

## Patterns

We live in a world of pictures and if we don't recognise the difference between representation and the represented we are in danger of filtering out what is really important. It is necessary to talk about ourselves and our world in a more accurate way if we want to understand our place in it. The world seems to be changing fast and to see what these changes are and why they occur we have to get rid of some of the old pictures that tell the story of a disconnected and fragmented world. By remembering the power of words we begin to really express ourselves.

There are many places we can look for better ways of speaking and thinking (we will borrow from all of them; from the process of triangulation we know that two descriptions are better than one and give a better view of the landscape). The last thirty years have also been a time of integration and increasing understanding of all the connections that exist between us. Although not common to our collective thinking yet, interconnectedness is found everywhere we look – maybe we are too busy to notice or it is just so plain simple that we can't see it. Our educational institutions are starting to recognise the interconnected nature of the world despite their artificial division into disciplines. The Earth sciences are becoming more integrated, systems theory is used in both the sciences and humanities, psychology and neurology are beginning to see that thought itself influences the brain just like the physical properties of the brain influence thought, and physics is speaking entanglement and multiverses. If we stand back and observe these changes it looks like a shift in paradigm is taking place (and in some places already has happened). But it is not something we hear much about and it is certainly not in the news.

An appropriate example of this change in paradigm is how our understanding of evolution is being broadened by the emergence of new conceptual tools in science. Darwin conceived evolution as the adaptation of organisms to their habitat through a process of natural selection among the random hereditary variations of a species favouring those better suited to their environment. Evolution so explained has led to an emphasis on the micro level of evolution (the gene) and it has produced a vast body of knowledge elucidating the processes that occur on the molecular level of organisms' evolution. However, the recent development of the sciences of complexity has extended this perspective to the macro level of organism-environment. Many scientists today understand evolution as a process involving interaction at this higher (or broader) systemic level also. Consequently, there is a shift back from gene to organism as the focus of evolutionary processes. In this light order (or stability) appears relational, as opposed to the mechanical picture so easily construed from a focus on the gene. The shift in paradigm, although not yet complete, reflects in the way we speak about evolution. The focus on natural selection lent itself to a language that described evolution as a process explained in terms of 'survival of the fittest', 'selfish gene' in 'the competition among species'. The expanded view of evolution allows us to recognise that organisms are just as cooperative as they are competitive, and that emergent qualities in their relationship (e.g. creativity) are equally important in evolutionary processes.

Darwin's theory of evolution is one of the most influential scientific theories in history. It has had profound impacts on other areas of our knowledge and reflects in much of our everyday thinking about social, political and economic relationships. We often borrow words from Darwinism to explain the socio-economic state of affairs. This shows just how important are words. The metaphors that express our thoughts and structure our collective world-view (cosmology) are pictures so powerful that we forget they are just words. They reflect on our understanding of our place in the world, our dreams, our life plans and they shape the pictures we have of that elusive conception 'human nature'. Metaphors also structure our

knowledge and guide our enterprises, even in science. Darwin's picture of evolution brought with it a new status for biology and great advances in molecular biology. It also contained a mechanical world-view where life was partly reduced to the level of genes. Reductionism has been the credo of most of the branches of science in the twentieth century and, as we see science as the best method of enquiry about reality, other kinds of knowledge and enquiry have come to reflect this reduced view of the world. These metaphors become reality in our personal lives and if we confuse the word with the world, symbol with reality, we come to think that's the way the story goes.

The reason why some pictures and metaphors become so influential in our lives is that we use them enough so that they reflect not only in our thought, but in our structure of thought. They become meta-pictures that exist at a higher level of language – that level we use to take short cuts whenever we don't have time to say everything. At this level we must be careful with our description of the state of affairs because we easily mistake explanation with description. We *just know* what is meant when someone says 'this is what we must do to achieve progress' or 'the market forces will ensure the introduction of green technology'. 'Progress' and 'the market forces' are often meta-pictures in our conversation, just like evolution is. Meta-pictures exist in webs with loops and short cuts between them; one associates with another given the context. They might be accurate in one context, they might be inexact in another, they change as we move through different areas of our language. What is this 'progress' that organises our action?

So, we are back to the starting point: how do we know if a picture is true to the original? How can we speak accurately about the world if our language is loaded with (meta)pictures that change meaning according to context? This enquiry itself is based on language that is equivocal, ever-changing and that defies definitive answers. It seems we are in a muddle, but only so long as we forget that words are symbols and that reality is doing just fine despite our confusion. When we remember that although our language shapes our existence it is not existence itself, the problem of pictures of pictures disappear. We can speak perfectly fine about the world and all its relationships. What is important to keep in mind is that we can only *describe* our observations and the relations between them. The relations between our various descriptions illuminate reality because they tell its *many* stories. We cannot explain reality. When words are employed to *explain* a state of affairs they pretend to hide some deeper meaning about the state of affairs. This is not to say that we can't explain the meaning or functioning of things. But understanding arises only when your description points to enough of our common pictures to reveal their internal relations to me – when explanation transcends words. There is thus no *right* or *wrong* pictures but pictures can be more or less accurate in the contexts they are used. We achieve a more accurate way of speaking when we use description to convey a state of affairs, and recognise that explanation is a process involving exchange of pictures between at least two people.

Darwin's theory of evolution is accurate but we must describe it in connection with a macro level theory of evolution to gain the full view. What emerges from this description is a picture of a multitude of dynamic and interrelated processes unfolding simultaneously at all levels of life. It seems like everything has got rhythm and knows how to keep in time with all other things. Patterns exist from the level of atoms and molecules to the level of galaxies and thought. Patterns are how we make sense of the world: we observe differences to work out a pattern where certain movements repeat themselves. We learn by generalising these repetitions. There are limits imposed on the length of repetition we can observe and we rely on fitting patterns onto patterns to understand repetitions of a duration longer than this limit (such as the intervals of glaciation). Patterns arise from our description of the world and understanding, in this jargon, is fitting the

various patterns together. The picture of patterns is itself a meta-picture we can use to describe the unfolding of the universe. A tapestry on which to hang all other pictures of patterns.

And now we can return the the weather.