

An 'agent of the spirit of history': an appreciation of P. K. Kelkar

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Ask virtually any of IIT Bombay's veterans familiar with the Institute's evolution over its first half-century (a landmark reached last year), which phase in the Institute's growth they feel was academically the most vibrant, and the answer you're most likely to get is: the early 1970s, when P. K. Kelkar was Director. Witness this testimony from R. E. Bedford, one of the earliest recruits to the Institute during its inception in the late 1950s, and who remained on its rolls until 1990, affording him a grandstand view of events: 'Looking back on IIT Bombay's activities, I think some of the most creative, almost magical transformations were effected during the period of Kelkar's directorship of IIT Bombay from 1970 to 1974. What he did was something quite extraordinary.' And S. P. Sukhatme, who joined in 1964 and in course of time, between 1995 and 2000, became Director of IIT Bombay, pays tribute in much the same vein, 'In a span of four years, Prof. Kelkar did so many things which have influenced the Institute in a remarkable manner. I cannot quite find the words to express our gratitude to him.'

To those conversant with IIT-Bombay's chronology, this will appear remarkable, since Kelkar was Director for but four years out of the 50 recently completed. The fact that he was able to leave such a lasting mark during his brief tenure speaks, in itself, for the academic vision and wisdom of a man said variously to be an 'alchemist', a 'savant', a 'dreamer', and a 'missionary' on the Indian academic firmament. And IIT Bombay was not the only IIT that Kelkar vitalized with his transforming touch; perhaps more profoundly still, he shaped and nurtured IIT Kanpur, of which he was Founder-Director over 10 path-breaking years between 1959 and 1969. Despite having seen two IITs through their birth pangs and infancy, neither of them in the easiest of circumstances¹, and having mentored them both into maturity, Kelkar remains largely unsung in the pantheon of Indian educationists. Last year marked the centenary of Kelkar's birth, offering an opportune moment to set the record right and recognize his contributions to India's post-independence science and technology campaign, a campaign in which the institutes he led have been key

players. This note attempts a short retrospective of the academic transformations that Kelkar brought about, taking recourse, when sketching his central traits, principally to his stints at IIT Bombay, with which I am more familiar.



P. K. Kelkar

Born on 1 June 1909, at Dharwar in Karnataka, Purushottam Kashinath Kelkar graduated with a BSc in Physics from the Royal Institute of Science, Bombay, in 1933, and went on to gain a diploma in Electrical Engineering at the Indian Institute of Science (IISc), Bangalore. In 1937, he completed his PhD from Liverpool University, and returned that year to IISc to serve as a lecturer, before moving to the Victoria Jubilee Technical Institute (VJTI), Bombay in 1943 (ref. 2). At VJTI, then the region's leading engineering institute, Kelkar was Head of Electrical Engineering and Vice-Principal; his involvement with the IIT rubric began in mid-1955 with the nation's second IIT, shortly after it had been decided to be set up in Bombay. IIT Bombay was to be set up with financial and academic assistance from the USSR, mediated by the UNESCO. To approach the Soviet government for the purpose, a three-member protocol, Kelkar one of them, was formed in early 1955. Their visit sealed the memorandum of assistance. The following year, in 1956, Kelkar was appointed Planning Officer for IIT Bombay and between 1958 and 1959 was appointed Deputy Director; in both positions, with no officiating Director to report to, he functioned for all practical purposes as the Institute's operational and academic head.

Thus, when Kelkar returned to IIT Bombay as Director in 1970, he was no newcomer to the Institute, having been

its chief architect in its embryonic days some 15 years earlier. Equally brief though that first spell was, his influence on IIT Bombay's early growth is regarded as profound, especially in the matter of attracting to its rolls that most critical of ingredients which can make – or unmake – an academic institution: its faculty. From the very start, remembers S. Narasimhan, who joined the Institute in its inaugural academic year, 1958, Kelkar was set on recruiting the best possible faculty under the circumstances then prevailing, and from schools of academic thought as varied as possible, aiming to make the Institute a melting pot of educational canons. Kelkar kept an eye out especially for people who had trained not just in the US but also in the leading European centres of technical education of the time, in the UK, Germany and France.

On a mission to attract the best possible talent to IIT Bombay, Kelkar used the device, amongst others, of painting an irresistibly beguiling picture of prospective work conditions at the Institute. During its first rounds of recruitment, IIT Bombay was encamped in Worli; and though the Institute's move to its Powai campus, famed for its splendid location and riches of flora and fauna, was not to happen until two years later, advertisements drafted by Kelkar in early 1958 emphasized the alluring setting in which staff could expect to work. Nearly 50 years on, M. V. Hariharan, handpicked by Kelkar in those nascent years, remembers vividly the wording of the advertisement to which he responded: 'You are invited to come to the sylvan surroundings of Powai,' he recites the text unhesitatingly from memory, 'to do research and teaching with full academic autonomy.' The words, he recalls with fondness, went to his heart, and he 'immediately applied for the job' – despite being employed at BARC already.

The second lure Hariharan mentions was conceivably a good bit stronger than the 'sylvan surroundings': the promised independence of thought and action which awaited prospective recruits. The prospect of operating with 'full academic autonomy', a luxury unthinkable in the dominant sector of Indian higher education of the time, the university system (and conditions in that sector are little

different today), was certain to entice independent-minded souls to the Institute. One of those so drawn was R. K. Katti, in 1958, into Civil Engineering. In his first meeting with Kelkar, the latter, he recalls, gave him the fullest possible rein to develop 'whatever area he felt he had expertise in', on the sole condition that he keep uppermost in mind IIT Bombay's desire to develop a curriculum that was vigorously science-based. This mix of freedom, flexibility and open-ended approach to education could not have failed to tantalize. 'It impressed me,' says Katti, 'it clicked with my temperament'. And Kelkar was true to his word. When Katti wondered about the premise on which the Institute had been conceived (the IITs were still a largely unknown quantity then), Kelkar handed him a report to read. This, the Sarkar Committee Report, the document that had blueprinted the IITs, emphasized autonomy of functioning as a key prerequisite to the pursuit of excellence, and had advocated a carefully structured science-based engineering curriculum for their students. Kelkar added that although the recommendations of the report were to serve as a roadmap, no rigid plan had been drawn up for their implementation. 'You plan,' Katti recalls Kelkar advising him, 'whatever you think is best for the country and for the Institute'. 'For a young man', reflects Katti, 'it was a very challenging induction; and I took up the challenge, I started planning my research and teaching'.

Katti's interview with Kelkar brings out a defining facet of Kelkar's outlook on engineering education: his unshakable belief in, and insistence on, a firm grounding of the engineering student in the sciences and the humanities. 'Prof. Kelkar was in some sense a visionary,' reflects Sukhatme on this conviction. 'He had a philosophical outlook and a tremendous feel for education. To him, education meant a rounded individual, not learning one subject here and one subject there. It meant a person who, while being an engineer, had a broad feel for the humanities and the sciences.' At a time when Indian engineering education was encumbered by an overwhelmingly vocational approach to the discipline, plunging school-leavers into their specialisms without so much as a nod at university-level physics or chemistry, much less the humanities, Kelkar's views, drawn with keen discernment from a variety of educational canons,

were well ahead of his time. Within the IITs, too, however, there was resistance to such views – not least because many of the IITs' early faculty had been drawn, inevitably, from the pool available at Indian universities, and were steeped in their traditions. An unfortunate fallout was that even though the IITs' science departments had nearly as large a part to play in sculpting their undergraduates as had their engineering counterparts, yet, for many years, the former had to struggle to wrest the status and recognition they deserved – being informally conferred the dubious label of 'service departments'. And if the sciences in an institute of technology should be seen as subordinate to engineering, one can well imagine the status – or lamentable want of it – accorded to the humanities and social sciences.

Kelkar set about dismantling this academic stratification even as it was being erected, seeing to it that recruits to engineering departments were alive to the roles their counterparts were playing in moulding the well-rounded engineer. 'I recall what Prof. Kelkar said in this context,' Hariharan says. 'He was a teacher-philosopher, able to see years ahead. He said that if engineering were the muscle for development, science was the brain. And that only with humanities could engineering education have a heart. Because then the instruction imparted to students became, in some sense, relevant to social needs.'

When Kelkar moved to IIT Kanpur in 1959 as its first Director, he set about infusing that Institute with the same characteristics: accomplished faculty from diverse schools of thought, and a healthy curricular presence for the sciences and the humanities. By the mid-1960s, just a few years into its operations, as much as 40% of the B Tech curriculum at IIT Kanpur was given over to these foundations. 'Breaking out from the dark clouds of traditional systems in technical education,' cites the book on IIT Kanpur's history³, '(Kelkar) brought forth a new and daring concept that would cast the engineer in a new mould, and with a multifaceted capability, a maverick, who could above all become adaptable to (any) needs, whether they be related to scientific theories, innovation, design or even traditional shop floor practice... he argued that problems come in many guises, some pretty mundane and others that require the application of the rigours of scientific thinking.'

The recipients of these innovations, IIT alumni, have consistently acknowledged the part played by the broad-based programme in equipping them with intellectual skills that have helped them stand out in no uncertain terms. Subbarao quotes an IIT Kanpur review: 'From 1964, an important feature of the curriculum has been its emphasis on engineering sciences and Humanities and Social Sciences... alumni acknowledge that the Humanities and Social Sciences programme had impacted their careers and provided the breadth and space needed for their growth' – a sentiment echoed by legions of IIT Bombay's alumni as well.

As an administrator, Kelkar was a committed champion of participative governance, another hallmark of the IITs that set them apart from university practices, where rigid hierarchies and sharply defined pecking orders reigned supreme. At IIT Kanpur, 'Dr Kelkar had the superb ability to balance and synthesize the traditional and the modern, the established and the desired, the fixed mindset of the old and the bubbling enthusiasm of the young raw recruits. To accomplish all this in simple language using the softest tones, was the magic Dr Kelkar possessed.'⁴ And at IIT Bombay, during his second spell as Director, Kelkar went about completely overhauling the Institute's academic functioning and its academic bodies, ushering in a thoroughly distributed and delegated framework of operation. This has stood the Institute in splendid stead over the years, not least because it has allowed widespread, participative involvement of faculty in institutional decision-making. A fully symbiotic tradition, it has allowed the Institute to draw strength from its academic staff every bit as much as it has empowered them to bring about change and reform. And the tradition has endured: but for some tweaks here and there, the academic structure laid down during Kelkar's Directorship survives today as it was framed then, attesting the robustness of the remodelling done some 40 years ago. Bedford's tribute to Kelkar's 'magical touch', quoted at the head of this article, is an allusion precisely to this galvanizing talent that Kelkar possessed.

Kelkar was also keen that IITs perform in research, especially research applied to India's ever-pressing, ever-enormous need for technological solutions to on-the-ground problems. At places, Kelkar wrote passionately of the need for Indian scientists and engineers to direct what he

called their 'psychological energies' towards this end⁵. And though he did what he could, in the realm of R&D, Kelkar's hands were tied. Globally competitive research in the great majority of Indian science and technology institutions remained hamstrung, virtually moribund, until around the early 2000s, because of the hugely restrictive conditions in which it was obliged to be conducted, and the IITs were no exception. It needs also to be remembered that Kelkar was all the while caught up in the less esoteric, often under-applauded, task of what goes by the name of 'institution-building', something that claimed the best part of his time and energy.

Set against Kelkar the academician and administrator, little is known about Kelkar's extra-academic persona. Socially, he is said to have been restrained, even aloof. 'He wouldn't mix with students,' says S. Narasimhan, one of IIT Bombay's old-timers. 'Only if you went to him would he talk, and only then would you realize his depth and erudition. But he was difficult to meet. Indeed the reason why he instituted two Deputy Directors (having two Deputy Directors was something Kelkar had rung in, only for the measure to be rolled back a few years later) was that he was keen on absorbing himself in academic matters, and shielding himself from routine chores.'

In his twilight years, Kelkar turned metaphysical. He spoke of himself, of his colleagues, and of entire institutions like the IITs as 'agents of the Spirit of History,' cosmically pre-ordained to come into being at the time they did, and to play out the roles they did⁶. Here is an excerpt from his talk on the occasion of IIT Kanpur's Silver Jubilee Convocation in 1981, at which he was Guest of Honour. 'The way things happened, the way diverse people were drawn into the most unusual spurt of ideas, innovation and adventure, occasionally bordering on the reckless, have convinced me that the coming into being of IIT Kanpur was a historical necessity. History chose all those who were associated with IIT Kanpur: in the very beginning and in the course of its subsequent development.'

Expanding on the idea of being thus 'chosen', Kelkar declared: 'That is how we participated: not as ourselves but as Instruments of History... I was no longer myself but an instrument of a historical process.... We functioned in thought and action as individuals possessed by the Spirit of History.' Thus the manner in

which IIT Kanpur developed made visible the plan which History had already set for it. Nor did he exclude students from the grand design, speaking of the 'genetic code' which History wrote and which was 'nourished by the idealism of so many, including the students who were drawn in its orbit'.

Sadly, at around this time, Kelkar had reason to turn unhappy with the way IITs and their faculty had shaped up over their first quarter-century or so. The 1980s were a troubled phase for the IITs; within, their performance in R&D left much to be desired, while from without, they had to square up to stern censure on two main counts: one, for failing to stem the much debated, much anguished-over 'brain drain' of their graduates; two, for leading ivory tower existences, indifferent to the larger socio-economic needs of the nation. Vocal deprecation came from none other than Kelkar himself, who had known the IITs first-hand longer and more intimately than most others. In a letter to the 1986 IITs Review Committee, he made no bones about how, in his view, the IITs and their senior faculty had allowed themselves to slide into a trough of lassitude. 'It looks as though most of the senior members of the faculty, in general,' he rued, 'have a "tired" outlook and have very little enthusiasm for change or new ideas or an inner drive for achievement.'⁷ Perhaps more damningly, he believed them to have been estranged from their very métier, the call of the intellect: 'It seems that for many senior faculty members the "academic ethos" does not pose any intellectual challenge nor offer them an opportunity to strive for an "abiding inner satisfaction" for which there is no substitute. Nor do they feel any urge that they should use their scientific and technological competence to contribute something worthwhile in trying to identify problems and their possible solutions, which belong to the "real world" which surrounds the IIT.' He went so far as to express the fear 'that the level of IIT will never rise above mediocrity'.

For one who left such an indelible impression on two IITs and, more widely, technical education in the country, it cannot have been less than distressing to see the system in the grip of (as he perceived it) regrettable decline. Those who knew him at close quarters contend that he remained a disappointed man to the end of his days. Had Kelkar lived on until the turn of the century, he would have

had the pleasure of seeing some of his gloomy notions overturned, with the IITs shooting into dazzling prominence on not just the national but also the international canvas. That, sadly, was not to be; Kelkar died in October 1990, a full decade before the IITs' fortunes, and their reputations, took a turn for the better.

All in all, it was not just the posts Kelkar occupied, but the acute erudition and telescopic sensibility he brought to them, that marked him as exceptional among his peers. In touching recognition of the scale of his contribution to its growth, IIT Kanpur in 2001 renamed the one unit that symbolizes the pursuit of scholarship above all others – its central library – the P. K. Kelkar Library. Looking back today, Kelkar emerges as one of the most remarkable educationists in the modern Indian science and technology enterprise, and also one of the least celebrated of the lot. The IITs at Kanpur and Mumbai can count themselves blessed in having been placed in the charge of one as gifted and far-sighted as Kelkar in their formative years. And for individuals like me, who came to learn about his gifts only second-hand, it will remain a matter of lasting regret never to have come across 'the alchemist' in person.

1. These are chronicled in the histories of the two Institutes published recently. Manchanda, R., *Monastery, Sanctuary, Laboratory: 50 Years of IIT Bombay*, Macmillan, New Delhi, 2008, and Subbarao, E. C., *An Eye for Excellence*, Harper Collins, New Delhi, 2009. Unless otherwise stated, the quotes in this article are drawn from *Monastery, Sanctuary, Laboratory*.
2. I am indebted to Subbarao's book (ref. 1) for these early biographical details.
3. The words are from an address by S. Ranganathan to IIT Kanpur's Senate in 1990.
4. Subbarao, E. C., *Ibid*.
5. Based on copies of articles written by Kelkar in the late 1960s and early 1970s, housed in the Director's Records Room, IIT Bombay.
6. Kelkar, P. K., Address to the Convocation of IIT Kanpur, 1981.
7. Kelkar, P. K., Visit of the Reviewing Committee for all five IITs to IIT Bombay on 6 and 7 July 1984.

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