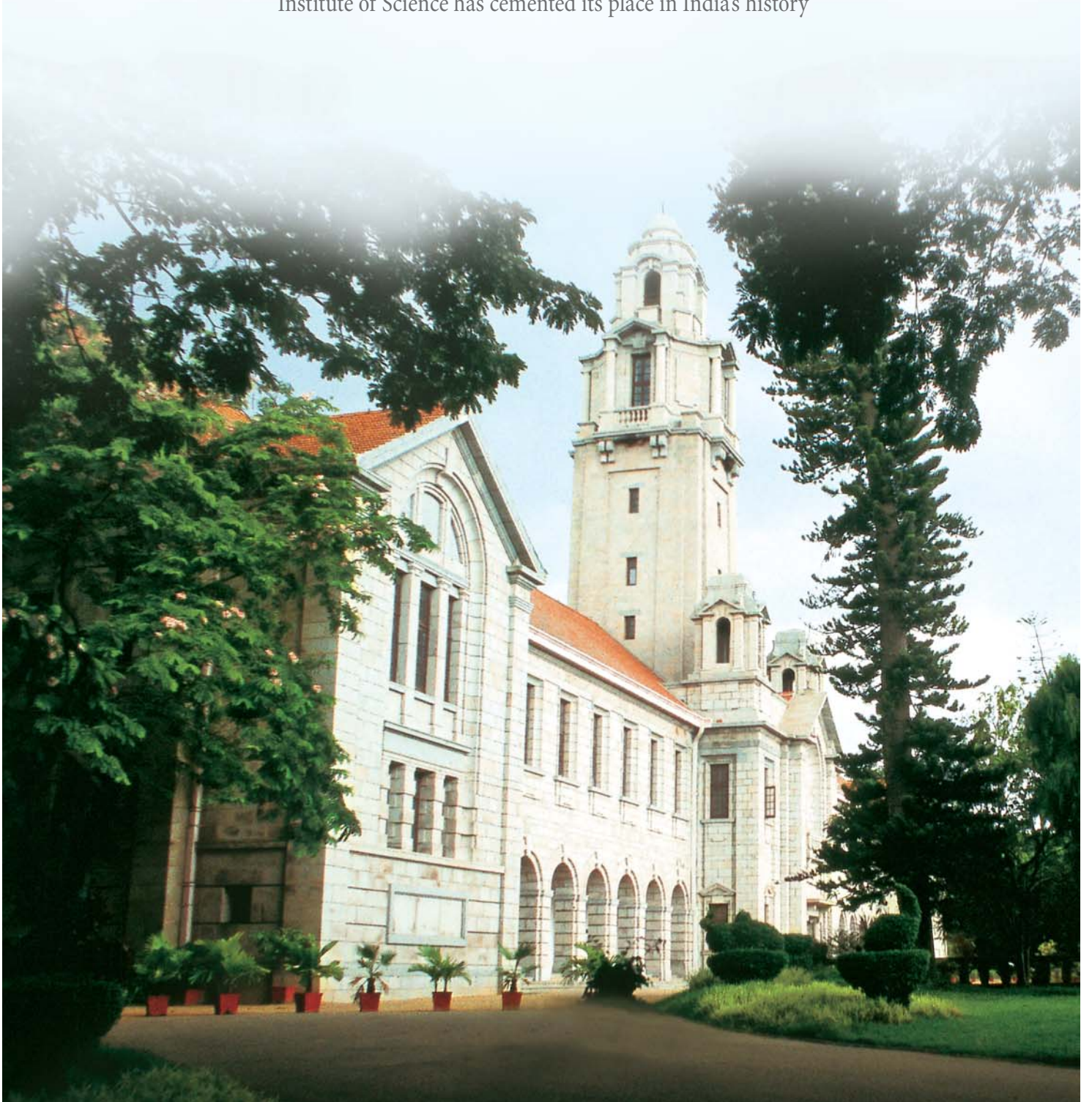
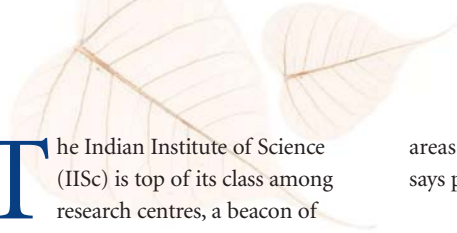


From institute to institution

As it strides into the second century of its existence, the Indian Institute of Science has cemented its place in India's history





The Indian Institute of Science (IISc) is top of its class among research centres, a beacon of trailblazing triumphs and a byword for excellence, but the denizens of Bangalore, where it has aged admirably in the lushest of environs, don't seem to know the place by its prim and proper name. They call it the 'Tata institute', after the father-son duo that played such a prominent part in the creation of the centre. It's not a state of affairs that would have pleased Jamsetji Tata, the founder of the Tata group.

Jamsetji, the inspiration behind the setting up, a hundred years back, of what remains India's standout institution for science, technology and engineering, did not want the centre to be named after him. "A national movement ought to have a national name," said Jamsetji, who was pursuing an altruistic vision of Indian advancement in science rather than chasing personal glory. His elder son, Dorab Tata, instrumental in realising his father's IISc dream, was, if anything, an even more reticent figure.

To get the institute up and running, the Tatas, father and son, had to battle tough odds and tougher circumstances, colonial orthodoxies and prejudiced mindsets, not least that of Lord Curzon, the churlish viceroy of British India, who is reported to have said of the project, "To start with polytechnics and so on is like presenting a naked man with a top hat when what he wants is a pair of trousers." Jamsetji passed away five years before IISc was established and it was left to Dorab to bring his father's idea to fruition. When Curzon finally relented and gave the governmental go-ahead, he wrote to a friend, "One thing is certain. India is not ripe for the institute and I doubt very much that Britain is..."

Curzon was not entirely right. India, then only beginning to finding its voice, was ripe for the institute and a whole lot more. IISc would become the lodestar for the country's progress in science and technology, the breeding ground for a succession of brilliant minds to make the most of their gifts. "What the institute has given to the country cannot really be quantified, but this much can be said: its contribution has been spread across a broad range of

areas and over a long period of time," says professor R Balam, IISc's director.

In Mr Balam's eyes, of more substance than the practical and financial association that the institute has with the house of Tata is the emotional bond that has endured. "This is now a publicly funded institution like so many others, operating under the aegis of the government," he says. "But there is a vital difference: it has a deep and organic linkage with the Tatas. The governing council and the finance committee of the institute have always had, by statute, two nominees of the Tata trusts. The president of the 'court' of the institute has always been a Tata. These people have provided extraordinary advice, guidance and oversight, and this has come from a distinctively independent perspective."

The Tata connection, and the structure within which it operates, adds Mr Balam, insulates IISc "a little bit" from the kind of pressures other such institutions may face. "This is not a government creation; it is the result of a great deal more. Those years between 1896 and 1909 — what I call the gestation period — decided the eventual character of the institute."

That said, IISc is a government institution, but there is a clear dividing line between academic autonomy and administrative autonomy. "The government does not worry this, or any similar, centre about the academic direction we take. However, just like in industry, where there's a difference between public and private, so too with institutions; there are those that have a public role to perform and they have to respond to public pressures."

The institute has had a long-standing relationship with the public sector research and development establishment, especially entities such as the Indian Space Research Organisation, the Defence Research and Development Organisation and the Department of Atomic Energy. "We have collaborative programmes with these organisations, in civil and materials engineering, in reactor safety, in propulsion, in computer science relating to cyber security, etc," says Mr Balam.


The funding for IISc comes almost entirely from the government, though there are collaborations with private

industry involving faculty members. There is the Centre for Scientific and Industrial Consultancy, through which IISc faculty members interact with private industry, and there is the Society for Innovation and Development, where private companies have established small R&D labs. "About 10-15 per cent of the money currently coming into the institute is from private industry, and this isn't much different from what it is anywhere in the world," says Mr Balam. "One of the myths about higher education and research is that it is privately funded. Turns out that, everywhere, it is largely publicly funded."

Mr Balam is quick to disabuse the non-academic world of the notion that IISc suffers in comparison with the IITs. "In the popular perception, an important indicator of the success of an institution is the salary drawn by those who have been through it," he explains. "On this count the IIMs and the IITs — and I myself am an IIT alumnus — get a lot of attention in the media. You can ask yourself a question: is the salary a person gets in, say, an investment bank a relevant pointer to the success of the educational programmes at the institution he or she has attended." Case closed, almost.

Another factor at work, he adds, is the visibility in the media of alumni. "The IITs' brand equity — it's not a term I like, but they like it — is the performance of those who emerge from them. A large number of these people have done extremely well for themselves and many of them are overseas, especially North America. The IISc is a postgraduate institution and most of our alumni have remained in India and in Indian organisations. Consequently, they are less known, but that does not diminish their worth. Our alumni are spread all over, but they are not the kind of people who would come and give you a million dollars."

Mr Balam argues that IISc is a unique institution and, unlike the IITs, there cannot quite be others like it. "We now have the Indian Institutes of Science, Education and Research — and these are supposed to eventually become similar to IISc — but I think it is a fallacy to presume that you can replicate such a centre. Institutions have a history and they tend



to evolve over long years under a certain set of environmental influences. This institute is a piece of modern Indian history; it is the first example in this country of private philanthropy catalysing into the establishment of a centre for research and higher education. I'm a biologist and a firm believer in the way external forces shape the selection of characteristics in organisms — and in institutions. You cannot reproduce the IISc experiment in the 21st century.”

Talk about the allure of IT and other such industries pulling talent away from basic research does not cut much ice with Mr Balam, who reckons there never was much attraction for the specialised pursuit in the first place. “Higher education and research has, for a long time in India, appealed only to people of a particular milieu,” he says. “One difficulty research institutions face is that in this pyramid of education we are at the top and, in the Indian system, many traditional educational organisations lower down the chain are no longer providing the quality they once were. But I believe that if you have a billion people you cannot have a shortage.”


One of the strengths IISc has in comparison with more elitist institutions is that its students are drawn from a wide pool, and some of the best, most dedicated ones come from small towns and small colleges. For IISc, the process of selecting students is a more refined process than it is at the IITs, where the one-shot, common-entrance approach rules. (“You can't be far wrong if you select, using any kind of filter, a few thousand from many lakhs,” says Mr Balam.) At the institute there is a national examination and an interview, which is the deciding criterion.

What about the challenges facing the institute as it strides into the second century of its existence? Says Mr Balam: “One of the challenges for any public institution in India is to walk the thin line between, on the one hand, the need to foster quality research and excellence in education and, on the other, to ensure that opportunities for research and higher learning are available to a large cross-section of people. The government struggles with this problem and so do institu-

tions. This is a very Indian problem.”

A second challenge is of being internationally competitive, and that comes down to the money factor. “Even the best of our institutions, like this one, have limited resources,” says Mr Balam. “We do not have large sums of money to deploy when a paradigm shift happens in science and technology. We are incapable of moving as fast and as flexibly as big institutions abroad. Then, of course, there is the quality of people we can attract; we are competing for faculty and students with the best in the world.”

Mr Balam, a scholar of the highest order — after completing his masters at IIT Kanpur, he did a PhD at Carnegie Mellon and then a post-doctorate stint at Harvard — sees plenty of reasons for being optimistic about the future of science and technology in India. “I think we will do a whole lot better in the coming



years than we have managed in the recent past,” he says. “There was no money for research in India till about 30 years ago; most of the money has come in over the last 10 years. It may be too much to expect dramatic changes to happen in a hurry, but I believe they will.”

IISc will have to remain at the vanguard of India's march forward in science for that happy future to arrive. Does the institute have the ingredients to appeal to the finest and brightest in the scientific sphere, people like, for instance, Mr Balam? “I came to work here as a lecturer just before I turned 25; it was my first job. I didn't have the faintest idea what I was going to do; I was only interested in a job and I wanted to come back to India. I had never seen the institute and I'd never been to Bangalore. But once I came here I never left. I've been with IISc for 35 years. You can assume I like it here.” ●

The Indian Institute of Science: A brief history

- ▶ Jamsetji Tata, the founder of the Tata group of companies, was the moving force behind the setting up of IISc. He got the idea after listening to a convocation address at the Bombay University in 1889.
- ▶ The institute was conceptualised in 1896 and Jamsetji solicited the support of many eminent people, among them Swami Vivekananda and the British viceroy of the time, Lord Curzon, for this cause.
- ▶ It was some 13 years later, in May 1909, that IISc started functioning (the first batch of students were admitted in 1911). Jamsetji had passed away five years earlier and it was left to his elder son, Dorab Tata, to realise his father's dream.
- ▶ Jamsetji bestowed the income from Rs30 lakh worth of his property (then running to about Rs1.25 lakh a year) for the proposed institute. The Mysore government donated close to 400 acres of land in Bangalore and the colonial Government of India took on the responsibility of financing and running it.
- ▶ IISc started with just two departments: general and applied chemistry and electro-technology. The physics department was established in 1933, when Nobel Laureate CV Raman became the first Indian director of the institute.
- ▶ The institute has trained many of India's greatest scientific minds, among them Homi Bhabha, Vikram Sarabhai, Satish Dhawan and JC Ghosh, and helped nurture some of the country's finest institutions, including the Tata Institute of Fundamental Research.
- ▶ IISc is a postgraduate university and one of the largest and most high-profile research institutions in India. It has 40 departments and centres pursuing R&D and teaching in science, engineering and technology.
- ▶ The institute has about 2,200 students (1,200 registered for PhDs and others doing their masters) and 350 faculty members. It has the highest number of PhD students in any one place in India.

Snapshots from the IISc album



(From left): Former director S Bhagavantham, Homi Jehangir Bhabha and JRD Tata



(From left): S Bhagavantham, Jawarhalal Nehru and the Maharaja of Mysore



(From left): S Bhagavantham, Prince Philip and JRD Tata at the golden jubilee celebration of the institute in 1959



(From left): S Bhagavantham, S Radhakrishnan, BD Jatti, and S Sreenivasan at the golden jubilee celebration

