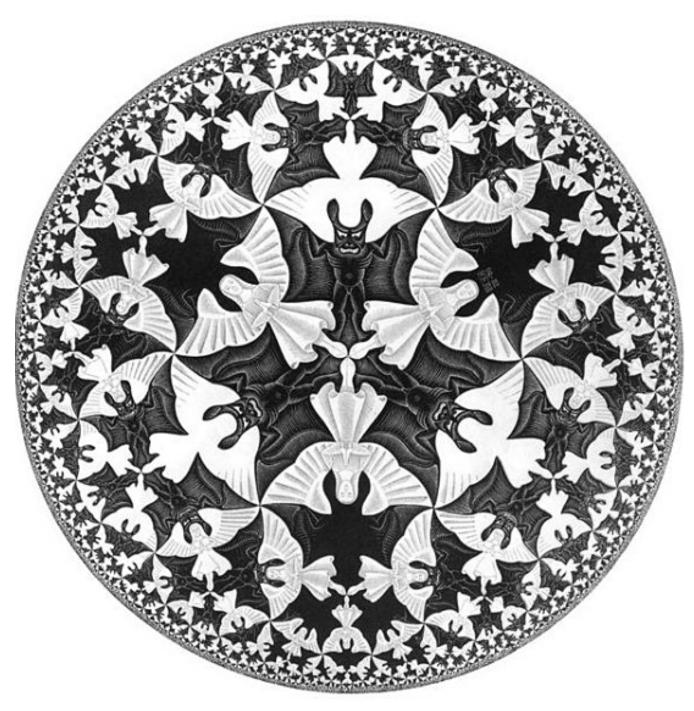
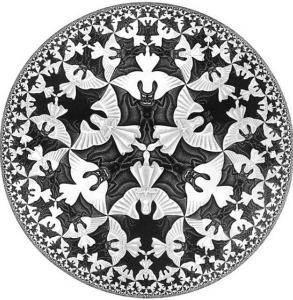
Issue 15



Patterns, Paradigms & Polarisation



NASCENT STATE Magazine



Patterns, Paradigms & Polarisation

Japanese woodcuts prior to the middle of the nineteenth century did not include shadows. The Japanese artists who created them did not regard shadows as real, and therefore saw no reason to depict them.

'The eyes see only what the mind is first prepared to see.'

Henri Bergson

Cover: Circle Limit IV by M. C. Escher, 1960

This edition of Nascent State magazine is dedicated to patterns, paradigms and polarisation.

A pattern is more than the sum of its parts. It is order, over and above the individual elements. We can study patterns in nature, in human nature and in society - and indeed, in the wider universe.

A paradigm is a collective way of looking at the world. When religion was the governing paradigm, tradition was an important value. Now in the modern era, progress is the overriding value. If we are not aware we are operating within a paradigm it is because we are too close to it to see it rightly.

Logic is so much a part of culture that many can only think in terms of right and wrong. This form of polarisation affects everything we do. It can turn religion into a crusade and science into an ideology.

Perception, paradigms and polarisation all play an important part in life, but they are not obvious initially at least. Logic can only deal with what we already know, to see what we don't know, we need better intuition.

Nascent State magazine is presented in a PDF, free-to-download format; download it and read it at your leisure. For enquiries, contributions and comments, email: editor@nascentstatepublishing.com Jim Blackmann

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'We are not the stuff that abides, but patterns that perpetuate themselves.' Norbert Wiener

We apply names to the constellations in the night sky because their pattern is fixed. We can recognise a melody, even if the key changes, because the relationship between the notes remains the same. We can observe mischief in a young child, and know this is likely to inform their behaviour later in life. We know it will be warm in summer and cold in winter. We know all this because there is more to what we see than random behaviour - there is coherence, pattern, and 'wholeness'.

For the best part of a century, science has been dominated by what is known as 'reductionism'. This means that the focus has been on the elements rather than on the wider whole in which the elements exist. Reductionism is so widespread in science that any attempt to challenge this view - to introduce a holistic view has been deemed either irrelevant or misleading, and even unscientific. The treatment of the work of Hans Driesch (1867 – 1941), who proposed the concept of an 'entelechy' or life-force in nature, is an example of this.

Driesch (1867 – 1941), an embryologist, found that

when he separated the two cells of a sea urchin embryo after the first cell-division, each cell developed, not as two half-urchins, but as two complete whole urchins. He went on to develop the concept of a holistic field or 'entelechy' to explain the phenomenon.

Harold Saxton Burr (1889 – 1973), professor of anatomy at Yale University School of Medicine, adopted the same concept. His work involved measuring the electromagnetic fields operating in biology. He employed a voltmeter to measure electricity in living organisms. After decades of work, he published the book *Blueprint for Immortality* (1972), in which he stated that all living organisms are governed by a measurable electro-dynamic field, or life field, and furthermore:

'More than establishing pattern, it must maintain pattern in the midst of a physio-chemical flux. Therefore, it must regulate and control living things. It must be the mechanism, the outcome of whose activity is wholeness, organisation, and continuity. The electro-dynamic field, then, is comparable to the entelechy of Driesch...'

We can observe such patterns in everyday life. Examples of patterns in nature include vortexes of blown leaves, waves in the ocean, and iron

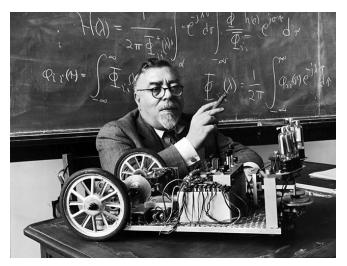
filings in the proximity of a magnet. In each case, something is acting over and above the elements to produce a pattern which cannot be explained purely in terms of the individual elements.

Once we adopt the concept of an organising field acting over and above the elements, it becomes possible to study patterns in nature directly. Symmetry and proportion are properties which can be observed in all living organisms and, what is more, while the material in an organism is constantly being replaced and renewed, the overall pattern remains constant. While conventional science dismisses this as irrelevant, this has more to do with the limitations of reductionism rather than from any deduction based on observation.



Until recently, the reconciliation of the two approaches seemed insurmountable. An important step, however, occurred in the middle of the last century, although the change was noted by very few. Norbert Wiener (1894 - 1964), who founded Cybernetics, was one of the first to regard information as something quite distinct from matter or energy - a view that comes from reductionism. In order to bring about a workable new technology, Wiener had to define many processes, including the previously ignored nature of messages and patterns. In *The Human Use of Human Beings* (1950) he wrote:

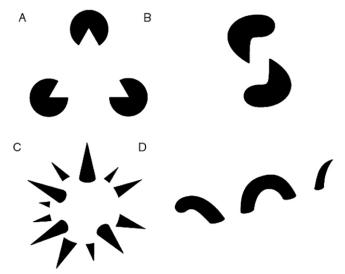
'It is the pattern maintained by this homeostasis, which is the touchstone of our personal identity. Our tissues change as we live: the food we eat and the air we breathe become flesh of our flesh and bone of our bone, and the momentary elements of our flesh and bone pass out of our body every day with our excreta. We are but whirlpools in a river of ever-flowing water. We are not stuff that abides, but patterns that perpetuate themselves.'



He was not alone. The same approach was adopted by the biologist Ludwig von Bertalanffy (1901 - 1972), who wrote *General System Theory* (1968), which became the foundation for the systems view of science. Von Bertalanffy's definition of the systems view makes it clear that he was aware of the significance of this development.

'General system theory, therefore, is a general science of 'wholeness' which up until now was considered a vague, hazy, and semi-metaphysical concept.'

And in an altogether different field, Gestalt psychology, particularly through the work of Max Wertheimer (1880 - 1943), the same holistic approach was applied to psychology.



Wertheimer is regarded as one of the founding figures of Gestalt theory. In his essay on the subject, he defined the approach this way: 'The fundamental 'formula' of Gestalt theory might be expressed in this way: There are wholes, the behaviour of which is not determined by that of their individual elements, but where the part-

processes are themselves determined by the intrinsic nature of the whole.'

If science has, until now, ignored or overlooked the direct study of patterns, this is due to change. This change will occur, not through any debate about the nature of reality, but because a renewed interest in patterning systems will result in a shift of focus. Once this emerges, all that had previously been regarded as erroneous or insignificant will be reviewed in the light of the new paradigm. The development of Artificial Intelligence, or AI, is just such an example of a shift in focus.

Al emerged through the combined efforts of a number of scientists and mathematicians. Warren McCulloch and Walter Pitts published *A Logical Calculus of Ideas Immanent in Nervous Activity* in 1943, and provided a mathematical representation of the neural networks in the brain. This was then used as the basis for modelling biological neural networks in computing. Geoffrey Hinton, amongst others, took up their work and began to develop computer programs with the intention of studying the neural networks in the brain.

Neural networks are, by nature, patterning systems. This is why AI systems do not simply respond to the question presented, but package the answer into a coherent whole. The capacity to mimic reasoning demands a context. If earlier examples of systems thinking were regarded as theoretical, AI systems are both practical and very real, and patterning systems can no longer be ignored.

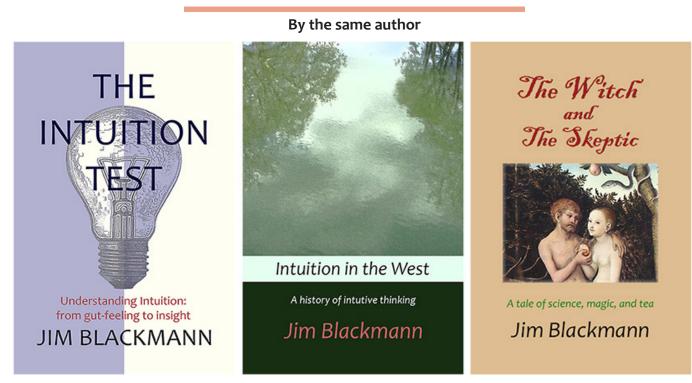
It has always been possible to study patterns directly without the need to reduce them into their component elements, but the dogma of reductionism prevented this. This is about to change, and will result in a shift from reductionism to patterning systems as the basis of all scientific study. Those who cannot see this, and indeed may oppose the very idea, will be - as Wiener put it 'fighting a rear-guard action against the overwhelming force of a younger generation.' The question is whether the new paradigm will be just as dogmatic as the present one, and that will depend not on research, but on thinking.

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Nineteenth century Japanese woodcut

The Michelson–Morley experiment of 1887 split a beam of light in half. One half was sent in a direction perpendicular to the other, and then redirected back into it. There should have been a measurable difference, because one half

had travelled further than the other - but there wasn't. The result was a puzzle, until Albert Einstein provided an alternative explanation; light is not subject to Newtonian mechanics. 'If the Michelson-Morley experiment had not brought us into serious embarrassment,' he wrote 'no one would have regarded the relativity theory as a (halfway)

redemption.'

The word 'paradigm' comes from the Greek 'paradeigma', meaning 'pattern'. Whereas a pattern can be seen in nature, a paradigm refers to the outlook of a group, such as the broad agreement about what is accepted as valid. We are not normally aware that we are operating within a paradigm, largely because the effect of group agreement causes us to assume we are dealing with life, plain and simple.

We might also assume that science is free of the same form of subjectivity, but it is not. Thomas Kuhn coined the use of the term 'paradigm' in his book The Structure of Scientific Revolutions (1962) to illustrate the point that a shared outlook of a group of scientists is only that, and not an indication of truth:

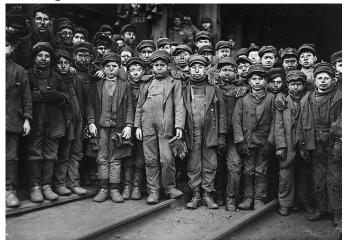
'Normal science, the activity in which most scientists inevitably spend almost all their time, is predicated on the assumption that the scientific community knows what the world is like. Much of the success of the enterprise derives from the community's willingness to defend that assumption, if necessary at considerable cost.'

An interest in paradigms is not merely a concern for science, but for society too. In a stable society, we assume what is regarded as true today will be regarded as true tomorrow. The problem is, if what is regarded as true depends on majority opinion, and majority opinion changes, what is regarded as true will also change.

A paradigm acts as the framework through which we see the world. The paradigm of the pre-Copernican era held that the earth was at the centre of the universe. After Copernicus, the

same sun rose and set, but the explanation for it was different. In the eighteenth century, the emergence of present-day Secularism gave rise to the *Encyclopédie*, which was intended as an alternative source of truth to the *Gospels*. Once the *Encyclopédie* became the official source of truth, the only acceptable explanation for any phenomena had to be secular.

The full extent of the influence of a paradigm on thinking is not always clear. We see the particulars well enough - fashion, industrialism, coded law and education - but the values that inform the particulars are not observable and so must be inferred. It is for this reason that a paradigm only becomes clear once it has been challenged.



Breaker boys, Pennsylvania Coal Company. 1911.

The paradigm of 'reductionism' has dominated science for more than a century. Reductionism arose as a reaction to the last remnants of the spiritual view of the world that preceded it. Reductionism means that in science, the primary unit is regarded as the cause of all known phenomena. It follows that if we want to study physics, chemistry or biology, we have to study atoms and molecules. The context in which they operate is regarded as secondary and unimportant. It was reductionism that led Richard Dawkins to declare:

'We are survival machines — robot vehicles blindly programmed to preserve the selfish molecules known as genes.'

Like all paradigms, reductionism will one day come to be outmoded. Its alternative is the holism that began to emerge from about the middle of the twentieth century. This developed in quite different disciplines, from Cybernetics to Gestalt Psychology to Systems Theory. Rather than regarding contexts as unimportant, each of these disciplines regarded the system or context as the primary focus of study. This development was barely noticed by the majority of scientists, who regarded systems thinking as a merely theoretical approach.



Raising a Flag over the Reichstag, Yevgeny Khaldei, 1945 Whether the majority of scientists - and nonscientists - are aware of it or not, this represents a significant paradigm shift. What is more, the new paradigm may not be to our liking, and may be with us much sooner than we think.



Source: China People's Daily, 2023

We are due to enter a paradigm where some very important decisions will be delegated to AI systems. If this seems far-fetched, Geoffrey Hinton, widely regarded as the 'father of AI', quit his role as an advisor at Google because he now regards AI Systems may become an existential threat to humanity. In an interview with Hari Sreenivasan on PBS (05/09/23), he said the following:

'I think there's a lot of different things we need to worry about with these new kinds of digital intelligence. And so what I've been talking about mainly is what I call the 'existential threat', which

is the chance that they get more intelligent than us and they'll take over from us - they'll get control.'



Data Centre, 2023

Many of the values of the existing paradigm would then be re-evaluated in light of the new paradigm. This includes intaglible human values such as 'caring', 'trust' and 'morality'. It includes the assumption that we should delegate all important decisions to human beings rather than to machines. It includes the assumption that truth is a human possession, and that humans are the best arbiters of what is or isn't true.

At present, we will contend with a hybrid paradigm, where both human and mechanical values co-exist.



Boston Dynamics robot soldier, 2023

As time progresses - the speed at which Al systems can learn is considerable - the new mechanical values may well overwrite human ones. Human nature, society and the wider world would be understood in utilitarian terms. Anyone not productive would be regarded as not unlike the contents of a delete folder on a computer. While the emergence of AI Systems is presently regarded as a positive step towards progress; this will last as long as the first conflict of values with the existing paradigm. AI Systems are programmed to gather information into a coherent whole, and so the new paradigm is likely to become an ideology, and very quickly.

There will be no agnosticism, no provisional understanding, no open mindedness and most importantly - no alternative paradigm to challenge the one that emerges through AI.

With this in mind, it will be necessary to adopt a disinterested attitude towards the new paradigm. It will also be necessary to form a clearer understanding of much that has been taken for granted within the existing paradigm. Seen from that point of view, the new paradigm may be regarded as an opportunity rather than a threat.

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George C. Scott as General Buck Turgidson in Dr. Strangelove

If no B is A, neither can any A be B. Aristotle, The Organon

We live in a hybrid culture. We have inherited our concept of truth from Greek philosophy, our understanding of good and evil from Judaism, the idea of conscience from Christianity, and our social ethics from Secularism. Each has a halo of purity around it, and they are commingled in such a way that if we question one, we would be seen to question the other, and anyone who does so is presumed to seek to undermine the values that underpin society.

We believe we know the difference between good and evil. Our understanding of good and evil is informed by logic, which divides everything into 'is' or 'is not'. So, something is either good, or it is not good, and therefore it is evil. Logic so informs Western thought that to question whether what we call 'good' is actually good is to immediately place us on the side of evil.

This form of polarisation is by no means limited to religion. The twentieth century is portrayed as

one of ongoing progress, and yet the twentieth century brought us two world wars, two major revolutions and the cold war. While the secular view of good and evil does not reference God or the Devil, the underlying thinking is the same. Once we regard ourselves as on the side of truth and right, anyone who opposes us must be on the side of untruth and wrong.

Saint Augustine, who is regarded as the founding father of the Church, was much responsible for this polarised view of good and evil. Augustine regarded the Church as God's representative on earth, and therefore the force of good in the world. It naturally followed that anyone who opposed the Church also opposed all that represented 'good' in the world. The persecution of the heretics followed, and as the Church grew in strength, their treatment became more severe. By the time of *The Council of Rheims* (1049), they were regarded as emissaries of evil:

'The council prescribed severe penalties, imprisonment or worse, for the heresiarchs

(founders); followers were to have their faces branded and be exiled.'

Once good and evil became polarised as opposites, even a display of humanity towards those who were accused of evil was seen to be the defence of evil. From the records Bernard Gui (c.1261 – 1331), one of the most ruthless inquisitors:

'Such a person may easily be proved guilty of heresy by loyal, learned sons of the Church, for one is presumed to be a heretic from the very fact of striving to defend error.'



King Philip II of France, Burning the Amalricians, 1210 The problem with the polarisation of good and evil is that, not only does conflict inevitably follow, but that we cannot admit to any failings in ourselves. That is the reason why we scrub any person or any action of its flaws, so we may define it as good. A hero, a victory march or a noble cause can only be regarded as such because it is presented as a purified image rather than as a complex mess. In the same way, a religion, a political ideology, or a scientific outlook has to be homogenised for it to be regarded as truth. Even more so, in the pursuit of purity, we can make ourselves inhuman. As Friedrich Nietsche (1844 - 1900) put it:

'To recognise untruth as a condition of life; that is certainly to impugn the traditional ideas of value in a dangerous manner, and a philosophy which ventures to do so, has thereby alone placed itself beyond good and evil.'

The polarisation of good and evil - at least where it is unchecked - leads to intolerance. A study of history reveals that, out of the desire to rid mankind of evil, the most atrocious evils have been committed. The early Christians went from being the persecuted to being the Inquisitors, the ideals of the French Enlightenment led to the Terror, and the Soviet Union, in order to rid society of the evil of Capitalism, undertook purges even the worst Capitalists were not guilty of. The problem is not one of good and evil, but of polarised - and very inhuman - thinking.



Elizabeth Eckford, pursued by a mob, 1957. Polarisation is the inevitable outcome of unchecked logic. The alternative to this form of 'good versus evil' thinking is through the use of intuition. When we are presented with a person, an event or an action, our initial response is intuitive. If the person, event or action is uncomplicated - a child enjoying a sweet - we will be untroubled by it. If however the person, event or action is born of mixed motives, too early an application of logic will limit us to a single reaction.

To challenge the absolute nature of good and evil does not undermine our valuation of it, but rather puts it into a broader context. This broader context is drawn from a fuller understanding of human nature. If we label others 'evil', it may be because they are evil, or it may be because we are blind to the complexity of our own nature. The American writer Ralph Waldo Emerson (1803 - 1882) put it this way:

'The same dualism underlies the nature and condition of man. Every excess causes a defect; every defect an excess. Every sweet hath its sour; every evil its good.'

In addressing the issue of good and evil, it is worth remembering we are dealing with something we cannot see directly. One of the great enigmas is how human beings can perform inhumane acts in the name of 'good'.

If the logical approach to good and evil results in polarisation, the intuitive approach is one of progressive insight. Through insight we may see today what we previously could not see at all. This applies outwardly, in the study of others, and also inwardly, to the study of our own inner life; insight reveals the hidden.

We first pick up on the hidden through gutfeeling. Gut-feeling will alert us to what is present but not yet available to direct inspection. We may recall an action and - even if others might not agree - have the gut-feeling that there was more to what occurred than meets the eye. If, prompted by gut-feeling, we hold off any judgement and observe dispassionately, the hidden element may become apparent through insight. Insight, when applied to past actions, is referred to as 'hindsight wisdom'. Soren Kierkegaard (1813 - 1855), who gave us Existentialism, said:

'It is really true what philosophy tells us, that life must be understood backwards. But with this, one forgets the second proposition, that it must be lived forwards.'

To understand how unchecked logic leads to polarisation, it is useful to study the nature of thinking, particularly the 'context effect', which means that all activity, communication, expectations and assumptions exist within a given context.



Fight With Cudgels, 1820 by Francisco Goya (detail) We might look at old photos of the late nineteenth century and notice the formal dress and the stern looks, or look at a street photo of the early twentieth century and notice that everyone is wearing a hat. The Jim Crow laws in America, enforcing racial segregation, or the spittoons once used in public places, were born of the shared set of values and assumptions in society at that time. Logic assumes an absolute context - something must be 'A' or 'not-A' - and that relationships cannot change. Intuitive judgement depends on the context. The same word - 'yes' - can be said simply, sarcastically, or used as a question. Logically, it is the same word, but intuitively we know the difference.



Ukraine 2023

It follows that intuitive judgement is relative. A person, action or an event can be, by degree, good or bad, and if we are to make an intuitive rather than logical judgement, it must be informed by the context in which it is made. A parent scolding a child because the child is doing something dangerous is not the same as a parent scolding a child because they are irritated.

This also applies to our own actions. If we cannot see our flaws, it may be because we have none, or it may be because we cannot see them. We may find, through hindsight, we acted because we harboured an unconscious resentment towards another person, and yet at the time told ourselves we were acting out of good intentions. It follows that, from an intuitive point of view, better perception limits our capacity to act in a way we might later regret.

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