

# CANTERBURY SPRING: Repositioning our university post 2011

David L. Wiltshire

Department of Physics and Astronomy, University of  
Canterbury, Christchurch, New Zealand

**Abstract.** This discussion paper is addressed to the community of the University of Canterbury in a broad sense. It discusses, in a historical and current global context, some concrete options for our university to reposition itself post-2011 in order to capitalize on the existing strengths of our academics, and at the same time use our experience of the earthquake to become a unique and distinctive institution internationally, which will ultimately recoup and grow. Specifically, as Christchurch reinvents itself, we have both the talent, and the unique set of circumstances to position ourselves in a niche in the global education and research market for developing sustainable solutions for problems that are growing with pace in the 21st century.  
[10 October 2011; Version 1.1, 13 October 2011]

## 1. Context

We are at an extraordinary time in history, since as experts in diverse fields – Jared Diamond [1], Geoffrey West [2, 3] and many others – have commented, exponential growth is simply unsustainable in any system with finite resources, and we face the actual possibility of collapse as a global society. At the same time in Canterbury, we have a microcosm of just the sort of disaster which will become increasingly common in the 21st century unless we as a global society develop solutions to problems raised by climate change and the fight over limited resources.

These problems are so complex that they can only be solved in a truly interdisciplinary manner, involving both the engineers and scientists who deal with technical solutions as well as the social and political scientists and economists who think deeply about the complex problems created by a global society in turmoil and transition. We need the creative designers, artists and communicators to give vibrancy to it all. We have a unique opportunity to make a difference by branding our university internationally as a leading and vibrant institution developing actual solutions for a sustainable future, with unique research and learning experiences.

As Bronwyn Hayward said in the introduction to a public lecture by climate scientist James Hansen in May [4]: “Our city has a chance to do something few communities ever get to do – to think and plan for the long term. Dr Hansen’s timely lecture reminds us we need to understand the full range of complex challenges that face our children and

grandchildren to ensure that in the decisions we take today we are doing everything we can to support the capacity of Christchurch's youngest citizens to flourish in the future."

Our university has a unique opportunity too, but given limited political will and financial resources in New Zealand, we can only position our university to respond to our present crisis by translating Dr Hayward's statement to the global setting.

## 2. Proposal – Reinventing our future

Some of the greatest losses UC faces post-2011 are from international students, as this income is not capped by government. In our TEU academic email forum options have been discussed as to how we can attract them back. For example, Deak Helton observed that our international fees are very reasonable when viewed from the perspective of the USA, where private education is a widespread norm. We have never specifically marketed ourselves in the USA, gathering most of our students instead from Asia.

To market ourselves effectively, we need a unique and identifiable brand distinction. While the quality of life in New Zealand is a great plus, we need something out of the ordinary that will distinguish UC from other universities in New Zealand. Such a thing is actually achievable as a result of the earthquakes. In particular, in 2011 images of Christchurch in disaster mode have been watched everywhere on the planet. Our city is now firmly embedded in the collective psyche worldwide, even if our own trauma was later eclipsed by the tsunami in Japan. Given a targeted marketing campaign – based on the right educational product – we have a unique opportunity, given that the earthquake has already "put Christchurch on the map". It is too late for next semester, but if during 2012 we were to develop a cohesive package based on our existing programmes with some adaptations, then we could attract international students as early 2nd semester 2012 to 1st semester 2013.

In the 21st century we need sustainable solutions to enable us to survive as a species as we hit the limits of finite resources. While all universities are interested in these problems, we have the unique opportunity of having an experiment on our doorstep: rebuilding a city from almost a blank slate, with tremendous intellectual capital available, not only within the university but in the graduates we have trained, many of whom run the key institutions of state and business. We are at a tipping point where some of these people have already departed, and others could easily follow if morale falls further. The city needs us to be strong, and in being strong we can define a place on the map which will attract international students, if we get the details right. We can target ourselves to the niche of those international students who want to gain their education by being directly involved in a unique experiment.

### 2.1. Selling "CHCH 300, 400, ..." to the planet

As a Faculty of Science member, I was at first rather sceptical of CHCH101 because I wondered at the academic rigour of "reflections on shovelling liquefaction". However,

I was enlightened by our geographers that service was already treated as a rigorous component of one of their 300-level courses. They were principally worried about whether there would be resources to do CHCH101 to the standard of rigour UC would usually require.

Some community engagement is already a skill in the professional development of our graduates in engineering and other degrees where industry internships are an option. However, the Christchurch rebuild is on such a scale that its success depends on the complex interactions of people in many different disciplines: civil and mechanical engineering, water resources, geology, geography, psychology, architecture... If we can form partnerships with our civic and business leaders to involve our senior undergraduates in small ways in this process, then we can offer students a learning experience that they will not get anywhere else on the planet, in terms of the depth of experience of the internships or service components that could be included.

Just the complex interactions of both defining the imagined Christchurch and the actual rebuild itself become case studies for management science, political sciences, economics, sociology, and even network and graph theory in mathematics, all areas in which UC is represented. Indeed an interdisciplinary approach is demanded by both the "Canterbury experiment" and many of the complex issues the world faces in the coming decades.

My generation growing up in the 1960s and 70s lived with the persistent fear of imminent nuclear destruction; but rationally speaking the immediate threats to our planet today are orders of magnitude more serious in their statistical likelihood. Yet because of the vast complexity of the problem the imminent threat is not understood by the general public and is often denied, perhaps even by the majority in some countries. Thus envisioning a future Christchurch, and a planet of the future in which there can be such a thing as "a Christchurch", becomes a project which must also involve great communicators, including the creative arts.

Of course, one city and one university cannot in themselves save the planet. There are many other organisations working on these issues, and any realistic plan will ultimately involve international relationships with whoever is doing similar research. However, by a curious coincidence of a particular moment in geological time with a particular moment in cultural time, we have a unique opportunity to define UC with a distinct niche, which not only is internationally marketable but may within 5–10 years help us to grow beyond our 2010 size.

Apart from the "Christchurch experiment" UC has the unique resource of a set of research field stations, which should also feature in any marketing strategy. A strategy has to be focused and intelligent. While *'UCan Have Warm Fuzzy Feelings'* might beautify the back of a local bus, for a discerning global clientele the focus must be on our quality and the distinguishing things we have to offer.

### **3. Feasibility: Resources and global position**

New Zealand long had a colonial chip-on-the-shoulder in relation to its British parent, and the obsession with comparisons to Australia by our politicians and media show that this attitude is still alive.

As a citizen now of both Australia and New Zealand I find this obsession simply irrelevant. Australia enjoys a lifestyle financed largely by mineral resources. In the short term New Zealand will never be able to compete. However, in the longer term Australia faces even deeper problems when those resources are expended, as its natural climate is far harsher. New Zealand has never had the complacency that a supply of easy wealth generates; we have always lived a bit more on the edge.

New Zealanders are proud of the Kiwi ingenuity that grew out of being so distant from almost anywhere else that the colonial pioneers had to make do with very little. Yet on the other hand we also have a “tall poppy syndrome” that still persists. For decades we exported our best and brightest, and secretly thought that if they were really really good then they would never come back. When I left UC for Cambridge in 1983 I also expected to never come back. However, the advent of the internet changed all that; instant connectivity to the latest ideas globally suddenly made it possible to do absolutely cutting edge research anywhere, even in New Zealand.

Successive New Zealand governments from both sides of the political spectrum can instantly see the value of putting vast sums into a rugby world cup, but find it very hard to part with cash for research and innovation. They lament the fact that investment in research by the private sector is near the bottom of OECD rankings, but fail to make the simple connection that in a country still based on a post-colonial primary produce economy, there is just very little secondary industry and so a lack of suitable investors. This is all part and parcel of our “clean green” image; because of the way industry has grown globally the investors are located in those parts of the planet that are grubby and dirty.

The University of Canterbury is full of innovators, who represent the absolute elite of Kiwi ingenuity. But as long as New Zealand society is not able to popularly celebrate its intellectual elite in the way that it does its sporting heroes then there will be no political pressure for our successive governments to fund research and education at a level required for us to be leaders in the 21st century. The only way we can attract government money is by generating enough interest in the “Canterbury experiment” from overseas. Until that happens a collective colonial chip-on-the-shoulder will prevail and our leaders will not actually believe we can do it, whatever their rhetoric.

Attracting resources from overseas is extremely difficult. As anyone who has tried to work with international research agencies knows, funding is usually based on purely national agendas from which we are excluded. However, sustainability is an area in which small countries have an advantage – as is demonstrated in the lead taken by Scandinavian countries such as Denmark. Such countries do not suffer politically from the vested interests of the giant corporations that have stifled progress in the USA. The

need for sustainable solutions is widely understood in the USA – indeed at the highest level, as the appointment of Steven Chu as Secretary of Energy demonstrates. However, at present Barack Obama is hamstrung by a backward looking Congress incapable of delivering solutions for the 21st century. We therefore have a real opportunity to market the “Canterbury experiment” to students in the USA. It is a large country, it speaks the same language, and we can offer an education which, for good graduates, will open doors anywhere‡.

We should also try to rebuild our traditional sources of students in Asia. The earthquake and tsunami in Japan this year have established a very close bond of experience between our two countries. Japan faces an even greater rebuild, but has greater human resources and capital. The cultural advantages of an Anglo–Saxon education, with its focus on debate and questioning, when combined with the specific issues of sustainable reconstruction are likely to strike a particular resonance in Japan.

Of course, the problems in Japan and other globally dominant nations are of a magnitude larger in scale. Nonetheless, the underlying issues are the same the world over.

Although in the short term international funding may be hard to find, if we find the right niche, by first building an international student base then we might begin to attract the attention of development agencies and philanthropists. We have to think in terms of something new and different which can grow beyond the old 2010 UC.

#### 4. Feasibility: local perspective

To implement a proposal such as this, we have to fully understand our own institutional history, our strengths and weaknesses, which I will now outline.

##### 4.1. Institutional history and reputation

Internationally, we are a smallish to medium sized institution, but with some outstanding academics across a diversity of fields. In league tables we do not reach the absolute top rank simply because of our middling size, not the quality of our academics. In the first PBRF round in 2004, when the ranking was based on a *pre-restructured institutional history*, Canterbury was second in New Zealand on a per academic basis, even though we do not have the research funding advantages that a medical school brings. In the second ranking round we slipped a place§.

‡ Of the Honours project students I have supervised here, every single one has gone on to further postgraduate research – including to places such as Cambridge, Harvard, Yale, Chicago, Caltech and Waterloo (Perimeter Institute).

§ Looking ahead to the next PBRF round, in my own Department the total academic FTE is down so significantly that it must affect future income. Meanwhile universities such as Auckland have been making strategic hiring decisions ahead of the 2012 PBRF round. At the same time UC’s overall performance in the 2011 Marsden round is at an all time low.

Our strength can be viewed as a legacy of the vision of the province's colonial founders. Our city, Christchurch, the most "English" in New Zealand<sup>||</sup>, is named after an Oxford college and for many decades ties of history and culture have meant that Oxford and Cambridge were the universities we most aspired to emulate. Even if the Victorian gothic of our first campus is just a faint echo of the real thing, we did the best we could within the constraints of resources. We sent our best graduates on to Oxbridge, and had a prejudice also for hiring academics from the UK; a prejudice which only began to diminish in the latter half of the 20th century, and some would say still persists.

Initially the tyranny of geographical isolation meant that cutting edge research was extremely difficult to perform, as lamented by Karl Popper [5] during his time here in the period 1937–1945. However, our adherence to academic rigour in the Oxbridge tradition ensured that when improvements in global communication in the 1960s to 1980s coincided with a period of benign government investment for growth, our reputation as a small but significant research university also grew.

Given the small population base of provinces other than Auckland, the Colleges of the former University of New Zealand had to choose specialities, and Canterbury ended up having the only engineering school outside Auckland for much of the last century. Nationally we are still known principally for engineering and science, even though the QS worldwide ranking of Arts and Humanities at UC was as high as Engineering and IT in 2007<sup>¶</sup>.

#### 4.2. Restructuring

Since the early 1990s universities – at least in Anglo-Saxon countries – have been restructured to look and feel more like business corporations. Regardless of one's view of the neoliberalist enterprise, the historical drivers for this have been a period of the most rapid economic growth in human history. There has been a prevailing view that with globalisation the only possible model for organisations to deal with rapid growth and competition is the corporate one. The degree to which such models have been applied varies widely but is not directly correlated with institutional success, which depends on many other factors, the most important being resources and institutional culture.

The universities which have resisted the corporate model most strongly are typically those with the greatest collegiality, such as Cambridge and Oxford<sup>+</sup> which were ranked 1st and 6th in the world respectively in the 2010 QS World University Rankings. In New Zealand, Canterbury, which arguably has the strongest collegial culture, was the last

<sup>||</sup> There is of course a deeper centuries long Ngai Tahu history that since the Treaty settlement is beginning to reassert bicultural vibrancy in our city's institutions, but on account of the population balance the cultural legacy of the New Zealand Company has had a lasting legacy.

<sup>¶</sup> In 2007 they were both at rank 125 in the world. By 2011 Arts and Humanities had slipped to 226 while Engineering and IT held steady at 128.

<sup>+</sup> Oxford tried a 5-year corporate experiment by importing John Hood as VC from Auckland, but Hood's attempts to separate academic and financial boards were defeated and he left in 2009.

to undergo significant restructuring towards a corporate hierarchical line management system in 2004–2005.

It is no doubt true that the old structural model at Canterbury was not one which readily enabled rapid growth. The fundamental problem, however, is that growth requires new resources. Cambridge, Harvard and Oxford have extraordinary resources but these have for the most part been acquired gradually over centuries.

It is difficult to understand what the motives were for the restructuring within the College of Arts; but one suspects that it represented a choice of what areas to allow to grow in a climate of limited resources. No doubt there have been some positive outcomes, since in any process of change one has the opportunity to make creative improvements to things that are not always working at their best. However, the threat of forced redundancies dealt a huge blow to staff morale and some first-rate academics left on account of the unpleasant atmosphere\*. The restructuring correlates with a decline in the QS world ranking of UC Arts and Humanities from 2007 to the present.

#### *4.3. Collegiality as a recipe for future success*

One distinctive advantage Oxford and Cambridge have, apart from their wealth, is a system of Colleges that are formally independent of the University. Students all belong to Colleges, which also function as halls of residence, but the membership and governance of each College is built around its Fellows: academics drawn from all disciplines across the whole University. This promotes many chance encounters and the interdisciplinary exchange of ideas. From my time at Cambridge, the lunchtime discussions with researchers in diverse fields endure as some of the most positive memories.

Academics are not driven primarily by money to work the long hours they do, but rather by their passion for their fields. Above all academics who are performing really well want respect from others in the university for the work that they do; that their discipline is valued as much as any other. A climate which threatens forced redundancies is toxic for the health of a university, given that for the creative process to work, healthy morale is a prerequisite.

Of course, we cannot recreate a medieval Oxbridge College system here. However, what we do need is some way to better connect academics across the university. We need to create a network with more cross-linkages in our day-to-day interactions, rather than in the formal structural organisation. The proposed interdisciplinary “Canterbury experiment” would require that we do this in order to succeed. We cannot turn the clock back on the way the University has been restructured, but we need academics to be involved at the beginning of any policy making rather being presented with disastrous

\* By other anecdotal evidence, attrition continues. I teach a 400-level course in general relativity with 10 students this semester: nine from Physics and Astronomy, and one from Philosophy. The philosophy student is finding it difficult to find enough philosophy courses to complete her BA (Hons) since “people keep leaving and courses are then not offered”. It is a scandal that a programme such as philosophy is under strain to renew itself in the current climate when it was the top scoring subject in the University in the 2004 PBRF round [6], and has a local scholarly tradition including such giants as Popper.

*fait accompli* by way of “consultation”.

Geoffrey West, who has studied the lifetimes of businesses and cities observes of the shorter lives of businesses [3]: “When a company starts out, it’s all about the new idea. And then, if the company gets lucky, the idea takes off. Everybody is happy and rich. But then management starts worrying about the bottom line, and so all these people are hired to keep track of the paper clips. This is the beginning of the end. The danger is that the inevitable decline in profit per employee makes large companies increasingly vulnerable to market volatility. Since the company now has to support an expensive staff – overhead costs increase with size – even a minor disturbance can lead to significant losses. Companies are killed by their need to keep on getting bigger.”

This paper-clip counting warning is only too familiar at UC. In my 10 years here I have seen an increase in time-wasting bureaucracy, and a decrease in what is spent on our “core business”. As one example, prior to restructuring there was a university wide postdoctoral fellowship scheme, typically offering about 15 to 20 positions a year<sup>‡</sup>. No such contestable postdoc scheme exists any more in the College of Science.

## 5. Concluding discussion

In conclusion, as a way ahead to stabilize the current downward trajectory, and set us on a path on which the university may ultimately grow, we should:

- Seek to determine an internationally marketable coherent package around the “Canterbury experiment”: building sustainable futures for the 21st century, associated with the Christchurch rebuild, in an interdisciplinary approach;
- Seek the cooperation of civic and business leaders in such a project, which will involve internships and service components at the 300- and 400-levels of relevant existing programmes;
- Conceive projects in the creative arts that make for a vibrant atmosphere;
- Use our strategic fellowships from our Erskine fund to support leading international experts related to this endeavour. If four Fellows could be brought out in an overlapping timeframe in 2012, then we could hold a conference to kickstart the “Canterbury experiment” and gain the media attention such a project demands;
- Having worked out the details of a package, market it intelligently to potential overseas students, particularly in the USA and Japan;
- Ensure that there will be no forced redundancies of academic staff as a result of the earthquakes, and where there have been retirements and resignations that the usual processes of renewal will apply;
- Seek to change the structures of university management so that staff are consulted at an early stage of any policy making.

<sup>‡</sup> In 2004 I brought a postdoc under that scheme from overseas. He has contributed a significant PBRF ranking to our department, and has subsequently won his own funding to support himself for a further 6 years beyond the initial contract, a great return for an initially small investment.



While the sustainability themes will not directly involve every programme in the University‡, our international reputation as an institution affects us all.

I believe that if this project took off then we might leverage new sources of research funding, including those from development agencies and philanthropists (e.g., the Templeton foundation, Gates foundation etc). However, for now the primary focus should be on developing the package and attracting the students.

We staff and students need to recreate a vibrant collegial University that we all feel ownership of. A university of the future has to think outside the box rather than specializing in box-ticking. The paper-clip-counters have had reign at UC for far too long. In the world at large there is a lot of turmoil, whether in the financial markets, the protests across the USA, the countries of southern Europe and in the Arab world. These are all signs of the extraordinary times we live in as a global society; to which the themes of this essay are inextricably linked. I think it's time we define our own "Canterbury Spring". Our future is too important to simply be left to the SMT alone. It's time we pay attention to those billboards: UCan take the lead.

## Acknowledgements

I thank a number of my students, particularly Kane O'Donnell, for correcting typos and suggesting small stylistic improvements to the first version of the manuscript.

## References

- [1] J. Diamond, *Collapse: How Societies Choose to Fail or Succeed* (Viking Penguin / Allen Lane, USA & UK, 2005)
- [2] G. West, talk at FQxI Conference "*Setting Time Aright*" (Copenhagen, 2011), <http://fqxi.org/conference/home/2011> .
- [3] "*Physicist Solves City*", [http://www.nytimes.com/2010/12/19/magazine/19Urban\\_West-t.html](http://www.nytimes.com/2010/12/19/magazine/19Urban_West-t.html) (New York Times, 19 December 2010)
- [4] B. Hayward, quoted in "*Leading climate scientist to give public lecture at UC*", <http://www.comsdev.canterbury.ac.nz/news/2011/110512a.shtml>
- [5] K.R. Popper, *Unended Quest: An Intellectual Autobiography*, (Fontana, Glasgow, 1976) p. 119
- [6] "*Philosophy staff celebrate PBRF results*", <http://www.arts.canterbury.ac.nz/news/PhilPBRF.shtml>

‡ For example, my own area of cosmology is not directly related to any of these themes. However, the 300/400-level cosmology course that I teach has always been popular with exchange students who typically formed a third of the class. The earthquake saw these students disappear. The future viability of such a course depends on UC becoming a vibrant place once more so that such students return.