Genetics Society of AustralAsia

Promoting the science of Genetics in Australia and our region

Submission – Higher Degree Research

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Until a few years ago Australia produced highly competitive graduates, well educated and consequently capable of contributing in scientific research. Note that the word used is "educated" rather than "trained". It is essentially impossible to "train" a person to be innovative, but a good intellectual environment best provides a basis on which suitable minds may build to become effective in research. The recent pressure to graduate a PhD student in three and a half years or less usually leads to elimination of the phase of the education that is required for the identification of a hypothesis and the use of the scientific method in rigorous testing. A true scientist must be self directed and more flexible time is required.

The effectiveness of current Commonwealth research training schemes is mixed. The outcome of the current scheme is that many graduates are incapable of participating appropriately in scientific research of the sort that will lead to real advances. Short-term, blinkered projects that are geared to stay within politically manipulated goals preclude student freedom that has been proved to be essential for the development of truly innovative research. We maintain it is necessary for a PhD student to have the freedom to pursue a research project to the next scientifically appropriate stage however "worthless" that direction may initially appear. While this is particularly true in research education, it should also be a possibility that is widely available throughout science. Without it, for example, restriction enzymes and telomerase would not have been discovered because the former required an interest in why bacteriophage would grow on some bacteria and not on others, and the latter investigated the very odd macronuclear chromosomes of a protozoan. Neither of these areas could have been set as "National priorities" at the time and consequently the immense power of modern molecular biology would be unavailable (restriction enzymes) and one of the potentially most significant advances in cancer research (telomerase) would not have been made.

The mix of fundamental, curiosity driven, research and strategic research is currently out of balance in Australia. Part of this problem is due to the requirement, regardless of the quality of science involved, to demonstrate national benefit in research grant applications that counts towards the score used to determine funding. This strategy undermines the possibilities of probing the frontiers in areas of science which have unforseen benefit in the longer term. These requirements have been instigated by people who have little or no knowledge of how science progresses. The maintenance of scientific freedom needs to be recognised as a priority and its exponents better valued. Successful, working scientists need to be consulted very directly rather than through a powerful management interface. The appropriate consultation group may be identified by their work in peer review for the foremost scientific journals.

The support available to graduate students in Australia is on a knife edge. For the most part, student research is supported properly only when their supervisors obtain sufficient competitive grants. Cutting edge biological research is often expensive, requiring maintenance funds in the order of ~$12-15K per year. Fads and fashions by granting bodies can mean that a student's resources are terminated during their candidature.

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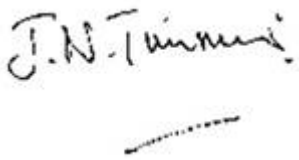
Surprisingly, the best brains are still attracted to research simply because of overriding intrinsic interest. Yet the career structure for scientists is abysmal and, even the most successful - such as those who gain the giddy heights of a Professorship at an Australian University – do not receive appropriate remuneration and recognition in comparison with many similarly able and successful individuals who work elsewhere in the community. For the less successful scientists the prospects are grim in that there are very excellent scientists who are not even granted the courtesy of knowing in October whether they will have a contract job in the following January – and too often they will not have a job. The ARC Future Fellowships may improve this situation.

Many of the best scientists, after completing their PhD, temporarily or permanently leave the country to obtain new insights into the pursuit of science. We should not be thinking how to keep such scientists within the country – we should be seeking ways to attract scientists from elsewhere so that we gain from a reciprocal cross fertilization of new blood and ideas from elsewhere. This is why Australian-trained scientists do so well in new environment – going overseas marks those with enquiring innovative minds. Science is global not parochial. In this respect it is pertinent to note that overseas Postdoctoral Fellows normally would be expected to reside in Australia under class 418 Education visas which are now particularly disadvantageous to those with families – the majority. This group, though small in number in the overall scheme of things, is a vital and highly effective part of our scientific manpower. The provision of attractive incentives rather than obstacles would benefit Australian science by counterbalancing the understandable, and ultimately beneficial, wish of our own PhD graduates to gain scientific experience in other arenas.

Australia's academic workforce is certainly aging but this is a minor player in the reduction in research capacity. Cuts in public funding have precluded the normal processes of rejuvenation and succession. Worse, these cuts have made impossible the staff increases that should have accompanied increased student numbers. The staff work loads in Australian Universities are high and this has adversely affected research success and the quality of student supervision. Added to this has been a disproportionate increase in administrative duties, both for academic staff themselves and because administrative staff have increased - demanding an increased proportion of the funds available.



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