Stars and Rocks - a trip into the Flinders Ranges, South Australia, (19th – 21st January, 2009)

Paul White
Hastings, Hawkes Bay
New Zealand

We have this way of talking and we have another.
Apart from what we wish and what we fear may happen,

We are alive with other life, as clear stones
Take form in the mountain.

Rumi "Evolutionary Intelligence: Say I am You"

Around November, last year, Peter Glasby put out an invitation to anyone interested in joining him on a two day 'Stars and Rocks' expedition into the Flinders Ranges as an optional lead-in to the Australian Anthroposophical Society Conference on Evolution. With the invitation went the warning, " it might be over 40 degrees and wearing a corked hat against the flies plus carrying a supply of water for the non- air conditioned 8 hour bus journey to the Ranges will be necessary!"

I didn't care how many flies would be swarming round my face, how far over 40 degrees it got or how much work I still had to complete back at University in New Zealand - if Peter Glasby was going into the Flinders with mates like Brian Keats (astronomer, BD calendar writer) and Johannes Kuehl (leader of the Natural Science Section at the Goetheanum in Switzerland), and was inviting anyone who wanted to come, then I definitely wanted to go!

About sixty other people similarly could not resist the call. We had ourselves a pilgrimage! And it was in the spirit of a pilgrimage that we left.

I can't claim to be well up on geology. To be honest, before the trip I didn't know my Cambrian from my Ediacaran and fossils had always been that part of the museum that I skipped through on my way to the bigger stuff!

Yet Anthroposophy has served to awaken interest in areas that I had long since consigned to the boring basket. Also, I was keen to learn more of the sort of science which will not just resurrect my garden but will save us from global warming, credit crunches and shopping malls. After twelve hours heading north on the bus getting to know my fellow travellers, I felt reassured that I was not alone in my enthusiasm and relative ignorance.

The fact is you have to start somewhere. The key is starting. Even Charles Darwin wrote in his autobiography:

On first examining a new district nothing can appear more hopeless than the chaos of rocks; but by recording the stratification and nature of the rocks and fossils at many points, always reasoning and predicting what will be found elsewhere, light soon begins to dawn on the district, and the structure of the whole becomes more or less intelligible (p. 77).

We were blessed with an expert guide in Peter and a landscape that having been forced upwards by a diapir revealed layers formed over millions of years spreading out from the central dome in a concertina-like arrangement. Start at the centre and you get the oldest layers, walk outwards and you are effectively walking through time.

So our journey began seven hundred million years ago. Such huge numbers seem so ridiculous it is easy to be dismissive of them. But the fact is it is not just carbon dating, or light emission from quartz sand, or transformation of potassium or radioactive emission that gives these dates. It's all of them, each corroborating the other, so there must be something to it. What does however need to be borne in mind, as Peter was at pains to point out, is that interpretation of these results can be flawed because of two implicit assumptions: the first, uniformitisation–that is, the assumption that conditions in the past were as they are now–and the second, that matter is primary, which leads to the conclusion that the answers to the mysteries of evolution lie in what we can now perceive with our senses as the results of this process. To put it in terms of an analogy: the secrets of the prints in the snow can be found in the prints themselves (the person or animal that made the prints not figuring in the

picture at all). So it was that we were invited to view the landscape with new eyes, Peter leading us to particular spots that exhibited noteworthy features.

There were the stromatolites for instance. Thin layers of compacted mud would be followed by these extraordinarily exuberant, organic forms known as stromatolites. Then other layers of tightly compacted mud, followed by another layer of these full, flowing forms. Could this be a picture of rhythmic time, a breathing in followed by breathing out, an aerobic or oxidising period followed by an anaerobic or reducing phase?

As we proceeded down a shallow valley we encountered different, green igneous rock. Peter challenged us to explain how it came to be there? (This man wanted us thinking!). As the temperature touched the forties you wondered how anyone could hold to uniformitisation implicitly or otherwise and still acknowledge the action of glaciers carrying pieces of the hard rock diapir down from the dome.

Stromatolite: living spirit made material

Stranger still was the discovery of igneous rock by a geologist several years back who became convinced that there must have been volcanoes in the area and proceeded to devote two years to finding them, to no avail. A chance encounter with a fellow geologist at a parents' meeting at their respective daughters' school was to lead to his getting to the bottom of the mystery. Over three hundred kilometres away, the impact of a meteor (known as the Acroman Impact) had been strong enough to send rock debris into this area.

The Ediacaran fossils were our next mystery. The Ediacaran period is only a recent addition to the geological vernacular, a small plaque ("the golden spike") commemorating its international recognition here in 2004 (apparently much to the chagrin of Russian geologists who had claimed to have discovered evidence of just such a period in their own lands some thirty years before!). Returning to the fossils, how could it have been that these earliest sea creatures, lacking any skeleton, could have left such clear imprints in the rock? How soft had the rock been, how hot the earth? How had 'the spirit' moved?

The evenings were something of a highlight for me on the trip and not just because I like eating camp tucker! We were truly blessed in having our two astronomers, Brian

A dragon-like Stromatolite – layering as you've never seen it before!

An Ediacaran fossil

Some pretty archeocyatha fossils on boulders

Keats and David Tressemere on the trip, not to mention a stunningly bright Milky Way (Magellanic clouds as you have never seen them before). Brian regaled us with Greek and Aboriginal legends of the stars, while David encouraged us to develop our relationship with Aldebaron and other stars of the heavenly realm, that something of their mystery might be revealed to us. On the second night we were spoiled with an extra treat. Peter's mate, the wise station owner, John McEntee joined us. He generously shared his impressive knowledge of the languages and ways of the Aboriginal people, while we all sat or lay around the imaginary campfire, drifting in and out of 'dreamtime'. Of the original five hundred or so languages only twenty seven remain. They are tonal languages so a slight change in tone creates a very different word as John delighted in demonstrating to us.

John joined us for the first visit of our final day, to the site of a former Aboriginal settlement. Rock carvings attested to the fact it was an ancient site, now a dry, river valley. The east-west orientation of the hill, looking out into a distant valley, its nearness to the source of the red ochre, sought out by Aboriginal tribes from as far away as North Queensland for its unique quality (tests have shown the ochre to have a composition remarkably similar to human blood), all added to the mystery of the place.

Our appetites whetted we got stuck into fossils for the rest of the afternoon, bringing ourselves right up into Cambrian times.

The last place we visited was the Sacred Canyon, a series of chambers, about three hundred and fifty metres from start to end, with several carvings on its steep walls, particularly in the final space wherein was contained a cave. Walking through from one chamber via a narrow passage to the next, it was not hard to imagine that this might have been the site of an initiation process. I was surprised by how strongly, both positively and negatively, some of my fellow travellers experienced this walk.

The return home was a blast with plenty of singing and silly games, adding to the fond memories I take from this trip. In particular, I returned with a new love, the Australian red gum. It might not have the power or girth of my New Zealand loves, the giant Kauri of the far north or their Totara cousins of the far south, but it certainly has the resilience and colour, captured so beautifully by the painter Hans Heysen, whose touring exhibition, as luck would have it, was gracing Adelaide at the time of our stay. Indeed, it was quite extraordinary how green the canopies were in that dry and arid land with no shag pile green carpet as in the New Zealand bush for the casuarinas, gum and acacia trunks to emerge out of.

I'd like to take this opportunity to thank Peter Glasby, Laurie Toogood and all the people involved in making this trip possible. This, and the conference that followed it, were very special events and I feel privileged to have been able to attend them. Yes, thank you indeed.

Aboriginal carvings – concentric circles