THE ABC's CONTRIBUTION TO SCIENCE COMMUNICATION

Address by James Spigelman
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Successful communication of science requires more than simply expertise. It requires enthusiasm. As many in this audience will recall, in Australian broadcasting history no one was able to convey such enthusiasm better than Julius Sumner Miller. He made hundreds of episodes of his iconic program *Why Is It So*? for the ABC between 1963 and 1986.

However, his first appearance on Australian television in 1963 was not auspicious and serves as a reminder of the need for thorough preparation. He attempted to drive a straw through a raw potato by pinching the end of the straw so that the trapped air acts as a piston. However, for the first time he could not get it to work. He exclaimed: "Australian straws ain't worth a damn!"

When he arrived at his Sydney University laboratory the next morning he found, he said, about 1 million drinking straws on the floor, with a telegram saying: "you might find one of these fitting your requirements". As he said later: "I made a mistake. I should have said 'Australian *potatoes* ain't worth a damn and I would have cornered the potato market'".[i]

My credentials to address a gathering of the Australian Academy of Science are limited. As a barrister I frequently had to prepare for the cross-examination of scientific expert witnesses. Indeed, my very last case at the bar, before my appointment as Chief Justice of New South Wales, required the cross-examination of Tim Flannery on the habits of the long nosed bandicoots of Manly. Like any good barrister, I emptied my mind of all that superfluous scientific knowledge immediately thereafter.

I did, however, spend three years working on a science and technology project as co-author of a book on nuclear energy for a New York publisher, eventually published in the USA, the United Kingdom, Germany, France, Spain and Japan.

Our book, entitled *The Nuclear Barons*[ii] , is a political history of nuclear energy - from the Manhattan Project to Three Mile Island. It took three years of full time research and writing, my most intensive exposure to a scientific issue. The book starts with a focus on scientists, especially physicists. However, most of it is a tale of the engineers. My involvement in that project led me to seek appointment as President of Sydney's Powerhouse Museum, where I tried to reinforce its focus on science and technology.

These experiences are the basis of my strong belief in the fundamental significance of science and technology in our lives. Most of the critical issues we face require the continued advance and application of scientific knowledge. I share the concern for our

nation's future often expressed, including by Ian Chubb, the Chief Scientist, about the decline in the proportion of students choosing STEM subjects – sciences, technology, engineering and mathematics.

In stating such propositions before an audience of this kind, I do not have the feeling that I am taking my life in my hands. Your reaction may be somewhat different as I consider the role of the media in communicating science, which is the subject of my address today.

Two Cultures

Scientists and broadcasters inhabit different intellectual cultures. A workable definition of science is advanced by Edward O. Wilson in his recent work *Letters to a Young Scientist*. He said*:*

"(Science) is organized, testable knowledge of the real world … It is the combination of physical and mental operations that have become increasingly the habit of educated peoples, a culture of illuminations dedicated to the most effective way ever conceived of acquiring factual knowledge."[iii]

There are, no doubt, some journalists who indulge in the conceit that this is also what they do, but it is not. The media does not have a "culture of illuminations". Even public broadcasters, like the ABC, can aspire to no more than a culture of explanations. Nor are journalistic techniques of "acquiring factual knowledge" comparable to the scientific method. In

journalism, peer review is something that usually happens in the pub.

The difference in roles, as well as of institutional culture and of language, between the two disciplines goes a long way to explaining the frequently expressed frustration of the scientific community with media reporting. You are not alone in this, but that is probably of little comfort.

There has never been a time, and I suspect they never will be, that scientists have not felt that science and technology does not receive its proper share of broadcast time. That is a complaint which science shares with virtually every other sphere of discourse.

Similarly, there has never been a time when scientists have not felt that programming is more populist or, even more "dumbed down" than it used to be. Again you are not alone in embracing the myth of a golden past.

The ABC's Roles

The ABC has four distinct roles in science communication. First, to provide information to those with a special interest in science – by which I encompass medicine and the environment. Secondly, to provide information about scientific issues to the general public, both to assist our fellow Australians to make decisions that affect their lives and to enhance their ability to participate in the range of social and political processes with a scientific dimension.

Thirdly, to provide opportunities to the scientific community to explain what they do and its significance. The fourth, perhaps least welcome, role is to hold scientists and technologists to account for their claims and conduct. The relationship between scientists and the media cannot be a one way street.

The ABC must provide depth, intelligence and expertise for our science-literate audience. However, we must also provide programming for a broad audience, not least to promote scientific literacy in the broader community. Accordingly, many of our programs must be expressed in language that non-scientists understand and in a way that is capable of attracting and holding the attention of multiple audiences.

Once one goes beyond our specialist science programming, the difference between scientific and journalistic cultures becomes particularly evident. Scientists are understandably primarily concerned with what the public *should know* about science. Journalists, other than the specialists, however, are primarily concerned with what the public *wants to know* about science.

This does not mean that the ABC, unlike commercial broadcasters, has a principal focus on ratings. As one wit said: "Look what happened to the Battleship Potemkin when the ratings took over". Nevertheless, for a national broadcaster, with a statutory obligation to provide programming of general as well as of specialist appeal, the ability to attract and hold an

audience remains a relevant consideration in story selection.

There is a fundamental difference between public and commercial broadcasting. The ABC must relate to the public in their capacity as citizens, not in their capacity as consumers. We must do that in the full range of our conduct including, relevantly, the content of our programming.

The fact that the ABC does not seek to maximize its audiences means that we must go beyond just reporting scare stories and "breakthrough" stories that are little better than a parody of science. Furthermore, it is essential that the content of our science stories must treat our audiences with respect, as citizens. They must not be dumbed-down to be virtually devoid of scientific content.

A critical resource is the group of individuals who specialize in science journalism. Regretfully, this appears to be a dying breed in most mainstream media but not, I am pleased to say, at the ABC. Science journalists, like Robyn Williams, Norman Swann, the *Catalyst* team and "Dr Karl" Kruszelnicki, and our specialist news reporters, combine an understanding of scientific concepts and methods with an ability to explain science clearly and succinctly to lay audiences. This combination of skills is vital if the ABC is to successfully serve the purposes I have listed.

The ABC's Contribution

Last year I delivered an address on "The Role of the ABC in Australian Culture" in which I set out the contribution the ABC makes to the arts, broadly defined, across all platforms. The scope and depth of that contribution came as a surprise, not only to those who heard or read the address, but to many employees of the ABC. Our participants and audiences tend to focus on the particular programs with which they are involved, without being in a position to appreciate the full range of the ABC's contribution.

I believe the same to be true of virtually everything the ABC does, including science programming. Accordingly, this evening I wish to set out a reasonably comprehensive outline of the ABC's contribution to promoting the scientific literacy of the Australian community and enhancing public understanding of scientific developments and of the importance of science.

I was pleased to note the remarks of one of our distinguished Nobel laureates, Peter Doherty, who said in a recent address that science has "a strong presence on the ABC".[iv] I believe I can show that to be true. The ABC's science coverage – to adopt the words of Sir David Attenborough about the BBC – "stands head, shoulders, thorax and abdomen" above that of any other broadcaster. I ask for your patience as I understand that listening to a list is not the most attractive experience.

Radio

Science programs on Radio National

- *The Science Show*, has been presented by Robyn Williams since 1975 and is one of the longest-running programs on Australian radio. It has an average weekly audience of 103,000 in the five mainland capitals and in 2012 had 1.7 million podcast downloads.
- *The Health Report*, presented by Dr Norman Swan[v] has a five capital audience of 98,000 and 1.1 million podcast downloads in 2012.
- *Ockham's Razor*, a series of 15-minute talks on science topics by guest speakers, preceded by a brief introduction by Robyn Williams[vi] attracted 85,000 in the metropolitan survey and had 259,000 podcast downloads.
- *All in the Mind*, explores topics relating to the mind, brain and behaviour, presented by ABC Radio's Science Executive Producer, Lynne Malcolm. It attracted an average weekly audience of 77,000 in the metropolitan survey and had 1.3 million podcast downloads in 2012.[vii]

- Radio National also broadcasts*The Naked Scientists*, an award-winning BBC program that promotes science to the general public".[viii]

There are also three science programs on NewsRadio:

- *Spectrum/Living Planet*, are science news programs from Deutsche Welle providing technology and environmental news.
- *Discovery*, a BBC World Service science program focusing on significant ideas, discoveries and trends in science.
- *Health Check*, a BBC World Service weekly round-up of global health stories and topical issues in medicine.

Radio National carries a number of programs that cover science within a broader subject area

- *Off Track*, a weekly program about the Australian environment presented by science-trained reporter Joel Werner.[ix]
- *Future Tense*, a weekly program presented by Antony Funnell that examines the social, cultural and economic effects of rapid changes, including technological changes and related scientific research.[x]

- *The Body Sphere*, a weekly program about the human body presented by Amanda Smith. It covers the things that humans do with and to their bodies and includes medical and technological stories.[xi]

Furthermore,

- *Bush Telegraph*, on Radio National and ABC Rural, broadcast throughout the ABC's comprehensive network of regional stations, regularly report stories involving the work of the CSIRO and agricultural scientists.[xii]

Numerous non-science programs across the ABC's radio network have regular science segments and/or guests. These include:

- triple j's: *Mornings with Zan* includes a regular science talkback segment with Karl "Dr Karl" Kruszelnicki who is the oldest announcer on our youth music national network. (Quite probably the oldest on any such station anywhere). He communicates his love for science to a young audience. He has over 180,000 Twitter followers. In 2012 his segment had an extraordinary 2.8 million podcast downloads.

- *Breakfast*, with Fran Kelly on Radio National, has a specialist environmental reporter and includes a

weekly discussion with Dr Chris Smith of the BBC's *The Naked Scientists* (mentioned above).

- On 702 ABC Sydney almost all presenters have at least one regular science segment or guest:
    - Adam Spencer (*Breakfast*) has a weekly discussion with astronomer Professor Fred Watson. Adam frequently indulges his passion for mathematics on air.
    - Linda Mottram (*Mornings*) speaks with Dr Karl fortnightly and in the other week rotates various cosmologists.
    - James Valentine (*Afternoons*) has a weekly discussion with Bernie Hobbs from ABC Science.
    - Richard Glover (*Drive*) has a weekly segment called "Self Improvement Wednesday", which regularly focuses on a science topic.
    - Dominic Knight (*Evenings*) has a weekly discussion with Professor Fred Watson.
    - Tony Delroy (*NightLife*) includes the weekly segment "News in Science", a discussion with freelance science writers Tim Thwaites and Leigh Dayton on alternate weeks, as well as periodic discussions with Dr Karl and astronomer Jonathan Nally.

- In Melbourne John Fayne's *Mornings* program often covers science topics and *Evenings* has a regular segment on research, which frequently discusses medical research.

- 612 ABC Brisbane: Spencer Howson (*Breakfast*) does a weekly segment with Peter Black about new technology and how it frames our world; Steve Austin (*Mornings*) has a weekly segment with Dr Karl.

- 1233 ABC Newcastle: Jill Emberson (*Mornings*) has a weekly segment, "How Green is Our Valley", covering environmental topics; Carol Duncan (*Afternoons*) has a weekly segment, "Science", with Dr Paul Willis from the Royal Institution of Australia (a former *Catalyst* presenter); and Paul Bevan (*Drive*) has a weekly segment, "Show us your PhD", which asks PhD students, including students in the sciences, from a range of universities to outline their theses.

- 891 ABC Adelaide: Ian Henschke (*Mornings*) has a weekly discussion with Dr Chris Daniels from the Barbara Hardy Centre for Urban Ecology and a fortnightly discussion of earth sciences with geologist Professor Victor Gostyn; Sonya Feldhoff (*Afternoons*) has a weekly segment with Dr Paul Willis on contemporary issues in science; Ashley

Walsh (*Weekends*) has a monthly discussion with amateur astronomer Ian Musgrave.

- In Perth *Mornings* has a weekly slot with Norman Swann and *Afternoons* has a weekly slot with Dr Karl.

- 666 in Canberra, with its proximity to CSIRO and the ANU has a science story virtually every day, particularly during *Afternoons* with presenter Adam Shirley who has science qualifications.

- On 639 ABC North and West, broadcast from Port Pirie, Ann Jones (*Mornings*) has a fortnightly "New Science" segment that showcases a young scientist and their work. SA Chief Scientist Dr Don Purcill assists with the choices of guests (also broadcast on 1485 ABC Eyre Peninsula and West Coast).

  You will appreciate an irony here. It appears from my inquiries that the only capital city in which the ABC does not have a regular science segment is the city named after Charles Darwin.

Television

- *Catalyst*, the ABC's flagship science television program began its 14th season of 26 half-hour shows in January with a special "road trip" series of science stories from around Australia. Regular

episodes resumed on 6 June. Unlike many of the television "science" programs *Catalyst* is *NOT* a stunt show. In the most recent surveys it attracted an average audience of 665,000 in metropolitan areas and 326,000 in regional areas. In 2012, the *Catalyst* website recorded 774,000 visits and 123,000 streams of *Catalyst* segments.

- ABC Television commissions a range of science documentaries and factual programs. The 2012 slate included *Australia: The Time Travellers' Guide.* The 2013 slate has series such as *Redesign My Brain*, and *Kakadu.* Over the last two financial years (2011–12 to 2012–13), the ABC commissioned 25 science-related programs, a total of 56 television hours on screen. The ABC spent $8.7 million on science programs, other than *Catalyst*, over the period. As these programs were undertaken with the external industry, ABC Television was able to attract further production investment of $18.1 million.

- ABC television also acquires science documentaries from outside suppliers. In 2011–12, it acquired 10 programs amounting to 29 hours on screen; in 2012–13, it acquired 18 programs delivering 59 broadcast hours. Highlights included *Wonders of the Universe* (Series 1), *Wonders of Life*, *The Rise of*

Animals with David Attenborough, *Galapagos: The Enchanted Islands* and *David Attenborough: Kingdom of Plants*.

- As in radio, programs of general appeal also feature science stories. *Landline*, our principal regional and rural issues program would, I am advised, have science based stories in about a third of its programming.

- ABC3 broadcasts science-based content aimed at older children. Since its launch in December 2009, the service has broadcast three series of the Australian live-action science program *Backyard Science* and one series each of the Australian science-based game shows *Steam Punks!* and *Lab Rats Challenge*. The former is a 40 part series in which competing teams score points based, in part, on scientific knowledge and technological literacy. ABC3 has also broadcast two series of the UK science-based game show *Richard Hammond's Blast Lab*.

- ABC4Kids, aimed at younger children, broadcasts *Octonauts*, an animated series exploring the undersea environment. The *Octonauts* is one of our most highly viewed programs on iView, with 348,000 plays in May 2013. We call iView a "catch up" service. For young children it is the real thing.

Online

A few months ago, on a pleasingly bipartisan basis, the Commonwealth Parliament passed legislation adding, for the first time, the provision of "digital media services" to the ABC's traditional broadcasting role. The ABC has been in the forefront of expansion into online and mobile platforms. For science communication, as for other spheres of discourse, this is where our most innovative and, in my opinion, most important future developments lie.

- The ABC Science website (http://abc.net.au/science/) is the ABC's flagship online science portal, containing both original content prepared for the site as well as all science-related material across the ABC. The site includes demonstrations and explanations of a wide variety of simple science experiments conducted by the "Surfing Scientist" Ruben Meerman, accompanied by lesson plans for teachers who want to use the experiments in the classroom. Original content streams prepared for the site include: *News in Science*, *Great Moments in Science* with Karl "Dr Karl" Kruszelnicki [xiii] and *Science Basics* with Bernie Hobbs. In 2012, the site attracted 780,000 visits per month. It has a broad international audience, reflecting the global appeal of its science content. In the twelve months to 14 March 2013, 60% of visits to ABC Science were from overseas.

- The Health and Wellbeing website (http://abc.net.au/health/) aggregates health and medical stories and attracted 364,000 visits in 2012.

- The Technology and Games site (hhtp://abc.netnau/technology) attracted 117,000 visits each month.

- The Environment website (http://abc.net.au/environment/) aggregates environmental stories from across the ABC. The site attracted 81,000 visits per month in 2012.

Education

- ABC1 broadcasts a daily schools TV slot of expressly educational programs. On Monday mornings this features short science programs including *Backyard Science, Atoms Alive, Inside Science, i-Maths, Atoms on Fire* and *Science Class*. *Inside* Science is new this year. The others are repeats of earlier series. On Tuesday mornings *Behind the News* presents news stories, including science stories, for example, on a bionic eye, black holes and new technology for tracking whales.

- The ABC Education Schools TV website contains information on the full range of ABC programs directed at schools, including links to educational

teacher resources to expand the functionality of the daily broadcasts. Such resources are available for most of the programs I have mentioned: *Backyard Science*, *Atoms Alive*, *Inside Science*, *i-Maths, Atoms on Fire, Count Us In, Cyberchase, Maths Shorts* and *Behind the News.* This is a long-standing commitment to our educational role.

- ABC Splash (http://splash.abc.net.au/), the ABC's new education portal, offers a mix of educationally-relevant ABC content, media-rich interactive learning tools and supporting teacher resources. These are all aligned with the Australian Curriculum. Science is among the first four subjects to roll out in the National Curriculum and science material currently accounts for the majority of the content on *ABC Splash*. ABC Splash is supported by Commonwealth funding of $19.4 million over three years and is being developed in partnership with Education Services Australia (ESA).

  I give one example of innovative content. On 26 March, *Splash* launched ABC Zoom (Beta), an immersive game based on the concept of "zooming in" to see things at microscopic and atomic scales. The game is intended to allow students to

intuitively explore scientific principles within physics, chemistry and biochemistry.

- The ABC also produces original short-form science video for online access. Many of these programs are eventually broadcast, particularly on ABC2. Examples have included:
    - *Ace Day Jobs*: developed as an inspirational approach to career guidance, including for science related careers, for example, aerospace engineering and zoology. Available online and on DVD, *Ace Day Jobs* was broadcast on ABC2. The DVD set (all 86 episodes) was distributed to all Australian high schools for free in 2009; about 100 schools also requested site licenses allowing them to make copies of the DVD or replicate the series on school intranets.
    - *The experiMENTALS*: a 28-episode series of five-minute videos of simple science experiments, intended as a contemporary equivalent of Julius Sumner Miller's classic *Why Is It So?* Available online and on DVD. It was broadcast on ABC2.
    - *Talking Science*: a series of 10 conversations with prominent scientists and thinkers. Each of the 30-minute episodes featured an ABC Science journalist in conversation with a prominent scientist or identity. Subjects included Dr Jane

Goodal, Tim Flannery, Peter Doherty, astronaut Andy Thomas and writer Bill Bryson. Available on demand online.

Drama

There is an influential sphere of ABC programming which does not simply convey information, but which is capable of having significant impact on the scientific literacy of our community and its interest in science related issues. I refer to drama programming.

I read with interest the report of the Science and Media Expert Working Group as part of the *Inspiring Australia Initiative*. That report made a range of significant recommendations to improve the communication of science. One of them derives from the experience in the United States of the Science and Entertainment Exchange, which provides a forum for the science and entertainment communities to meet and to explore ways of getting more science and scientists into the media including reality TV, drama and feature films.

There can be no doubt about the force of drama and entertainment programming. I have experienced it in my previous job as a judge. Over recent years a trend has emerged in which it appears that some juries are reluctant to convict alleged criminals in the absence of technical scientific evidence, such as DNA tests or other sophisticated techniques. Criminal lawyers have come to refer to this reluctance as “the CSI Effect”.

There is no doubt that the positive representation of scientists and scientific methods in crime dramas is one way of promoting an understanding of science. The ABC has done this in its programming, for example, the British series *Silent Witness* and, more recently, in Australia *The Doctor Blake Mysteries* series, soon to be followed by a second series. This is a CSI for 1950's technology. The contrast itself says so much about scientific progress over the last half-century. Moreover, it does no harm to portray the scientist as hero. No doubt, it would be desirable to have more such programming.

News and Current Affairs

It is difficult to set out in comprehensive detail the coverage of science, medical and technological stories on the ABC's extensive news and current affairs programming. The daily News bulletins on radio and television and the constant stream of news programming on ABCNews 24, regularly feature science related topics. Programs such as AM, PM, World Today and Background Briefing on radio and Four Corners, 7:30 Report and Australian Story on television cover the full range of issues facing the Australian community. At a rough guess, perhaps 10% of programs have a scientific element. Further, the Catalyst team produces, in addition to its principal program, short 2-3 minutes science stories for general use on the ABC. ABCNews24, for example, broadcasts these interstitially as *Catalyst Bites*.

There are three dedicated science reporters in ABC News. For some time there has been a National Environmental Science Reporter and a National Medical Reporter. The recent increase in funds made available for ABC news and current affairs programming has enabled us to add a new specialist Science and Technology reporter.

However, depending on the source of a particular story, any journalist can be called upon to report it. ABC journalists are well aware of the resources available from the Science Media Centre and, as I understand it, frequently call upon its excellent service, using its emails and making contact for specific referrals.

I believe it is true that in its news and current affairs programming, the ABC gives comparatively greater coverage to science related issues, particularly, but not only, environmental and health related issues. That is manifest in the content and structure of the general ABC News website, increasingly the principal point of contact with our online audience. That website contains links to each of our content-rich specialist science related websites, which aggregate content across all ABC platforms, together with a considerable body of specialist materials and further links.

I do not wish to suggest that all our journalists have a high standard of scientific literacy. Australia's education system does not deliver such talent across the board. Journalists do not differ from other

educated Australians in terms of their scientific literacy. Developing those skills is and will remain an ongoing process.

However, what I believe needs most work, is to develop our capacity to appropriately challenge scientists, not least those whose work is distributed by press release from organizations with a vested interest in favourable publicity. That includes, these days, universities. It is primarily for that reason that I would hope we can further develop the scientific literacy of our news and current affairs staff. In this, as in other areas, we must go beyond PR handouts, or what has been called “churnalism”.

Accuracy and Impartiality

One of the express statutory duties of the Board of Directors of the ABC is “to ensure that the gathering and presentation - of news and information is accurate and impartial according to the recognised standards of objective journalism". This critical function, by reason of the statutory provision, is not a matter on which the Board simply supervises ABC management. This is a matter upon which the Board is required by law to be proactive.

The qualification “according to the recognised standards of objective journalism", indicates that the standard is not the same as would be applicable in science.

The ABC has adopted a comprehensive set of Editorial Policies, and a series of Guidance Notes, formulating standards and elaborating on their application in various contexts. Whilst acknowledging that questions of impartiality often involve personal and subjective views, the ABC Policies assert that it is our obligation to apply the impartiality standard as objectively as possible. In doing so, ABC staff are guided by certain hallmarks of impartiality as follows:

*a balance that follows the weight of evidence;
*fair treatment;
*open-mindedness; and
*opportunities over time for principal relevant perspectives on matters of contention to be expressed.

The Policies go on to emphasise that impartiality does not require that every perspective receives equal time, nor that every facet of every argument is presented. Further guidance is given as to a range of relevant factors that should be taken into account in making these judgments, despite the inherent subjectivity of some aspects of the process.

All four of the hallmarks I have mentioned are relevant to reporting on science, health and technology issues. I wish to emphasise the first - the principle that “balance” must follow the weight of the evidence.

Not all opinions, or indeed controversies over fact, are entitled to equal weight or equal time. Some may

call this “group think”. Well, there are matters on which some opinions fall outside any conception of reasonable debate - matters such as genocide and torture, for example. There are also scientific issues which fall into, or approach, a “the Earth is flat” proposition, for example the health effects of tobacco or asbestos. The recognised standards of objective journalism do not require “balance” or impartiality in such contexts.

The issue about which allegations of a lack of balance is most frequently made in current debate is that of climate change. As I understand the position, the difference between the principal parties is not about whether or not climate change is real and is aggravated by human activity, but rather as to what policies should be adopted. I am not a sceptic on this issue. Nevertheless, it is an inappropriate point in the electoral cycle for me to get involved in that debate. There is a somewhat less heated example of the dangers of not following the weight of the evidence on a scientific issue.

In a number of nations it is well documented that the media has played a pernicious role in purveying scare stories about the effects of vaccination. During the 1990s there was a panic in France about the alleged effect of the hepatitis B vaccine on multiple sclerosis. Virtually no one outside France heard of this. In the United States, there was a scare about a preservative in some vaccines called thiomersil as a cause of autism. This also was hardly noticed anywhere else. In the Muslim world, notably in Nigeria and Pakistan,

a deadly scare has involved allegations that the polio vaccination is a CIA plot to make Muslims sterile, leading to the assassination of vaccine workers.

In the United Kingdom, and to an extent in Australia, there has been an outbreak of concern about an alleged connection between the measles, mumps and rubella vaccine, MMR, and autism. Many sections of the media love a scare story and, accordingly, gave a small 1998 study by a maverick scientist entirely unwarranted publicity, probably because it was alarming and therefore "a good story". This continued, from time to time, irrespective of the overwhelming body of scientific studies which disproved, indeed discredited, that research. It continued even after the study was withdrawn by the magazine that published it and even after the author of the study was accused of fraud and struck off the medical register.

Yet, as recently as April of this year, a reputable British newspaper, *The Independent*, repeated the alleged findings. It did so when reporting a measles epidemic in Wales, which was almost certainly caused by the decreased vaccination rates in England - which now has the second lowest rate in Europe, only beating Romania – that followed the earlier media reporting.

A report on the quality and impartiality of BBC science reporting indicated, that the very fact that the BBC had given equal time to both arguments in its initial reporting of the story was interpreted by many

as an indication that the anti-vaccination case had some real basis. It is bad enough that the internet and the power of search engines make junk science universally available, particularly via "Dr Google", without public broadcasters making the position worse. The significant level of trust which the BBC (like the ABC) enjoys was, in this case, part of the problem.[xiv]

On this occasion "equal time" was not "balance". It was ignorance. As a leading British science journalist put it: "By making a fetish of balance and insisting too rigidly that both sides of a story are told, it becomes very easy to mislead".[xv]

As manifest by the recent legislation in New South Wales - requiring parents who wish to place the children in childcare centres to produce proof of vaccination - vaccination is a public health issue. When a sufficiently large proportion of the population is immunised against a contagious disease–which varies from one disease to another - immunised individuals are effectively protected from it by the relative inability of the disease to spread through the population as a whole. Vaccination alone provides such herd immunity.

This issue became directly relevant to the ABC when *Catalyst* broadcast a story on vaccination in May 2012. The program attracted a number of complaints from anti-vaccination individuals which were dismissed, and properly so.

“Balance” is not required when children's health, indeed children's lives, are placed at risk by ventilating extreme scientific opinion, whether that is done in the interests of media impact or to protect oneself from allegations of partiality. Where the weight of the evidence is clear, the ABC is entitled to act on that basis. Not to do so is irresponsible journalism.

There are, of course, always difficulties in knowing where to draw the line on issues of public controversy. The BBC report on impartiality drew a useful distinction between dealing with sceptics – who are willing to engage in debate on the evidence – and denialists who “see themselves as intellectual martyrs in a war against political correctness”. It described the syndrome in the following way:

“The tale is told of a vast conspiracy to hide the truth and of dissent quashed by secret forces. People with strong opinions should be given equal weight with experts. Any evidence that contradicts their ideas must be publicized and the rest ignored, while any statement of doubt must be trumpeted from the rooftops. Standards of proof should be set so high as to be impossible to attain. Personal attacks (Hitler was against smoking) are acceptable and absolutism is useful (one ninety year old smoker proves that tobacco is harmless). Doubt shades into certainty: a scientist can never say that a vaccine is always safe – which means that it never is”.[xvi]

I do not expect that allegations of a lack of balance on the part of the ABC will ever go away. Sometimes the criticisms are justified. However, there is always someone with an interest to make allegations or run campaigns. I am pleased to say that such allegations happen quite rarely for science-related programs – other than climate change - when one takes into account the scope and range of our reporting on scientific matters, which I have outlined earlier in this address.

Science Reference Panel

I am aware that the Academy has expressed views on the scope and extent of our science coverage. I wish to assure you that we do wish to tap into your expertise to ensure that we are addressing the important issues in specialist subject areas.

The ABC has a Charter obligation to deliver specialist content. In undertaking this task we intend to seek guidance from experts in such specialist fields, in a structured way, to ensure our focus is right, that we understand the latest thinking and research and that we are providing as valuable, as accurate and as impartial a service as we can, across all platforms.

The ABC Board has decided that Science, as a well-established and comprehensive specialist area operating across all ABC platforms, should be the first area in which this policy will be implemented.

The ABC will begin consultations with peak science organizations, including the Academy, to establish a Reference Panel with expertise in scientific research, science education and science communication. Professor Fiona Stanley will chair the Reference Panel.

The science panel is the first quality reference panel established to give advice to the ABC and will, if successful, serve as a model for other program areas. This panel will not be a standing advisory council, instead it will perform a number of specific tasks, set out in terms of reference.

The Panel will be asked to have regard, in carrying out its terms of reference to the duties and functions of the ABC, including our duty to ensure that our gathering and presentation of news and information is accurate and impartial, according to the recognised standards of objective journalism.

First, the Panel will develop a set of indicators – the hallmarks of quality science content – against which the ABC can evaluate science content delivered across its platforms.

Secondly, the Panel will provide the ABC with advice on the breadth and depth of its coverage. The members of the Panel will be asked to agree to a list of the top ten most significant science stories in the last twelve months.

Thirdly, the ABC will catalogue its coverage of these issues across all platforms and report back to the reference panel.

Fourthly, the Panel will be asked to consider the report.

Fifthly, a symposium will be held following the production of the report to allow discussion between Panel members and ABC content makes and editors. The symposium will not be limited to matters discussed in the report but will facilitate a broad dialogue on the coverage of science.

Finally, the ABC will publicly report on the results of the consultation.

In addition to the reference Panel process, the ABC will also commission research to determine whether it effectively communicates complex science content. Specific pieces of ABC science content will be put before audiences and surveys conducted to determine whether the content increased understanding, engaged audiences and encouraged them to want to find out more.

I look forward to the outcome of this new level of collaboration between the ABC and the Academy, and others in the field.

Conclusion

I am sure you are all acutely aware of the disparity of knowledge, engagement and enthusiasm on the part of the Australian public between our contribution to world science and our contribution to world sport. However, in terms of the power of conveying information and, on many occasions, of persuasion, perhaps the most significant contribution Australians have made on the world stage, is in the form of the tabloid headline. Primarily because of the expansion of the News Corporation internationally, but not only because of that, Australian sub-editors have made a disproportionate contribution to the punch of tabloid newspapers, particularly in London and New York.

Let me, in conclusion, share with you my favourite set of newspaper headlines which appeared in *Le Moniteur Universel*, the principal French newspaper during the French Revolution and for some years thereafter. It was, virtually, the official journal of the French government of the day, including during and after Napoleon's rule.

Throughout the 100 days – the *Cent-jours* – between Napoleon's escape from Elba and the restoration of the Bourbons, *Le Moniteur* remained loyal to the government. On the day of his escape *Le Moniteur* led with the following headline, as compiled by John Julius Norwich: [xvii]

"The Cannibal has left his Lair."

Thereafter there appeared the following sequence:

"The Corsican Ogre has just landed at the Juan Gulf."

"The Tiger has arrived at Gap."

"The Monster slept at Grenoble."

"The Tyrant has crossed Lyons."

"The Usurper was seen 60 leagues from the Capital."

And then, a change of tone:

"Bonaparte has advanced with great strides – But he will never enter Paris."

"Tomorrow, Napoleon will be under our ramparts."

And then, another change:

"The Emperor has arrived at Fontainbleau."

And finally:

"His Imperial Royal Majesty entered his palace at the Tuileries last night in the midst of his faithful subjects."

The ability to adapt to changing circumstances is an important life skill for scientists as well as broadcasters. *Le Moniteur* is an example to us all.

[i] *myABC Clip of the Week #20*

[ii] First published by Holt, Rinehart and Winston, New York, 1981. (Co-author Peter Pringle.)
[iii] Liveright Publishing, New York, 2013 p55.
[iv] *The Australian* 15 April 2013.
[v] http://www.abc.net.au/radionational/programs/healthreport/
[vi] http://www.abc.net.au/radionational/programs/ockhamsrazor/
[vii] http://www.abc.net.au/radionational/programs/allinthemind/
[viii] http://www.abc.net.au/radionational/programs/nakedscientists/
[ix] http://www.abc.net.au/radionational/programs/offtrack/
[x] http://www.abc.net.au/radionational/programs/futuretense/
[xi] http://www.abc.net.au/radionational/programs/bodysphere/
[xii] http://www.abc.net.au/rural/telegraph/default.htm and http://www.abc.net.au/rural/
[xiii] http://www.abc.net.au/science/drkarl/greatmomentsinscience/
[xiv] *BBC's Trust review of impartiality and accuracy of the BBC's Coverage of Science,* July 2011 @pp 60-62
[xv] Mark Henderson, *The Geek Manifesto: Why Science Matters,* Bantam, London 2012 p 71
[xvi] *BBC's Trust Review* opcit p 68
[xvii] See John Julius Norwich *Still More Christmas Crackers* Viking, London, 2000 at 329.