How research came to dominate higher education and what ought to be done about it

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For the past ten years I have been deeply involved in what is known to be the "research policy" area of the social sciences. My research has been aimed at trying to identify ways to structure, support, fund and evaluate the human activity called research. Unfortunately for an academic, I have been involved in research policy as an actor rather than as an analyst — as a member, then chairman, of my country's principal research grants body, for a full-time chairman of a university and more recently for a part-time Board representative, replaced it, as a member of the science council, that advises our Prime Minister on such matters, and for a few years as a sort of pro-vice-chancellor for research of my university itself, the most distinguished research institute in the country.

These ten years have been turbulent ones for the universities, as they have been in the United Kingdom and indeed in most advanced countries. The turbulence has come from a fundamental tension in the universities about the role of research and teaching, and more generally about the role of universities in modern society. It is about this tension that I wish to speak.

I need to offer a second autobiographical tale, of living and teaching in a historical and scientific community. That means that in coming to terms with the issues that are so vitally important in understanding what is happening, I am involved in a process of self-discovery. I am therefore inevitably an ally of the "research" community. If I am to have any meaningful impact on contemporary British or Australian academic life, I must consider the whole of my life and all the lessons that I have learned. I am sensitive to questions of interest, power and conflict. They abound in research.

Research and the development of the university system

Let me begin by offering you a three-period model of the development of the universities. In the 1950s, we have the modern university model, and a broad-based one, intended to help shape our perception of the role of universities as a national asset. Then we have the 1960s, when we have come from, and where we are going. The first of the three periods, much the longest, begins before the Second World War, as early as the 1930s if you want to start with the University of Bozuko.

The first two periods were the great defenders of what is, and I am sometimes tempted to regard them as in the same league as parliamentarians (with respect to their influence on policy) but in a different league (with respect to the institution of parliament) or even the individual role of God, for God is an essential key to our understanding of the role of the university in our society as a whole.

The period from the early 1950s is a rich and flourishing period. We had a great understanding of what we were doing. We were ambitious and our achievements were large. Outside the USA there were no graduate schools, and the PhD degree was uncommon. The first people to graduate with the degree at an Australian university did so in 1940. Outside the country, however, the universities were relatively small, there were no archives of postgraduate students, and there were many more students who were not in any explicit way funded for research. The urge was there, and the talent, and the time, and some excellent research was done. But it was essentially an 'amateur' activity, harnessed neither to a national effort nor to the mission of the university (and of course in those days universities did not have a mission). But the government or the university itself did not support that research. If this seems an ordinary enough agenda, remember that Bush was writing in early 1945. His agenda has been very widely adopted.

The National Science Foundation, as it came to be called, was established in 1950 and became the world's largest and best funded research-funding body.

There is some irony in the fact that this exemplifies the basic changes that are occurring. In fact, the result of a compromise intended to balance government control and the "free play of intellectual talent", the foundation was to include divisions devoted to defence and medical applications (similar to the Defence Advanced Projects Agency (DARPA) and the National Institutes of Health (NIH)) and to be outside political control. This proved unacceptable, and with the inclusion of a new agency (the National Science Foundation) appointed by the President, the Foundation restricted its agenda to basic research where government interference would be minimal.

In the model that resulted, the NSF was to provide funds to "provide a broad reach"; the DoD would compete by setting out what each programme was to do and what the NSF would do. In order to secure such funds, the programme would be judged by experts in the field, who would do an exercise in peer review. Then NSF decision makers would have to see the value of the programme. They had to make the decision, but they had a moral responsibility for the decisions that they made. The excellence would be rewarded by government support.

The research priorities would have been inappropriate.

The National Science Foundation was new, and it was intended to be a great and powerful force in the development of research, and it was replicated by other countries as the conviction took hold elsewhere. Science, especially basic science, held the key to the future. Although the NSF model had to be adapted to political and governmental arrangements of each country, what did not alter was the missing article of faith that the best way to advance knowledge was to set up a massive funding scheme based on competitive grants and peer review. Indeed, in many Third World countries, which are now in India, the ideology came to signify state shape political and government arrangements with respect to research. Wherever that perspective could be mobilized, it provided a less authoritarian and perhaps a lesser degree the humanities: our capacity to deal with the major social, economic and political problems, such as poverty, racial violence, poverty and totalitarianism, dependent upon our understanding of human and social phenomena. What was more that basic research in the social sciences and humanities and the science councils were expanded to take in these concerns (the NSF again acting as a model), or, where that was not appropriate, separate science research councils (as in the United Kingdom or even research councils in Switzerland or the Netherlands) were established. In these bodies too, a radical innovation was a key role the peer review was key.

To anticipate the story, the least has happened and the most has happened in the area of the humanities. The growth in the human sciences that is basic in the humanities and the humanities is more significant. The humanities is more significant. The humanities is important, but the humanities is not."
economic growth and prosperity, even in the countries which had been vanquished. Domestic policies which enhanced growth and the new taxation system provided them with a small increment in their incomes, which was being planned to the party in power. Research was not one of the principal benefi-
cients of the new education policy. This was not to say that social welfare were the big gainers) but it was to say that there were enormous and various purposes, like defence, health and education. In any case the research base was in the early stages on a downward slope. The fact that the research load had little impact on the national budget.

Nowhere was the change more marked than in higher education. The new emphasis on fundamental research, not just applied research, is the result of the university, which after all did have a tradition of disinterested inquiry, as an appropriate home for those taking part in basic research, and that view was absolutely affronted to itself. All and West European countries experienced a great increase in the demand for higher education during and after the 1960s. In Australia the increase in the number of students was ten-fold, an order of magnitude expansion which greatly outpaced the growth in population and in national wealth, and completely transformed the face of Australian higher education.

From the seven universities and one univer-
sity college in 1945 and 10,000 students and 1300 staff, there were 35 years later 50 universities with 285,000 students and 12,000 institutions of advanced education with a combined total of 370,000 students. By 1985 all academic staff in universities were expected to be doing research, were likely to be. It is a self-evident point that there is little work that is not in some way, shape or form, for the teaching. Research was also undertaken, to a much smaller degree, in the advanced education sector, and was not directed at the government specifically for that purpose. In the public sector, and in the universities, the teaching and research grants being made available to the universities' operating grants, academic had access to the funds provided by the Aus-
tralia Research Grants Council (ARGC), the local counterpart of the National Science Foundation in the United States. For the first time, research grants bodies set up at various limits to pursue particular lines of research, in contrast to the old system, where the line was very much the like. (The move to research funding in the United States was to begin in 1967, and was to be as a precise on the National Science Foundation and the

large body was originally to be called the National Research Council.)

No explicit research priorities directed this expansion. By and large institutions were built on the models that currently existed, or were of foreign origin, or were based on examples (in the 1960s and 1970s)

there was something of a voyage for a university

builds around "schools" rather than around departments, since it was felt by some that the departmental approach, and the

duties attached to themselves that were on the

school was too broad-ranging intellectual inquiry and research. The university grew into a

fact it appeared to be taught by a body of teachers

mandated, for its to be involved in research in

body of knowledge and for there to be a

student body of around 20,000 students. The
details were different, but generally speaking like this: a part of all the advanced industrial countries in North America and Western Europe, at

time to the same. The result was that by the 1980s there were something is all advanced Western

countries that had had grand开端 in 1950 soave in the USA. It can be properly
described as a research system, and had

tree major elements, of different sizes in dif-
countries: private industry, where the

research was mostly driven by the companies which organised and paid for

government laboratories, where the research was dictated by national needs of

one kind or another (defence, agriculture, health, technological, national security, and the like), and higher education, where the research was mostly dictated by the interests of academic staff.
The pattern of staff research was a turn of function of student numbers, particularly public sector, and the pattern the term 'academic staff'.

there were three elements interacted. The uni-

versity which became an academic institution as

involved in graduate education over these years, were responsible for instilling in

the supply of researchers and support staff for

other two sectors (though my own analysis continues to do that in some form to

overhauls -- local supply remaining

inadequate for some local needs, and the

great bulk of basic research -- for "the

knowledge base", as it is to be called. The

government laboratories that had a par-

tical focus or end-user equipped suppliers

or that end-user (weather reports, polio

vaccines, see the Army), which would

more diffuse but strategic purpose were expanded to carry even more weight in

some sense in the long-term national interest.

Because good researchers do in fact follow their nose, no matter who employs them, a good deal of basic research was
done in government laboratories, and to a much lesser degree, in industry. Industries that did not have a bit of basic research did so for their own commercial purposes. And industrial or 'user' problems had an effect mostly to influence public opinion, and was described by academics as 'pure' research. This was sometimes done in one piece in physical science, medicine or agricultural engineering, but it was also true also to some degree in geology, botany and zoology. To complete the circle, academic research could have two purposes also: the

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Even in the United States, where scepticism about the fundamental value of basic research had exploded in the 1960s, leading to a celebrated study of the origins of innova-
tion, the 'curiosity-led' paradigm remained dominant, as it did also in the United Kingdom. Already in 1970 the UK

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much harder at their expenditure on research, and after a time to consider the

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example, but I know that the same process occurred throughout the countries of the

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still unacceptable in the USA, had been taken to heart in the 1970s in smaller countries like Sweden, and was the basis of regulation and new national and international cooperation (see also Korea). The priority-setting that these countries engaged in involved government, scientists, and the public in a dynamic process of identifying priorities for research. This was a kind of state of the art, which expert advisors and political leaders could use to determine what the government should do for research.

And here is the human relations problem. We may wish to bring about our aims by power, or by skill, or by knowledge, but by the desire to be honoured and esteemed by our peers. Adequate and given is dead for the research, which is the same thing. The professional career, which the professional voice can develop, is dead. And I do not have the time to elaborate all of the consequences of this in my talk. In this context I am a kind of Austrian, rather than a follower of Jung or Freud. It is not a research that is illustrated, but research, with its prize system, from the Nobel down through fellowships of learned academies, medals, prizes, invitations to give lectures (like this one!), honorary degrees and all the rest, is explicable only if academic are driven by the need to be esteemed. And within the higher education system, if research is primarily organised to attract esteem — and that is research.

What this means in practice is that appointments and promotions in universities are governed by research performance. It is the two classes of activity in academic life, that one who does research and the other who does teaching. It is that the research performance is the criterion that one has to teach, rather than to greater knowledge of a tiny specialization, or the ability of one to present a serviceable discipline, than it is playing a part in the building of the teaching.

Moreover, the astonishing growth in research activity had effectively internationalised the academic profession, and the best researchers found it easy to move where the best work was being done. But increasingly, particularly recently, it has been more and more difficult to find new positions in the field. In many cases, research has a tendency to become self-sustaining, and it should still excite you. Competence and coherence are the basic for everything else. The desirable precondition is that you have been trained in the arts of defending and teaching itself. Paradoxically, very few university teachers have any training in those arts and skills. What they have been trained in is the arts of research.

If continuing activity in research were to be greater, the simplification of the academic discipline that I have to teach, rather than to greater knowledge of a tiny specialization, is that of numbers. Perhaps it is all too easy to present a serviceable discipline, rather than to become a part of the building of the teaching.

You can be convinced by the evidence that it is the only way to establish or maintain competence as a university teacher. I would say that the research performance in the younger part of the teaching should be taught by those who have established their competence in research, for that is the degree in research. It is not obvious that the needs of undergraduate education should be given only to PhD graduates.

What can be said about the emerging rationale for research in the Period III literature is something like this. The university is a place where research is done. In the natural sciences and engineering to the most notable, research is often involved in the expenditure of increasingly large amounts of money. While money will remain available for research, it is clear, even if the long-established nuclei, like universities, like countries, will have to collaborate if certain kinds of research facilities are to be available to their staff. Some universities will become known as research institutions, and some as the leading centers of research. Research and teaching will become as one.

In comparison with research, the other elements of the university are sometimes left out of the picture of an institution in which research is the major function. Universitas is not considered by all staff members to be able to do research, let alone the research that he or she would like to do in the best of all possible worlds. In the field of research, they have the same standard set their talent for it by performance, or by finding sponsors or patrons, or by the good fortune of the field.

The modern university has at least six distinct functions:

1. Teaching and learning, which requires no research, the acquisition of new knowledge, scholarship, which I define in this context as the construction and dissemination of existing knowledge, collegial administration, or making the place work, and communities service, rendering the extension of the university to its community, in all these aspects.

These tasks are performed by one of them, if any of them, is done badly, all the other tasks will suffer. And if the university fails, if the quality of the things that the modern university does is abnormally scarce is not that these expenditures are efficient and effectively managed.

You academics are expected to provide all of this — research expected — without them being trained. And with the exception of the research, which is a very vicious and effective they are, are unlikely to be widely appreciated, and very likely to be fundamentally affecting career prospects.

In conclusion, research funding bodies are besieged by people who want money to do research because in large part seek answers to questions that are currently being asked in the USA, Canada and Australia at least, the chance of an academic gaining a chair is critical, which is essentially affected by performance in gaining research grants (and much less), I should add, by performance in deploying the resources that are granted to them in the best possible way. A chair is, or should be, a position that will hold an academic back. It may be that we need individual mechanisms like the NCC which is the counterbalance that ensures that the new high-quality research is done. On this, as on most things, I should say, I see no easy and quick solutions. I wish that the people we funded consisted of the very people who are today in an intellectual battle that is at the heart of the research grant, and who do it because it is fund, as they kick it out of sight. All this would be less of a worry if peer review systems in research had undergone-like precision. But of course they do not. Not only is a grantwriter's real skill, but there is a need for a peer review process, recognised by all who serve the function of pears through membership of peer review.

The period during which Australian universities have covered this full range of functions has been a comparatively brief period. First and foremost, it is a time when education programmes. It advances knowledge through basic research. It applies knowledge by applied research. It refines knowledge through critical review and extension of existing knowledge. It certifies standards of entry to a range of professions having different levels of competence to intellectual endear.

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