



## **Science: Does it need promotion and defense?**

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Science and research scientists, especially when dealing with significant but contentious issues, have been under attack, especially recently. Some science, we have been told, is 'junk science'. Some research scientists are alleged to be involved in conspiracies, aimed at misrepresenting things in order to maintain funding or access to other resources. Research scientists, it has been suggested, are so beholden to and controlled by their masters, that they are forced to 'toe the company line' and make presentations favourable to their masters' interests.

As a research scientist myself, I feel compelled to try to promote and defend both science and scientists, though arguably neither should really need such support. I simply cannot let allegations, such as those mentioned above, pass with only a whimper of a response or, worse still, no response at all, especially as they are all untrue and unfounded, and reflect the self-interests of those making them. They clearly need to be confronted head-on.

Of course criticism of science and research scientists is not new, and is in fact undoubtedly as old as recorded science. Consider, for example, the case of Galileo who supported the view, originally proposed by Copernicus, that the Earth revolves around the sun, rather than the reverse. We now know that these two great scientists got it right, but Galileo was criticised and persecuted on account of what he proposed. The problem faced by Galileo, and indeed Copernicus before him, was that their views conflicted with the beliefs and vested interests of the Catholic church. For quite some time, science was trumped by this religious self-interest. Are modern criticisms of science essentially the same?

In order to address allegations about science such as those mentioned above, and other similar ones, there are a number of aspects of science and its developers, the research scientists, that need to be considered. These include the following:

- What really is science, and the process whereby science is produced?
- How is science initiated & developed?
- What does a research scientist actually do?
- What things might the general community expect of its research scientists?
- For a research scientist, what constitutes success & the 'right stuff'?
- What, if any, gauntlet does a research scientist, and her/ his science, have to run?
- To what extent does humanity rely on science?

- When should we all learn about science?
- Should we learn about the scientific process, or its outcomes, or both?
- Who should teach us about science?

I could go on, but you probably get my basic message. Science has many aspects deserving our attention. Perhaps you can think of other issues that warrant consideration?

But, in what order should we contemplate such issues? In developing the above list, I tried to produce a more-or-less logical sequence, but other sequences are clearly possible. You may have your own opinions!

For now, I propose to work through the above list, probably modifying both what's included and where things fall in the sequence. I hope you will enjoy the journey.

I have already attempted to consider the first of the above issues in a post entitled *Science explained*.

However, before I progress further with a sequence of posts re *Science*, let me summarise my background and expertise, especially in relation to possible inadequacies and biases. I have had relatively broad research interests in the areas of ecology, behaviour and evolution, and have studied a wide range of organisms, including birds, bees, fish, mammals, frogs, reptiles and plants. This research has been supported by a variety of grants, though not recently. I have been employed, over my career, only at academic institutions (i.e., Universities, Australian Museum), where my principal requirement has been to carry out research within the context of ecological and environmental issues. Within this broad context, I have enjoyed complete freedom with regard to my research interests, which would explain the breadth of my research. I am no expert in relation to particular aspects of sustainability, but have recently been involved in investigations of possible impacts of climate change on flora and fauna. For further details, you may view my c.v., which is available via the *Sustainability Central* website and will be kept updated. As evidenced by this and other information, I have passionately pursued research excellence, in a variety of areas, without fear or favour.

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