

Sustainability and Gaia Science : Interactive, In-Depth Workshops

The Seven Deeps of Gaia

James Lovelock had his first glimpse of Gaia in the early 1960s whilst working for NASA. In 2019 he will be 100 years old. In collaboration with the distinguished microbiologist Lynn Margulis, his glimpse of Gaia became a hypothesis and the hypothesis became a theory, open to rigorous scientific questioning. Today the influence of Lovelock's Gaia vision can be seen in many areas of scientific enquiry, from evolutionary biology to climate change, the sustainability agenda and the search for life on other planets. Yet it remains an enigma, hardly mentioned by name in academia and virtually unheard of by ordinary people, despite its revolutionary implications for our everyday lives.

Understanding the Gaia world view is vital to the whole area of sustainability, as the systems that make up Gaia have been sustained during 3,600 million years of planetary evolution and are still adapting and emerging today. Gaian processes underpin everything we do - Gaia is literally running the show, and as a species we are only just beginning to come to terms with this.

'The Seven Deeps of Gaia' provides a detailed yet accessible exploration of the Gaia story through interactive and entertaining workshops which follow a coherent narrative with a clear timeline, from the very beginnings of Gaia to our relationship with Gaia today and then on to a potential future, bringing together the fundamental scientific concepts of Gaia Science, the on-going scientific research, and its cultural, social and philosophical implications. Lovelock himself sets the scene:

'In Gaia we are just another species, neither the owners nor the stewards of this planet.

Our future depends much more upon a right relationship with Gaia
than with the never-ending drama of human interest.'

James Lovelock : 'The Ages of Gaia'

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The 'Seven Deeps of Gaia' workshops can be designed to suit the needs of your group and situation, from a basic 10 hour introductory package, to a longer series of workshops allowing for a more detailed exploration of the Gaia story and its implications, and the further possibility of the group using the material as a stimulus for a creative response to the question of how, as a species, we might achieve a 'right relationship with Gaia'.

For more information on cost and availability, and to discuss the format which would best suit your particular requirements, please contact:

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The Seven Deeps of Gaia are:

Deep Time, Deep Places, Deep Breath, Deep Disturbance (Deep Unease),

Deep Unlearning, Deep Immersion, Deep Joy

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Deep Time

...a deep appreciation of Gaian time...the story of 3,600 million years of evolution told through the lens of Carl Sagan's Cosmic Calendar, which looks at the entire history of the Universe as though it all happened in one year, with the Big Bang at the first second of the 1st of January and where we are now being midnight on the 31st of December...each second of the calendar represents 400 years of real time and shows, amongst other surprises, that dinosaurs lived for four days, from the 24th to the 28th December, and us humans arrived at 10.30 pm on the 31st of December, just one and a half hours ago!...here we explore the very beginnings of life, the crucial revolutions in the development of Gaia, and the realisation that Gaia has been, and still is, Gaia-ing all the time...

'Gaia is an ancient phenomenon. Trillions of jostling, feeding, mating, exuding beings compose her planetary system...planetary life survived at least three billion years before humanity was even the dream of a lively ape with a yearning for a relatively hairless mate.'
Lynn Margulis (SP p149)

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Deep Places

...a deep appreciation of Gaian space in which we discover that Gaia is a planet-wide phenomenon and process, existing at all scales...

'An organelle inside an amoeba within the intestinal tract of a mammal in the forest on this planet lives in a world within many worlds. Each provides its own frame of reference and its own reality.'
Lynn Margulis (M p126)

...we also explore how non-living entities such as volcanoes are vital parts of the Gaia story, and how the activities of microbes are fundamental to the 'everywhere-ness' of Gaia...

'Bacteria purify the Earth's water and make soil fertile. The environment is so interwoven with bacteria, and their influence is so pervasive, that there is no really convincing way to point your finger and say this is where life ends and this is where the inorganic realm of non-life begins.'
Lynn Margulis (M p92-3)

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Deep Breath

...a deep appreciation of the processes of Gaia, including global self-regulation...

'What we need to think about is how a global regulatory system can develop from the local activity of organisms. It is by no means far fetched to imagine a single new bacterium evolving with its environment to form a system that can change the Earth. Indeed the first cyanobacterium, progenitor of the ecosystem that used light energy to make organic matter and oxygen, did just this.' James Lovelock (AG p102-103)

...we also explore the revolution brought on by the rise in oxygen, the role of symbiosis in the evolution of eukaryotic cells and complex organisms, global recycling, and how every breath you take shows that not only are you in Gaia but Gaia is in you...

'We are in mute, incontrovertible partnership with the photosynthetic organisms that feed us, the gas producers that provide oxygen, and the heterotrophic bacteria and fungi that remove and convert our waste. No political will or technological advance can dissolve that partnership.' Lynn Margulis (M p16)

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Deep Disturbance (Gaia perspective) : Deep Unease (human perspective)

...a deep appreciation of the current relationship between humanity and Gaia, including how organisms (including humans) evolve together with their environment and the importance of 'emergence' as a property of the system...

'Gaia is an evolving system, made up from all living things and their surface environment, the oceans, the atmosphere and crustal rocks, the two parts tightly coupled and indivisible, a system that has emerged from the reciprocal evolution of organisms and their environment over the aeons of life on Earth.' James Lovelock (PM p11)

...we examine the impact on the planet, and on humanity, of a species which drives its social, cultural and political evolution without fully appreciating the reciprocal nature of this relationship with the environment, including climate change, ecosystem degradation and tipping points, plastics in the oceans, species loss, inequality, refugee crises and political uncertainty...

'People may expand, plundering and pillaging the Amazon, ignoring most of the biosphere, but the history of cells says we can't keep it up for long. To survive even a small fraction of the time of the symbiotic bacterial settlers of the oceans and the Earth, people will have to change.' Lynn Margulis (M p248)

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Deep Unlearning

...a deep appreciation of the importance of 'unlearning' the concepts and behaviour patterns which have led humanity to Deep Unease, including human arrogance...

'We need honesty. We need to be freed from our species-specific arrogance. No evidence exists that we are 'chosen', the unique species for which all the others were made. Nor are we the most important because we are so numerous, powerful and dangerous. Our tenacious illusion of special dispensation belies our true status as upright mammalian weeds.'

Lynn Margulis (SP p149)

...and an examination of when, how and why the idea that we are somehow 'separate from and superior to' the rest of nature caught on and still persists...

'To me, the human move to take responsibility for the living Earth is laughable - the rhetoric of the powerless. The planet takes care of us, not we of it. Our self-inflated moral imperative to guide a wayward Earth or heal our sick planet is evidence of our immense capacity for self-delusion. Rather, we need to protect us from ourselves.' Lynn Margulis (SP p143)

...and perhaps most importantly our unquestioned belief that competition is the driver of evolution...

'The view of evolution as chronic bloody competition among individuals and species, a popular distortion of Darwin's notion of 'survival of the fittest', dissolves before a new view of continual co-operation, strong interaction and mutual dependence among life forms.'

Lynn Margulis (M p28)

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Deep Immersion

... a deep appreciation of the importance of 'immersion' in the processes of Gaia as a way to understanding how the Gaian planetary systems work and how we respond to them, starting simply with an increased sensitivity...

'The simplest way to explore Gaia is on foot. How else can you so easily be part of her ambience? How else can you reach out to her with all your senses?'

James Lovelock (AGp9)

...we also look at the importance of the individual in creating human systems which are sensitive to Gaian processes and are dynamically adapted to the environment, as already shown in such emerging initiatives as the Circular Economy, Transition Towns and Permaculture Design...

'The evolution of Gaia seems to depend upon the activities of individual organisms. If these are favourable for the environment they succeed. If not they are doomed but life goes on. To me this means that it is more important to try to live in harmony with the Earth at a personal

level than to allow any of the numerous human collectives and parties to take that responsibility away from us.' James Lovelock (Cam p45)

...not forgetting that there are many people all over the world who already live in a 'right relationship with Gaia', for example...

'Scientists are usually condemned to lead urban lives, but I find that country people still living close to the Earth often seem puzzled that anyone should need to make a formal proposition of anything as obvious as Gaia Theory. For them it is true, and always has been.' James Lovelock (G p10-11)

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Deep Joy

...a deep appreciation of the elements of the Gaia story which point to what the future might hold, both for Gaia itself and humanity as a species...

'Gaia is an alternative to that pessimistic view which sees nature as a primitive force to be subdued or conquered.' James Lovelock (G p12)

...Gaia has not only survived for 3,600 million years, it has flourished, it has evolved and diversified through symbiosis and symbiogenesis from the simplest of single cells with no nuclei, the bacteria, to now include the astonishing array of complex protocists, fungi, plants and animals which keep the system going today...

'Gaia, in all her symbiogenetic glory, is inherently expansive, subtle, aesthetic, ancient and exquisitely resilient.' Lynn Margulis (SP p160)

...so the Gaia system will survive, but what are the positive signs for humanity's future within it?... firstly, we emerged from Gaia and we display all the characteristics that helped Gaia flourish...

'Life is social. It exists in communities and collectives. You and I are both composed of a collection of organs and tissues; the organs are made up of billions of living cells, each of which can also live independently. Then the cells themselves, as Lynn Margulis has shown, are communities of micro-organisms that once lived free.' James Lovelock (AG p18)

...in a deep way we are Gaian first, we are naturally Gaian...Gaia is literally the place where we belong, and that belonging has a surprise for us...

'Human beings are not particularly special, apart or alone. A biological extension of the Copernican view that we are not at the centre of the Universe deprives us of our place as the dominant form of life on the planet. It may be a blow to our collective ego, but we are not masters of life perched on the final rung of the evolutionary ladder. Ours is a permutation of the wisdom of the biosphere.' Lynn Margulis (M p195)

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...the Gaia which is spoken of is not the real Gaia...

...the biosphere has 3,600 million years of accumulated wisdom and, like all living organisms, we are permutations of that wisdom, and we all have moments when we glimpse being part of that wisdom for ourselves...

'Travel back in your memory to the time when you first awoke, that exquisite moment of childhood when you first came alive - the sudden rush of sound and sight. I seem to recall sunlight and soft fresh air, then suddenly knowing who I was and how good it was to be alive. As a child I recognised life intuitively.' James Lovelock (AG p15-16)

...if we can 'come of age' as a species and trust ourselves to tap into that wisdom, we'll be on the way to establishing a 'right relationship with Gaia', and it is surely within our ingenuity and creativity to be able to design systems where every individual can find what their particular permutation of the wisdom of the biosphere might be, and what it makes them 'naturally good at', so they can flourish as part of a Gaian renaissance, a renaissance where the deep joy comes from being fully alive on, and in, a living planet...

'We are not yet a truly collective species, corralled and tamed as an integral part of the biosphere, as we are as individual creatures. It may be that the destiny of humankind is to become tamed so that the fierce, destructive, and greedy forces of tribalism and nationalism are fused into a compulsive urge to belong to the commonwealth of all creatures which constitutes Gaia. It might seem to be a surrender, but I suspect that the rewards, in the sense of well-being and fulfilment, in knowing ourselves to be a dynamic part of a far greater entity, would be worth the loss of tribal freedom.' James Lovelock (G p148)

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Key to sources:

James Lovelock

G : 'Gaia - a New Look at Life on Earth' - OUP

AG : 'The Ages of Gaia' - OUP

PM : 'Gaia - The Practical Science of Planetary Medicine' - Gaia Books

Cam : 'Gaia, the Thesis, the Mechanisms and the Implications' - First Annual Camelford Conference
edited by : Peter Bunyard & Edward Goldsmith

Lynn Margulis

M : 'Microcosmos' - Lynn Margulis & Dorion Sagan - University of California Press

SP : 'The Symbiotic Planet' - Phoenix Science Masters Series