



**Australian Government**  
**Chief Scientist**

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**Science Meets Parliament 2017 Opening Address**

***Mutual respect can power the future***

**Tuesday 21<sup>th</sup> March 2017**

**Old Parliament House  
CANBERRA**

## **Exit options**

I look around this room, and I wish there was a collective noun for a group of scientists.

- A network of nerds?
- A beaker of boffins?
- A formation of propeller heads?

I'll leave it with you.

Instead, let me welcome you today as fellow travellers – fellow travellers on a hair-raising ride.

It's the ride to the future.

The ride we all take for free – with the caveat that we can never get off.

That's not to say that people don't try to exit.

Last month NASA announced the discovery of seven planets orbiting a single star in the constellation Aquarius.

Seven *Earth-size* planets.

Seven Earth-size planets with three in the 'habitable zone'.

In our excitable times, we all know what that means...

We've got it, ladies and gentlemen, our fall-back planet – our Planet Earth, 2.0!

So how soon can we get there, and when will they open the first IKEA store?

The answer to that is effectively "never": this "second home" is about 40 light years away. The fastest spaceship we've ever built would take nearly a million years to get there.

That's a little deflating.

But never fear – if astronomy can't save us, maybe the other scientific disciplines can rally to the cause.

A recent article in the *New Yorker* disclosed what American billionaires are buying to protect themselves in future.

Top of the list are missile-proof bunkers, known in the trade as ‘luxury survival condos’.

These days, they come with all the amenities – five-year food reserve, 75,000 gallon water supply, a diesel generator, rifles, ammunition... and, of course, a Jacuzzi. A steal for \$3 million, off the plan, in the United States of America.

But maybe you don’t want to leave Australia. Perhaps you don’t want to know about the apocalypse at all. Have you thought about hibernation?

Australia’s first cryogenic farm has just received planning approval in Holbrook, New South Wales.

It’s the ultimate escapism: defrost me when it’s over!

Not keen? Can I offer you a colony on Mars? Rebirth in a virtual world? A new Atlantis under the sea?

Every one of these is touted as a credible option. And every one of them has called on science as the way to get off the ride.

### **No exit from the inescapable ride**

Now I have no argument at all with science fiction.

I agree with Arthur C Clarke: the good stuff builds a flexibility of mind.

But in daring to speculate, let’s not delude ourselves that we can get a leave-pass from the apocalypse... if and when it actually comes. As Chief Scientist, I’m calling it now: all of the touted escape routes are duds. Even with hope. Even with science. And even with infinite wealth.

By all means, if you have the hope, the science and the wealth, invest them in a moon-shot mission, and back some high quality Australian research along the way.

But do it because you’re a rationalist opting in – not a fantasist opting out.

Do it to optimise this inescapable ride – for yourself, and everyone else on board.

### **When science meets Parliament**

I look around the room today, at the optimism you bring, the talent you carry, the calibre of the institutions you represent, and I know that my confidence in the future is well-placed.

We don't need bunkers, we need *beakers*: the skills and tools that science can provide.

But beakers need bankers and backers as well... and hence our gathering today.

We've been accused in the past of coming to Parliament with a begging bowl: more interested in what the public can give to us, than what we can offer to the public.

That characterization is misleading.

In my experience, scientists come to Parliament with a widely shared vision of our society: as a nation that invests in progress, and reinvests the benefits in people.

We know our society is not a technocracy: acting solely on the basis of data and expert advice.

It's a democracy: in which people decide which inputs should shape political decisions.

And in a democracy, the attention and respect of political leaders has to be earned.

### **Thriving in interesting times**

Let me pause here to note that March 21 is an auspicious day.

Any takers?

You might want to tweet this – it's the date that Twitter was born. It turns eleven today.

Now we could say many things about Twitter, in 140 characters or less.

Put simply, it's like any medium: a tool that can be used or abused.

It can be used for logic, clarity and facts.

It can be abused to spread falsehoods, hype and spin.

The first is hard, the latter is easy. And only the first is consistent with science. So we have to learn to do it exceptionally well.

In particular, as scientists we need to learn how to be effective channels for evidence and advice to politicians.

But don't overrate the role of evidence. It is but one input to a complex decision making process.

It is ultimately political leaders who set the vision, and try to arrange the resources to bring it about – be it through the budget, regulations, diplomacy or other means.

If you're new to Canberra, this landscape may well look forbidding.

Just look at the Shine Dome, home to the Australian Academy of Science. It's a beautiful copper-covered dome we proudly call our Martian embassy.

It's as if we scientists looked to Canberra as an alien planet and built ourselves a protective habitat.

You will certainly find that Government has its own processes, its own language and its own timeframes.

But the same is true of science. And like any discipline, the codes of government can be learned.

Make the effort, and you'll find we have much in common.

It's a myth, for example, that researchers are naïve compared to politicians. Anyone who thinks *Question Time* is grueling should try submitting a *grant application*.

To thrive in research, you have to be resilient: and strategic, and determined, and occasionally loud.

Now, it's equally a myth that politicians are dismissive.

In my experience, people enter public life for the same reasons they enter science.

In part, to make their name – but more importantly, to make a difference.

Amongst people of integrity, those two objectives go hand in hand; and we ought to acknowledge that common ethos in each other.

### **The science of science advice**

So what do we need to do to meet on the right terms, with ambitious but legitimate expectations on either side?

Let me suggest four things that I have found to be helpful; and which I will continue to pursue in my time as Australia's Chief Scientist.

#### **FIRST: The right attitude.**

When politicians meet scientists, they are reaching out for three things:

- Something worthwhile that they can do.
- The assurance that it won't go belly up.
- And a way of explaining both of the above to their constituents.

We should all agree that those are legitimate aims, and that we can assist.

That's not to say they're easy.

As a scientist in public life, you will find yourself re-making the case: again and again and again. In all likelihood, you will be sidelined, misrepresented, or ignored. That's not our special privilege as scientists: that's simply what happens when people care deeply but disagree.

There is no scientific formula for patience.

But there is great strength in scientific integrity.

Meet disrespect with respect. Meet illogic with logic. And whilst you can't assume that your audience knows the facts, always assume they have the capacity to learn.

Yes, attitude counts.

## **SECOND: The right ambassadors.**

Ambassadors are experts in connections.

They have to be at home in two worlds: the country of origin and the country of residence.

But that's not enough: they have to use that dual awareness to open doors for others.

It takes a person of integrity and imagination to be an ambassador.

They have to know the pirouettes and turns of their home country.

We need to develop equivalent expertise in science diplomacy. How can we develop more ambassadors for science who have the dual awareness that only comes from experience in government roles?

Well, how about internships?

We know they can and do work successfully in other jurisdictions.

In the United States, scientists and engineers are placed as Policy Fellows across all branches of government, including Congress.

They serve year-long postings that provide first-hand exposure to the policy-making process, supported by a generous allowance of up to \$100,000.

The US policy fellowship program has operated successfully since 1973, placing more than 3,000 participants, many of whom subsequently made the permanent switch from research to policy.

Could we replicate this success in Australia?

We're giving it strong consideration in my office. It's early days, so if you have some experience in this kind of policy fellowship, please let me know.

### **THIRD: The right access routes.**

Say a politician has a project – a project that would benefit from scientific expertise.

Who should they contact?

Or flip the hypothetical: say a researcher has a proposal to put to government.

Who do they contact and what are the odds of that person taking the call?

Research timeframes are long. The window to act in politics is often short.

As Einstein said, politics is for the moment, but an equation is for eternity.

How, then, can we hit the window where the evidence and the opportunity align?

We need to create the platforms.

This event is one, brought to fruition by the vision of STA President Jim Piper, CEO Kylie Walker and the staff and volunteers at Science and Technology Australia.

Another platform is the Commonwealth Science Council.

The Prime Minister is the Chair. Membership consists of the Ministers for Health, Science and Education, five captains of industry and five leaders in academia. I serve as Executive Officer.

The beauty of the Commonwealth Science Council is not just the opportunity it provides to brief the Prime Minister and Cabinet leaders directly.

The value is the scope for leaders in government, research and industry to jointly identify topics of interest.

Through that process, the Prime Minister has tasked the Australian Council of Learned Academies, also known as ACOLA, with a series of horizon scanning reports.



Each report points to an important new direction for our country, waxing within reach: a way to expand the economy, create jobs, navigate risks and maintain our position as one of the most enviable nations in the world.

Each report is delivered directly to the Prime Minister and all the members of the Commonwealth Science Council.

The interest is there, and the momentum is strong. Watch this space.

**So to the fourth and final recommendation: The right ammunition.**

As researchers, we would never come to a thesis defence without preparation. No – we consult, we practice, we iterate, until we are confident that we can present the argument in its strongest possible form.

As research envoys, we ought to do the same.

Your idea will be far more compelling if you can demonstrate that you have consulted widely, gained supporters and identified possible routes to funding.

It will be far more persuasive if you can make the connections to fields where the politician has a particular interest, or capacity to influence.

This doesn't mean shaping the proposal to suit the politician – it means explaining where the proposal fits in the context of the politician's world.

So, four A's: *attitude*, *ambassadors*, *access* and *ammunition*. And the next two days is your chance to put the four A's to work.

It's a tremendous opportunity, and it's yours. I think it's only fair to set you a modest challenge.

It's this: Identify your gripping idea. Work out how to present it to a politician and the public. Then write it up as a 100 word media release.

Test it on a politician – and see if it sticks.

And if that seems hard – just try defrosting a cryogenically frozen brain.

Beakers beat bunkers. Let's make sure that Canberra knows.

On that note, I am delighted to open Science Meets Parliament, 2017.

**THANK YOU**