Biology Meets Digital

In short, BIO and SONG mean that Life Sings and we are all invited to sing along. Sounds promising, but now there's a new book called *The Digital Ape: How to live (in peace) with smart machines* by Sir Nigel Shadbolt and Roger Hampson. Are we and our technology singing the same tune? To answer this intriguing question, I'm going back to explain where I am coming from in this Blog. This background is relevant to everything I'll be writing here. I'll try to remember to answer the question as well.

Be warned. The BIO bug could get you, too, if you go off to Uni to learn about animal physiology and behaviour as I did and then find yourself employed to do research on the subject of **Stress** – what is it, what causes it, is it harmful and what can you do about it? Then, you come across teachers and books that explain things about the human mind in terms of our basic biology, the very physiological processes you are trying to measure and understand.

I wonder how many of you remember a book called *The Naked Ape: A zoologist's study of the human animal* by Desmond Morris that was published in 1967? I was just getting into my research career. Morris was an ethologist as well as a zoologist (so he studied behaviour) – and quite a good surrealist painter, I believe – and he wrote a few words that tweaked my interest (or would have done, if I had remembered reading them at that time!) They were: 'This unusual and highly successful species spends a great deal of its time examining its higher motives *and an equal amount of time studiously ignoring its fundamental ones*.' The emphasis is mine. Biology did not figure prominently in the discourse of human physiology or psychology in those days. People did not really want to know there were fundamental biological processes, with an evolutionary basis, profoundly affecting our mind; it was not simply the clever rational thoughts of the most dominant species.

Other books were beginning to change that. I remember particularly *The Territorial Imperative: A personal enquiry into the animal origin of property and nations* by Robert Ardrey in 1966. Gradually a new awareness of the evolutionary basis of human psychology was occurring as evidenced by Robert Wright's book in 1994 *The Moral Animal: Why we are the way we are – the new science of evolutionary psychology*. By the end of the century the field of evolutionary psychology was firmly established and the 'biology of mind' had stamped its place in cognitive science – most emphatically, in my opinion, through the work of Maturana and Varela who wrote *The Tree of Knowledge - The Biological Roots of Human Understanding*. Their new stamp paved a road to understanding social and emotional intelligence. Sad to say this road was to be ignored for years by many mainstream researchers who were still dancing to an old tune that went like this: the brain is a computer, to process information is its game. More about that later.

SONG will get most people and I'm not even sure how it got me. I know it was long before I read *Musicophilia* by Oliver Sacks or *The Singing Neanderthal* by Steven Mithen or learned that singing together releases more of the bonding hormone, oxytocin, than any other activity. So much to talk about here, but that will have to wait for future editions of this Blog. The nexus between understanding music and understanding the mind has been an abiding interest all my life and I look forward to sharing some ideas with you about that.

But what if we are digital apes? Are Shadbolt and Hampson correct that we can live in peace with our very smart machines? I have a confession to make (which you might have guessed

already). I didn't get that lovely quote about 'this unusual and highly successful species . .' from the primary source – I got it from the new book, *The Digital Ape*. The stories we tell are often like that – reconstructed to make them sound better.

Anyway, just as *The Naked Ape* revealed threads of biology that had been overlooked, the new book (*The Digital Ape*) spells out the stark reality of the way we live today, heavily engaged with artificial intelligence in everything we do and with our minds immersed in our interaction with technology. It was an eye-opener for me to read the details of what they call our 'hyper-complex habitat.' It's way more complex than I had realised. This must be what they mean by 'mind-boggling.'

There's another fun book to read by Brian Christian that came out a few years ago called *The Most Human Human - What Artificial Intelligence Teaches Us About Being Alive*. It's about a competition to make a computer that could not be distinguished from a human by a team of judges who interrogated it from another room. You might remember this was Turing's famous 'test.' The fact is, it has now become impossible to detect the computer that is pretending to be a human if you can't actually see it in front of you. Therefore we will be working hand in hand with machines in a thousand more ways, often without actually realising it.

These machines have already become our trusted 'companions.' Try separating young people from their phones! Machines will replace humans in more and more jobs. This has been happening throughout history, but never before at this rate, so the disruption will create many problems. We will suffer many pains of adaptation from changing work and social interaction that will include new ways of hurting one another and different forms of suffering that will have to be addressed. But they will be addressed because of the incredibly resilient nature of the human mind. There is no reason to fear that we will be overwhelmed by our technology *per se*.

That's the perspective of the *Digital Ape* authors anyway. The ways in which humans may eventually self-destruct remain the same – nuclear warfare and climate change (which we only know about through 'big data' analysis). There are significant new kinds of threat from high-tech warfare that is managed by button-pressing within electronic networks. The trend towards the unequal concentration of power in the hands of small groups that has always been an issue is worsening. At the same time, these authors are keen to point out the many different ways in which our lives are being 'augmented' by our smart machines. These include health monitoring and medical treatment, transport and communication, prediction and planning and access to information. They end the book with a plea for augmenting our wisdom at the same time. That's a damn good idea!

How difficult will the pains of adaptation be? There are lots of good books about the disruptions for our mind that these pioneers consider to be 'teething problems.' I strongly recommend Mary Aiken's book *The Cyber Effect* which I found quite alarming, particularly with regard to the lives of children. She is a forensic psychologist studying the way human behaviour changes in the online world. The subtle and often magical processes of our social engagement are being seriously challenged as researchers like Sherry Turkle (*Alone Together*, *Reclaiming Conversation*) are saying. The commendably cautionary books by Nicholas Carr (*The Glass Cage*, *The Shallows*) provide much food for thought. My biggest worry is that the mental and emotional health of our entire population seems to be declining.

This is not entirely due to technology. Teaching and learning about the biology and spirituality of love will be our strongest ally and I think that is where our greatest hope lies because it is the most powerful of all possible resources. We have a lot of hard work ahead to design and develop the best kinds of relationships with the digital companions that are an integral part of our minds today.

Will the song that we sing as human beings and the incredible noise being made by our machines harmonise sufficiently well for us both to survive? If we really put our minds to it, I think it will.