

Caroline Baillie

## Learning from Nature



BSc Materials Technology, University Surrey UK 1987. PhD Composite Materials, University Surrey UK 1991. Masters Higher Education, University New South Wales Australia 1995. Lecturer Dept. Mechanical Engineering, University Sydney 1992–1996. Lecturer in Materials and Lecturer in Education Development, Imperial College of Science, Technology, and Medicine, London 1996 to present. Over 70 technical publications in materials science and human knowledge development including the recent book *CASE: Creativity in Art, Science and Engineering*, eds.: S. Dewulf and D. Baillie 1999 DfEE, UK. – Address: Department of Materials, Imperial College of Science, Technology and Medicine, Prince Consort Road, GB – London SW7 2BP.

I was invited to come to the Wissenschaftskolleg to join a group working on “Biomimetics”. I had no idea what to expect. At that time I understood Biomimetics to mean “learning from nature” and in particular how it applied to materials science. I was open to suggestion and liked the ideas of Daniel Robert (our “group leader”, as I called him) to spread the discussion to all areas of research including economics, social science, philosophy and theology. I am now reluctant to try to define it at all, having spent three months researching and writing a chapter on what people mean by “learning from nature”. Suffice to say that I now see the limitations of the word itself and avoid it at all cost.

The group was smaller than I had imagined, which made my research a challenge. I was intending to interview the Fellows of the Biomimetics group about their experiences of learning from nature, how they believed they were inspired by nature to solve certain problems. Learning about studies on how insects hear in several directions at once, how dolphins move so fast through water and how dragonflies hover promised to give me an interesting time. As it turned out, I managed to interview other Fellows as well, whose work was inspired in some way by nature, and the research became even more fascinating as it diverged in its subject content.

I work in a multidisciplinary fashion by nature. This is not a popular manner of studying and not conducive to academic success at present, but

nevertheless it gives me insights I could not possibly receive any other way. In London, I work in the fields of education development and in materials science. Even within materials science, I play around with biological materials, despite having an engineering background. The education research that particularly interests me is that which I alone am qualified to do. Perhaps this is as a result of my extremely competitive nature (I used to think that not wanting to be in a competition meant that I did not like competition, now I understand differently). I research how researchers form their knowledge about certain phenomena. As Marton puts it in his recent book, *The University of Learning* (Marton and Booth, Kogan Page, 1998) "Through the course of history, questions relating to how knowledge is formed have become separated from different domains of knowledge ... the acts of knowledge have been separated from their objects". I adopt a research specialisation called "phenomenography" and get into the minds of these scientists who try to tell me how they go about discovering a new piece of knowledge. Together we were to try to build a new understanding of the knowledge of what "learning from nature" consists of.

I loved this opportunity to think. I am sure that once upon a time academic staff were paid to think. In the UK we seem now to be paid to generate income to pay ourselves. I found myself able to link together many of the ideas I have had on several subjects and several levels. Conversations with Fellows at lunchtime certainly aided this thought provocation. Having such widely ranging conversations with historians and philosophers of science made it impossible to ignore my tremendous desire to complain about the present state of science. I found myself having time (aided by those angels of information – the library staff) to read texts on the sociology of knowledge, which actually presented theoretical arguments for what I previously considered gut feelings.

How is it not possible to agree that the final paragraph of my chapter was inspired by the very difference of my Fellows?

*If we, as researchers, choose to be inspired by nature in our interaction with it, even if not by direct emulation, then perhaps we can also learn how to connect with each other. According to the interviewee previously quoted, we are an "enormous network ... part of the cyclic nature process ... we live in a complex connection of networks ..." This interconnectedness may well be a good model for us to learn how to work together in an interdisciplinary manner. If we are to fully understand the multiple functions of the natural phenomena we are studying, we need to work together with researchers of many different disciplines or become multi-focused ourselves. We will then be able to "notice" all the various aspects which connect and symbiotically rely on one another. Learning from*

*nature in this case does not simply mean learning how it works, as an object “out there”. As with the creativity argument, it would mean learning how to live like nature in order to learn from nature. If we can learn how to be like nature in our manner of studying about nature, if we learn how to communicate with open eyes and if we can open our eyes by connecting with other researchers, then maybe we will be in a position to respect nature enough to learn its lessons.*

When I thought about writing this piece, I was sure that I would only write about the other aspects of my life here at the Wiko. The fondue parties, the film nights, excursions into Mitte, receiving visitors and taking the number 100 bus into the former East ... but the most memorable aspect has been the ability to think. And of course, to produce theatre.

The first day I arrived and Andrea showed me around, I meekly posed the idea that I might bring my Theatre Company, “Imperial Fringe”, from London, to perform for the Fellows. She thought it a great idea and it is to her great credit that, two months later, the troupe arrived, fluorescent buttons and beads in tow, to stay for a week in the Wiko whilst rehearsing for the production of “Relativity”. This was of course aptly named in honour of John Brigg’s “Time” team. The production consisted of four one-act English plays, three by a new playwright, Wendy Metcalf, and one by Harold Pinter. All four reflected some aspect of relating and relationships. We linked the plays together with strands of longing and regret, aided by Nick Roberts’ original compositions. The Fellows stayed afterwards for a drink and to meet Wendy, who starred in the premiere of her own play, “Bread and Cheese”, and the rest of the cast. It was a great honour to produce the play for such an appreciative audience and we cannot thank the Wissenschaftskolleg enough for this opportunity. The public in London never give such interesting feedback! Someone suggested that it was rather wonderful for social scientists who study the working class family to sit in the living room with a couple on a Wednesday afternoon whilst contemplating a trip to the shops. Hans-Georg gave us a marvelous present by photographing the players whilst performing. Thanks to him we can still see, on the intranet, Daniel’s face in the audience, intent on understanding the evolution of the brutality within Nick.

To life, then, at the Wiko. I thank all of you who made my time so calm and enabled me to do that thinking, that rare luxury. Special thanks to my “mothers” who cooked the most delicious vegetarian meals for me and made me feel more at home than I have in years. Thanks also to Eva, who has incredible patience and teaches German in the most brilliant fashion. I actually managed to gain some knowledge of the language in my mere three months here. More than can be said for several years of more traditional language teaching in school. The Christmas card I gave to Eva says

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it all. I started alone as the only Fellow who spoke no German. Colloquia? What colloquia? I couldn't even read the note in my room that told me I could find coffee in the kitchen! When Riva and Norani arrived we started to have some fun. The card shows two angels (these two, my favourite Fellows, who always did their homework!) giving their response to Eva. "Der?" responds Riva, "Die?" retorts Norani, "Das?" says Caroline as she runs through the door searching desperately for the German for "late" and "again", having perfected "sorry".

Thanks to everyone who helped me learn about nature, by learning about my own nature. I will miss you all.