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EDITORIAL

Prizes

At this time of the year the Nobel prizes bring into sharp focus the process of recognition of individual achievement in literature, the sciences and economics. The prizes for 'peace' are best left undiscussed. This year's awards brought some cheer to India in the shape of Amartya Sen, whose decision to retain his original passport ensured that his fellow citizens can bask at least for a while in reflected glory. In the sciences (although limited to physics, chemistry and medicine) the Nobel awards represent the summit of recognition, despite an increasing number of handsome prizes emanating in different continents, which have been growing in monetary value and prestige. In recent times, prizes in many disciplines are shared, often by as many as three individuals as happened this year in physics, and medicine. Inevitably, as the number of scientists who make important contributions grows, major omissions in the Nobel awards are the subject of intense discussion in the weeks following the announcement. This year's prize for medicine and physiology, which was shared by three Americans, Robert Furchgott (State University of New York), Louis Ignarro (University of California, Los Angeles) and Ferid Murad (University of Texas Medical School, Houston), for their work on the role of nitric oxide in physiology and their recognition of its importance as a signalling molecule in biology, has stirred up a minor tempest. Omitted from the honours list was Salvador Moncada (University College, London) who was indeed the leader of the group that first concluded that Furchgott's 'endothelium-derived relaxing factor' (EDRF) and nitric oxide were indeed identical. Moncada's paper published in *Nature* (1987, **327**, 524–526) led to an accompanying 'News and Views' write-up that called the finding – 'the climax of one of the most exciting sagas in vascular physiology and pharmacology'. Nevertheless, Moncada has been left out in the cold. Surprisingly, the 1996 Lasker award for medical research, often considered a forerunner of the Nobel prize went only to Furchgott and Murad. Moncada's exclusion has prompted Cesar Milstein (of monoclonal antibody fame and a 1986 Nobel laureate) to strongly criticize the Nobel Committee and to state that he is 'uneasy about

the way that recognition is being given at the level of major prizes, and in terms of careers and publications'. There have also been instances in the past (and even this year) where members of research groups, whose leaders have been recognized, have felt that they have not been given a fair share of the credit. The frequency, with which controversies accompany the announcement of such major awards, appears to be increasing; an inevitable consequence of the growing complexity of the scientific enterprise. Fertile research fields are often born inconspicuously but later flower, producing a flood of results. A high level of retrospective scholarly analysis is necessary in order to trace the intellectual roots of an area of science. With larger numbers of scientists making important contributions, future prizes may be as much noted for their omissions as for their citations.

In deciding awards there is always the conflict of choosing between 'discoveries' and substantial bodies of work that slowly transform a field. The polymerase chain reaction (PCR) is an example of an instantly applicable discovery that swept the field of molecular biology like wildfire, garnering for its discoverer, Kary Mullis, the Nobel prize in chemistry. Here scholarship and years of intellectual toil were conspicuously absent; what was important was the quick germination of an idea, that led to a technique whose time had come. In awarding the prize to Mullis the Nobel Committee strictly followed the terms of their benefactor's will. Many times however, awards are not made for 'instant finds', but are indeed given to those who have cultivated an important area of science for years; transforming an initially barren field into a lush and thriving area of scientific activity. Here, patience, dedication and a firm conviction of the importance of a relatively uncharted area ('tall oaks from little acorns grow') are necessary to carry pioneers through years of non-recognition. Several Nobel awards do indeed pay a tribute to lifetime achievement, although the bare citations sometimes hid this fact. This year's chemistry prizes to John Pople and Walter Kohn may indeed fall into this category. The recent Lasker awards also included a special lifetime honour for Daniel Koshland, the Berkeley biochemist.

Even the mathematicians at a recent Congress feted Andrew Wyle (the conqueror of Fermat's theorem) with a special achievement award. He did not receive the Fields medal, because of limitations on the age of the awardee. But then as an onlooker is reported to have said – 'Wyle does not require the Fields medal as much as the medal requires Wyle'.

Are awards important? The desire for recognition by peers and the public at large is an almost universal feature, in all spheres of human activity. For filmstars, sportspersons, artists and musicians, public appreciation

can sometimes act as the catalyst for greater achievement. Scientists (though less visible in a public sense) are often no different. The problem with awards, of course, is that for every deserving scientist who wins one, there are several equally accomplished researchers, who do not. In India too we have built up elaborate rewards system, whose credibility is often questioned. Reflections on the awards process must, however, wait for another time.

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