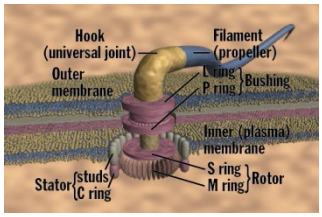
Over the past 100 years, civilisation has changed radically through the application of light. In homes and in industry, in science, technology and medicine, light is being focused, transmuted and radiated and it shows no sign of abating. Despite all the obstacles, the world is slowly integrating through the means of telecommunication systems and computer networking based on fibre optics – optical strands made of flexible transparent extruded glass (silica) or plastic, slightly thicker than human hair that transmit information through light. Optic cables can also deliver an electric current for low-power electric devices. Who would have thought just fifty years ago, that we would now be living in a world where communication is so fast and easy and we would have the Internet where the press of a few keys gives access to the vast pool of human knowledge – the world mind. So what might the next fifty to a hundred years bring, and beyond that? Where might light based technologies lead us next?

I think we're all aware that humanity is now at crisis point but any crisis point can also be a turning point – an opportunity for self-examination and positive change.

Future Light: The Vision of an Integrated World Society

In the distant past Aristotle said, **"technology imitates nature".** And in today's world, the truth of his remark still rings true. Without entering into the philosophy of this, we can consider some striking examples of current technical advances that illustrate this relationship and indicate how the future technologies may unfold.

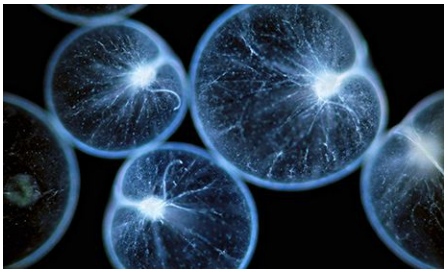


Although this isn't a light based example, this electric motor is a remarkable example of technology imitating nature. It illustrates the mechanism used by most bacteria to swim. Bacteria have the three essential components of the perfect electric motor – a means of creating torque in either direction, a hook which acts as a universal joint to transmit torque, and a long filament which acts as a propeller. The fuel comes from the flow of ions across their outer cell membranes, and if the motor were as big as a can of coke – it could propel a super tanker.

Another clever imitator is the computer's silicon chip. This is a crystal semiconductor with gates and channels that mimic a cell membrane. Researchers have actually turned a biological cell membrane into a digital-readout computer chip.

In the realm of light, we have a special plastic film which has been modelled on the complex microstructures found in the eyes of moths. Their eyes have evolved to collect as much light as possible without reflection and by applying this type of construction to plastic film, it has been possible to create computer and mobile phone screens with reduced reflections and improved readability along with less power needed to illuminate the screens.

IMAGE 2.

Bioluminescence: Deep sea creatures shed light on the future of medical imaging. Bioluminescent organisms can help doctors design better ways to scan human organs and make better diagnoses.

IMAGE 3

One such creature – the Venus flower basket, a deep sea sponge, has spiny skeletal outgrowths that are similar in appearance and optical properties to optical fibres on which the communication and information age is based. In fact they're better.

Brittlestars are related to starfish and sea urchins. Their skeletons contain thousands of tiny lenses that collectively form a single eye. They are connected via a network of fluid filled channels that contain a light absorbing pigment. The creature can vary the contrast of the lenses by controlling this fluid, and the same idea can be applied in man-made lenses and other micro-optical systems.

These are only a few examples amongst thousands of technical innovations that illustrate the creative genius of imitating nature. The amazing successes in this area indicate that technological innovators are likely to continue to draw on nature for their ideas. One area that will surely prove an endless source of future inspiration is that of the human brain and consciousness itself. Even now we are seeing explorations and developments in this field.

IMAGE 4

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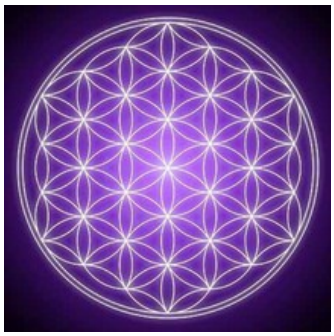


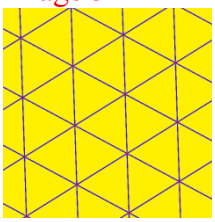
Research is starting to reveal that the brain and consciousness work through a hierarchy of hexagonal patterns much like the flower of life in sacred geometry. The flower of Life known to ancient religions and philosophies, especially India and Egypt, is composed of evenly-spaced, overlapping circles arranged to form a flower-like pattern. From the centre of each flower emanates six petals representing the six building forces in nature – each extending to the perimeter of the circle that encloses them – the synthesising "all force". The centre of each flower is on the circumference of six others depicting perfect form, proportion and harmony. The Flower of Life represents the fundamental generative forces in time and space working out as right relationships between all

things. The Ageless Wisdom teachings are in harmony with this too – that there are six Forces in Nature…and the seventh – the all-Force, or the absolute Force, which is the synthesis of all. HPB

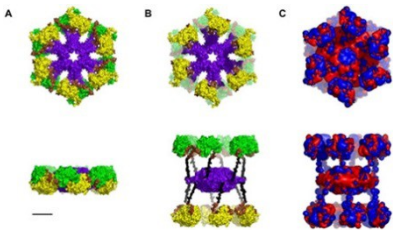
IMAGE 4

We see examples of this six-fold building force in the snowflake and in quartz, the mineral composition of the stones in the Giant's Causeway. There's also a hexagon at the North Pole of Saturn that continues to mystify astrophysicists. And now new research is revealing that there is a fourth state of water at hydrophilic surfaces where sheets of hexagons form a semi-conducting crystal. This means that every strand of DNA in the body is surrounded by sheets of hexagonal water.

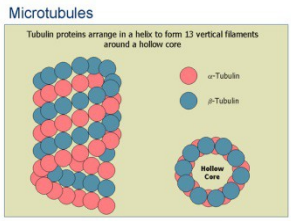
Image 5

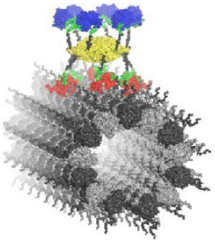


Discoveries in neuroscience indicate that both the construction of the brain and consciousness itself are based on a hierarchy of hexagonal patterns. The first of these is in the part of the brain that is responsible for memory and navigation, the entorhinal cortex. When a graph is plotted of the way these neurons fire in laboratory animals as they move about the place, it is seen that they are synchronised into hexagonal patterns. Animals and human beings have a hexagonal spatial representation of the surrounding environment. Now going right down into the smallest parts of the brain, there's a little machine and many of these are found in the smallest part of every brain cell. This is the Calcium Calmodulin complex which is involved in many signalling cascades and is thought to be an important mediator of learning and memory.

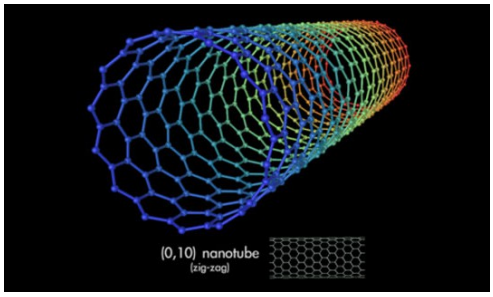


These biological catalysts (known as CaMKII) are hollow double hexagons. To the esotericist, it is their hollow nature that is interesting as this always signals a crossover zone between the inner and outer planes – the hexagonal vortices that each of these proteins frames is likely to hold the secret of information transfer between consciousness and the physical brain. Researchers have shown that these little proteins have an electrostatic affinity with the structure of the brain cells. These structures are known as microtubules - cylindrical in shape with a hexagonal lattice on their surface.





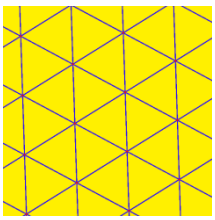
This hexagonal surface is perfectly suited to the flurries of tiny snow-flake shaped enzymes. When these enzymes land upon the microtubule surface, they extend six legs like tiny landing craft, each foot acting like a 'bit' of information – the six bits making one 'byte'. Through this interaction, dynamic patterns are formed on the hexagonal lattice of the microtubules and some researchers think that this controls and orchestrates neural firing patterns in the brain.



Carbon can be made particularly responsive to this six-fold force in the ethers simply because it's the basis of form life. Carbon nanotubes are based on the hexagonal structure of graphite and have the highest strength to weight ratio of any known material, with remarkable electronic properties and many other unique characteristics. On top of this there is the recent discovery that carbon can be made magnetic. One researcher from the Stanford Synchrotron Radiation Laboratory said, "With carbon, we know how to make things very small. On the other hand we know a lot about how to process and store information using magnetism. This opens up the door for future studies that will lead to improved magnetism in carbon that could one day mean that we will be able to combine the 'magnetic' and the 'carbon' world."[3]

Electroluminescence is making materials emit light by passing an electric current through them or subjecting them to a strong electric field. This is distinct from incandescence which is black body light emission resulting from heat. Already material scientists at Wake Forest University in North Carolina have used this technique with conductive polymers doped with carbon nanotubes. This electroluminescence has enabled them to develop normal sized plastic light bulbs that are cheap bright shatterproof, flicker-free, and seem to last forever. On-par with LED bulbs efficiency wise, they produce a colour and quality of light that "can match the solar spectrum perfectly."

Conclusion



Carbon nanotechnology is developing rapidly now and we can expect that it will take off in a big way in the coming decades – eventually leading to the lighting of the world through electroluminescence. It's very significant even if just symbolically that matter of the physical plane is starting to be constructed into patterns of hexagons to transmit electricity, magnetism and

light. Humanity is starting to work with these forces in an intelligent manner and this ordered, patterned electrification of the physical plane will cause a reflex action in the ethers. The physical plane and the etheric levels will be able to resonate together, functioning in harmony with the Flower of Life providing the regenerative forces of nature and consciousness in a manner that will open up the inner dimensions of life.

Triangles

Perhaps the most significant thing of all is that a hexagon is fundamentally comprised of triangles and in the Alice Bailey teachings we read that the intersecting energies in the etheric body of the planet are evolving from a network of squares into a network of triangles. It's impossible to picture this network of triangles and, at the same time, see them taking the circular form in their totality of the etheric body of the planetary sphere. The reason is that the whole etheric body is in constant motion and ceaseless transformation, and the energies of which it is composed are in a state of constant change and circulation.

In the etheric body of the human being you have a repetition of the same process. From the angle of higher planes of existence the force centres or chakras in a human being resemble a triangle with a point at the centre. Although they are described in most spiritual teachings as lotuses, with varying numbers of petals; nevertheless there is always preserved and recognisably present a triangle, at the very heart of the lotus; always there is the triangle with its communicating point. Essentially the human being has three main aspects of consciousness that correlate with his threefold nature of spirit-soul-personality, and this reflects the energies of the divine trinity: will, love and intelligence. It is these energies that are destined to transform the planetary ethers into this network of triangles.

So it's an interesting symbol that humanity is starting to work with lattices of hexagons and their relationship to the network of triangles that is coming into being in the etheric body of the planet. A resonance will develop between these two networks as the electrification of the planet proceeds in a geometrical fashion. The physical plane and the etheric levels will resonate together in a manner that will open up the inner dimensions of life.

In the Alice Bailey teachings we read that "Already, the electrification of the planet …is one of the things which is inaugurating the new age, and which will aid in bringing about the revelation of the presence of the soul. Before long this intensification will become so great that it will materially assist in the rending of the veil which separates the astral plane from the physical plane; the dividing etheric web will shortly be dissipated, and this will permit a more rapid inflow of ….light. The light from the astral plane (a starry radiance) and the light of the planet itself will be more closely blended, and the result upon humanity and upon the three other kingdoms in nature cannot be over-emphasized. It will, for one thing, profoundly affect the human eye and make the present sporadic etheric vision a universal asset. It will bring within the radius of our range of contact the infra-red and ultra-violet gamut of colours, and we shall see what at present is hidden….We only need more light, in the esoteric sense, in order to see the soul, and that light will shortly be available and we shall understand the meaning of the words, 'And in that light shall we see light.'"