



Australian Government
Chief Scientist

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**SCIENCE AT THE SHINE DOME 2016:
AUSTRALIAN ACADEMY OF SCIENCE ANNUAL DINNER**

Ambassadors of the future

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**QT Hotel
CANBERRA**

It is a great pleasure to raise a glass tonight to Graham Farquhar, to the Academy of Science, and to the Australian science community.

If I can take them one at time:

To Graham: you have added the MacFarlane Burnet medal to one of the most enviable trophy cabinets in the country.

As noted earlier this evening, you have transformed the human understanding of photosynthesis – the process on which life depends. And you have done so by standing at the interface of the disciplines, with a curious mind, a sharp eye and a relentless will.

And there's no question that MacFarlane Burnet would see in you a fellow traveller.

I took the opportunity to look back at the great man's entry in the Australian Dictionary of Biography. This is what it says: "to everything he did, he brought originality, imagination, intuition, naïve honesty, conceptual breadth and daring, and an idealistic, *impractical wisdom*. No one who loves Australian science will ever forget his example."

May we all be guilty from time to time of 'impractical wisdom'.

To the Academy, I want to acknowledge the newly elected Fellows. It is an honour to stand amongst you and a responsibility I will prize for the rest of my life.

To Andrew Holmes, I want to thank you for your counsel and friendship, as well as your leadership of this great flagship of Australian science. The legacy of Suzanne Corey, Gus Nossal, Brian Anderson and so many other distinguished names is in good hands.

And to the science community, what can I say but *what a ride*. To be Chief Scientist of Australia is to claim some privilege to speak for some of the most astonishing people this country has ever produced.

Astonishing, intimidating, occasionally alarming... but always inspiring.

Ambassador of the Future

It occurred to me the other day that I'm probably the closest thing this country has to an official Ambassador of the Future.

After all, what is that I do all day?

I think about the future. I talk about the future. I call for investment in the future. I stop the occasional war breaking out with the future...

All of the things that your standard, time-bound Ambassador would do for their country.

And I have all the accessories:

- A diplomatic passport.
- An embassy in Canberra – all right, an office in Canberra, but not far from the diplomatic precinct.
- Transport by ComCar.
- An official crest.
- Parking privileges at the Academy of Science.

And with a bit of luck, diplomatic immunity if I say anything inflammatory tonight.

But I do take this responsibility seriously, because the future is a place we need to think about in everything we do.

So let me share with you a little bit about the people and the future I want to represent. And bear with me as we leap forward to 2030.

A 2030 vision

Here we go. We've arrived! The year is 2030.

That's about 15 years, 5 election cycles and 12 iPhone generations away.

So it's about as far away from us today as 2016 appeared from 2001.

And if you don't remember 2001 – that was the year the first iPod was sold, the first artificial heart was implanted, and the first Wikipedia article went on line.

How quickly it passes... and how far we've come.

So let's take a tour around Australia in 2030. The nation we'd like to be.

Around the country

Forgive me if I start in Melbourne. But friends, it's one of the bionic capitals of the world, with the Australian bionic eye devices providing global technology leadership.

Its universities are thriving – and yes, they're bricks and mortar – the move to save money by replacing physical campuses with online holographic technology was a complete and utter failure.

On to Sydney: a financial technology hub, in the powerhouse region of the world.

The global economy is booming and middle-class spending has *tripled*. At least three quarters of the world's 8.5 billion people now own a mobile phone. They want access to reliable, affordable and efficient financial services.

And Australia provides them: building from what was arguably the world's strongest banking sector in 2016.

To Queensland: where sensors on sugarcane and banana plantations target fertilisers and pesticides with pinpoint precision, dramatically reducing the costs for farmers, and eliminating the run-off to the Great Barrier Reef.

And, ladies and gentlemen, the Reef is *living*.

To northern and remote Australia, where our mine sites lead the world for safety, efficiency and sustainability. Our self-driving trucks and self-directing drills are the envy of the world, and we export the technology as well as the ores.

And down to Perth, to the cocktail reception for the Square Kilometre Array, now in full operation.

The Prime Minister reads out a list of the spin-off technologies and companies it's created – in every industry from supercomputing, to analytics, to renewable energy.

Then look at South Australia: battery capital of the world! They learned from the electricity price spikes of 2015. Now, in 2030, when the sun doesn't shine and the wind doesn't blow, energy storage *at scale* keep this state powering on.

And Tasmania: innovation isle! It's the gateway to Antarctica. It's an epicentre of climate science. It's a testbed for agricultural technologies and a leader in hydro, wind and solar.

Here in Canberra, we're looking out the window at our self-driving cars – and I don't need to add, they're all fully electric. We're early adopters, after all.

The path

So how have we reached this future?

- Through wise investments in education at all levels.
- Through the reintroduction of pre-requisites for advanced mathematics for engineering, science, commerce and all other relevant degrees.
- Through fantastic national scale science equipment, funded through an enlightened long-term plan.
- Through universities and publicly funded research institutes that reach out to industry and other end users.
- Through companies that are smart enough to hire science PhDs. And it's worth noting that they find those PhDs because they meet them through the intern programs that *they* fund.
- Through reforms to tax settings that enable investors to take intelligent risks.
- Through bold science diplomacy that marks our place as a confident and capable partner of choice.

And of course, there's the Academy of Science. What does this great flagship look like in 2030?

Here's my vision: in 2030, when a Minister wants to know something, she thinks of the Academy *first*, with ATSE perhaps in equal first place.

For complex problems demanding farsighted advice, backed by rigorous analysis, across a range of disciplines, the Minister will call the AAS – or the AAS as part of the Council of Learned Academies.

That's the status of the National Research Council in the United States. It is not beyond reach for Australia.

How do we get to that point? We need to do three things when we're talking to government – any government.

- 1) Don't start with the money – they hate it.
- 2) Don't be fragmented – work together.
- 3) And give them something they can work with – a transformational vision, exquisitely timed.

What is our unique competitive edge – as an Academy, and as part of ACOLA?

Our capacity to harness knowledge and skills far broader than any think-tank or consultancy could possibly tap.

How do we exploit it? Through a single point of contact, connected to a complex but not a complicated network.

Let me offer an example: from my failed attempt at Retirement 101 in 2006.

I was trying. I really was.

But then I was asked to join the Board of the Howard Florey Institute.

Unbeknown to me, there had been an ongoing effort for more than a year to try to amalgamate the Brain Research Institute, the National Stroke Research Foundation and the Howard Florey Institute.

Why? Because the Commonwealth Government offered \$30 million on a golden plate and the Victorian State offered \$30 million to match.

But only if they were approached by one voice!

Immediately after I joined the Board of the Howard Florey I got a call from the Director of the Brain Research Institute to ask if I would take on the leadership of the amalgamation, because despite the \$60 million at stake nobody could agree on the vision or the process.

I spent six months gently pushing and prodding the three Institute Boards and the three Scientific Directors to accept a new governance structure and transition arrangements.

It worked.

A bigger, better, institute was formed. Scale was achieved. The money flowed. Government was happier.

Lesson learned? Government hears the collective voice more clearly than the cacophony of individuals.

So with that experience I dipped my toe in the public policy waters, and the tide just kept on rising.

But there's nowhere else I'd choose to be. And I hope you'll join me in my embassy of the future.

Yes: raise your hand, recite our pledge, salute our flag and mark off your office as Official Future Territory.

I've claimed the Shine Dome – but I want consular offices in every territory.

We have our First Assistant Secretary – that's Andrew Holmes. I've got my Official Spouse – that's Elizabeth, who's also Head of Official Publications.

But there are plenty of jobs to go around!

We need cultural attaches! We need industry envoys! We need someone to run the passports office! We need someone who understands protocol!

In short: we need everyone who takes even a passing interest in science to step up as Fellows of the future.

The only entry requirement is wanting to join.

So don't delay – and I'll see you all in 2030.

THANK YOU