Propulsion Laboratory (JPL) where I had an office while working on MER, has had severe impact with a 600 person contractor layoff and a more recently announced 7% layoff from its own employees.

So while the intent has been to focus on getting back to the moon, the process of doing has appears to be very self-destructive and it is not clear whether the manned Mars mission will survive the loss of talent.



### What were your key learnings during your time at NASA?

Fundamentally, that one has to take risks to make an impact. By nature if you're doing something that doesn't bother (or more aptly 'piss off') someone that means you're not making an impact. The objective function for me all this time was to have the agency do business in a radically new way, using (in my case) advanced AI based technologies. I am satisfied I've made that impact and I have the necessary proof of that in terms of the paradigm shift in mission operations I've seen over my tenure not to mention the two medals (the agency is pretty stingy in awarding individual awards; getting one is difficult in of itself).

Second, it pays to work with smart people and to work in small tight teams with small(er) budgets to accomplish complex tasks. The overhead of communicating and ensuring that there is a consistent message within a team that is under severe stress is simply untenable without a shared understanding that comes only when everyone's not on the same page. Smaller budgets also mean one is more creative in approaching problems and under tighter constraints to deliver a usable end product not subject to laxity because of undue confidence in being able to throw money at a problem. While this is counter to the prevailing trend in industry, this approach has done wonders for me.

Third, doing something innovative implies a sound mix of theory and practice, which tend to drive one another. Finding interesting practical problems to solve drive interesting research problems that leads to further innovative research as a multiplicative factor. More importantly it ensures that what we as researchers and scientists do, is always exciting and on the cutting edge. Principle's like these have what made NASA Ames the premier research laboratory in Artificial Intelligence and Robotics.

### Looking ahead, what will you be focusing on?

Focusing my attention on the Oceans instead of in Space.

My aim is to build intelligent underwater robots that will be able to adaptively orient themselves to solve major puzzles in science on how the Oceans actually work. To date, Oceanography still works the way Darwin did it more than a 100 years ago. The Ocean scientist wants to observe a specific phenomena and builds or uses a science platform (like a tethered Remotely Operated Vehicle (ROV), an "Autonomous" Underwater Vehicle (AUV), floats, moorings and sledges) to troll the water world in search of natures secrets in the biological, chemical and physical domains. In the process s/he is able to get point data, which might be able to show how a specific phenomena in a specific region (say the Monterey Bay) unfolds itself to human understanding. But this in no way provides a larger understanding of large-scale phenomena with potentially global spatio-temporal scales. As a result there is a lot of

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scientific conjecture in how basic processes like nutrient flow in the mid-water column, or the flow of Iron and Nitrates from human impact in the littoral areas, or the impact on the oceans of large scale carbon-dioxide in the atmosphere due to emissions on land, are really well understood. So for instance, there is some consensus that CO<sub>2</sub> emissions from the dawn of the Industrial age have resulted in a net increase in the pH (more acidic) of the oceans. However, what does it mean in terms of how the biological, chemical processes have changed over time? And what does it mean for the future of the planet?

### What are the challenges in the science & technology arenas in the US given the rise of Asian powers?

Fundamentally, the US is (and will continue to be) lagging behind in generating more science and engineering graduates who will be in a position to make future advances in Physics, Chemistry and the Biological sciences. This coupled with the fact that fundamental research in science and technology is barely being recognized by this administration as well as Congress implies that the US is guaranteed to drop in terms of advances in this critical area. With increased restrictions on incoming foreign students post 9/11, it is already compounding the problems above only making things worse.

There was a time in the recent past, when the US could assume that foreign students would pore into US universities and stay to contribute to the economy here. However with all of the above (and other) issues which aren't coming to the top of the stack of our lawmakers, it is clear that not only Asian (and perhaps European) universities are attracting very good talent, many of them expatriates who are returning to their home countries armed with the knowledge, discipline and a deep understanding of where the state of the art in science and technology is, it is quite clear that non-US universities are only going to become dominant at the cost of those in the US. This will have a direct and quite near term impact to their own economies.

This is not a hypothetical scenario; we're seeing increased science/technology funding in European research laboratories with increased and innovative research especially in the biological sciences, including those dealing with Stem Cell research as well as pharmaceuticals where they've already had a traditional hold in advanced research. We're also seeing the old "Asian tigers" like Korea increasingly flexing its muscles in this arena make huge multi-billion dollar investments in doing big science. Japan is once again the home of the worlds fastest super-computer used for Atmospheric modeling and China is increasingly attracting high-powered academics from top US universities like MIT, Cornell, Princeton back to their own universities.

The fundamental problem has less to do with dollar amounts funded (although that is critical); the issue rests with the vision of what the place of the United States is, in this world which isn't solely based on how big a nuclear powered Navy it has or the number of smart weapons and soldiers it can deploy in the far reaches of the world.



### The Monterey Bay Aquarium Research Institute (MBARI)

Founded in 1987 by David Packard, the mission of MBARI is:

*"to achieve and maintain a position as a world center for advanced research and education in ocean science and technology, and to do so through the development of better instruments, systems, and methods for scientific research in the deep waters of the ocean. MBARI*

*emphasizes the peer relationship between engineers and scientists as a basic principle of its operation. All of the activities of MBARI must be characterized by excellence, innovation, and vision.* For more information, please visit: <http://www.mbari.org/>

BY PRASHANT MOHAN ('94 MATH-EEE)

## The *diljales* make a difference

The *diljale* wing's experiences with identifying and helping with meaningful social causes.

The Maths-Eco-Instru wing of the '94 batch, we call ourselves – the *diljales*. Why *diljale*, you ask. Well, that's another matter and not quite relevant to this article. In 2004, we felt the urge to do something significant as a group to make a difference in the lives of others. But, we knew that none of us had the time to give it our undivided attention. The best way to do some community work was to find a suitable organization and help them with their financial needs. We had to evaluate the various organizations and the causes for which they worked; we had met people from an organization that helped to educate children in slums. We evaluated another organization that worked for gay and lesbian rights in India – we decided there were much more burning issues in India right now! Finally, we zeroed in on a blind school – the Shri Ramana Maharishi academy for the blind.

Shri Ramana Maharishi academy for the blind in Bangalore is one of the premier blind schools in the country. They are involved in training and educating three hundred visually challenged students every year besides a lot of work in the rural side where they rehabilitate leprosy patients as well.

To test the authenticity of the organization, I volunteered as a reader in the blind school. It started as a small step of just spending a couple of hours

every weekend in the school reading out lessons to blind students studying their B.Sc or B.A.

Besides the funding part for the school, we also searched for information pertaining to education of the visually impaired. We went through some of the course work for the school and analyzed the gaps between teaching aids available internationally and what could be used in this school within the budgetary constraints. We looked up on the Internet and found some useful but small steps that could be used to improve the lives of these students. The principal and founder of the school, Shri T V Srinivasan, was very open-minded and always encouraged me to talk to the children and enthuse them into vocational education so that they could survive in the external world on their own. All wingies from Bangalore visited the school to study where our donations could be best used. We narrowed down our search to the use of Braille slates that the Principal also recommended as a worthy tool. Within a month's time, we were able to collect around fifty thousand rupees that was enough to buy Braille slates for every student in the school. We also contacted a friend in



Visually impaired children with their teacher

Dehradun to contact the National Academy for the Blind and send in some map aids for the students.

A year later, we visited the school to check the utility of our donation. It was extremely satisfying to see our funding being put to such good use. The kids were happily punching into their Braille slates; their innocence so overwhelming.

The greatest lesson we've learnt from this exercise is that the poor and disabled people of our country don't need our sympathy – they need self-respect – we can create that equitable society for them by just providing them with the tools they can use to achieve this goal.

◆  
*Prashant can be reached at [prashant.mohan@gmail.com](mailto:prashant.mohan@gmail.com)*

BY THE BITS2MSPHD TEAM

## MIT, Stanford, or Caltech? On a Scholarship?

Every year hundreds of BITSians apply to science and engineering programs at graduate schools outside India. And every year, BITSians wrestle with the same old problems and questions: To app or not to app. Which universities to app to? Which programs to app to? The BITS2MSPHD initiative offers advice to BITSians to help them get admitted to the world's best schools.

The graduate school application process in BITS has never really been coordinated with each new batch of students at BITS having to re-learn the same things that their seniors did years ago. This year, **Abhishek Kamath ('05 EEE**, currently at Stanford University) – after going through the harrowing procedure of applying to grad school – founded a group called *Greenmile* to help future batches with their applications. This group later became the BITS2MS/PhD initiative, modeled after the similar BITS2BSchool initiative, which has been very successful in helping BITSians get admits to the best business schools in the world.

The main objective of the BITS2MS/PhD initiative is to ensure that more and more BITSians are offered admissions to the world's top graduate schools each year. The BITS2MS/PhD team includes

alumni who have attended the top graduate schools. This global network of alumni who have gone through the grind of the *apping* process are in the best position to offer help and guidance.

According to Prof Richard Newton, the Dean of the College



of Engineering at UC Berkeley, the number of Indian applicants to top school in US has been coming down due to better opportunities in India. In Dean Newton's words: "...more and more BITSians should apply to UC Berkeley"

In the short term, the BITS2MS/PhD team plans on helping students with their applications, providing advice, answering questions, etc. and improving the value of

the BITS brand in the eyes of MS/PhD admissions committees. Ultimately, the best grad schools should actively seek out BITSians as graduate students; an applicant from BITS should immediately stand out from among the hundreds of other international candidates applying to the same program.

The BITS2MSPHD team has already made progress on several fronts. Apart from an informative website and an active group, alumni have been building the BITS brand at their graduate schools. Amol Bakshi ('97 CS, PhD USC) has been working with the administration at USC to highlight top BITSians as possible candidates for the MS/PhD Program at USC. Recently, Dr. Raghurama (Dean, Admissions and Placements, BITS Pilani) visited USC and alumni in the Valley and was apprised of the BITS2MSPHD effort. He has offered the use of his office to coordinate activities of the group.



### BITS2MS/PhD

Website: <http://bits2mpshd.net>

To join the mailing list go to:  
[groups.yahoo.com/group/bits2mpshd](http://groups.yahoo.com/group/bits2mpshd)

Total Members: 448 (as of Oct '05)



## **BITSAA Initiatives**

BY ASHISH GARG ('97 INSTRU)

# **BITSAA Women's Council**

BITSian women get-together to empower each other, lead and succeed.

BITSAA Women's Council is a newly formed organisation that aims to provide a "platform of connections, resources and opportunities for BITSian women." It believes that, with an appropriate support system, the BITSian woman can successfully achieve her family dreams and career goals.

**The mission of the Women's Council is to empower BITSian women worldwide to achieve their dreams through BITSian networking and leadership.**

The idea shines stark in relevance today, when women are faced with tough choices and challenges in everyday life in balancing career aspirations,

fostering a healthy family and pursuing their personal interests. The motivation for the council is the prospect of creating a pipeline of women to fill leadership positions in corporations.

### **Planned Activities**

The fledgling organisation has already identified a number of activities:

- Discussions on the e-group on topics ranging from work-life balance to careers for moms to women entrepreneurs.
- Prominent BITSian Women': A campaign to track down and give recognition to BITSian women who have excelled in their respective fields.
- An Online Resource Library to archive and provide access to some great resources- articles on various issues, inspiring stories, personal experiences, a directory of



BITSian women worldwide and so on.

- Online Mentoring Cells for facilitating general and personal counselling for women.
- Facilitating business networking.

### **Sign up at**

[groups.yahoo.com/group/bitsaa-woc](http://groups.yahoo.com/group/bitsaa-woc)



BY ASHISH GARG ('97 INSTRU)

## **BITS.aid**

Sudip Dutta ('95 Mech) plans to revolutionize how BITSians contribute to the community. An exciting new community focused initiative.

**Sudip Dutta** is alike most of us BITSians. Loves to *laccha*, *gussed* tons of classes at BITS and has done his time outside the Meera Bhavan gate.

However, as a founding member of BITS.aid he wants us to "Think, Feel and Act" and here's how.

BITS.aid is a community to AID all BITSian volunteering activities. It is the global face of BITS volunteering program. The vision of BITS.aid is to be a strong Alumni Volunteering Community leveraging the BITS Pilani alumni network and volunteering activities through excellent management.

Sudip saw that somewhere deep within, many of us have the urge to do something that would change the world but we don't know how to go about doing it. That is the objective of BITS.aid - **to provide BITSians an interface to interact with each other in an efficient way to**

## BITSAA INITIATIVES



Sudip Dutta (BITS '95)

**take small steps together and make a big impact.**

If you want to start a community project, BITS.aid aims at helping you by:

- Guiding you through new initiatives.

- Shaping new projects from ground up.
- Manage your activities with collective knowledge.
- Provide a robust platform for project leaders in reaching out to the BITSAA network to locate and enroll volunteers.

If you would like to volunteer for BITSAA projects, BITS.aid can help you by:

- Providing information about ongoing projects in your geographical area through our database.
- Finding volunteering activities that you may be interested in.
- Get in touch with other BITSian volunteers in your area.

BITS.aid is already working with five different BITSAA projects such as BITSunami at BITSAA Chennai, Swadheen/Vigyan Ashram in New York and India, the Future Focus Foundation at Bhubaneswar.

### Sign up & More info

[www.bitsaa.org/BITSaid/](http://www.bitsaa.org/BITSaid/)

More information on projects can be found at:  
[www.bitsaa.org/BITSaid/projects.php](http://www.bitsaa.org/BITSaid/projects.php)



BY ASHISH GARG ('97 INSTRU)

## BITSAA 30 Under 30 Awards

An award to be given to thirty BITSian students or alums under the age of 30 every three years. It is open to BITSians graduating from all campuses and distance learning programs.

### Panelists for Thirty Under Thirty Awards

<b>Aditya P Mathur</b>	<b>Dilip D'Souza</b>	<b>L K Maheshwari</b>	<b>Rajesh Hukku</b>	<b>Satish Gupta</b>	<b>SP Kothari</b>
Professor, Computer Science, Purdue University	Author and Rediff Columnist	Director, BITS-Pilani	Founder, Chairman & CEO, I-Flex Solutions Inc.	Founder and Former CEO, Cradle Technologies Inc.	Professor of Accounting and HoD, MIT Sloan, visiting Prof at Harvard

BITSAA believes that the recognition that BITS Pilani accords to its young rising stars will showcase our talent and provide them greater exposure, while serving as role models for others.

All members of the BITSian community including students, alums, faculty or staff members are eligible to nominate deserving students or BITSian alums for these awards. Please

feel free to nominate yourself if you are a student or alum so we know of your accomplishments. The awards are being given for the following categories:

- Professional Excellence

## BITSAA INITIATIVES

- Leadership
- Entrepreneurship
- Academia/ Research & Development
- Arts & Culture
- Writers
- A Culture of Winning

- Innovation
- Community
- Sports

The awards will be announced on November 15.

To nominate someone for the **BITSAA 30 Under 30** awards go to <http://202.65.140.53:4004/> or send an email to [Anupendra@bitsaa.org](mailto:Anupendra@bitsaa.org)



BY ASHISH GARG ('97 INSTRU)

# BITSAA Silicon Valley Elections

BITSAA Silicon Valley becomes the first BITSAA chapter in US to elect executives through a democratic process.

BITSAA Silicon Valley Chapter (SVC) has come a long way since its inception about six years ago. What started out as a small gathering of the 1975 batch and friends for a *Millennium Party* in 2000 has now grown to be one of the biggest BITSAA chapters in the world. Silicon Valley being the centre for technology and innovation, BITSAA Silicon Valley is home to a number of highly successful and well-known BITSians like Vivek Paul, Prem Jain, Naveen Jain, Thampy Thomas, Prof Krishna Saraswat and may more. The

BITSConnect project that started out as a project to wire the BITS Pilani campus and ended up becoming a movement that connected thousands of BITSians around the world for a common cause

### BITSAA Silicon Valley Chapter

**Website:** [www.bitsaa-svc.org](http://www.bitsaa-svc.org)

**To Join the Mailing List go to:**  
<http://groups.yahoo.com/group/bits-svc/>

**Founded in:** 2000

**Current Members:** 250 (Registered)  
802 (On mailing list)

**President:** Chandra Bhople ('74 EEE & MMS)  
[cbhople@gmail.com](mailto:cbhople@gmail.com)

**Secretary:** Ashish Garg ('97 Instru)  
[gargyboy@yahoo.com](mailto:gargyboy@yahoo.com)

**CFO:** Amit Khetan ('94 Eco & CS)  
[arkhetan@yahoo.com](mailto:arkhetan@yahoo.com)

**Board of Directors:**  
Jayan Ramankutty  
Deepu Rathi  
Prem Jain  
Roop Jain  
Satish Gupta  
Vinod Agarwal

also had its roots in the Silicon Valley.

Thanks to the efforts of the founding President of BITSAA Silicon Valley, Jayan

Ramankutty, the chapter framed a constitution (aka by-laws) and received a US Government non-profit 501c3 status last year. The by-laws lay down the rules and regulations for the functioning to the chapter including the administration of a democratic process for election of new Executive and Board of Directors.

**Deepu Rathi (Secretary, BITSAA SVC)** and **Nachiket Deshpande ('92 Phy & CS)** led the Election Commission that elected the following executive board for the year 2006-2007.

- President: **Chandra Bhople ('74 EEE & MMS)**

- Secretary: **Ashish Garg ('97 Instru)**

- Chief Financial Officer: **Amit Khetan ('94 Eco & Computer Science)**



BY BITSAA CHAPTER & EVENT ORGANIZERS

## PARTYIN' AROUND THE WORLD

### RECENT BITSAA EVENTS

#### HYDERABAD

**Winning over ISB...in defeat:** BITS Pilani lost the Sierra Atlantic Cup 2005 match 0 - 3 to ISB, but looked outstanding in their new uniforms and gained enormous respect from ISB Director and the students who showed up. It was a great match, led by **Kaushik Mukherjee** of Pilani. VK Menon, ISB Director said it was the best showing of any event by ISB students. He was very impressed with the organization, the smart uniforms and mementos. There were over 50 BITSian supporters. ISB has organized and invited BITS-only exclusive events around in India, USA, and Canada to substantially increase 2006 admissions.

We are thankful to Sierra Atlantic Chairman, Raju Reddy for his generous sponsorship of the event.

#### SAN FRANCISCO

**BITS Annual Dinner:** It was that time of year again. Instead of filing our annual income tax returns on time, we BITSians of the Silicon Valley Chapter decided to throw a regular five-star Pilani bash – the BITSAA SVC Music Nite 2005. April 9<sup>th</sup> was a night none of us will forget in a hurry. In the ground floor of the Crowne Plaza Hotel

in Milpitas, CA, people met old friends, made new friends, and engaged in *lachcha*. About 180 BITSians and spouses of all age groups showed up, from the batches of the 50s and 60s right down to the late 90s and beyond. Prem Jain's stylish safari suit caught the eye of several admirers, and the ladies were looking absolutely delightful in their colorful *saris* and *salwar kameezes*.

After an hour of mixing and matching around the BITSian network, the alumni were ushered into the banquet hall, where the event started. Karan Bhople, the emcee and son of '74 alumnus Chandra Bhople, took charge of the proceedings by giving a mirthful and advice-filled intro to the event, and then handed it to **Deepu Rathi ('73)**. Deepu then gave a very informative presentation about what BITSAA's latest efforts to improve the campus have yielded. He then introduced our keynote speaker, Cypress CEO T J Rodgers.

The next speaker, **Jerry Singh ('64)**, presented his plan to "make the Rajasthan Desert bloom." He described CDDT, an effort to bring effective irrigation to the desert surrounding Pilani.

The final and most awaited part,



BITS-ISB Footer match

of the evening was the Music Nite. The organizers did a terrific job in getting a live band – EasternWinds – to perform as it really got the crowd on their feet and dancing. Boy was it something! BITSians and their spouses performed several songs on stage to the immense delight of the whole audience. **Vibha**, wife of BITSian **Jayan Kohinoor**, wife of BITSian **Srijit**, and **Shalini**, an Eastern Winds band member, sang some lovable slow filmi songs such as "Yeh Hain Reshmi Zulfon", "Aage Bhi Jaane Na Tu", and "Yeh Mera Dil" while Siva, the founding member of EasternWinds, Jayashree, wife of BITSian **Vijay**, Deepa, wife of BITSian **Pete**, BITSian **Bharat** from the '91-'95 batch, and the rest of the EasternWinds



T J Rodgers, CEO, Cypress  
Speaker at SVC event



## BITSAA INITIATIVES



BITSAA SVC get-together

singers performed famous hits such as “*Chaiyya Chaiyya*”, “*Dil Dooba*” and “*Gori Gori*.” Anand, BITSian from the '95-'99 batch, performed a stirring and magnificent rendition of “*Vande Mataram*” to the raucous applause of the audience, and everyone got up on their feet and showed off mad dancing skills to the tune of EasternWinds’ “*Aisa Jadoo Dala Re*”. Finally, everyone was amazed that the best dancers were also the senior-most guests: **Satish** and **Sujata**.

The event was a huge success, and everyone walked away feeling excited and a little overwhelmed by it all. Naturally, none of it would have happened had it not been for **Gopal Garg** and **Ashish Garg**, the two main organizers of the event, Karan, the MC, and the many BITSian volunteers: **Pethe**, **Mansoor**, **Sharvari**, **Shashi**, **Mayur**, **Gurpreet**, **Nachiket**, **Lakshmi**, **Krishna**, the second **Ashish**, and **Unni**. Kudos to them for putting together undoubtedly the best BITSAA SVC event in the chapter’s history. What a night!

**More pictures:** [www.bitsaa-svc.org/bitsaa-svc/photos.htm](http://www.bitsaa-svc.org/bitsaa-svc/photos.htm)

## NAGPUR

**BITSAA-TiE Invitational Golf:** The BITSAA-TiE East Coast Invitational Golf was

conducted in June, for which 52 golfers showed up. **Rahul Banerjee** took the Outline Systems' trophy for best golfer with his overall score of 82. Uday Mahtani (TiE) finished with 85, which won him the Radiant Systems

trophy for second best golfer. The Wissen Inc. "Longest Drive" award was won by Jon Hilbert (TiE). His drive cleared 310 yards. BITSians **Sandeep Nalgundwar**, **Jatinder Singh**, **Alladi Srinivas**, and **Senthil Kumar** won the Nuware prize for the second best team. The PavilionShop.com "Best Lady Golfer" was **Sheila Kuchibhatla**.

Many thanks to BITSAA sponsors Radiant, Wissen Inc., NuWare and PavilionShop.com and to TiE sponsors GCI, KaizenTek and Outline Systems for their support.

BITSAA urges everyone to support our sponsors, without whose help the event would not have been successful.

## ARIZONA

**Chilling out at Cold Stone Creamery:** Fourteen people showed up at the Cold Stone Creamery. Among those that showed up were **Anusha**, **Kunal**, **Ankur** (from Tucson), **Naveen**, **Siddarth**, **Shilpa** (whom we have to thank for arranging this event), **Vidya** and **Sanjay**, **Satyajant**, **Shiyam**, **Ram**, **Gopal** and **Neelu**.

It was fun to have 'intros' and catch up on some *laccha*! Thanks people for making it a success.

A special thanks to **Neelu**, Sanjay and Sara for being a part of the event. Hope to see you at many more events in future. Also thanks to **Ankur** for driving down from Tucson! Hope we can organize the next event somewhere closer to Tucson.

This group was created with the main aim to socialize, relive some of the memories and have fun. Also to get together to do some social work, network and learn some new skills and have fun in the process. It looks like we are well underway!



Arizona chapter get-together

Contact: **Shilpa Gupta**  
(shilpa249@yahoo.com)

## SYDNEY

### Cricket at BITSAA, Sydney

**Picnic:** The Picnic in Bicentennial Park turned out to be a great event, with an attendance of 48 persons: 15 alumni and their families, including 18 children from the age of 3 to 21 years. We had excellent sunshine, a lovely lunch, cricket, games, chat, tea and photos.

We had the usual BITS style cricket at the picnic - tennis ball, two teams with anyone who wanted to play. As you will see from the scorecard below, the size and makeup of the two teams were unusual.

The game started around 12 noon, with Team One captained by **Atul Sood** going in to bat first. We stopped for lunch when Team One were declared all out; their score was 34 runs, with Bapi the top scorer at 16 not out. Team Two captained by **Nandu Thundatil** batted after lunch; they scored the requisite runs, with a wicket to spare. **Aditya Ganesh** was their top scorer with 17 runs.



Everyone bowled - some short overs, some normal overs, some Australian overs and some extra long overs.

No, we did not select the Man of the Match, though I reckon we would have selected Aditya Ganesh for his top score.

Big thanks to our spouses (which alumni should please pass on) and kids for making it a thoroughly enjoyable gathering.

Contact: **R. Nagarajan**  
(rnagarajan@gmail.com)

## Silicon Valley



### Meet Dean (Engineering), UC Berkeley, Om Prakash:

That's what a twenty-something group of BITSians did on 22<sup>nd</sup> October 2005 at the India Community Center in Milpitas. OmPrakash, commonly known as Dean Richard Newton is an Australian by birth. Dean Newton was re-christened Om Prakash by his host family during his visits to Kishangarh, a tiny village right next to Pilani, Rajasthan.

Dean Newton charmed his audience with stories like these and his sense of humor while taking everybody down the road of memories to Pilani. The group also discussed ideas on how UC Berkeley and BITS Pilani can work closely on projects like the ones undertaken by the Center of Information Technology Research in the Interest of Society (CITRIS) at UC Berkeley. He also encouraged more and more BITSians to apply to UC Berkeley stating that in order to make Berkeley the best engineering school, he would like to see more bright Indian students apply and get accepted.

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BY BATCH REPRESENTATIVES

## Selected Class Notes

Notes listed by BITS batch (entering year). For a full listing, please visit the "Classnotes" section on the BITSAA Sandpaper website.

### 1976

After completing my BE in Mechanical Engineering in 1981, got a M. Tech. in Computer Science & Engineering from IIT-Bombay in 1985. Decided to move into the area of IC Design in 1988 and joined CEERI, Pilani and I am still here.

**Raj Singh** lives in Pilani, India

### 1984

**Pankaj Jain** ('Math-EEE) After graduating from BITS I worked for about 4 years in India (mostly Chennai). In Dec. 2000, I completed my MBA from Babson College ([www.babson.edu](http://www.babson.edu)). I also started the bitsaa\_ne\_us\_group yahoo group in Feb. 2001 for BITSAINS in New England Area. I have 2

daughters who are 11 and 6 years old. Please drop an email ([pankajjain0@gmail.com](mailto:pankajjain0@gmail.com)) or give me a call if you are in the area, 508-842-4624.

### 1997

**Aarthi Prabhakaran (Bio-MMS)** is currently working at AdventNet Development Center (I) Pvt. Ltd, Chennai, as a technical writer. She has been with this firm for about two years. Aarthi lives in Chennai, Tamil Nadu, India with her husband, **Bharath Kandasamy ('95 Bio-Chem)**.

### 1995

**Jayant Dani** is now leading the Center of Excellence at Tata

Consultancy Services for Non-Stop Technology. We are not sure if he can take a break from his work.

### 2000

**Sarat Chandra (ET)** is working with Infosys and has been doing a lot of blogging off late. He has been overwhelmed by the responses he's received to his blogs. To read his blogs, please visit [saratspeaks.blogspot.com](http://saratspeaks.blogspot.com). He recommends his most acclaimed work 'I Love you Grand Pa' in which he also mentions BITS.

<http://www.bitsaa.org/sandpaper/classnotes/class%20notes.htm>

## BITSAINS OF THE '98 BATCH

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