reports

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The 21st Century – A New Era of Complexity

Edi Bilimoria

This review carries a grave warning: 'Complexity Does Not Mean Complicated'. In that case what does it mean? And why attach such importance to it nowadays? Furthermore, what is it pointing us towards? First however, a quartet of introductory remarks that followed the lighting of the candle.

In his welcoming address the outgoing Chairman **Professor Bernard Carr** outlined the major changes currently facing the SMN, but reassured us that crisis is opportunity; so the challenges facing us now should definitely not be viewed as a mid-life crisis, but as a rebirth inevitably involving temporary pain. Bernard then warmly acknowledged the long and dedicated service of the IT Manager, **Ioannis Syrigos** and the Network Manager, **Charla Devereux**, both of whom had recently stepped down.

Dr. Paul Filmore, newly appointed as Chairman at the Annual Gathering, then paid glowing tribute to decades of sterling service and dedication to the SMN by Max Payne, a former Chairman of the Trustees. Max was one of our longest serving members and was a character – and a voice – both larger than life. Following war service, Max trained in chemistry and philosophy and spent his academic career lecturing in philosophy at Sheffield Hallam University. An intrepid sailor, Max was well known for his Morgan car and black cat! Following retirement, he was active in the SMN running the Sheffield Group and as Master of Ceremonies at Annual Gatherings. Paul read out a tribute to Max from his son Matthew.

Next, the current Chairman of the Trustees, **Janine Edge** spoke of the need to revision the SMN as a platform for members to have their own voice. This theme was taken up by **Oonagh Harpur**, also a Trustee who stressed the role and importance of the 'wisdom of the crowd', meaning of course, our own members!

Now on to complexity science which is a broad and multi-disciplinary subject. Complexity is not just determined by the number of parts or the intricacies of a system but in dynamical properties like self-organisation, adaptation, and emergence. Complexity science has a varied intellectual ancestry ranging from work in cybernetics in the 1940s, to work on general systems theory in the 1950s, chaos and catastrophe theory in dynamical systems in the 1960s and 1970s, and work on complex systems spearheaded in the 1980s. Some of this work focussed on abstract mathematical systems and simple physical systems, but more recently, interest has increased in complex adaptive systems, such as social systems, biological systems, and technological systems where the parts actively change the way they interact. The increased use of computer simulation and interest in biological questions stimulated research in artificial life and the simulation of adaptive behaviour in the 1990s.

There are three main reasons for the importance of complexity science nowadays. Firstly, new challenges and demands in technology, whereby various industries are becoming increasingly aware that traditional approaches to design and engineering are failing to keep up with the increasing sophistication and scale of systems these days. Secondly, the availability of computing power such that computational modelling allows new approaches that were not previously testable. The third main driver is systems biology where for the first time, information can be gleaned about whole systems, and problems can be addressed, not piecemeal, but about the complex interaction of all components together. There is also the cross-fertilisation of insights between biological systems with engineering and technology systems. Owing to its strongly interdisciplinary nature, complexity sciences will increasingly find applications with complex adaptive systems that not only handle emergent dynamical behaviour, but adapt to control and exploit them in every possible way. An ideal interface is with the life sciences (e.g. biology, neurology, ecology), but there are exciting possibilities for a host of other applications, such as modern technology, social sciences, economic modelling and meteorology.

What better way to start the proceeds than a lecture by a physicist who worked during his formative years in the team of Nobel scientist Ilya Prigogine at the Solvay Institutes for Physics and Chemistry in Brussels. Now a senior researcher at the Physics of Complex Systems Department of the University of Brussels, **Dr Vasileios Basios** conducts research on self-organisation and emergence in complex matter and complex systems. Introducing his talk *What Emerges from Complexity Science?* he informed us that complexity science is exhausting the dogma of mechanistic science (not its value in its proper context – my inclusion) with its heavy emphasis on reductionism (which again, has great power but not as an exclusive methodology – again, my parenthetical insertion, but I'm sure with Vasileios's blessings). The early pointers to this new science going beyond strict determinism came from the French mathematician, theoretical physicist, engineer, and philosopher of science Jules Henri Poincaré who in turn was strongly influenced by James Clerk Maxwell. Poincaré demonstrated how non-linear dynamical systems can display sensitive dependence on minute perturbations in initial conditions (the so-called 'butterfly effect'). Then Prigogine's ground-breaking work on non-equilibrium thermodynamics was presaged by Belousov. The Belousov–Zhabotinsky reaction, is one of a class of reactions that serve as a classical example of non-equilibrium thermodynamics. In this sense, they provide an interesting chemical model of non-equilibrium biological phenomena. Prigogine also took up Turing's challenge to find a chemical basis for morphogenesis following Turing's paper which showed how under restricted conditions a class of

chemical reactions could give biological patterns in diffusion-coupled cells. Significantly, non-linear fractal geometry applied to organic matter demonstrates the ancient Hermetic Axiom (As Above, So Below).

Vasileios moved on to talk about a radically new kind of science. He pointed out that a complex system (like an elephant, or a flock of starlings) can have several complementary descriptions. Regarding logic, Gödel's theorem dealt a major blow to logical positivism and in mathematics, intuition invariably guides proofs. Vasileios dwelt at some length on the mechanistic indoctrination in economics and sociology drawing upon The Tragedy of the Commons (the term used to denote a situation where individuals acting independently and rationally according to their personal self-interest behave contrary to the best interests of the whole group by depleting some common resource). This 'Tragedy' never happens in indigenous societies until economics starts to impose its mechanistic mode upon them. He recommended Nobel economist Elinor Ostrom for analysis of economic governance, especially 'the Commons'; however David Bollier's 'Think Like a Commoner' was lacking in dialogue. Complexity theory can profitably be applied to the whole movement from mathematical complexity to 'social animals', to economics and to human society. The insights apply to the whole spectrum from self-organisation to self-regulation and finally, to polycentric governance.

In summary, the new science that is emerging allows and encourages: non-paradigmatic thinking; cross-disciplinary dialogue; metaphors to guide research (bravo to this one!); reinjecting the notion of the soul of cosmos; awareness of our assumptions; and regarding reductionism, encourages awareness of what we are reducing to, and where we are reducing it from.

Vasileios's next major topic was that of networking – how apposite. He unequivocally declared that such examples as intelligent behavior in bacteria, etc., obviously lacking any brains, shows that consciousness is not merely a human faculty but a universal principle. Exciting insights into all this will come from complex systems research. Reverting to Gödel, his final question about whether a physical-mechanical, one-to-one interpretation of all the functions of life and mind can ever be forthcoming must be answered with a resounding NO. And that has all to do with considerations like the complementarity of structure and function, the phenomenon of stochastic resonance, that concepts are quantum entities and most importantly, that linear thinking cannot be used to solve non-linear problems. It is vital to frame any problem that we might be researching in terms of its context and boundary conditions. Machines, unlike humans, can have no concept of context or relevance.

Vasileios closed by remarking that the world increasingly looks like a living organism rather than a gigantic machine; but actually it looks even more like a giant thought (a deeply occult insight echoed by several legendary scientists like Newton and Sir James Jeans to mention but two).

This talk left the lasting impression that, as heralded by Stephen Hawking, the 21st century is the century of complexity because this new science, following on from Relativity and Quantum Physics has brought about a deeper understanding of both the micro- and macro-cosm. And it has accomplished this in two principal ways: firstly by its emphasis on interdependence, interconnection and interdiscipline, thus bringing the exclusively mechanistic (machine) worldview to its natural dead end; and then by bringing together widely different disciplines in science towards a multifaceted appreciation of reality that includes, crucially, the qualitative dimension and the role of the observer. The final bit of good news is that the Second Law of Thermodynamics applied to open systems cannot validate the 'heat death' of the universe (which is supposed to happen when the universe has reached a state of maximum entropy, being the state when temperature differences or other processes may no longer be exploited to perform useful work and the universe reaches thermodynamic equilibrium or homoeostasis). So we may all breathe a sigh of relief for as long as the universe will last!

Dr Laurence Foss then spoke on *Towards a New Era of Complexity for the 21st Century – The Interactionist Turn.* Laurence taught philosophy at Fordham University in New York, but was left feeling uncomfortable with the philosophical foundations of Western philosophy, art and medicine. His resolution was in finding the distinction between the dualist and interactionist culture-nature meta-narratives, which constituted the main theme of his talk. Laurence introduced his theme by telling us that until he became inspired by David Lorimer's reviews, he could not see how science and spirituality could be reconciled. Next, drawing upon the work of the science historian Thomas Kuhn, he explained that Descartes' philosophy had resulted in a corpuscular theory of science; furthermore, a 'corpuscular template' had established the sorts of questions that science was asking – reductionism and the closedness of the physical domain were obvious outcomes. Therefore the process of scientific enquiry was from: cause → fundamental particles →objects; and the rigidity of the reductionist fortress was evidence of the fear in science of subverting the mechanistic paradigm. In other words the causal arrows points downwards, never upwards; and the explanatory arrow points strictly upwards (from fundamental particles).

Laurence then turned to the core of his talk: culture and nature. Culture-nature dualism is embedded in mechanistic science and it implies the following: culture cannot impact nature, but nature can impact culture; hence, nature talks, and culture listens – and talks back. By contrast, with the new science that is emerging we have culture-nature interactionism: culture can impact nature, and nature can impact culture; so that, nature talks, and culture listens and talks back. Laurence illustrated these ideas first with a diagram showing the progression from the big bang to radiation, to matter and finally to life. But interactionism is evinced by interstellar space exploration. For example the moon landing resulted in additional mass placed on the moon (and a reduction in mass on earth) thus altering the orbital dynamics of the solar system (albeit by a small amount). So the shift from the dualist to the interactionist narrative constituted the powerful current of his talk. He suggested that we may think of a second kind of big bang comprising: life →mind/culture.

Laurence finally drew upon the insights of the cosmologist Brian Swimme to elucidate the case for alternative meta-narratives involving the shift in evolution-dynamics that proceeded in an unconscious and one-dimensional manner for some 13 billion years to the same dynamic that is now unfolding with conscious self-awareness. So for example, stars have evolved for billions of years with no human consciousness involved; but now the same fusion processes are understood and activated by human consciousness and expertise. Natural selection organised evolutionary processes for billions of years, but now this unconscious natural selection is being supplemented by a conscious selection – a vast number of species are now evolving under the pressure of direct human decisions. And genetic mutations proceeded for four billion years outside of human consciousness, but now alterations in the gene can be carried out by humans – for example the fish gene has been used to engineer frost-resistant tomatoes.

An overriding conclusion was that physics today is a subset of a more comprehensive physics in which interactionism explains all that its dualistic predecessor has explained, plus at least some of what it does not. So causal arrows can point both up and down; and explanatory arrows can also point in both directions. Culture modifies the system that gave birth to it.

Next followed three short presentations also by our own SMN members. First on stage was **Paul Kieniewicz**. Eminently qualified as both a geologist and an astronomer he was well qualified to talk about *Gaia and Plate Tectonics*. Paul showed us a fascinating video of plate movement, explaining that – unlike Venus and Mars – the earth's crust is made up of interlocking plates rather like a jig-saw puzzle. He then explained why black smokers belching copious amounts of hydrogen sulphide are the cradle of life. They occur on the ocean floor resulting from cracks in the planet's surface from which geothermally heated water issues and are commonly found near volcanically active places in areas where tectonic plates are moving apart. Water plays a crucial role in 'lubricating' the plates so that they can move; also to react with basalt to weaken it and make it more pliable. But why didn't all the water boil away rendering the earth a dry planet by now? Because living organisms helped to retain the water.

Paul's talk made a very convincing case for the close interlinking between moving tectonic plates, the large increase in oxygen levels caused by burial of organic matter and the explosion of life that occurred some 600 million years ago during the Cambrian era. Moreover plate tectonics plays a major role in regulating the carbon cycle. Gaia is fully alive and kicking!

We then heard about *The Multiscale Morphodynamics of the Heart* by **Dr Philip Kilner**, a Consultant in cardiovascular magnetic resonance at the Royal Brompton Hospital in London. He showed us a beautiful and moving image of the blood stream through the beating myocyte heart muscle of a rat. But he emphasised that all images are limited: no image could do full justice to the reality of what it was attempting to depict (here, here!). But the image enhanced by Philip's eloquent exposition clearly showed the dynamic correlation between function, structure and movement. He suggested that the heart is a multiscale morphodynamic masterpiece enabling unity to subsist in extreme complexity and continuity to persist through continual change. Indeed the heart is the unifying centre of the body (a statement entirely consonant with the esoteric doctrine of all ages).

Finally, still dwelling on the medical theme, **Dr Natalie Tobert** spoke about her life's work on *New Paradigms in Health Care Education.* As a medical anthropologist and researcher on ethnography and health care, her aim was to see what people do for their health, rather than what the medical profession say about it. Her approach to getting material into the mainstream that would otherwise be rejected by the orthodox medical profession is to say that this is what people believe in; therefore it is worthy of consideration – rather than presenting it as her own belief. Major modules of her courses comprise: what is spirituality; conception and birth (involving the different beliefs such as group souls and karma); body and boundaries; global models about mental health; religious experience; and cultural beliefs about death and dying and survival beyond death. Her teaching style includes the didactic, experiential and participatory – so imparting varieties of meaning approached from the standpoint of diverse belief systems and models of reality. Natalie has taught in prestigious medical and educational institutions in the UK, the USA and India. She is to be congratulated on introducing unorthodox and spiritual concepts to the medical profession, and getting it to relate to the beliefs of its patients.

The quality of the talks was fitting proof regarding the preeminence of the SMN. I can think of no other organisation that could put on a conference that could offer the combination of both, width of subject matter and depth of enquiry, and all contained within a highly animated atmosphere of friendly exploration.

Albert Schweitzer: Ripe for Revival

Barry Tomalin

In a virtuoso display of what makes the Network unique and unmatched, David Lorimer, the SMN Programme Director, assembled a distinguished cast of scholastic, medical and musical expertise to analyse and celebrate the achievements of Nobel Peace Prize laureate Dr Albert Schweitzer on the 50th anniversary of his death in 1965.

A polymath and humanitarian, who held PhDs in Theology, Philosophy, Medicine and Music, Dr Albert Schweitzer's reputation has been dimmed somewhat in the 21st century, criticised for a perceived paternalism towards his African patients in the hospital he built at Lambarene in Gabon, West Africa and a strict patrician attitude to the running of the hospital and towards his patients.

In fact, said **David Lorimer**, who introduced Schweitzer's work, Schweitzer himself was strongly anti-colonialist and, according to **James Carleton Paget**, Doctor of Divinity at Peterhouse, Cambridge University, saw himself as trying in some way to right the wrongs of the colonial powers who had inflicted such damage on the continent including forced migration and cruelty through slavery.

In his introductory presentation, David Lorimer, explained that Schweitzer, born in Alsace in 1875, was marked out early by 'a passionate need of thinking and seeking the help of others for the truth.' Trained as a pianist and organist, his father was pastor at the local church, he developed a passion for Bach - of which more later - a love that remained with him throughout his life. He went on to do doctorates in philosophy and theology and to teach but in 1904 answered an appeal for Doctors from the Paris Missionary Society and entered medical training. It was in 1915 that he advanced his core principle Reverence for Life. He wrote ' I experience the necessity of practising the same reverence for life towards all will-to-live as towards my own: it is good to maintain and cherish life, it is evil to destroy and check life.' In 1913 Dr Schweitzer left France to open his clinic in Lambarene in Gabon (then French Equatorial Africa). He was to work there as a doctor into his 80's (he died in 1965) and was awarded the Nobel Peace Prize for his work and for 'Reverence for Life' in 1953.

Schweitzer returned frequently to Europe throughout his career. Indeed, as a German speaking citizen in a French colony during the First World War he was under surveillance

by the colonial government and then in 1917 interned in Bordeaux and St Remy en Provence in France where he continued his organ practice on a table to keep his fingers supple.

Although his work centred on humanitarian and medical care he also had strong views on political subjects and spoke out against atomic weapons. 'Trust among nations' he wrote, 'has been destroyed merely by the existence of atomic weapons. Pessimists may doubt that a spiritual and ethical conversion can take place. But why not? Humanitarianism corresponds to our true nature. As soon as we seriously reflect, we have no choice but to decide in favour of an ideology of humanitarianism.'

Schweitzer as theologian

Although Schweitzer was trained and ordained as a Lutheran Pastor his world view was essentially philosophical not theological, as Dr James Carleton-Paget, from Peterhouse, Cambridge pointed out. Despite the importance that he appeared to attach to Jesus in his personal life, Schweitzer never directly integrated him into his philosophical writing and in his guiding principle of 'Reverence for Life'. Nevertheless, a closer relationship between Schweitzer's theology and philosophy could be argued. His father was a theologian and Schweitzer's brothers both became Lutheran pastors, as did he. His writings on the New Testament, on Jesus and on Paul the apostle, are still studied by theologians today. He studied Theology at the newly re-founded German University of Strassburg (Strasbourg) and was elected to a high research and teaching position as foundation for a distinguished academic career as a theologian. But true to his word, he changed course into humanitarian work. As he had written in 1896, 'There came to me . . .the thought that I must not accept this happiness as a matter of course, but must give something in return for it. . . I would consider myself justified in living till I was 30 for science and art, in order to devote myself from that time forward to the direct service of humanity.' Nevertheless, in Gabon he saw himself at first as working as a theologian (and a musician) under the terms of his academic position in Strasbourg and later presented his motivation to work in Africa as being inspired by a gospel passage.

In a sense, according to Carleton-Paget, Schweitzer's theological study and research informed and became the pre-supposition of his philosophy, expressed in his masterpiece, 'Reverence for Life'. Schweitzer himself conceived of Reverence for Life as 'nothing other than Jesus' great commandment of love reached at by thought and made universal.' (correspondence with Dr D E Rolffs)

Schweitzer as medical carer

Trudi Sanderson actually spent 5 years with Dr Schweitzer in Lambarene in the 1950s, and following the viewing of a well-known TV documentary by Erica Anderson on Schweitzer's life and work, she discussed what it was like working there. She vividly remembers sitting holding the hand of a dying woman in the village about a mile away from the hospital. The woman died at about 3AM and Schweitzer himself walked in. He called someone to take away the body and prepare it for burial. 'You cannot sit with her any more.' he said gently. Trudi was asked by Schweitzer to look after the lepers. She made a school for the children of parents with leprosy and organised a Christmas nativity play using the lepers as actors. At one point she asked Schweitzer, 'Can I build a leper village?' (Lepers were not permitted to live in the community for fear of contamination). 'Yes', answered Schweitzer, 'As long as you don't cut a tree down.' Trudi succeeded and secured for the lepers their own place to live. 'The local ill people were admired in the community', she said, 'And that's what they needed, to be admired.'

It was hot though, in Lambarene. Few Europeans could last more than two and a half years and she herself had to return to Europe for a break after two years and two months. Asked what she could bring back for the villagers, the answer was, 'a new blanket without holes in it!'

Schweitzer as musician

In an exciting concluding presentation entitled 'An Organist with Aspiration', **Simon Dearsley**, formerly Head of Music at Stowe School and now at Barnard Castle School, charted Schweitzer's love of J S Bach, particularly the Chorale Prelude 'Gelobet Seist du, Jesu Christ' and Schweitzer's belief in music as a source of inspiration, something he shared with another Albert, Albert Einstein, who wrote, 'The Theory of relativity occurred to me by intuition, and music is the driving force behind this intuition.'

As Simon Dearsley explained, this is not unusual. The research of Dr Sylvia Moreno of the Rotman Research Institute showed that data confirmed, 'a rapid transfer in cognitive benefits in young children after only 20 days of musical training, results impacting over 90% of the children studied. Singing in a choir stimulates the production of oxytocin and can help stave off dementia.' According to scientific research, says Dr Moreno, music can have the effect of improving language ability, increasing emotional resilience, increasing empathy, increasing attention span and focus and leading to increased self-confidence.

Schweitzer himself wrote a book on Bach and made many recordings of his organ music, as well as that of Cesar Franck. His recordings are famous for their slowness – a ruminative and spiritual quality, with speed varied to match the acoustics of a building. An organist is there, wrote Jean Gimpel, 'To create a relationship between the congregation and God.' As Dearsley said, as a music writer Schweitzer did not take a scholarly approach. He was writing to find the essence and spirit of Bach. But he wasn't only a writer and musician – he repaired organs and even invented the Schweitzer technique for recording instruments, used in music recordings till this day.

Closing recital

When Schweitzer went back to visit his family home in Gunsbach he would play the organ in his local church. As C R Joy wrote, 'When Albert Schweitzer sits at that organ in the high balcony at the back of the church, he becomes a mediator between God and man and the words of meditation are usually found in the …choral preludes…of Bach."

The day climaxed with those preludes, played by Simon Dearsley on the organ of St Marks Church in Myddelton Square, Islington (he didn't have to repair it!). As well as the famous prelude, 'Gelobet Seist Du, Jesu Christ' BWV 604 the recital also included The Toccata and Fugue in D Minor (Dorian) BWV 538, and the Fantasia in G BWV 572. A fitting end to a celebration of Albert Schweitzer's life and work. Schweitzer wrote that 'Bach, indeed, is not a single but a universal personality', words that might sum up Schweitzer himself.

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Electronic:

How music benefits the brain
http://ed.ted.com/lessons/how-playing-an-instrument-benefits-your-brain-anita-collins

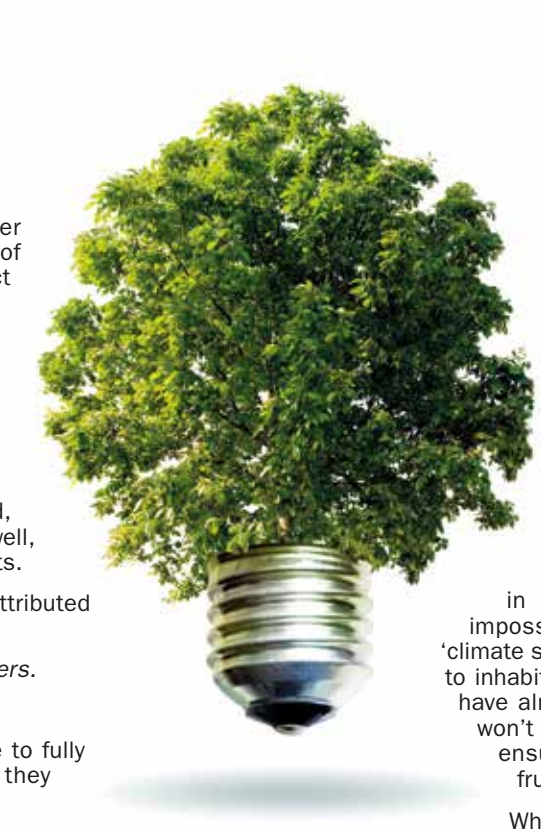
Albert Schweitzer plays J S Bach's choral prelude 'Gelobet seist du, Jesu Christ'

https://www.youtube.com/watch?v=sqgMyNd5Yv0

Albert Schweitzer (DVD) Erika Anderson and Jerome Hill 1957 (German edition only on Amazon)

A New Conversation with the SMN

Peter Harper



I have been a Network member for a long time, but for a variety of reasons have been out of contact for a number of years.

But here I am back again, and (as before) found much to reflect on in the latest print issue of the Network Review (Spring 2015, amazing cover!).

However, things have changed, both in myself and in the world, and evidently in the Network as well, so I'd like to pass some comments.

I have always liked these lines attributed to Basho:

Do not seek to emulate the masters.

Seek what they sought.

For reasons I have not been able to fully articulate, I sense that 'what they sought' was (following Iamblicus)

A certain arcane cause…more excellent than reason

If such a 'cause' exists, it is immensely subtle, embracing the astonishing quirky mysteries of the universe large and small and in the middle, which of course we have only just begun to probe in a physical sense. The pursuit could keep us happily occupied for millennia, and I applaud it.

But.

It must be obvious to any reader of the *Review* that humanity is currently faced with a series of brutally physical discontinuities, and on a global scale. I am talking about climate change, biodiversity, ocean acidification, nitrogen and phosphorus accumulation, etc.: those human-generated global trends whose trajectories cannot be physically sustained without the most dismal consequences – which will affect the whole remainder of history, and not just that of humanity.

These questions pose an ethical and existential challenge to any thoughtful person: what is our responsibility? It appears to be an 'all hands on deck' moment when we need to act collectively, rapidly and resolutely to prevent irreversible changes in the essential physical fabric of the biosphere.

The *Review* never denied the importance of these matters, but they were usually confined to a few book reviews on the last few pages. I am struck by the higher profile they are given in the latest issue.

As it happens, global sustainability problems are the main focus of my own activities, both private and professional, so naturally I am pleased and interested. But they always sat awkwardly in the overall SMN perspective, and in some ways they still do. Does the Network have a distinctive 'take' on these issues? If we are confronted with important physical problems, is there any other appropriate mind-set than the application of brute physical knowledge?

Climate Change is particularly interesting because it has triggered, or revealed perhaps, huge veins of magical thinking running through society, and consequent failures in necessary dialogues. It has proved impossible to engage with many varieties of 'climate scepticism' because the sceptics appear to inhabit a differently-constructed universe. We have almost nothing in common. They usually won't come out to debate, but if they do, the ensuing 'dialogue of the deaf' is deeply frustrating for all concerned.

What is the difference between 'magical thinking' as a form of intellectual irresponsibility, and the kinds of challenges to consensus science commonly explored within the Network?

My experiences with climate-change and allied debates has left me far more 'physicalist', because I ask myself, surely consensus on the nature of the problems (and perhaps solutions too) can only come from a painstaking catalogue of *what we can all agree on*. And is this not the essential definition of scientific knowledge: shared facts, evidence, that (at least in principle) all human beings can agree on?

As soon as we move away from the tribunal of empirical evidence, all hell breaks loose, and agents appear free to create narratives – and even 'facts' – free from any sense of responsibility to the shared world. Once this touchstone is lost, we cannot tackle these genuinely shared problems.

In the face of these difficulties, I have been forced ever closer to the raw quantitative data, always asking myself what are the minimum basic factors that need to be changed (or held constant, or regulated), which could in principle command an adequate consensus. These basic physical factors are set in a kind of logical structure of dependencies and timings that also need a shared understanding.

We are talking essentially of reason and empirical science. What do we do at this point of history? What is our responsibility? We are running out of time. and must use the best tools we have. Are reason, science, logic, measurement, not good enough?

In these circumstances, what has the Network got to offer that is truly 'more excellent than reason'?