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EDITORIAL

A developing crisis in higher education

Within the sheltered environments of research institutions, national laboratories and the sprawling organization of the strategic R&D establishment, discussions on the future course of science in India are inextricably linked to budgets. The scramble for funds is inevitably tied to the mounting costs of scientific research and the common perception that large grants must signal scientific success. There are occasional discussions on the declining quality of training that is imparted to those seeking to enter these laboratories. Some would go so far as to categorically state that there is a discernable and pronounced decline in the quality of those who seek careers in science. But, even a casual visit to many of the countless colleges (and Universities) that grant Bachelor's and Master's degrees across the country will reveal that a problem of alarming dimensions is slowly in the making. In some states, Karnataka which is home to this journal is among them, there are few takers for degree courses in traditional disciplines like chemistry, physics and mathematics. Biology is marginally more attractive, especially if the course is repackaged as 'biotechnology' or 'microbi

still appears hope, that those who ride the crest of the biotechnology wave will one day reap rich rewards. Classical disciplines like botany and zoology are best hidden, notwithstanding the growing crescendo of concern about our biodiversity resources. Geology, despite the earthquakes, has a very low profile in undergraduate institutions. In Karnataka, we have the remarkable spectacle of 'vanishing classes', in the once, moderately popular physics-chemistry-mathematics (PCM) combination. A few weeks after the commencement of the academic year, supplementary admissions to the myriad 'engineering colleges' across the state are announced; prompting an exodus, leaving the classes, in many disciplines, of the degree colleges empty. Since many teachers then have little work, the Government, in turn, would like to downsize grants, understandably prompting a flurry of protest. Interestingly, in the same colleges, courses in commerce and the humanities do not suffer this phenomenon of sudden migration; indeed, while students in the former look forward to bright prospects in the liberalized economy, those in the latter appear to have fewer choices. For

students the die is cast as they near the end of their schooling.

But, today the various disciplines of science in our colleges face an automatic regression, as students flock elsewhere; the onslaught of 'information technology' (IT) has been relentless. Few, parents or students, can resist the lure of this hugely successful area of business, which promises to revolutionize our lives. The governments in some states have contributed to this frenzy by opening innumerable institutes for information technology. It is not clear, however (at least to this writer), whether teaching in these institutions conforms to minimum standards and whether qualified teachers are readily available. The contours of the discipline of 'information technology' are also not clearly drawn. Most recently, in the wake of the genome euphoria, 'bioinformatics' (whatever it may mean) has become a favoured child for state support. While the IT courses draw into their fold students from almost all disciplines of science and engineering, the flight from the latter is most pronounced. The professional training imparted to these students in various specialized disciplines is largely wasted as they take up positions in the 'software sector'.

The hardest hit departments are those that teach pure sciences in the colleges. For managements in many institutions, particularly those that are privately funded, the way to survival appears to be to start new courses, business administration and catering technology amongst others. But, as the science departments slowly decay we may ask: 'Do we need science courses at all? If there are no takers, should these not be wound up? After all, in the brutal aftermath of liberalization, should not the market rule?' Ironically, science teaching is at its lowest ebb in India at a time when science appears to be poised for another major leap forward. The remarkable technological advances of the last two decades, computers amongst them, have brought many areas of science to a critical point where major beneficial advances appear to be around the corner. While biology has been at the forefront of recent discussions, in the wake of the spectacular successes on many fronts, it is clear that modern biology is not a homogeneous discipline; rather it is a conglomeration

of almost every discipline of science. It is therefore critical to reexamine the issue of undergraduate science institutions and the teaching of science, if Indian research laboratories hope to participate in the inevitable flood of science that lies ahead.

Research institutions face stiff competition for a limited number of well qualified science students, as every major university in the world attempts to attract the best of graduate students. Major institutions overseas now conduct vigorous recruiting programs for students from India; few can resist the lures of foreign universities. Our own institutions do not often appear sufficiently attractive and are also ponderously slow in their methods for admitting beginning researchers. Recruitment of fresh talent, both at the level of students and faculty, is the lifeblood of a research institution. On both fronts the numbers are diminishing, a phenomenon that does not augur well for the future.

Many years ago, the problems of teaching science in colleges and universities would have rightfully been under the purview of the Ministry of Education. But, even this body has had its name changed a long time ago to the

Ministry of Human Resources Development (MHRD). There is indeed a world of difference between the problems of education and the more defined task of 'developing human resources'. Today, we are indeed producing human resources in plenty, for the IT sector and the many areas of commercial activity, marketing and business administration, amongst them. But several other areas of higher education appear to be haemorrhaging severely and may be in need of intensive care. Unfortunately, the education sector has been divided into the groups of primary education and higher education. While there is undoubted need for great emphasis on the former, the needs of the latter must not be completely ignored. It is time that the University Grants Commission worried seriously about the steady decline of science education. With the cooperation of the many Ministries and departments that are directly concerned with the fruits of science, it may still be possible to halt the decay of the departments which teach science.

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