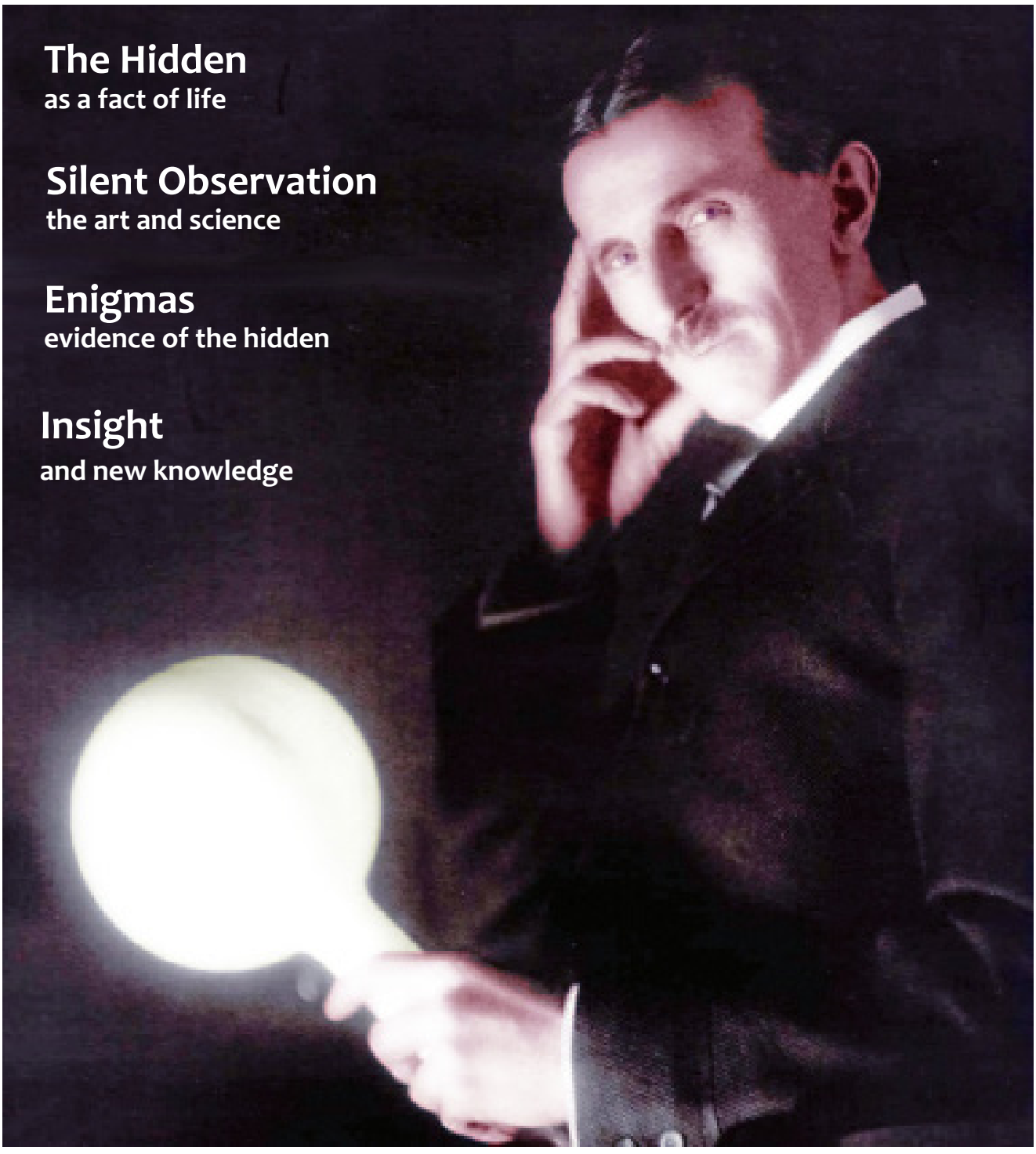
Autumn 2022

NASCENT STATE

Journal of Intuition

Magazine

Intuitive Science



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NASCENT STATE Magazine

Nikola Tesla, 1919

From the Editor

Intuitive Science

Intuitive science is based on the assertion that there is, in addition to the world we know, a world hidden from direct observation. If we are content with what we know, then logic is fine. If we want to know what is presently hidden from us, then we need intuition.

'We must cling to the belief that the incomprehensible is comprehensible; otherwise we would not try to fathom it.'

Johann Goethe

This edition of *Nascent State* magazine will outline the basis of intuitive science, with articles on The Hidden, Silent Observation, Enigmas and Insight. The application of intuitive science will come from those who adopt its values and principles. As bold as the statement might appear, intuitive science will become the science of the future.

Intuition begins with the gut-feeling that there is something not directly visible. If unattended, this may remain no more than an inkling. We can however observe intuitively, which means to observe without prejudice. If we do this with sufficient attention, we may find ourselves in receipt of insight. Insight has been responsible for some of the most important break-throughs in scientific thinking.

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:

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The Hidden

As a fact of life

from Camille Flammarion's L'atmosphere: Météorologie Populaire, 1888

'Where intuition has the priority, every ordinary situation in life seems like a closed room, which intuition has to open.'

Carl Jung

The hidden is a fact of life. We might assume that we see life well enough, but unconsciously we know there is much we cannot see directly. We lock our doors at night, save for a rainy day, take out insurance, keep our passwords secret and check the weather before leaving home, and we do all of this because we know there is much to life we cannot see.

The hidden also informs the wider world we live in. We cannot see the inner life of others, the agendas of large organisations, the machinations that inform political life, the planning of military operations or the policy decisions of the media. We know all this and we live with it just as we live with an unknown future.

In addition to the hidden in human nature, there is the hidden in nature itself. We see a spider's web but not what causes the spider to spin it. We see birds migrate and return each season but not what guides them. We see hexagonal snowflakes, each individual, each perfect, but not the geometrical laws governing their form.

We feel duty-bound to explain such phenomena because we know there is more to the world than the world we see. And so we reflect, and when we do, we reflect on the hidden.

Photo by Alexey Kljatov

All science is based on this fact. We build laboratories to test hypotheses, and use microscopes and telescopes to see what the naked eye cannot, and we do all of this because, unconsciously at least, we know there is more to the world than the world we see.

Logic asserts that if our observations are precise, our labels exact, and our thinking is rightly organised, we will arrive at truth. What is missing from this view is that there is a difference between information and attention. The problem is not so much what we know and see, but what we fail to see, and this is dependent not on logic, but on perception.

The Conjurer, Hieronymus Bosch, c. 1502
(note the pickpocket)

As an illustration of the difference between information and attention, it is useful to consider the phenomenon known as 'misdirection'. This is the method of guiding the attention of the audience to prevent them from seeing how a trick is performed. We might assume this is limited to the theatre, but misdirection is a direct outcome of the way the mind works, and without it no stage magician would be able to perform their art. The author and magician, Henning Nelms, who wrote *Magic and Showmanship: A Handbook for Conjurers* (1969), divided misdirection into two forms - optical and mental. He defined optical misdirection in the following way:

'We use optical misdirection when we fix the eyes of the spectators on one point in order to keep them from watching some other point.'

The more we focus on what is obvious, the less we will see what is unobvious. Our attention can be controlled deliberately, as in the case of stage magic, or unconsciously, such as when our conviction that we already have the truth causes us to dismiss anything that does not correspond to our truth.

The scientific historian Thomas Kuhn noted the way a limited outlook can affect scientific research. In his book *The Structure of Scientific Revolutions* (1962), he employed the term 'paradigm' to describe how a governing outlook determines not just research, but also what we think and see. He wrote:

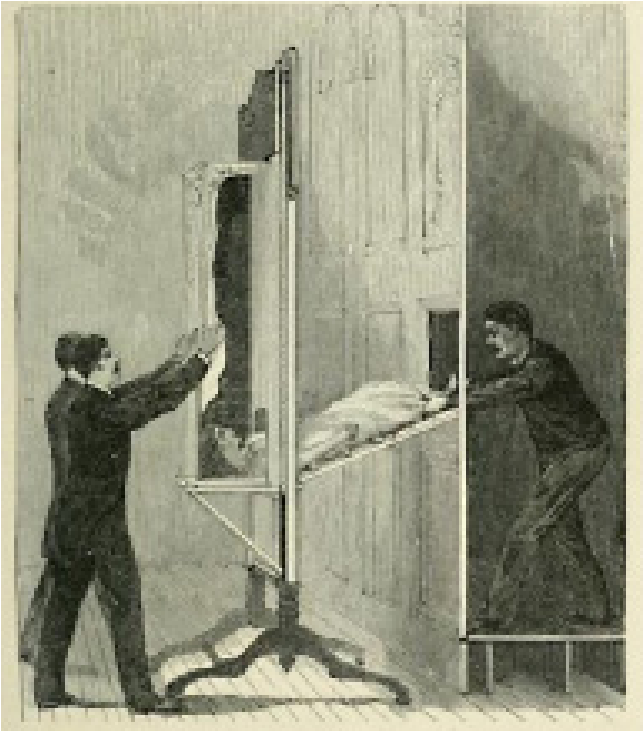
'No part of the aim of normal science is to call forth new sorts of phenomena; indeed those that will not fit the box are often not seen at all. Nor do scientists normally aim to invent new theories, and they are often intolerant of those invented by others.'

We might assume that if we cannot see any bias in our own thinking, there must be no bias in our thinking. But this is because we cannot see the bias in our thinking any more than we can hear the bias in our own accent; we believe we are just 'speaking' and it is others who have marked accents. Hidden bias will cause us to unduly criticise what we regard as wrong and unconditionally accept what we regard as right. Rather than correcting this bias, logic simply reinforces it.

Henning Nelms pointed to a second form of misdirection - mental misdirection - which relies on psychology rather than directed attention. With mental misdirection, the stage magician will prime the expectations of the audience so that they misinterpret what they see in a particular

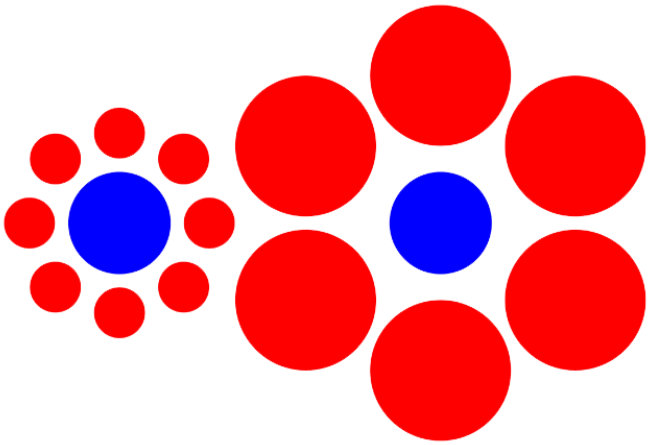
way; if we want to produce a rabbit from an empty hat, we first have to convince the audience the hat is empty. Nelms described mental misdirection in the following manner:

'Logic requires a 'frame of reference' or 'context'. A successful conjuring theme baffles logic by providing a false frame of reference.'



19th Century conjuring trick

To see the world through a frame of reference is no more than to see it through the eyes of a hidden bias. We call this by different names - an outlook, opinion or a belief - but each indicates that we have a particular view of the world which shapes what we see. That is why a child, a farmer and an artist will all look at the same lamb and see a different lamb.



The blue dots are the same size

There is nothing wrong with holding an opinion. The problem arises when we mistake our opinion for truth. In order to see the hidden, we have to accept that we do not see the world as it is, but through the prism of an opinion. If we can see this, we can begin to move beyond the limitations of logic and consider there may be more to the world than the world we presently know.

Intuitive thinking is founded on the existence of the hidden. The basic elements of intuitive thinking - gut-feeling, observing without prejudice, and open-mindedness - form the basis of an intuitive approach to science. If we employ them as we presently employ logic, we will begin to see evidence for the hidden everywhere. Once we recognise this, both in life and in nature, we will no longer be satisfied with appearance or with our present knowledge. Life itself, rightly seen, will prompt us to consider what is neither obvious or apparent. Once we do this, life becomes our laboratory and direct experience becomes our means.

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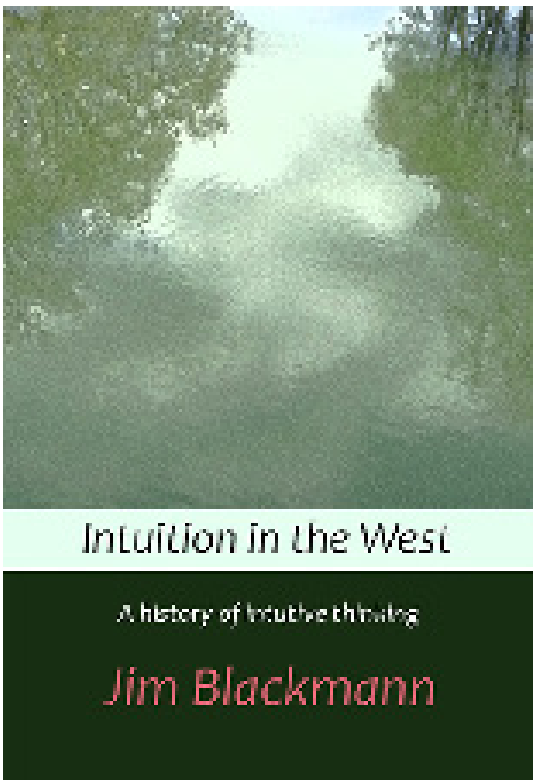

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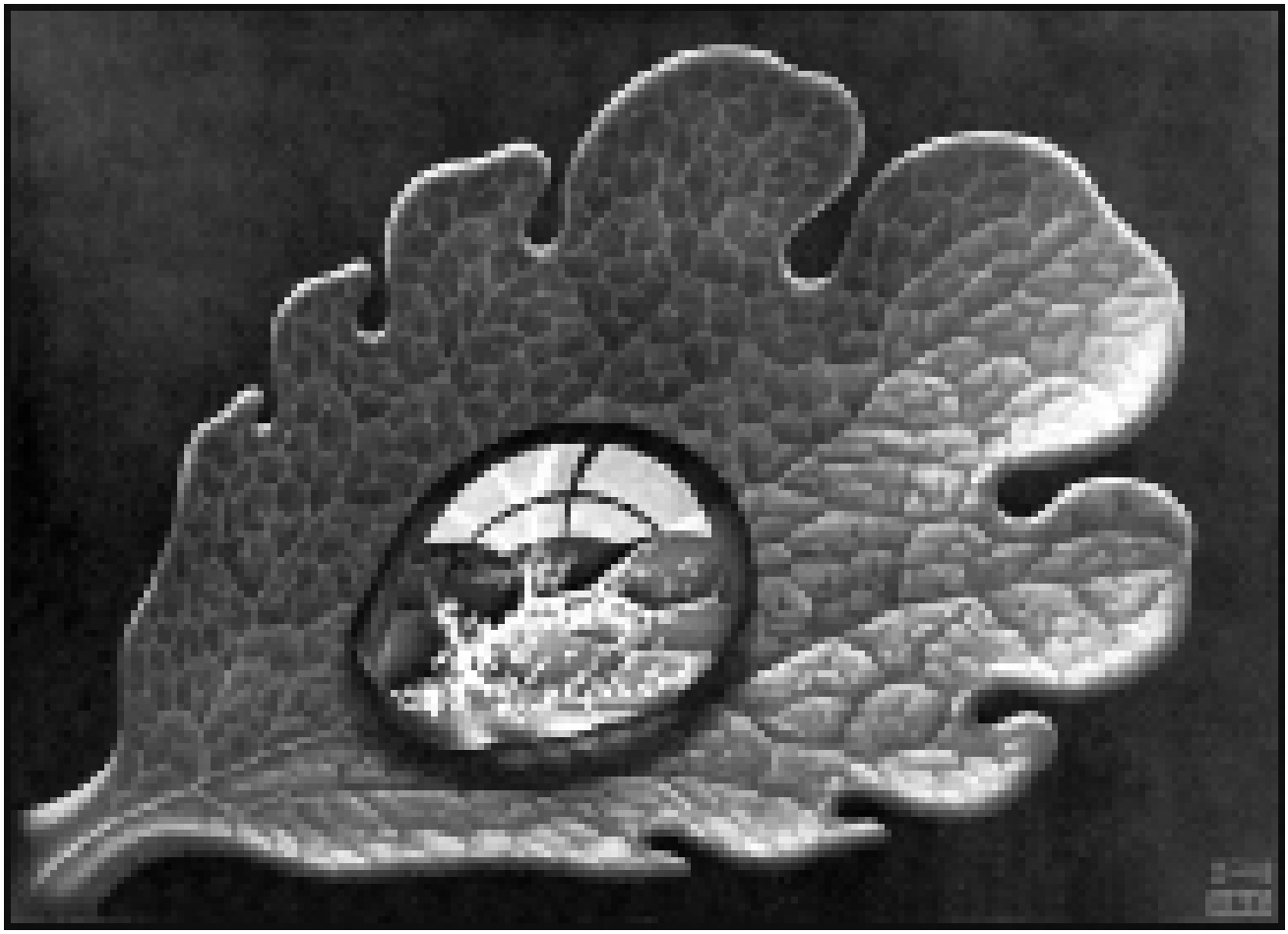
Silent Observation

As art and science



M. C. Escher, Dew Drop, 1948

'By intuition is meant the kind of intellectual sympathy by which one places oneself within an object in order to coincide with what is unique in it and consequently inexpressible.'

Henri Bergson

We can observe in many ways; we can observe absentmindedly, through tired eyes, through the eyes of prejudice, or - if we are suitably minded - with quiet attention. Life does not require us to observe with quiet attention, and to do this we need a reason beyond mere necessity.

To observe intuitively is to put one's prejudices aside, and to allow our thoughts to be informed by the object of attention. In the East, this practice is known as 'isness', which means to see into the essence of a thing. The nearest Western equivalent is 'empirical observation' This was the intention of Francis Bacon, the father of empirical science, when advocated this very method in his foundation work, *Novum Organum* (1620):

'Our method, though difficult in its operation, is easily explained. It consists in determining the degrees of certainty, while we, as it were, restore the senses to their former rank, but generally reject that operation of the mind which follows close upon the senses...'

The problem is that if we believe we see the world as it is, then we will assume our observations are unprejudiced, unbiased and impartial. If we cannot see the hidden bias in our thinking, we assume there must be no hidden bias in our thinking. To see the world as it is we must prevent the logical mind from interfering with our observations. In a culture governed by logic, asking people to abandon logic is like asking a dog not to bark. And yet without this, there can be no new insights into the nature of the world.

The statement might seem bold for many, and yet it is the same view held by Rene Descartes, widely regarded as the founder of modern philosophy, who pointed to the importance of direct observation, unhindered by logical analysis. Descartes, in his *Rules for the Direction of the Mind* (1628), wrote:

'By 'intuition' I do not mean the fluctuating testimony of the senses or the deceptive judgement of the imagination as it botches things together, but the conception of a clear and attentive mind, which is so easy and distinct that there can be no room for doubt about what we are understanding.'

Rene Descartes, after Frans Hals

This does not mean we should not think about what we see - indeed, to think clearly, by getting to the heart of the matter, is itself a form of intuition - but rather we should not rush to apply definitions and labels to what we see without allowing time for the fuller experience to make itself clear to us. Francis Bacon warned that too early an application of logic would interfere with our observations:

'This, no doubt, was the view taken by those who have assigned so much to logic; showing clearly thereby that they sought some support for the mind, and suspected its natural and spontaneous mode of action. But this is now employed too late as a remedy, when all is clearly lost, and after the mind, by the daily habit and intercourse of life, has come prepossessed with corrupted doctrines, and filled with the vainest idols.'

Intuitive observation requires us to hold off all logic and to observe silently, whether it is a person, an object, an event or an idea. We would only do this if we had good reason, and it is only when we become dissatisfied with our present knowledge that we might consider this approach. Again, from Francis Bacon:

'The present discoveries in science are such as lie immediately beneath the surface of common notions. It is necessary, however, to penetrate the more secret and remote parts of nature, in order to abstract both notions and axioms from things by a more certain and guarded method.'

We may, of course, doubt that the hidden exists, or that if it does it is insignificant and no more than a mere supplement to existing knowledge. This view is very much the product of an age dominated by logic. Logic cannot define and label what is hidden, but only what is obvious and apparent. To see this hidden element, we must employ the 'more certain and guarded method' indicated by Francis Bacon.

Fortunately we do not need a 'big laboratory' to observe intuitively; we have this ability within our grasp. The practice of silent observation, whether it is of a person, an item or an event, can be undertaken by anyone, no matter what their station in life. We can begin with simple and commonplace items - a leaf, an animal, a stranger or even a stone. That is why Johann Goethe, who employed the method for his own scientific studies, wrote:

'Stones are mute teachers; they silence the observer, and the most valuable lesson we learn from them we cannot communicate.'

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Bacon, Novum Organum

Bacon, Novum Organum

Johann Wolfgang von Goethe, Maxims and Reflections, Translated by Bailey Saunders (1892)

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Enigmas

Evidence of the Hidden

A naturally formed dodecahedron Pyrite crystal

'For a long time, then, I reflected on this confusion in the astronomical traditions concerning the derivation of the motions of the universe's spheres.'

Nicolaus Copernicus

The derivation (or retrograde) motions of the planets was known long before Nicolaus Copernicus was born in 1473. The existing view of the universe, the Ptolemaic system, had accounted for this by adding a series of sub-orbits, known as epicycles, to the main orbits of the planets. The model had its flaws, and Copernicus was not the first to notice it, but he was the first to openly challenge its assumptions. By proposing that the Sun was at the centre of the planetary system, Copernicus laid the foundations for the Scientific Revolution.

We are surrounded by many more enigmas than we realise, but what prevents us seeing them as such is the assumption that our present outlook explains them. To see an enigma as an enigma, we have to consider that we do not see the world in its entirety.

Galileo Galilei (1564 – 1642), inspired by Copernicus, also challenged the orthodox thinking of the day. He is said to have observed a swinging pendulum in Pisa cathedral and compared its rhythm with the beat of his own heart. Others had observed pendulums before Galileo, but what made his observation unique was that he regarded what he saw as the indication of an enigma.

An enigma tells us that we do not see the world in its entirety. We see the outer aspect, and deduce the hidden aspect on that basis. So we observe symmetry in organic nature, geometry in crystals, and proportion in the human form, and we take all this for granted in the same way we take breathing for granted. If what we observe

doesn't trouble us then, for us at least, there is no enigma.

A murmuration of starlings

Johann Wolfgang von Goethe, who is most remembered for his play Faust (1808), was also a scientist and thinker. Perhaps because of his artistic interests, he took a creative approach to his scientific studies. In his *Maxims and Reflections* (1883), he wrote:

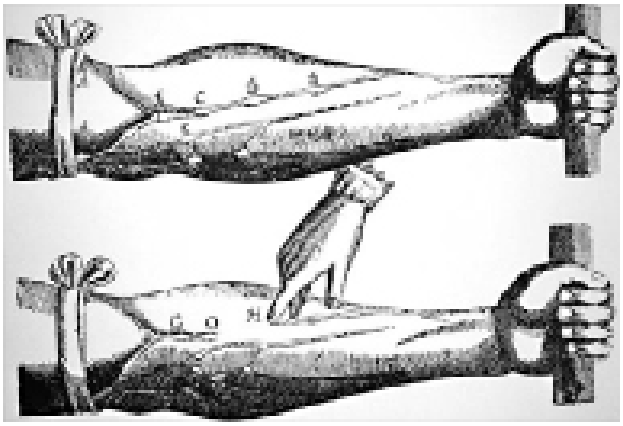
'In the sphere of natural science let us remember that we have always to deal with an insoluble problem. Let us prove keen and honest in attending to anything which is in any way brought to our notice, most of all when it does not fit in with our previous ideas. For it is only thereby that we perceive the problem, which does indeed lie in nature, but still more in man.'

Goethe pointed to something which is often missed in the science curriculum; what limits our understanding is often not a lack of information, but limited perception.

The dominance of logic in Western culture has resulted in the division of orthodox, or 'conventional' thinking, and unorthodox, or 'unconventional' thinking. It is for this reason that we refer to orthodox and unorthodox scientific theories. The assumption being that the majority view must be correct otherwise it wouldn't be held by the majority. The scientific historian Thomas Kuhn questioned whether majority opinion was the same as truth in his book *The Structure of Scientific Revolutions* (1962):

'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. Normal science, for example, often suppresses fundamental novelties because they are necessarily subversive of its basic commitments.'

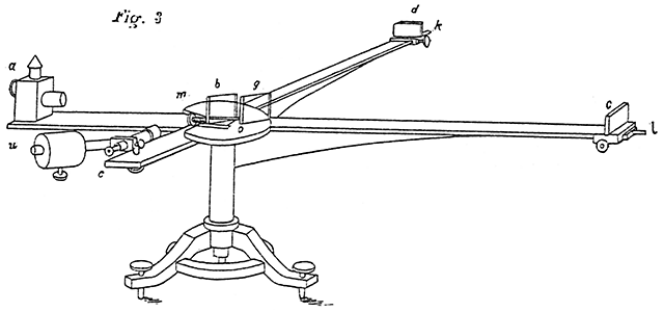
To see a phenomena as an enigma, we have to be willing to question not just our existing assumptions, but also convention. The treatment of Galileo was less about the opposition to science by religion than about orthodox and unorthodox ideas. The treatment of others in the scientific era underlines this.



William Harvey, de Motu Cordis c. 17th Century

William Harvey (1578 - 1657), was so concerned by the response of the medical establishment to his proposal of the circulation of the blood that he feared for his personal safety. Gregor Mendel (1822 - 1884), now regarded as the founder of genetics, was dismissed as an amateur gardener with a pet theory when he presented his paper *Experiments on Plant Hybridization* to the Natural History Society of Brno in 1865. And the Michelson-Morley experiment of 1887, which demonstrated that light was a constant and not subject to Newtonian mechanics, was regarded as a failure of method until Albert Einstein regarded it as a fact. He wrote:

'If the Michelson–Morley experiment had not brought us into serious embarrassment, no one would have regarded the relativity theory as a redemption.'



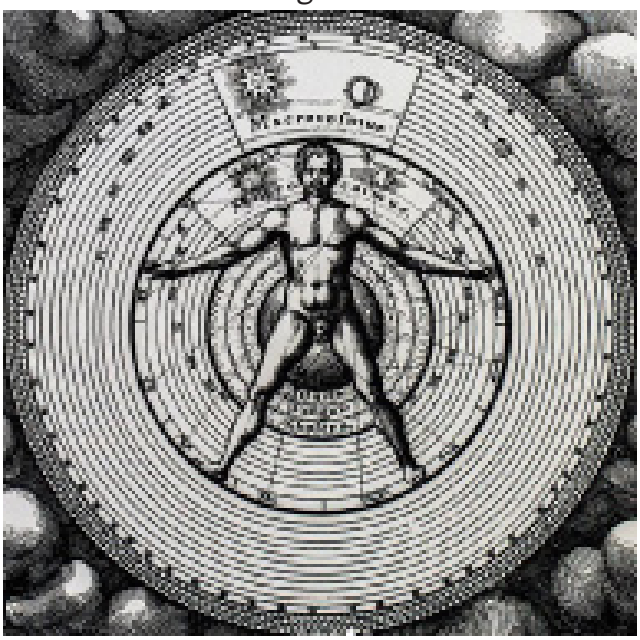
Michelson-Morley's interferometer
(to split a light beam)

Logic demands conformity. Intuition operates differently. To think intuitively, we have to look beyond the obvious. That is why the same rock can be seen as a building block, a doorstop, an obstacle or a weapon.

Just as logic has its methods, so too does intuition. Logic demands fixed definitions; that is why the language of logic is grammar. Intuition is about seeing beyond the obvious; that is why the language of intuition is symbolic imagery.

With a symbolic image, what is presented is often surreal and perplexing, and demanding explanation. It could be said that a symbolic image is a deliberate enigma. From this point of view, the study of symbolic imagery trains the mind to regard what we see as an expression of the hidden. In the Pagan era, before logic became dominant in Western culture, symbolic imagery was employed as a method of teaching in the Greek philosophical schools. Iamblichus (245 – 325 AD), in his book *The Life of Pythagoras*, explained the method in the following way:

'The mode of teaching by symbols was considered by Pythagoras as most useful, this mode was cultivated by nearly all the Greeks, as being most ancient and the Egyptians particularly honoured it, adopting it in the most diversified manner. Great attention was paid to it by Pythagoras, as will be found by one who clearly unfolds the significance and arcane conceptions of the Pythagorean symbols, thus developing the great rectitude and truth they contain when liberated from their enigmatic form.'



From Robert Fludd's the Greater and the Lesser (1621)

The modern era regards the use of symbolic imagery as outdated and backward, mostly owing to the dominance of logic. For all of this, symbolic imagery is still employed in science, but implicitly rather than being openly stated. The clockwork universe of Isaac Newton, the genetic code of Crick and Watson, and the Blind Watchmaker of Richard Dawkins are all symbolic images, but not regarded as such.

As with the pre-Copernican age, we can live with any number of inconsistencies and not be bothered by them. We can accommodate any number of enigmas into our present outlook by making the explanation more complex, and we only need to consider an enigma as such when we are faced with what Einstein called a 'serious embarrassment'.

The inventor Nikola Tesla listened to thunder and noted that it rolled. He came to the conclusion that the initial strike of lightning caused the air around it to roll out in a wave-like form, much like water does when a pebble is dropped in a pond. Tesla, who invented the neon light, came up with the idea that the atmosphere around the earth was subject to vibrations, and could also be lit up like a neon light. Others had listened to thunder before Tesla, but few regarded what they heard as an enigma.

The more we regard the world as an enigma, the more we will see them. Regarding the world as an enigma doesn't mean we succumb to despair at not being able to make sense of it, but rather that every enigma becomes an opportunity to learn something more about its hidden nature. The artist and inventor Leonardo da Vinci, once wrote:

'Nature is full of infinite causes which are beyond the pale of experience.'

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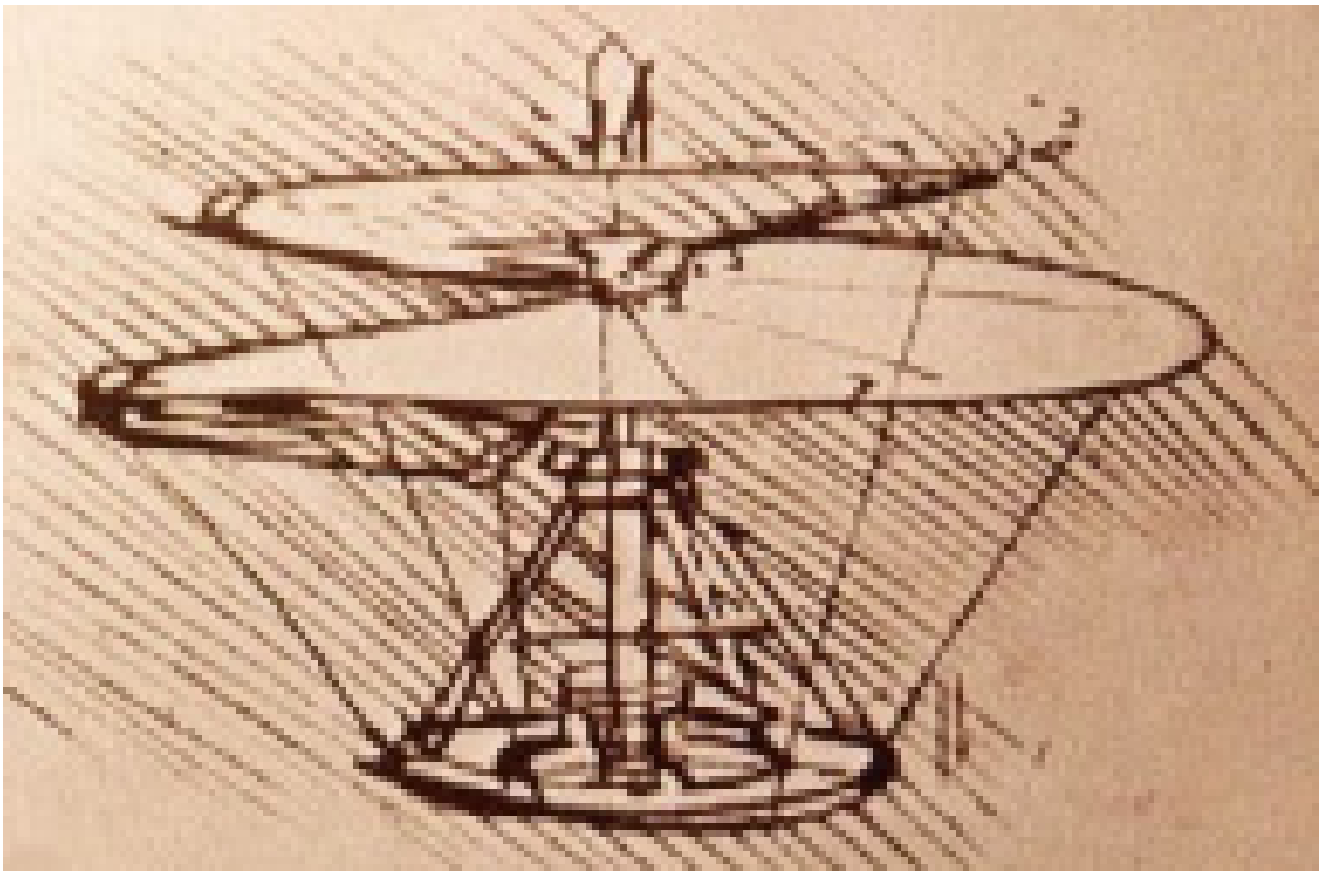
Insight

The means to new knowledge



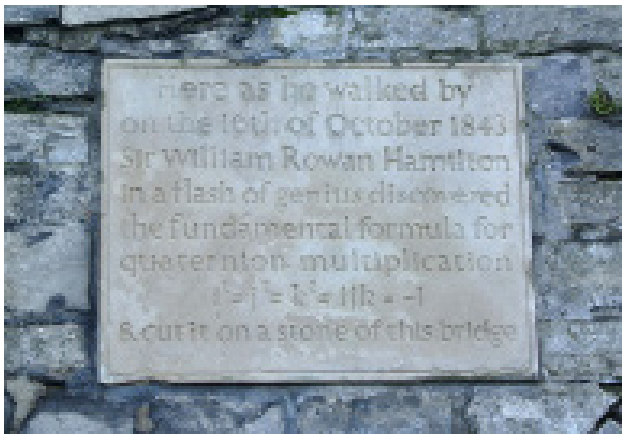
Leonardo da Vinci's drawing of a helecopter, 1480

'All our knowledge is the offspring of our perceptions.'

Leonardo da Vinci

Insight has played an important role in the development of scientific thought - perhaps even more so than experiment or theory - and yet it is little understood, little commented on, and little studied by conventional thinking. This is because conventional thinking is based on logic, and insight is intuitive.

Insight was responsible for the sudden thought that caused the mathematician Archimedes to run naked from his bath, shouting 'Eureka - I have found it', after in an instant he solved the problem of how to work out the mass of a complex gold crown. It was responsible for the theorem for which Pythagoras is remembered, and led him to make a sacrifice to the gods in gratitude for the idea. It was responsible for Newton's apocryphal apple, which caused him to think about gravity from a purely mathematical point of view. It was responsible for the sudden arrival of Rowan Hamilton's quaternions, causing him to carve the equation into a nearby stone in case he forgot it. And it was responsible for Tesla's alternating current motor, the vision of which caused him to stop, mid-walk, in a park in Budapest to explain it to his companion.

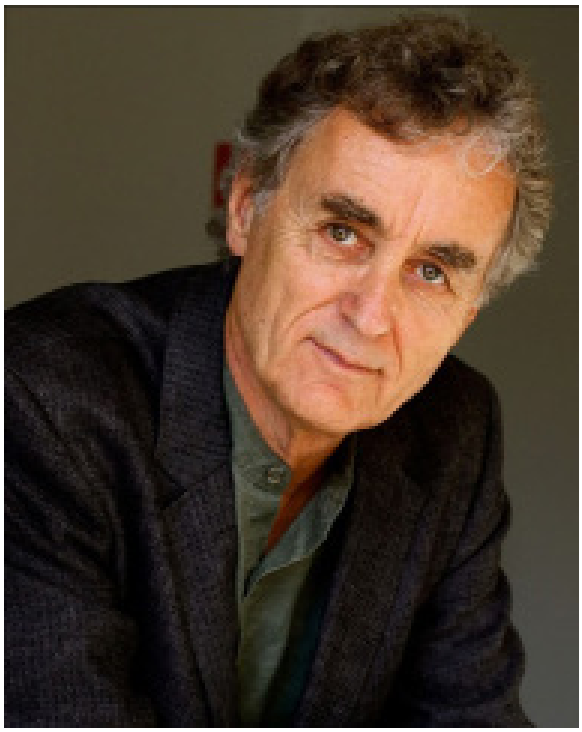


Insight may have been responsible for much more than this, but the process is so little

understood, and so beyond the domain of logic, that it is regarded as no more than a fluke by conventional thinkers. When new ideas are discussed, their origin is regarded as less important than the working out and the practical application which must necessarily follow the arrival of the idea.

An insight is a sudden thought, seemingly coming from nowhere, the arrival of which instantly provides the solution to a problem. When an insightful thought occurs, we suddenly see what previously we did not even imagine before, and often gasp in astonishment. The physicist, Fritjof Capra, who was inspired to write *The Tao of Physics* (1975) after his own experience of insight, had the following to say about the emotional element connected with it:

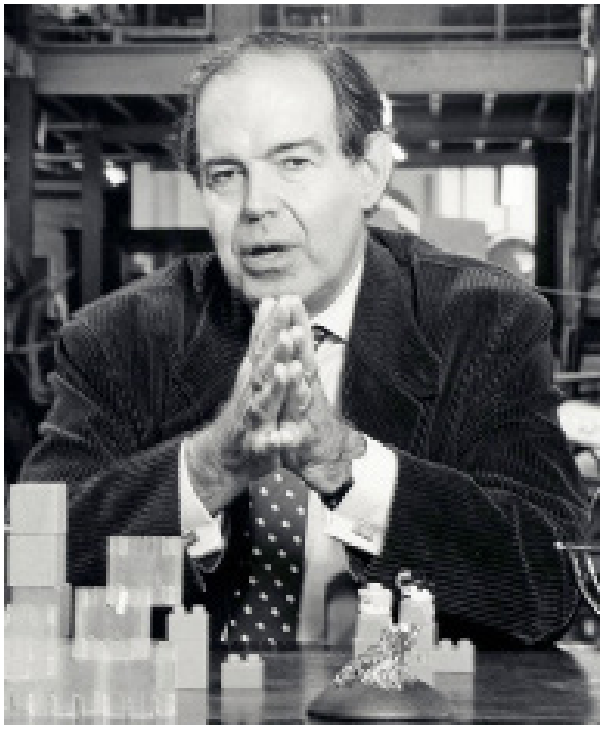
'I remember the first such experience. Coming, as it did, after years of detailed analytical thinking, it was so overwhelming that I burst into tears...'



Fritjof Capra, photo Zenobia Barlow, 2010

Those who have experienced such insights have testified both to its emotional element and to its inexpressibility in everyday language. For this reason, analogies are often employed to describe the experience. The most common form is that of a lightbulb suddenly being switched on in a darkened room. The light comes on, and for an instant we see the whole of the room. This is not unlike the punchline to a joke. Capra makes this very point:

'Another well known example of spontaneous intuitive insights are jokes. In the split second where you understand a joke you experience a moment of 'enlightenment'.



Edward de Bono, 1994

The relationship between humour and insight is highly instructive. Most humour is based on a hidden punchline, which is kept from the audience until at the last moment it is revealed and the audience laughs. Edward de Bono, who coined the term 'lateral thinking' to provide an alternative to the linear thinking of logic, pointed to the same association in his book *The Mechanism of Mind* (1969):

'In humour there is a sudden switch over from one way of looking at things to another. This is exactly similar to the insight process. Both processes indicate the type of system that must be operating.'

From the point of view of an information system, the context determines the meaning. The meaning of a word, for example, is determined by the context in which it is used; so Cinderella kicked the ball and a Nun kicked the habit. In order to see something from a different point of view, we have to change the context. When we do, we see the same thing, but from a different perspective.

Insight is only possible because we see the world from a limited point of view. If we saw the world completely, rather than from a one-sided

perspective, we could not have an insight into anything. While we might assume that more information will solve a problem, the limitations are often in the way we see the world. The highly insightful Johann Goethe pointed to this element in the search for knowledge.

'The thoughtful and honest observer is always learning more and more of his limitations; he sees that the further knowledge spreads, the more numerous are the problems that make their appearance.'

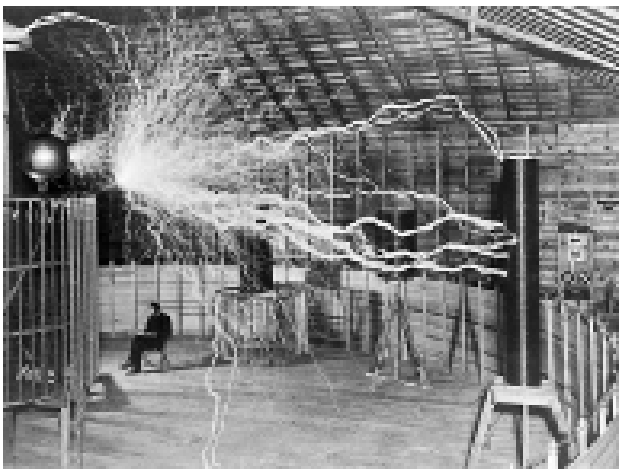
It follows that, in order to gain insight into what is hidden, we must be willing to regard our present view of the world as provisional rather than as truth itself. This admission is considered dangerous, because it means that any claim to truth is relative. This was the charge levelled against Thomas Kuhn (1922 – 1996), who pointed out the influence of peer pressure on scientific research in his book *The Structure of Scientific Revolutions*:

'One consequence of the position just outlined has particularly bothered a number of my critics. They find my viewpoint relativistic, particularly as it is developed in the last section of this book. My remarks about translation highlight the reasons for the charge. The proponents of different theories are like the members of different language-culture communities. Recognizing the parallelism suggests that in some sense both groups may be right.'

The insight phenomenon, and its influence on the development of scientific thought, is all the evidence we need that our perception is limited. Insight occurs when the limitations of our present outlook are transcended, and to do this, we have to be prepared to question what we regard as truth. Rene Descartes (1596 - 1650), who is regarded as the founder of modern philosophy, was of much of the same opinion:

'If you would be a real seeker after truth, it is necessary that at least once in your life you doubt, as far as possible, all things.'

Whereas logic demands precise definitions and the exclusion of any form of contradiction, insight requires open-mindedness and the willingness to consider multiple perspectives. Logic is based on the precision of grammar, but insight is like a picture image, where the solution arrives as a complete whole.



Tesla's Colarado laboratory, c. 1900

A science governed by logic is not unlike the approach taken by Thomas Edison who said 'Genius is one percent inspiration and ninety-nine percent perspiration'. Contrast this with the approach of his one-time employee, Nikola Tesla. In an interview with M. K. Wisehart, in *The American Magazine* (April 1921) titled *Making Your Imagination Work for You*, Tesla said he had practised visualisation techniques even as a young boy.

'To my delight, I found I could visualize with the greatest facility. I needed no models, drawings, or experiments. I could picture them all in my mind.'

If we adopt a suitably open-minded attitude to new ideas, and regard what we do not know and cannot see as of greater importance than our existing knowledge, we may find ourselves in receipt of insight. A single insight can change all that we thought we knew and understood, including what we regard as 'truth'.

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