Introduction

In Sports: *Its not whether you win or lose,*
It's how you play the game.

In Science: *It's not whether you're right or you're wrong,*
It's how you play the game.

In Science, it seems that few are playing by the rules, when it comes to the big issues that are pre-occupations of the public.

Sombre Thoughts

Something is rotten in the state of science, and it is the scientists themselves. Or at the least it is the way in which they portray what they are doing, and how they own the truth. "Rational, logical, and scientific" approaches are fundamental to how science is defined, to how scientists are trained to think and behave, and to how they like to perceive of themselves. Instead, massive evidence from major scientific initiatives clearly show that scientists are apparently constrained to think like this PERHAPS ONLY within a small "conceptual locality" for which they have been "programmed"[1], regardless of data that clearly contradicts or questions their beliefs, the ease of simple analysis to show that their current models and thinking is problematic, and the easy availability of much more critical thinking and alternative models from others who have much to offer. These problems extend to the actions and behaviours of scientists, which often fit neither the nice theoretical behaviours that scientists claim to fit, the standards demanded of professionals, nor even the norms of decent behaviour set by society.

How can one explain how individual scientists, and especially the scientific consensus, can be so off base, and that essentially all scientists have a great deal of difficulty:

- synthesizing obvious answers, and more importantly, obvious questions where applicable
- recognizing the "limits and incompleteness" of their thinking and the merits of alternate schools of thought?
- shaking free of belief systems that seem to channel them into errors of thinking best described as "delinquent AND/OR dishonest AND/OR dysfunctional AND/OR hypocritical", with at least one of those conditions being strong-to-extreme, and the likelihood of several conditions applying is reasonably high.
- escaping scientific consensi that are best described as "hugely delinquent AND hugely dishonest AND hugely dysfunctional AND hugely hypocritical" (the dropping of the "OR" conjunction for consensus thinking is intended and significant)
- ?

One might think that it is impossible for these problems to occur when scientists are bright, dedicated, and hard working. On the "local scale", results and thinking are often impressive, but with the big issues we can see failures from the individual level all the way through to the entire scientific

1 "programmed" - by education/ training/ collaborations, by seeing the dominant papers of others in their area, and by complying with peer review and more importantly publication requirements of their targeted journals (non-exhaustive list)

community. These catastrophic failures of "rational, logical, and scientific" thinking occur massively and predictably, and are aggressively pushed and defended by scientists, who tend to take repressive the wayward scientists who challenge the consensus thinking. Hence, the "local level" perspective of science, and the way we generally like to think of science and scientists leads one to conclude that starting point for this paper is an "impossible conclusion", whereas the "endpoint or big picture" levels of science tell us otherwise.

The "Kyoto Premise"[2] (KP) for climate change is used as an example to illustrate the points raised in the last paragraphs, because: the KP is current, it is one of the largest ever peace-time scientific issues and endeavours, and it is thoroughly well documented by scientific publications, media coverage, presentations, and activist groups, not to mention the occasional leakage of stolen confidential information to the internet. Perhaps more to the point, after watching a long series of scientific boondoggles in the past, I became upset with the near-universal failures of scientists on the climate change issue, and the negative impacts this was having on science and society. I am lucky in that many excellent books and articles are available [Plimer, ?Hoyle?, etc etc] that go into great detail on the failures of rational, logical, and scientific thinking related to the KP, allowing me to avoid having to cover a huge number of items as I had originally planned. This has allowed me to focuss more on the modes and failures of scientists' thinking, and in an epstemological sense: the limits to science, and better approaches to thinking for "extra-science" areas.

The KP is not an isolated example of this kind of failure. Instead it seems to be the rule rather than the exception (as listed above), and this phenomena appears to be a constant over the history of science and policy. Environmentalism, health, and astronomy seem to be particularly prone to horrible science, but perhaps that is only my own detailed reading has often been focused in those areas. It is not yet clear whether these areas are worse than some kind of norm or average for all scientific areas.

Scientists' current performance across a very wide range of dominant science themes (if not most or all such themes) is lamentable, and dangerous in the sense that it may lead to the "Loss of Enlightenment" (covered in Chapter C.1). Enlightenment is a dynamic state that depends on on an inspiring creation and destruction of disruptive ideas from relatively rare individuals (scientists AND non-scientists), but by simply adding more scientists one may simply obtain a system where the overwhelming consensus of the established "fashions, cum cults, cum religions" of essentially all "professional" scientists suppresses and stiffles the disruptive individuals, thereby estinguishing Enlightenment.

Finally, I'm certainly no genius, and am subject to all of the same problems as everyone else.

Happy Thoughts

Surprisingly, in spite of the title of this paper and the tone of its Parts A and B, the ultimate message of this paper is intended to be positive and upbeat and positive, as it should be. In spite of their claims, while essentially all scientists fail at "rational, logical, and scientific" thinking beyond their own programmed belief systems in their own expertise ("locality"), it is proposed that "rational, logical, and

2 Kyoto Premise (KP): the presumption that anthropogenic GreenHouse Gas (GHG) emissions [have, are, and/or will have] a catastrophic impact on the environment and mankind. The word "premise" is used here to denote the science, as opposed to the sad mix of science and policy of the "Kyoto Protocol".

scientific" thinking, and the scientific method itself, are an inadequate basis of thinking and to describe the progress of science. Pre-and-post-scientific thinking is critically important, and a diversity of approaches (epistemologies[3]) is essential for making science work. There is no magic formula, no "one way to think".

Science works wonderfully well (for now) in SPITE of the failure of scientists' "rational, logical, and scientific" thinking!! Some explanations for this are provided in Part B, but in essence the outcome is, in my opinion, more optimistic and enlightening than the standard message of science. As an explanation, consider the two examples:

1. standard assumption: "Scientists are very good at "logical, rational and scientific" thinking
2. this paper's assumption: "Essentially ALL scientists fail catastrophically at "non-local rational, logical, and scientific thinking"

The first assumption can only lead to a general depression over the widespread failures and instability of essentially all scientists, easily over decades, perhaps over hundreds or thousands of years. Sure, there is progress (so far during the current period of Enlightenment), but it is a wholly unrealiable process even where it should be relatively straightforward, and the damage to any individuals and to society can be considerable (here the Kyoto Premise is an excellent example!).

With the second assumption, our expectations are relatively low, and we can far better appreciate our successes, in spite of our limitations! Furthermore, that conceptual framework is far more accomodative of a far wider range of "philosophies of thinking/ epistemologies" that are essential to tackling non-trivial challenges. As an example, it is argued in Chapter C.? that evolutionary theory, including its strong dependance on randomness, is a vastly better and more powerful descriptor of scientific progress than the "Scientific Method". The second assumption better accomodates competition, diversity and redundancy. This is important for scientists, but also for the scientific institutions, funding agencies, and the public at large.

It is also clear that nonscienists have played a major, if not dominant, role in uncovering the fraud, delinquency and stupidity of GHG based climate science, and in directing the scientific focus and debate to more promising concepts. Amateurs rule - the health of science is nearly independent of the effectiveness of scientists, and this trend is likely to accelerate greatly in the future given the radical changs occuring due to much more widespread availability of information that was essentially a privilege of the professional scientist in the past. For sure, one could always visit the library, but the publishers didn't provide what the internet can provide in terms of critical review, new ideas, etc. At present the best mix seems to be a few professional researchers with alternative data and analysis, together with armies of amateurs who are simply interested on a topic. Hopefully, future modes of funding will follow suite, breaking the funding stranglehold of the research establishment and leading to a far more creative, critical, and productive "mixed community of researchers".

"Rational, logical, and scientific" thinking is highly constrained and limited, and as will be shown in Chapter ??, other basis for thinking are better suited for more complex systems, bringing to mind the long-standing discomfort with "incomplete science" in the humanities. It is proposed here, that for complex systems (strongly non-linear, chaotic, discontinuous), and even more so for living systems and humans/ human systems, "logic is an emergent property". It is inherently inadequate for such systems, and typically produces highly misleading results. Biologists, psychologists, sociologists and others

3 epistemology - a branch of philosophy that investigates the origin, nature, methods, and limits of human knowledge. (from www.dictionary.com)

have been doing just fine by a pragmatic mix of “logical, rational, and scientific” plus more sophisticated thinking.

What this paper is NOT

In discussions with friends and colleagues, it seems that certain mis-perceptions of this paper are likely, and therefore they are addressed right up front.

This paper is NOT an attack on science – To the contrary, it is born of a disgust for the abuses of science by the professional scientists, who are typically academic and government researchers.

This is only a “partial attack” on scientists! - The attack on scientists, individually, in groups, and collectively, by this paper is SPECIFICALLY from the point of view of “

This isn't just about scientists - The astute reader will notice that the constraints and failures of “rational, logical, and scientific” thinking are a property of home sapiens, not just scientists. I asee the outcomes of this paper as being UNIVERSAL (or nearly so – the concept of “strong thinkers”, even if only if “conceptually and temporally localised”, is introduced later). But scientists are the ideal subject for study, because they are supposed to be the QUINTESSENTIAL ““rational, logical, and scientific” thinkers, and for some reason we still collectively belief that.

This paper does NOT include the context of Thomas Kuhn's work, which will be surprising (and perhaps annoying). That is because I am intentionally staying away from Kuhn's work. That will allow me to compare my train of thinking with that of Kuhn and others, providing a great opportunity for self critique, but also leading to a far deeper and more profound appreciation for the results of leaders like Kuhn. However, it is not possible to work in isolation from Kuhn's thinking as he is extensively quoted, so there will be an influence on this work.

This paper is NOT written as a final copy - nor is it intended as a "publishable" version. It is intended to provide a framework and a reference for further work on the subject, which I may or may not get around to doing.

This paper doesn't cover much - Later papers (perhaps much later) could address related and non-related subjects, such as:

- Lies, damned lies, and policy analysts
- Lies, damned lies, and leadership: the civil service and academia – the profit motive is an inadequate basis for understanding “delinquent AND/OR dishonest AND/OR dysfunctional AND/OR hypocritical” thinking and behaviour. Good intentions are perhaps an even better basis for that understanding.
- Lies, danmed lies, and communications & the media
- Lies, damned lies, and me

The plan forward for this paper

Part A of this article, and its first thrust, starts with some a basic checklist of Climate Change concepts and drivers to keep the discussions as clear and pointed as I can make them. But it definitely would help most scientists to be re-exposed to alternative data and analysis than what they are currently clinging to. I feel that most scientists fail to distinguish key basic concepts right from the start, and this easily leads them into what I will later describe as "Dysfunctional and/or Dishonest and/or Delinquent" (D-cubed) modes of thinking. As for a more detailed discussion and illustration of the key concepts please refer to my separate paper "Climate change: Back to Reality for a lost generation of scientists" (but this is still simple and far from exhaustive).

The second thrust of this article shows some of the key, major failures in the consensus thinking underlying the Kyoto Premise, and argues that while climate change is a complex subject, gross errors are persistently made with the very simple initial concepts and data analysis. Long-standing data and coherent analysis in many areas, often going back 100 years or more on key points, has never supported the Kyoto Premise, and often poses extremely strong (perhaps absolute) refutation as will be shown later. Furthermore, there has been a widespread failure by scientists and policy analysts to understand:

1. the initial, simple consequences of applying the very popular "Precautionary Principle";
2. that "classic" mathematical and statistical tools often fail miserably with complex systems, as do the scientists "rules of thumb" or mindsets for proof and causality.

The third thrust of the article to show that "scientific consensus" are often failures, other than for time-tested theories that outlive the first generation or so of scientists involved during their contentious introduction. It is perhaps best to regard "scientific consensus" as an oxymoron. Predictions and fears of the "new scientific consensus" are usually incorrect, and any major problems that do arise were typically not predicted by the scientists even though at least some of them should have been predictable.

A fourth objective of this paper is to explain why, in spite of ongoing failures of rational thinking by the majority of scientists, science itself still tends to progress. Part of the answer lies with the importance of non-rational modes of thinking, and in part our successes are based on processes underlying evolutionary theory.

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