

Chancellor, Vice-chancellor, members of Council, it is a pleasure to present the 1992 Annual Report of the Faculty of Science.

As usual, the volume you have received contains reports by the Heads of the major academic organisational units of the Faculty. During 1992 these numbered eleven--the Departments of Chemistry, Physics, Mathematics, Computer Science, Geology, Geography and Forestry, the latter two constituting the School of Resource & Environmental Management, the Divisions of Botany & Zoology, Biochemistry & Molecular Biology and Psychology, which constitute the School of Life Sciences, and the Interdisciplinary Engineering Program.

This will be the last annual report of the Faculty of Science in which the activities of such a wide range of disciplines is described. As Council is aware on September 8, the Minister for Science & Small Business, Senator Chris Schacht inaugurated the new Faculty of Engineering & Information Technology formed by the transfer from the Faculty of Science of the Department of Computer Science and the Interdisciplinary Engineering Program, the latter now renamed the Department of Engineering. The inauguration of this new Faculty is a momentous event, not only for the Faculty of Science, but also for the whole University. It comes as the natural culmination of a deliberate policy to broaden the discipline base of The Faculties. Indeed, Vice-chancellor as you prepare to leave office I would like to prophesy that in time we will look back and identify the new faculty as the most significant event of your vice-chancellorship eclipsing all the turbulent events of the past few years. On behalf of the new Faculty I would like to take this opportunity to thank you for your support and encouragement.

As Council may recall from my previous reports, the establishment of Engineering has not been without difficulties. Housing the new program was the catalyst for the SPAM project that significantly disrupted much of the Faculty of Science. Funding of the new program from a Faculties' budget that was decreasing due to the RFM adjustments has not been easy. Not all that the engineers would have liked has been possible; nor will all be possible in the future. However, the Faculty is now established--Engineering is now part of the The Faculties. What is needed now is a strategic plan for The Faculties that allows Engineering & Information Technology to grow--both in student load and in resources--over the rest of this decade. That must become a high priority for The Faculties. Without such a vision it will be difficult to ensure that the University maximises the benefits that should flow from this major initiative.

While the birth of this new faculty, is clearly the most significant event of 1992/3, there are many other achievements of which the Faculty of Science, and the University, can be justly proud I would like to briefly mention three--one in teaching, one in research and one in community service.

Let me begin with my example from research. Members of Council may be aware of the recent publicity given to work by an Honours student, now PhD candidate, Mr Vincent Craig of the Department of Chemistry. This work concerns the behaviour of salt solutions and has intriguing and far-reaching implications from an understanding of 'bends' in divers to the origin of life as we know it on earth. This project is, however, but one of a number of projects emanating from the group led by Professor Ric Pashley, whose research demonstrates the synergy between basic research, inspired by nothing more than curiosity and serendipity, and applied research of direct interest and relevance to industry. Details of this work, which range from the fundamental work of Craig to work on the understanding of the way latex paints dry to indeed a revolutionary new way to make a white paint without the need to use TiO₂ are contained in the report of the Department of Chemistry, albeit in typically muted tones since the author of this report is Pashley, himself.

For my example of innovative teaching I turn to the Division of Biochemistry & Molecular Biology and their work exploring the use of computer simulations as an adjunct to 'wet' laboratories in biology. While financial considerations are a factor in this initiative, computer simulated laboratories have the potential to provide educational opportunities that cannot be duplicated by any of the standard methods of teaching. A large amount of laboratory work must remain part of a course in experimental science, because learning to read an experimental protocol and handling the materials dexterously is something that can only be acquired by practice. But there are many experiments whose value lies in the insights to be obtained by designing the experiment and analysing the results. These particularly lend themselves to simulation, with the objectives better realised. Details of this project, which is funded by a grant from the CAUT, are presented in the report of the Division of Biochemistry & Molecular Biology.

For my final example, concerning significant service to the community, I return to the Department of Chemistry to note the work of Professor Ben Selinger, who last week received the 1993 ANZAAS Medal. During 1992 Professor Selinger won acclaim for his role as Chair of the Intractable Waste Inquiry; an inquiry that was remarkable for the degree of public involvement and final acceptance of its recommendations. Ben's renown skills as a scientific communicator played a crucial role in this success; in the process bringing considerable credit to the ANU.

My highlighting of these individuals is not meant to give any special status above many other meritorious achievements of 1992 but, taken together they dramatically demonstrate the range of activities in which the Faculty of Science is engaged. In a year in which the word 'quality' took a special connotation in higher education, they demonstrate, I believe, that you, as the University's ultimate body, can be assured that the University has a science faculty of the highest quality.

However, in concluding I need to also issue a note of caution--indeed, of warning. High quality teaching and research in science is not cheap. Yet the successes and achievements that I have mentioned and all the others documented in the departmental reports have come against a backdrop of rapidly declining resources. In 1988 the cost per efstu in the Faculty exceeded \$10000 in 1988 dollars. In 1993 (excluding Engineering) the cost is less than \$8000. That figure compares with the figure pertaining at Monash, where Science has the benefit of a scale we do not have at the ANU and includes the lower cost programs of the old CAE's now amalgamated into Monash. The total DEET budget of the Faculty (now including Engineering) for 1993 is about \$15 million. However, the Faculty 'earned' some \$7 or 8 million in external funds, including \$1.2M in FFPOS. That is a staggering comparison--some 33% or more of the expenditure in the Faculty is now not derived from the University DEET operating grant.

I believe you need to be aware of, and reflect on, the implications of these sorts of figures. The Faculty has adapted to the new times. It is still highly successful but only because of a talented and immensely dedicated staff--both academic and general. They are, however, limits to which that dedication can be stretched.

Michael N. Barber

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