

Convocation Address - 2019



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Strive for Excellence

The Dignitaries on the dais, IISER Faculty and Students, Ladies and Gentlemen,

The Convocation Day represents an important day in the lives of those getting their degree today. Just as it is a landmark day in the life of the graduand, it also marks a significant stage in the career of their teachers. For, today the teachers can congratulate themselves for having produced a fresh batch of graduates carrying the mark of this distinguished institution. For, I do recall that the concept of IISER evolved through brainstorming amongst scientists of various disciplines. I recall attending those discussions which arrived at the notion of an institution that would have the excellence of an IIT but will carve out a niche for basic sciences. The result of those discussions is today before you.

When one recalls those discussions one important criterion stands out: the criterion of excellence. Today several excellent institutions stand out as beacons for the newly emerging IISERs: to name a few, Oxford and Cambridge Universities, the Sorbonne and College de France, Caltech and MIT, .. the list extends further, but not very far. For, excellence is not a common commodity nor is it easy to acquire. I thought that I could illustrate what I mean by examples drawn from my alma mater which celebrated its eight hundredth birthday about ten years ago. I am referring to the University of Cambridge.

The birth of Cambridge University was precipitated by the social disturbances arising out of arguments relating to religious priority. For example, when the post of the Archbishop of Canterbury, the highest religious head in England, fell vacant the question of his successor arose, linked with the question as to who was the appointing authority. Those who supported the King argued that King of England was entitled to make this appointment. On the other hand the supporters of the Pope, who operated from Italy spoke in his favour. Verbal

controversy is one thing; but when it degenerated into armed brawls, many scholars in Oxford University felt it unsafe to continue at Oxford and they migrated to a politically quiet part of England, which happened to be the town of Cambridge on the river *Granta*, often called *Cam*.

That was around the year 1209. As the migrating scholars from Oxford needed an academic environment, gradually colleges were founded and subjects of study also identified. Fortunately, the socio-political temperature had cooled down and in due course both Oxford and Cambridge received the Royal Charter as well as Pope's permission to their scholars to teach anywhere. So Cambridge University can trace its origin to that year about eight centuries ago.

Eight centuries is a long period! It will take a long time to review the progress of the university over that long a period. The more recent and more exhaustive reviews of different universities by agencies like the World University Rankings gives Cambridge a high rank like the rank of the second best university in the world. A count of Nobel Laureates who had either studied here or done some of their work here gives a total of 116. The number of Fields Medalists from Cambridge is 10 and the number of Turing Award winners is 6. In the last analysis, one can say that the greatness of an institution is decided by the quality of its membership. So here are some anecdotes about geniuses from Cambridge.

The Mathematical Tripos is the oldest and arguably the most difficult graduate level examination in mathematics at Cambridge. There was a time when the list of candidates passing out from it was read out in order of performance. The candidates who passed in first class were called *Wranglers* and the candidate topping the list was called the *Senior Wrangler*. The Senior Wrangler was highly respected for his mathematical acumen and he would easily get a prestigious job or Fellowship in Cambridge (or elsewhere).

Naturally there was heavy competition for Senior Wranglership. In one particular year, the top two scholars in the class were Thomson and Parkinson. In general it was believed that one of them would emerge as the Senior Wrangler. Of course bets must have been placed on the possible outcome. In the end, when the results were declared, Parkinson was the Senior Wrangler and Thomson the Second Wrangler. While examining the scripts of the two students the Examiner was struck by one aspect. *Both had solved a particularly difficult question in exactly the same way*. No one else had even tried to solve that particular question. Looking at this issue the Examiner felt

that there was something to be explained here. Did one candidate copy the result of the other?

To resolve the issue the Examiner called both candidates and interviewed them one after the other. First he asked Parkinson how he managed to solve such a difficult question. He replied: "Sir! I read research journals besides the textbooks. I saw this question solved in a research paper by an author who had not given his name." The statement agreed with the experience of the examiner himself, who had used the very same paper for setting the question. He complimented Parkinson for his habit of reading research papers. He then called Thomson being by then almost certain that he had copied Parkinson. He narrated what Parkinson had done and asked somewhat sarcastically if he too read research journals and had seen the paper on which the Tripos question was based. Whereupon Thomson replied: "No Sir! I wrote that paper." This is an example of the level to which excellence can rise!

It is worth noting that Thomson of the above story, later blossomed out into a great physicist and made contributions to the subject of electromagnetism and thermodynamics. Peerage was conferred upon him and he is known in scientific literature as Lord Kelvin. I am sure, the students here are familiar with his work.

Another anecdote relates to the statistician Karl Pearson. In those days the Tripos question papers contained a mixture of very easy and very difficult problems. The understanding was that the students, largely sportsmen or non-serious socialites would do the easy ones and get away with a 'pass' degree. The really difficult questions were reserved for the scholars. Of course the questions as such were not so identified. But it was expected that the easy questions carry low marks whereas the hard ones would fetch very high marks.

In his final examination, Karl was sitting behind a cricketer and after about fifteen minutes he noticed that the latter had ticked a certain question. Since the guy was a player and not a scholar, his question must be easy. So thinking, Karl looked at that question, expecting it to be so. On the contrary, he found that the question could not be solved so simply. But then how did his sportsman colleague manage to solve it? Had he, Karl, missed some trick that made the problem easy? Thinking that his sports colleague must have somehow spotted that trick, Karl decided to do that question first. But he could not spot the trick and though he finally solved that question, he spent all his examination time on it.

Thinking that he had 'wasted' all his time on an apparently easy question Karl became very depressed. But he wanted to know how did his cricket colleague solve that question. As they were leaving the examination hall, Karl accosted him to ask how he had managed to solve that particular question. "But I didn't!" replied that fellow. At which Karl showed him the tick-mark he had made. The cricketer laughed and said: "That was mere doodling! I could not do any question and so what else could I do?"

As it turned out, the question Karl had solved was a very difficult one and so he had collected high marks for it. When the results were announced he was the Third Wrangler.

Even scholars might sometimes become complacent and pay the price for it! James Clerk Maxwell, who later was the author of the well known Maxwell's equations, had been so confident of becoming the Senior Wrangler, that he did not bother to attend the result reading ceremony in the Senate House. He sent his valet instead and asked him to find out who was the Second Wrangler. The valet came back with the shattering answer: "You Sir!"

I could go on and on! But I feel I have made a point. The room at the top is highly competitive and hard work accompanied by original thinking is called for it. The Tripos Examination abolished ranking in 1909 since the lure of Senior Wranglership led to unhealthy competition. But the university, because of its achievements prompts students to strive for excellence... not only in scholastic studies but also in sports, debating, and many other activities. I recall in my first year at Cambridge a news item was headlined in the Times and other national newspapers. Some students, in order to celebrate the end of examination, had managed to place a car on the roof of the Senate House. How did they do it? Even the Fire Brigade could not bring it down the Proctors announced an amnesty that those who did this act will not be subjected to any disciplinary action *provided they brought the car safely down!*

This brings me to the end of my narrative. The moral is that one should strive to achieve excellence, *whatever be the field*. It is not that all of us achieve excellence. But it is important to try for it. You may face difficulties on the way but I am sure, many of the students assembled here will do something that brings them job-satisfaction and also brings good name to IISER. While I convey my congratulations to those who received their degree from this distinguished institution, I also wish them a creative future.