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Provisional

The Cosmic Dance

Finding patterns and pathways in a
chaotic universe

Stephen Ellcock

A visual journey from the minute to the infinite,
exploring the relationships and harmonies between all
parts of the universe and inspiring personal
contemplation regarding our own place within it.

300 illustrations

23 x 16.5cm

256pp

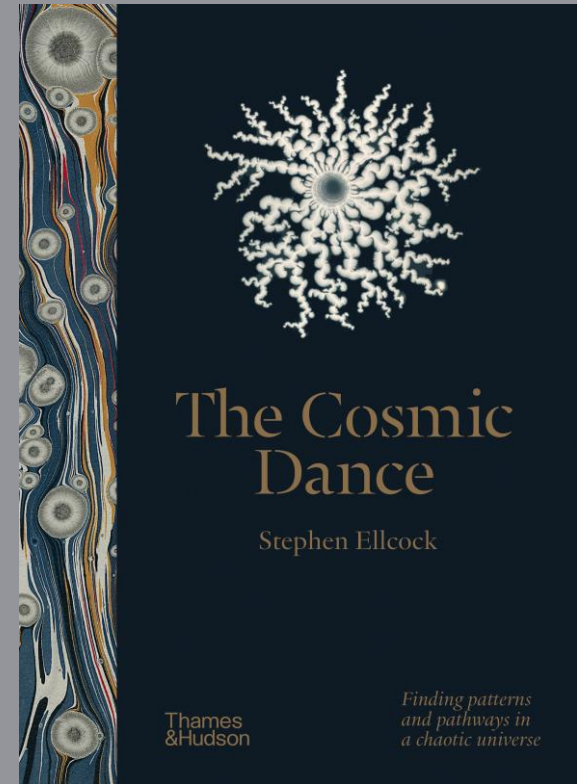
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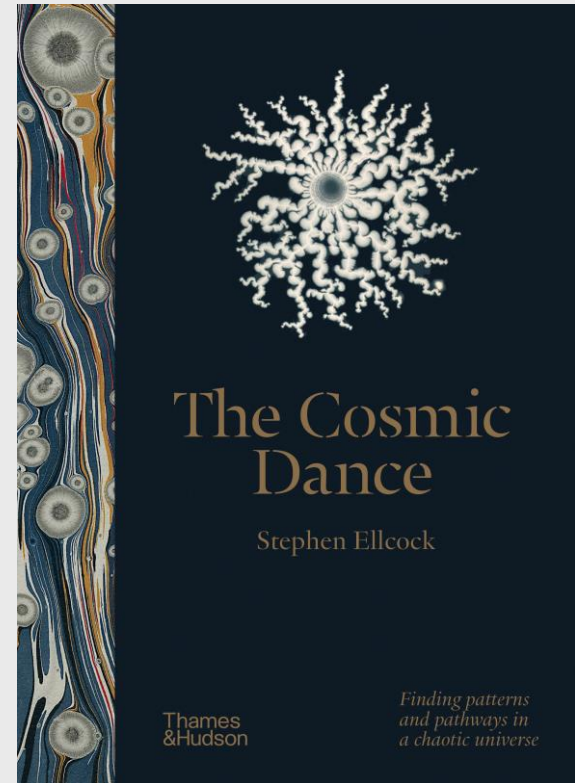
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Book

Provisional

Key Sales Points

- Images curated by Stephen Ellcock, who has an online fanbase of 390,000 followers and whose first book *All Good Things* was an immediate success.
- Presents rarely reproduced images drawn from 3,000 years of artistic and scientific enquiry and the metaphysical, spiritual, philosophical and religious traditions that have inspired our attempts to comprehend the cosmos.
- For people searching for meaning and fulfilment in a chaotic world, this visual anthology encourages personal reflection and presents a cultural history of ideas to help understand our place in the universe.

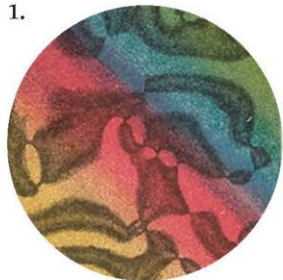


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Primordial chaos. Creation. Harmony and Order. The Elements. Anima Mundi. The universe as a hierarchically organized organism. Light. Revelation. The Origins of Life. The Tree of Life. Hermeticism. Neoplatonism. Alchemy and the Great Work. Rosicrucianism. Ouroboros. Daoism. Zoroastrian cosmogony. Japanese Enso. Mandalas.



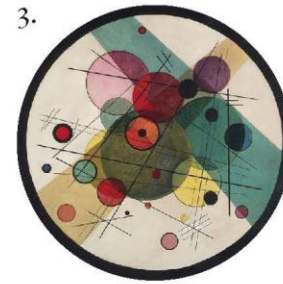
1. The Infinitesimal Universe²⁰

The Subatomic World. Diatoms. Ernst Haeckel Crystallography. Microscopic Particles. Micrographia. Particle Physics. Quantum Theory. Radiation. Photomicrography. Lichtenberg Figures. The Properties of Matter. Corresponding Planes. Nanotechnology. The Mineral World: Geology, Palaeontology, Rocks and Minerals. The Vegetable Kingdom: Botany. The Insect World.



2. God in Miniature⁶⁴

Man as Microcosm. Man as a Mirror of Being. The Inner Cathedral. The Four Humours. Anatomy and Physiology. Zodiac Man. Man as a Microcosm of Spirituality and Materiality. The Unity of Mankind and the Natural Order. The Body Politic. Leviathan. The Human Body as a Miniature Universe Animated by its Soul.



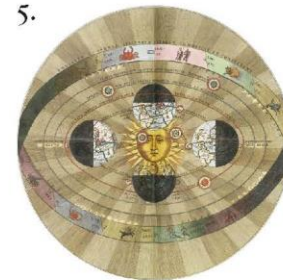
3. Divine Proportions¹⁰²

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4. In Search of Nirvana¹⁴⁶

The Living Earth. Forces of Creation and Destruction. Alchemy. The Oceans and Rivers as the Source of Life. Gaia. The Properties of Beasts, Bestiaries, the Hierarchy of Beasts. Visions of Eden, Earthly Paradise, the Diorama of Life. Angels and Demons, Gods and Goddesses, Immortals, Divine Beings, Divine Revelations, Heavenly Messengers. Supernatural Beings. Enlightened Souls. Fallen Angels. Powers of Darkness. Spiritual Void.



5. And So On To Infinity¹⁹⁸

The Macrocosmos. Metaphysics. Signs and Wonders. Mapping the Universe. Exploring the Cosmos. The Runaway Universe. The Celestial Wheel. Horoscopes. Terrestrial and Sidereal Calendars. Measuring Time. Models of Infinity. Visions of Eternity. Heaven, Hell and the Afterlife. Cosmology. Celestial Mapping. Interstellar Exploration. Perpetual Motion. Infinite Loops.

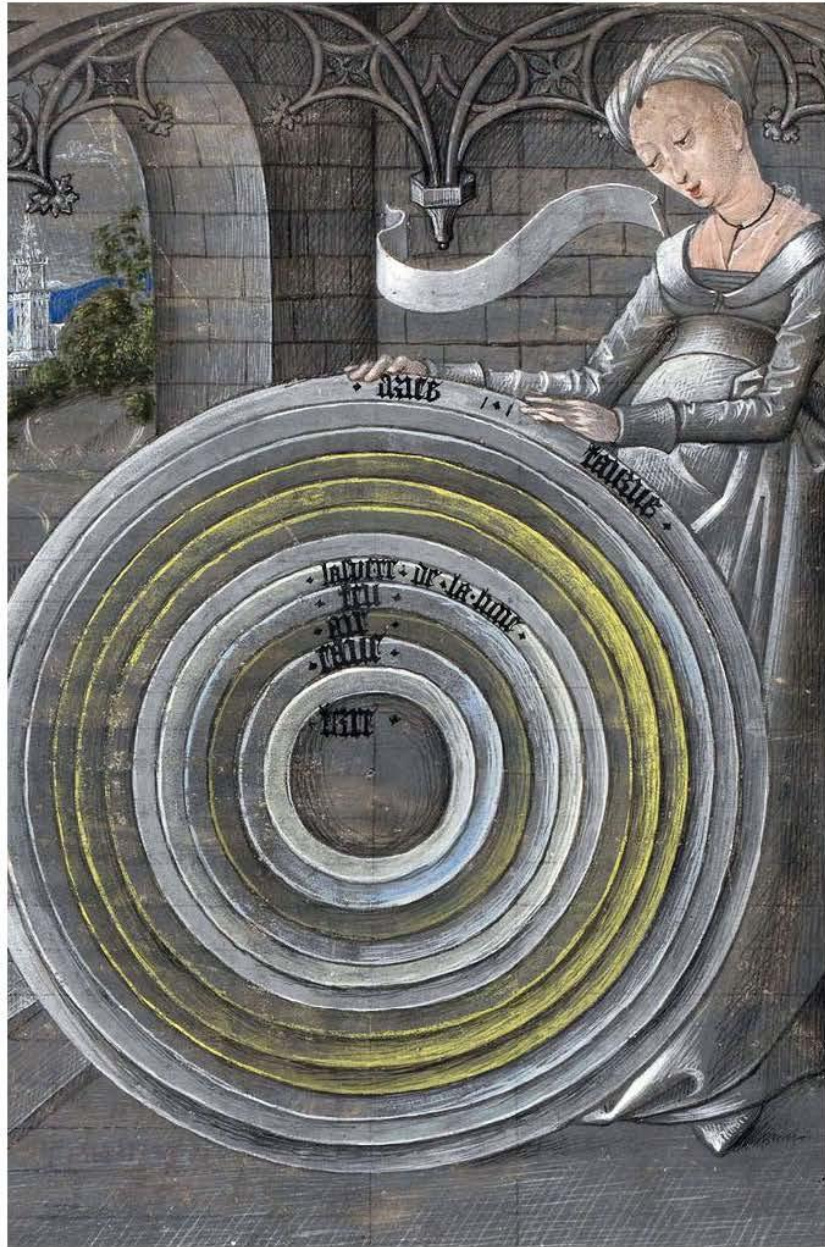


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Introduction— As Above, So Below

*By looking down,
I see upward.
By looking up,
I see downward*

○ *Philosophy holding the
spheres from De civitate
Dei, 15th century*

△ *Tycho Brahe, 1574*

○
Alchemical beast from Zoroaster, *Clavis Artis*,
late 17th or early 18th century

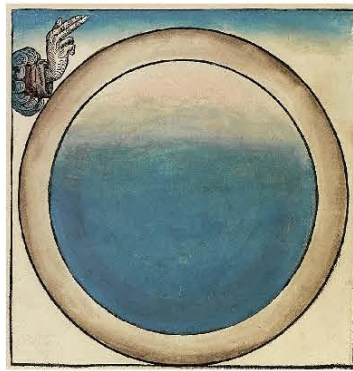
IT IS IN THE *Emerald Tablet*, a cryptic hermetic text dated to between c. 200 and 800 CE, attributed to the legendary Egyptian-Hellenistic figure Hermes Trismegistus, that the phrase ‘as above, so below’ derives. A translation of a later Latin version of the text gives the entire line as: ‘That which is above is like to that which is below, and that which is below is like to that which is above, to accomplish the miracles of one thing.’ The Magician card in the tarot deck is thought to represent this concept. In the West, during the medieval and Renaissance periods, it was thought that the *Emerald Tablet* was a summary of alchemical principles, containing instructions for turning base metals into gold and the secret of immortality. By the 16th century, however, the text was being interpreted by many, including occultist and alchemist John Dee (1527–1608/9), along more metaphysical lines with the ‘one thing’ being associated with the Platonic idea



△
First Day of Creation from Hartmann Schedel,
Nuremberg Chronicle, 1493

of *anima mundi* (world soul) in which the world is viewed as a single living entity containing all other living entities and that all living things are connected.

Since the ancient civilizations of Mesopotamia and Egypt, humankind has sought to comprehend how the universe came into being and to divine patterns and order within it. We have striven to understand the nature of humanity and our place in the universe. We have searched for correspondences between the heavens and the Earth and between nature and the human body. And we have taken part in secret rituals in the hope of discovering the secrets of the universe, achieving spiritual enlightenment and immortality. The Ancient Egyptian *ouroboros* symbol, depicting a snake or dragon coiling to eat its own tail, originally represented the cycle of life, death and rebirth, with the snake’s process of shedding skin symbolizing the transmigration of souls. For the Gnostics, the

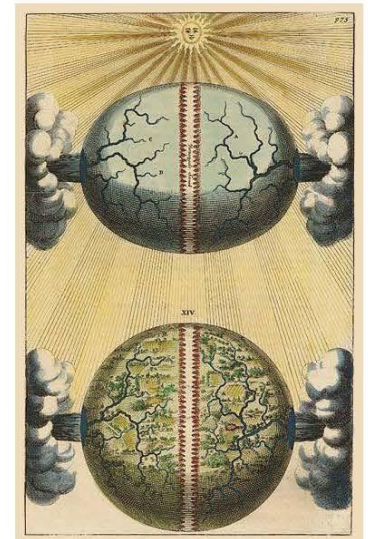


ouroboros symbolized eternity and the soul of the world. The symbol appears in the work of Cleopatra the Alchemist (3rd century CE), with the words ‘the all is one’ inscribed in the centre. She is one of only four female alchemists said to have been able to create the philosopher’s stone, a mythical substance – also known as the elixir of life – that was thought capable of turning base metals into gold and enabling rejuvenation or immortality.

Did God create the universe out of nothing – *ex nihilo* – or out of chaos? Or did the universe emerge from a cosmic egg, split open by the tumultuous movement of the warring substances within to create heaven and Earth? Were heaven and Earth formed by forcible separation of the primordial sky father, Rangi, and Earth mother, Papa, bringing light to the world, as related in Māori mythology? Every culture has a creation myth to explain how the universe came into being. In Shaivism, a tradition within Hinduism, Shiva (sometimes represented as the cosmic dancer *Nataraja*) is the supreme god, and brought the universe into being with a creation dance. He is usually depicted dancing within a circle of flames, which symbolizes his power to destroy the universe at will with a dissolution dance. Shiva’s *vahana*, or animal vehicle on Earth, is the bull Nandi, representing strength and virility.

According to the Vedic texts (c. 1300–900 BCE) at the foundation of Hindu belief, the spirit of the divine being exists in all living things, and the self in every human being is the same as that in the supreme being. In ancient Greece, Plato (428–348 BCE) and the later neoplatonist philosophers (‘lovers of wisdom’) attempted to define the relationship of human beings to the universe with the concept of

□
Creation of the Earth from Wilhelm and Jan Goeree,
De Schepping der Wereldt Volgens de Beschryving van Mozes (The Creation of the World according to Moses), 1690



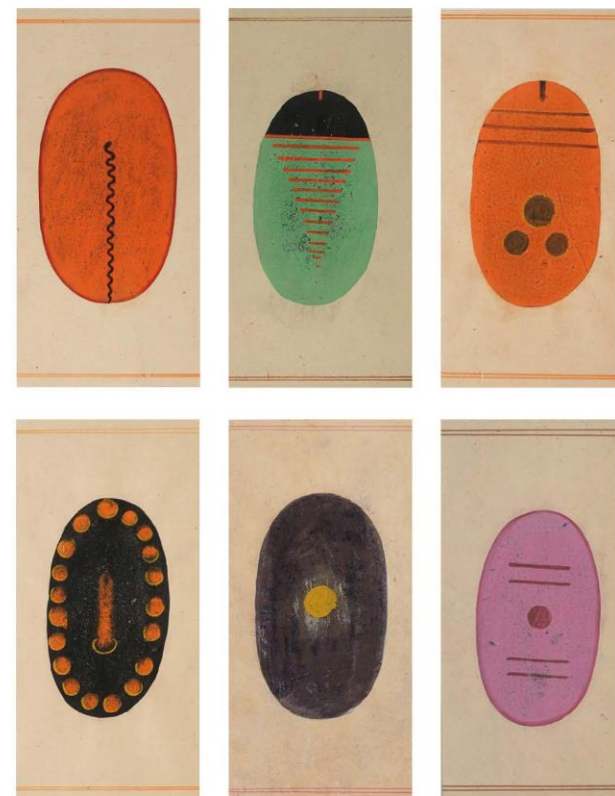
microcosm and macrocosm. They viewed the individual human being as a little world (*mikros kosmos*), the composition and structure of which corresponded to that of the universe, or great world (*makros kosmos*). The original meaning of *kosmos* was ‘order’ and implied a harmonious and aesthetically beautiful arrangement of parts in any organic system.

The concept of microcosmic and macrocosmic worlds is founded upon the idea that there is a universal similarity of pattern or structure from the largest scale to the smallest. Every living thing is a miniature, discrete world complete in itself, whose composition and structure corresponds to that

THE COSMIC EGG, or world egg, features in the creation stories of many Indo-European cultures. The idea first appeared in Sanskrit scriptures, where it is known as *Brahmanda*, a conflation of 'creator god' and 'egg'. In this version, the universe hatches from the egg, breaking into two to form the heavens and the Earth. In Chinese mythology, the universe and the deity Pangu both form within a cosmic egg, which Pangu breaks open, separating yin from yang and creating the heavens and the Earth. In the Ancient Greek Orphic tradition, the hermaphroditic deity Phanes hatches out of the egg and immediately creates other gods.



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Cosmic egg, abstract Tantric painting from Rajasthan, India, 17th century

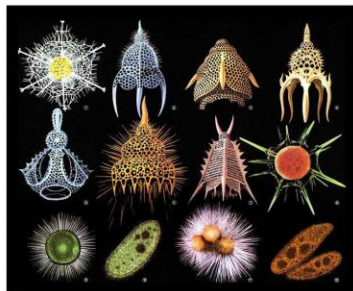
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Series of Brahmandas, or cosmic eggs, attributed to Indian artist Kalu Ram, 1990–2000

□
*Tus perum venduci liquunt dest expliquid qui
volore, as archit quos aut volenis tiumque cor sapisimin*
1856

It was not until the invention of the microscope that natural scientists could begin to study in detail the anatomy of plants or the design of living organisms, firstly at cellular and later at molecular level. From the 17th to the 19th centuries their beautiful and forensically detailed drawings of algae, insects, plants and animals, as seen through lenses of ever greater magnifying power, improved humanity's understanding of the marvellous and complex structures of the plant, animal and mineral kingdoms, and later informed the germ theory of disease and epidemiology. Observing natural materials under the microscope – from diatoms to butterfly wings and from capillaries to snowflakes – revealed intricate and beautiful patterns and forms that influenced the work of artists as well as scientists.

It was in London in 1621 that Dutch inventor Cornelis Drebbel (1572–1633) publicly presented a compound microscope with a convex objective lens and a convex eyepiece. Galileo Galilei (1564–1642) saw and improved on this design and in 1624 presented his *occhiolino* ('little eye') to Prince Federico Cesi (1585–1630), founder of the *Accademia dei Lincei* in Rome. Secretary to the academy, Giovanni Faber, dubbed it a 'microscope', derived from the Greek *micron*, meaning 'small', and *skopein*, meaning 'to look at'. The following year Francesco Stelluti (1577–1652) and Federico Cesi published the broadsheet *Apiarium*. The first publication to include observations made with a microscope, it contained drawings of the anatomy of a bee as seen through a microscope at 10 times magnification, alongside descriptions of varieties of bees.

Formed in 1660, The Royal Society appointed polymath Robert Hooke (1635–1703) Curator of Experiments in 1663. Two years later it published Hooke's influential *Micrographia* – the first book to include drawings of insects and plants as seen through microscopes. Hooke created his meticulously detailed drawings from multiple observations of similar specimens at different angles, using lenses of different strengths. He was the first to use the term 'cell' in a biological sense and observed that plant cells were walled like the cells of a honeycomb. The Royal Society went on to publish biologist and physician Marcello Malpighi's (1628–1694) works depicting specimens as seen through a microscope in 1675 and 1679. Malpighi was the first to see the capillary structures in a frog's lungs and to notice the small holes, or tracheae, in the skin of invertebrates through which they breathe, and he was one of the earliest to observe red blood cells. A talented artist, he made exquisite and detailed drawings of the individual organs of flowers – the first to do so – and investigated the lifecycle of plants



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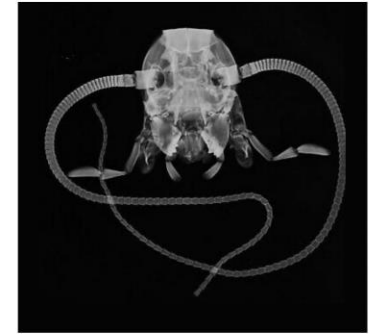
and animals. The 'Father of Microbiology' Antonie van Leeuwenhoek (1632–1723) was the first to observe microbes through single-lensed microscopes of his own design and making, capable of magnification up to 275 times. In letters to The Royal Society in 1676 he described and depicted unicellular organisms, including bacteria and protozoa.

Zoologist and naturalist Ernst Haeckel made more than 100 detailed colour illustrations of animals and sea creatures – many first described by Haeckel himself – which were published in *Kunstformen der Natur* between 1899 and 1904. In the display of the individual specimens on each plate Haeckel attempted to convey the symmetry inherent in the different species to reflect his belief in the theory of the evolutionary development of non-random form. Scottish biologist and mathematician, D'Arcy Wentworth Thompson (1860–1948), was also a believer in symmetry and pattern in the forms of animals and plants. In his 1917 work *On Growth and Form*, he argued that the form and structure of living organisms were determined by physical laws and mechanics.

Physicist and musician Ernst Chladni (1756–1827) was the first to demonstrate that the vibrations caused by sound create distinct patterns, depending on the frequency of the sound waves produced. He covered a piece of metal with sand and drew the bow of a violin over it. The sand settled along nodal lines where the surface was still, creating a simple vibration pattern, now known as a Chladni figure. His findings were published in his book *Entdeckungen über die Theorie des Klanges* (1787).

The development of photography in the second half of the 19th century provided

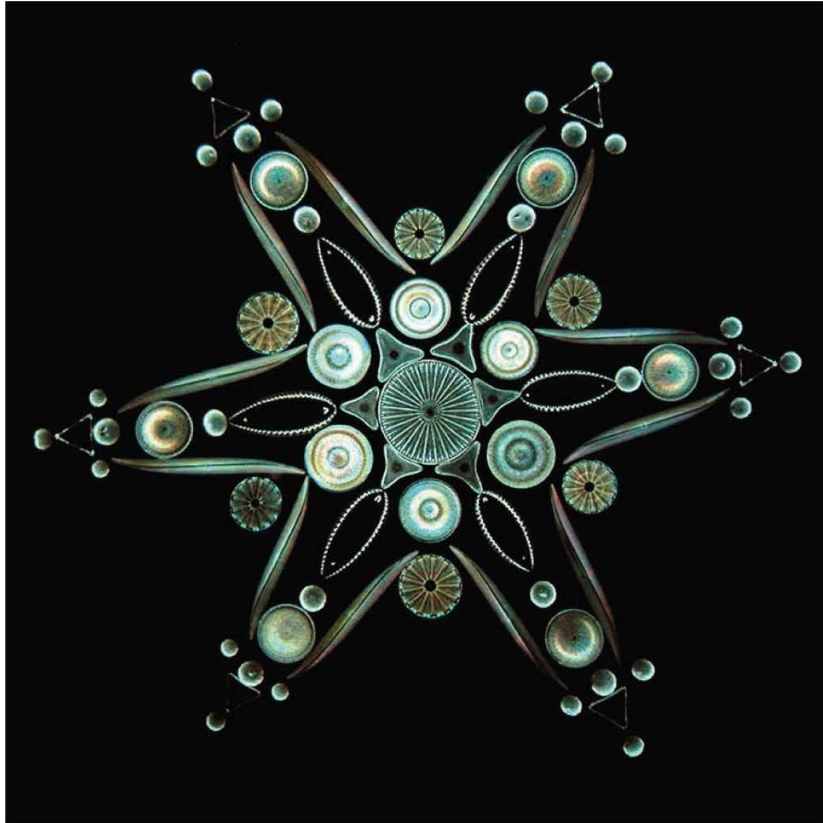
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*Tus perum venduci liquunt dest expliquid qui
volore, as archit quos aut volenis tiumque cor sapisimin*
1856



△

scientists and artists with new ways of capturing and presenting the natural world. In 1885 meteorologist Wilson Bentley (1865–1931) combined a compound microscope with a bellows camera to photograph snowflakes one by one in sub-zero temperatures in Vermont. Transferring each from a blackboard to a microscopic slide, he captured more than 5,000 images of snow crystals in his lifetime, describing them as 'ice flowers'. Astronomer Étienne Léopold Trouvelot (1827–1895) married art and science through his exposure of brief bursts of electrical energy to photosensitive plates to create spontaneous abstract images, resembling branching coils, coral or neurons, each fixed permanently in a unique Trouvelot figure. Similar branching patterns, known as Lichtenberg figures, can be made by discharging high voltage electricity onto the surface of an insulator and then sprinkling a coloured powder over it, which adheres to the stranded areas of charge, revealing delicate radial patterns.

DIATOMS can be found in many cultural traditions, including ancient Egyptian and Greek, Hinduism and the occult. It may represent the trinity within humanity of mind, body and spirit (or soul), or the ideas of creation, preservation and destruction. It may be understood as a doorway to spiritual understanding. The macrocosm of the universe is often depicted with concentric circles representing spiritual worlds with the Earth at the centre.



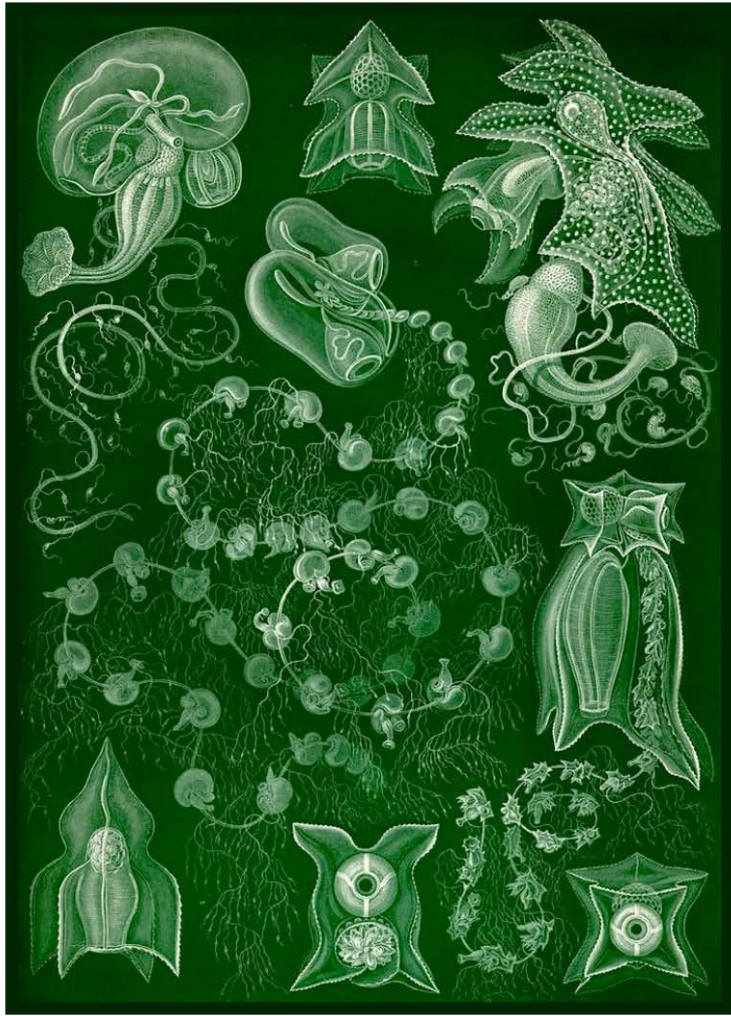
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Microscopic Diatoms by British biologist
Klaus Kemp, 21st century

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Cat's Eye or Tiger pattern Marbled Paper
by Marcel Duval, 1977

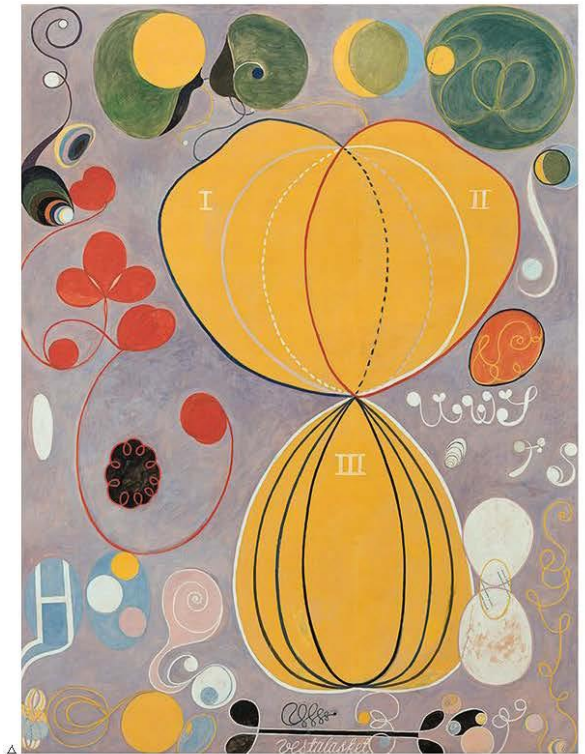


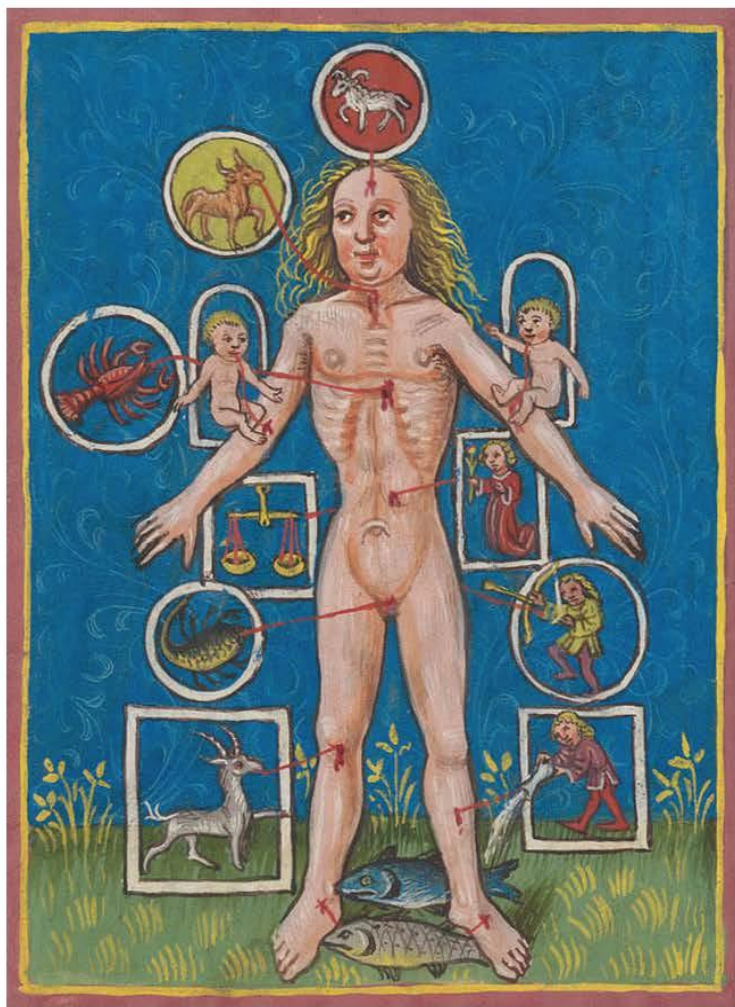
○ Radiolaria from Alfred Frédo, *Le monde de la mer (The World of the Sea)*, 1866

△ Stephoidiæ from *Kunstformen der Natur (Art Forms of Nature)* by Ernst Haeckel, 1904

'We cannot fathom the marvellous complexity of an organic being.... Each living creature must be looked at as a microcosm – a little universe, formed of a host of self-propagating organisms, inconceivably minute and as numerous as the stars in heaven.'

Charles Darwin (1809–82)





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Radiokritia from Alfred Prédol,
Le monde de la mer (*The World
of the Sea*), 1866

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Stephoidiae from *Kunstformen der Natur*
(*Art Forms of Nature*) by Ernst Haeckel,
1904



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○
 Cross-section of stem of Dicotyledon plant
 from Frederik Elfvig, *Anatomia Vegetal*
 (*Vegetal Anatomy*), 1929

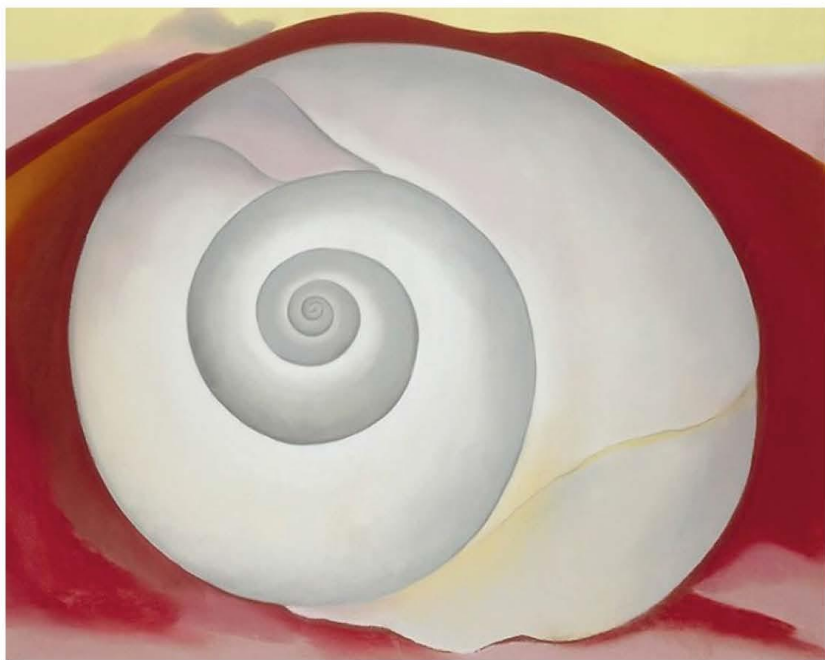
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 Cross-section of a plant from Nehemiah
 Grew, *Anatomy of Plants*, 1680s

*'There is nothing you can
 see that is not a flower;
 there is nothing you can
 think that is not the Moon.'*

Matsuo Bashō (1644–94)
 (trans: Reginald Horace Blyth)



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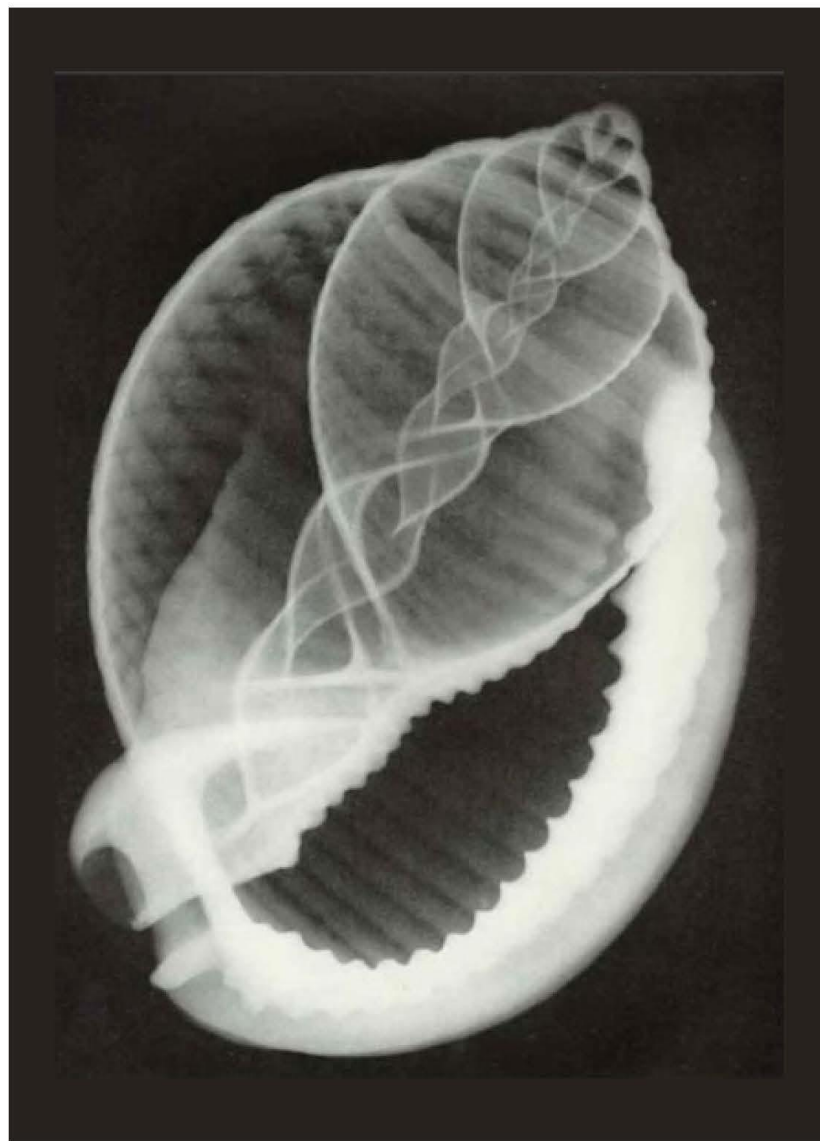
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*'Each simple substance
is a perpetual, living
mirror of the universe.'*

Gottfried Wilhelm Leibniz
(1646–1716) in *Monadology*, 1714

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White Shell with Red by
Georgia O'Keeffe, 1938

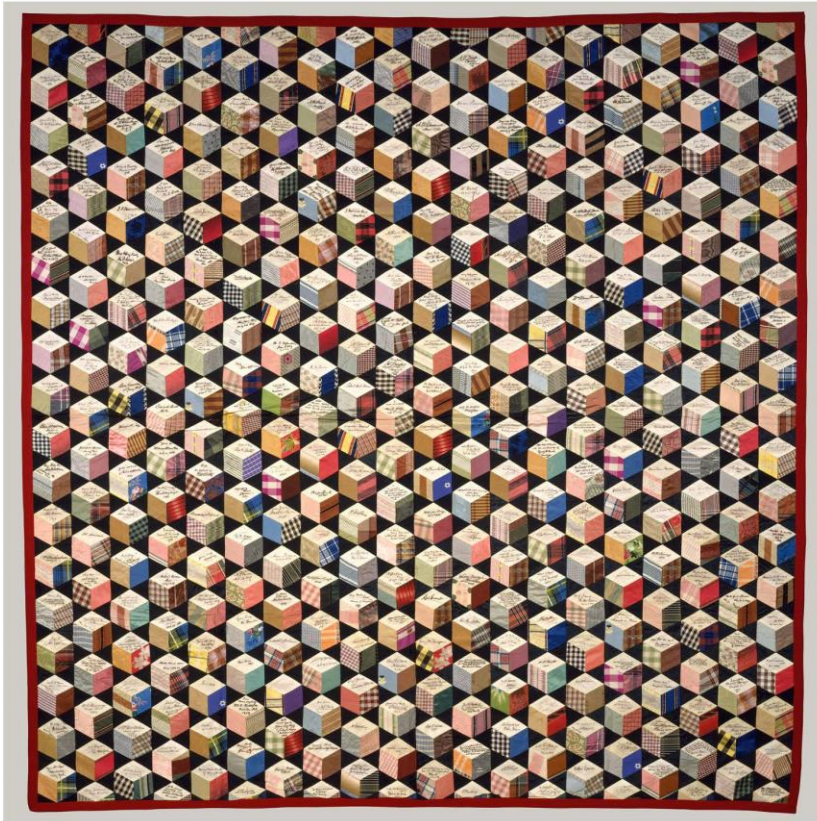
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X-Ray of a Shell from
National Geographic, 1955



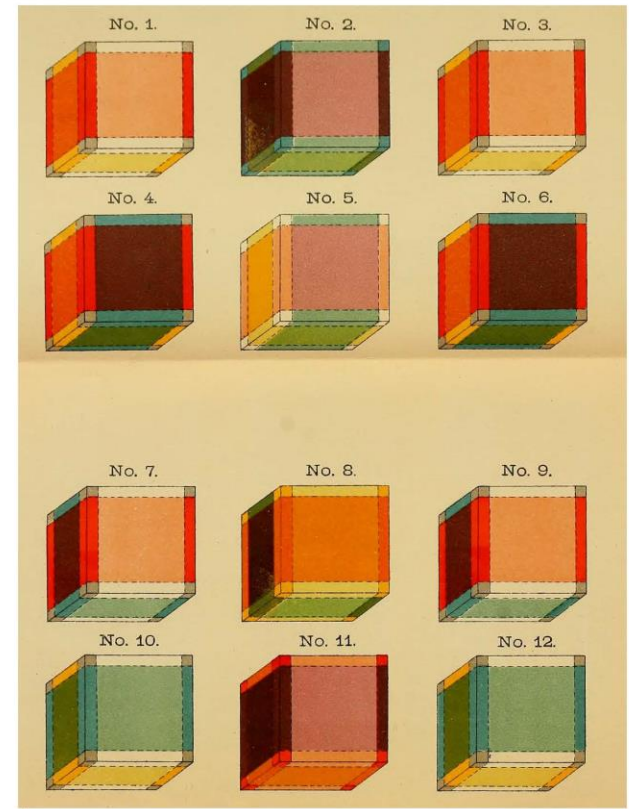
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'I love the simplicity of the cube because it's a very clear geometrical shape, and I love geometry because it's the study of how the whole universe is structured.'

Erno Rubik (b. 1944)



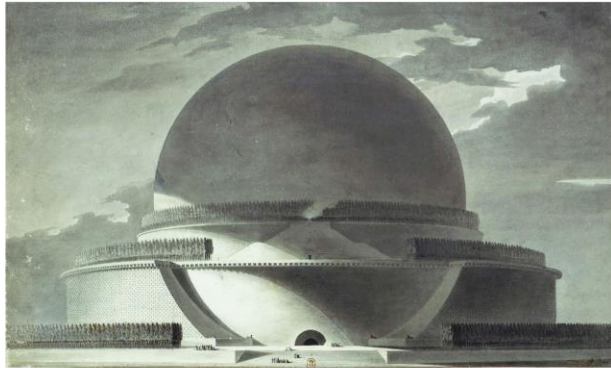
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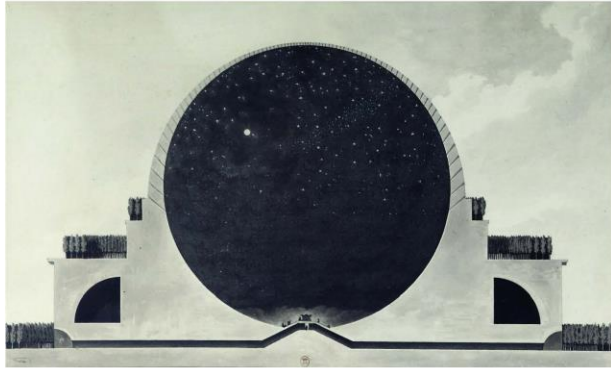
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○
Quilt, Tumbling blocks with Signatures
 Pattern by Adeline Harris Sears,
 begun in 1856

△
Dome of the Hall of Ambassadors
 of the Real Alcázar, Seville



○△
*Design for a Cenotaph
 for Sir Isaac Newton*
 by Étienne-Louis
 Boullée, 1784



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△

NEOCLASSICAL ARCHITECT ÉTIENNE-LOUIS BOULLÉE held that the most beautiful and perfect natural body is the sphere. With his design for a cenotaph for scientist Isaac Newton 50 years after his death, he proposed a massive spherical building 150 m (500 ft) tall, encompassed by two large barriers, encircled by cypress trees. The small sarcophagus is at the base of the sphere. The design is intended to create the effect of day and night. When sunlight penetrates holes in the vaulting, it gives the illusion of stars in the night sky. The day effect is made by an armillary sphere hanging in the centre that emanates a mysterious glow.