My Most *Unforgettable Teacher*

The story of an extraordinary mentor who left a life-changing impression

BY MAITREESH GHATAK

ILLUSTRATION BY KESHAV KAPIL

I FIRST MET PINAKI-*DA* on a rainy July afternoon in 1984 when I started high school. In his mid-40s then, he was short, had a salt-and-pepper beard, wore thick glasses and spoke in a perpetually excited, high-pitched voice. Pinaki-*da* also had the most disarming, innocent smile. While students would refer to him as Professor Calculus and mimicked him, even the most hard-boiled ones treated him with affection and respect, since he clearly lived in a world of his own and was viewed as being generally affable, if eccentric.

Even when a student gave a horrendously incorrect answer or showed a truly alarming level of ignorance, Pinaki-*da* would never use a harsh word. He would look genuinely worried and a bit sad, as the house physician would if you were diagnosed with an illness. You almost felt the urge to do better just to cheer Sir up a bit! This brilliant man, who could solve complicated problems in a second, would not correct a vegetable seller for doing the maths wrong and over-charging him because he felt shy, according to our seniors.

Pinaki Mitra, Pinaki-*da* to us, was our mathematics and statistics teacher in Patha Bhavan High School, in the Calcutta of yore. He, in fact, was the most influential teacher I have ever had. And I have been lucky enough to have some great teachers in college, as well as

at the two universities I attended for my master's and PhD degrees in economics—Presidency College, Kolkata; Delhi School of Economics and Harvard University. Some of them are well-known scholars, such as my PhD supervisor and teacher Eric S. Maskin who went on to win the Nobel Prize in economics in 2007. They all influenced me in important ways. When I say that Pinaki-*da* was the most influential, I mean he had the biggest impact on my future trajectory and steered me in the direction that turned out to be my true calling.

Pinaki-*da* taught mathematics and statistics from a conceptual point of view, a far cry from the prevailing style of instruction, largely teaching techniques for problem-solving with an eye to examinations. Not only that, he would always tell us about the historical background of a particular concept or method. For example, how Newton, who independently co-invented calculus with Leibniz, was driven by the goal of coming up with a scientific description of the behaviour of moving objects for which classical geometry was inadequate.

I HAD TAKEN MATHEMATICS and statistics somewhat half-heartedly in high school, to keep some options open, after deciding not to pursue the hard sciences and the medical/engineering route. My real love was literature then. At the same time, my nascent left-liberal political leaning drove me to try and understand the root causes of the poverty and inequality that surrounded our otherwise comfortable middle-class lives. My parents had told me that economics was the right subject for me. However, it required the knowledge of mathematics and statistics, and so I took them up with some trepidation, having no real liking for mathematics.

THEN, ON A RAINY AFTERNOON, in an ordinary school building, a converted large residential house in south Calcutta, lightning struck. Pinaki-*da* was teaching us the concept of limit in calculus. After having talked about real numbers, he explained how mathematicians approached the concept of infinity. As a little boy, I had often wondered if the universe had a boundary and if it did, what was on the other side? Suddenly, a lot of these concepts were beginning to make sense. As Pinaki-*da* would say, if you divide something by zero, you get infinity, and there is no such thing as infinity! It is merely a symbol, an equivalent of a word for expressing something arbitrarily large. In one blow a lot of the metaphysical clouds in my head cleared and I began to appreciate the austerity and beauty of the language of mathematics.

After limit came continuity, derivatives and integration while in statistics we discussed probability. I was transported to a magical world: Everything seemed mysterious and

attractive, and it seemed that the wisdom of earlier generations were all distilled and waiting to be grasped by us. Then, there was no looking back. After all these years, I can still feel that heady sensation after understanding some particularly subtle concept from Pinaki-*da*, only to realize later that there were more layers of mystery to it. Near, yet far. Like limit and continuity.

Pinaki-*da* introduced us not just to mathematics and statistics, but also to philosophy, literature and linguistics. We learnt about the works of Noam Chomsky, Bertrand Russell, Ludwig Wittgenstein and John von Neumann, among many others, in informal conversations with him. Often, he would connect mathematics with the arts in a surprising way. I still remember how he suddenly started talking about the last scene of the famous Satyajit Ray film *Charulata*, where the hands of the protagonists, the estranged couple, Bhupati and Charu, approach each other but end in a freeze shot, suggesting a permanent fracture in their relationship,

*Pinaki-***da** *would often connect mathematics with the arts in a surprising way.*

despite their efforts to come close. The way the hands approached each other, according to Pinaki-*da*, was like the concept of limit—a variable approaching a real number—and the way the scene freezes without them meeting, suggested discontinuity. We were left speechless, in appreciation of the aesthetic beauty of both art and mathematics!
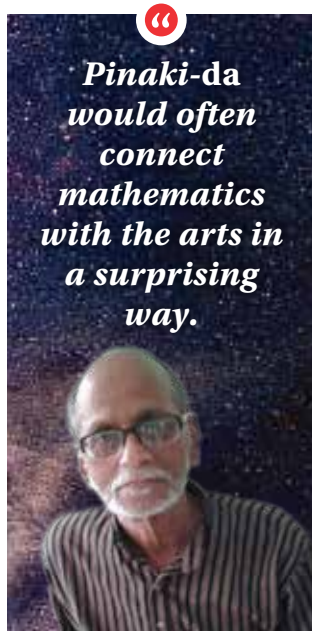
BY THE TIME I GRADUATED from high school, I was 'converted'. No matter what I studied, I knew mathematics would be a part of it. Also, I wanted to do research. The question was whether I would pursue mathematics or statistics as my main subject in college, or economics. At this point Pinaki-*da* and I had a conversation, similar to a heart-to-heart I recently had with Disha, my high school-going daughter.

We were talking about how to go about choosing a subject for college. Each subject is fascinating in its own way because the world is a fascinating place, I told her, and there was no objective way to rank them. Nor should one be guided

only by practical considerations such as job prospects—life is too short and there is nothing more painful than being stuck with something you don't really like, even if it pays you well. The most important thing was to enjoy the journey and relish the challenges that come as part of the adventure. Ask yourself, I told my daughter, what kind of thoughts and questions linger in your mind that may have nothing to do with your textbooks or what people around you are discussing. These questions will lead you to the subject that is likely to suit you the most.
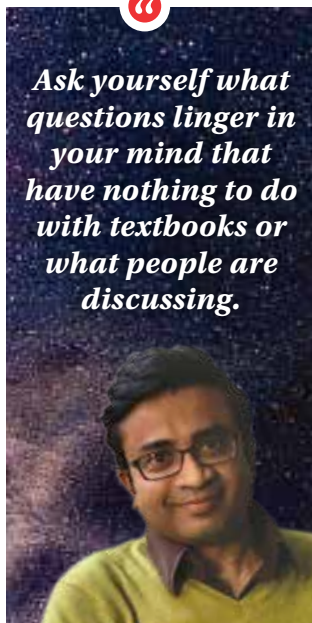
THIRTY YEARS AGO, Pinaki-*da* asked me exactly this: He wanted me to think about the questions uppermost in my mind. I realized that I loved the beauty of mathematics while literature remained my first love, but what gripped my mind was the glaring inequality and poverty around us. I wanted to see if I could contribute to understanding how economies work and what kind of policies would make things better. Even though at that stage I was not able to connect these concerns with the way economics was pre-

sented in textbooks or taught in class. It was only during my master's degree that I finally developed a passion for the subject that was comparable to what I felt for mathematics and statistics earlier. That has never gone away and yes, in the end, I did make the right choice.

It is a rare gift to have someone like Pinaki-*da* as a teacher and mentor. He was a mathematician by training who topped the university examinations from Presidency College, an Ishan scholar—the overall topper in the humanities and mathematics at Calcutta University—and a junior research fellow in the Economics department for some time. He had ample opportunities to go abroad for a research career but was constrained by family responsibilities. He never complained, saying he liked the freedom to read whatever he wanted to, which would not be possible in a more structured environment. It is a quirk of fate that he ended up in Patha Bhavan and a testimony to the school leadership's values—the pursuit of knowledge and creativ-

> *Ask yourself what questions linger in your mind that have nothing to do with textbooks or what people are discussing.*

ity above examination results and material success.

I was lucky to know him. Pinaki-*da* not only had a brilliant mind but could transmit his passion for knowledge and understanding in a way that life was never the same for me again. I came to see hidden mysteries in everything and scholars as adventurers looking for solutions. He inculcated a sense of intellectual cosmopolitanism in us—he was much influenced by the philosophy of Bertrand Russell and was skeptical of dogma of any kind, religious or otherwise.

When I spoke to Pinaki-*da* on the phone recently, I asked him what occupied his mind these days. He was fascinated by the writings of Haruki Murakami and was reading a lot of literature in general. What about the political and economic controversies of the day? Absolute truth exists only in mathematics and logic, where two plus two always equals four, he said. Society, however, evolves in such a way that no political ideology, no belief system can provide a formula for a perfect world: "There is no ideal society. It is like the concept of limit in mathematics." At that moment I felt that there were some constants in life, at least. Thank goodness for that, and thank you Pinaki-*da* for being such a tremendous influence on my life.

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His mentor Pinaki Mitra leads a happy retired life in Kolkata, reading and spending time with his grandson in Bengaluru. He is extremely proud of Maitreesh Ghatak and other students who are achievers in their fields. ℞

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BERRY FUNNY

Everyone likes a good, clean, fruit-based joke:

What happens to grapes when you step on them? They wine.

What do you call a sad strawberry? A blueberry.

Why did the orange stop? Because it ran out of juice.

Source: *buzzfeed.com*