

DNA ↔ Karma in Anthroposophy

J. Duncan Keppie

ABSTRACT

DNA and Karma are complementary facets of the material and spiritual topic . This study shows that

(1) Anthroposophy has roots in Buddhism, and still shares many terms and ideas, such as Karma, Akashic Record, Rishis, Chakras, and Mantras;

(2) Steiners' life span overlapped the discovery and early development of DNA, and he appears to have chosen its' spiritual counterpart. Karma;

(3) A cell contains a nucleus and 23 pairs of chromosomes made up of DNA and Genes in a Double Helix. DNA replicates itself, transcribes to RNA single strands & translates to produce Proteins. DNA & RNA contain the same three nucleotides (C,G,A) and a different 4th, either T or U. In DNA the strands are paired up in the reversed order.

(4) In modern scientific parlance, the Akashic Record translates as the combined genome of all living things, which includes humans, animals, plants and minerals.

(5) Recent research has discovered only 355 shared protein-coding genes in some six million prokaryotic organisms. which suggesting they likely originated from LUCA, the Last Universal Common Ancestor. The presence of co-existing Archæa, Bacteria, and Eukaryotes in our human DNA indicates a present-day symbiotic relationship that originated some 4 billion years ago

(6) The the Rock Cycle/Spiral and its' expansion and contraction is similar to that of plants and animals, which suggests rocks are alive. This is reflected by the similar crystalline structure of DNA and Minerals, where the double helix appears to be evolution from the single helix in quartz. The difference is recorded by composition (gases versus metals). Thus the differences between DNA and Minerals may be likened to different languages: letters=elements, words=basic crystal structure, and sentences=collections of structures, where the tetrahedral structure provides the karmic inheritance Silicate minerals fall into families with different crystal structures where the metallic elements distinguish the individuals. The silicate language is dubbed, silicish. This paper only represents a beginning into the connections between DNA and Anthroposophy and provide a fertile topic for future investigation.

INTRODUCTION

Over his lifetime, Rudolf Steiner gave many lectures on Karma, beginning during his sojourn in the Theosophical Society and culminating in 1924 with about 80 Anthroposophical lectures on Karmic Relationships. As Steiner gives no references in his writings and lectures, one must turn to other sources for the origin of the word, Karma. Karma derives from the Buddhist faith, from whence it was picked up by Blavatsky for the Theosophical Society and continued in the Anthroposophical Society by Steiner. With such roots for Buddhism that started in 5th century BCE, it is worth examining what Karma means in Buddhism, and if and how it has been connected with DNA, as suggested by Barfield (1965, GA123): *the twentieth century could benefit by recalling the outstanding discovery of the nineteenth: that understanding, to be fruitful, must combine with the merely existential a genetic comprehension of its subject.* As such the topic is enormous, it is summarized in a table (Table 1)/

ASSUMPTIONS: As a preamble, it is important to examine assumptions commonly held by anthroposophists as identified by Kirschoff (2025):

(i) “**no one** has attained higher knowledge following the path outlined by Steiner;

(ii) “the teachings of Anthroposophy, as exemplified by the writings and lectures of Rudolf Steiner, **cannot be improved upon,**” and

(iii) “self-development is a matter for the individual **alone**”.

Kirschhoff (2025) asserts that if we accept any of these assumptions and act on them as if they were true, our progress toward the living knowledge of which Steiner speaks, is blocked. Does acceptance of one or more of these assumptions account for the fact that the Second and Third Class Lessons of the Esoteric School have never appeared, despite Steiners’ indications of their nature and his books Philosophy of Freedom (GA 4) and in Knowledge of Higher Worlds and their Attainment (GA 10). Given the widely accepted assumptions outlined by Kirschhoff (2025), several questions arise: is the only role for individual members to read more Steiner and strive for further understanding and leave aside any spiritual research?

In 1923/4, Steiner exhorted the “Wachsmuth-Lerchenfeld Group” to *wake up! Realize that we are asleep!Awaken in thinking.....Awaken in feeling people are still asleep in their volition - In the will awaken.....Awaken in the I: We sleep in the I (GA 265/265a)*. Are anthroposophists still asleep and able to think?

Similar questions were addressed by Steiner in his talks to the workmen at the Goetheanum, excerpts from which were published by Palmer in 1925, from which the following excerpts are taken, specifically Chapter III, New Thinking.

- *Modern humans simply cannot think.*
- *All our thinking has been affected by Latinthe language itself thinksin high schools, Latin is taken up first, and then thinking the whole thinking process comes to depend on the activity not of the person but of the Latin language..... people have been reduced by their Latinized education to an inability to think.*
- *The brain belongs to the physical body and used like a thinking machine*
- *We can think for ourselves only with the etheric body i.e. independent thinking see The Philosophy of Freedom (GA 4).*
- *People won’t have any thoughts at all if they merely let their heads take over nature dictates their thoughts while all they do is carry out experiments that tell them what to think letting experiments and research dictate facts to them.*

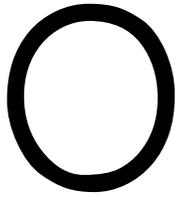
IS THIS HOW MOST PEOPLE THINK TODAY? IS THIS HOW YOU THINK NOW?

This may have led Steiner to continually advocate that people should not immediately accept his conclusions, but rather live with them and come to their own conclusions. Fortunately, both the Anthroposophical Society in Canada and in New Zealand are open to new ideas and discoveries as indicated by their websites and publications.

A perspective drawn from Buddhism has been proposed by Kirschhoff (2025) in his article entitled “The 3 Jewels of Buddhism in relation to Anthroposophy” (Kirschhoff, 2025). The three jewels are: (i) Attainment (Buddha) ≡ Levels of Higher Knowledge; (ii) Community (Sangha) ≡ Anthroposophical Society; (iii) Teachings (Dharma) ≡ Steiner publications.

*Attainment
(Buddha)*

Community (Sangha)



Teachings (Dharma)

Reflections below in italics are modified from Kirschoff

*Teachings are dead until they are read, studied, acted on, AND meditated upon to come to some levels of understanding, which requires a degree of attainment that ranges from that which the teaching were derived to a lower level of understanding in the same vein (Kirschoff, 2025). To re-enliven the community, the qualities of **precision, gentleness, and letting go** can help us find a way forward, and begin to find that our world is more vast, refreshing and fascinating than we had realized. Precision (clear recognition) allows awareness of assumptions, and see not only the assumption(s), but also the fact that we hold it, and it gives us something to attain using gentleness, then letting go, which happens naturally. Kirschoff (2025) elaborates this as follow, and they apply equally to Anthroposophy:*

- *Once the teachings have been given, they must be kept alive. Teachings that exist only as texts that are never read, or that are read but not understood, are not true teachings. To be living, the teachings must be understood. This requires some degree of attainment.*
- *Without the level of understanding that comes from direct experience, the teachings would soon pass into obscurity. They would be texts that had no meaning. No one would be affected by them. To be affected by them means to have understood them (pariyatti). To have understood them, means to have worked with them (patipatti). To have worked with them leads to direct experience (pativedha). If it does not, the teachings are dead. What is written no longer has any connection with experience.*
- *To return the teachings to a state where they can be understood requires some level of attainment. This attainment need not be at the same level that produced the teachings. We do not all have to become Buddhas. However, it must be of the same nature as the original attainment Subsequent attainment must be implicitly the same as the attainment that produced the teachings. We might say that it is qualitatively the same, but quantitatively different. If the teachings fail, if they begin to die, then the community (sangha) must fail too, If the teachings are not understood, or seen as irrelevant or boring, a cascade can ensue: attainment fails, the community fails.*
- *To re-enliven the community, the qualities of precision, gentleness, and letting go can help us find a way forward, and begin to find that our world is more vast and more refreshing and fascinating than we had realized.*
- ***Precision** (clear recognition) allows awareness of **assumptions**, and see not only the assumption(s), but also the fact that we hold it, and gives us something to **attain** using **gentleness**. Then **letting go** happens naturally.*

On the other hand, potential connections between the principles of DNA and spiritual movements has, and is being, examined by:

(i) Buddhists (Nusslock et al., 2021; Denver, 2022), Hindus (Moodley, 2003, Principles of Hinduism). DNA of Hinduism, <https://www.dnaofhinduism.com/core-principles/what-is-hinduism>), and

(ii) Indigenous people (<https://afn.ca/wp-content/uploads/2019/04/Indigenous-Knowledge-Epigenetics.pdf> Indigenous knowledge & epigenetics Forum, 2019). Comparisons between Buddhist and Anthroposophy have been published (Kirschhoff, 2025).

REVIEW

As each of these topics is vast the reader is referred to the following peer-reviewed articles:

DNA: see Wikipedia: Introduction to Genetics, DNA, Epigenetics, Methylation and LUCA. See also <https://www.genome.gov/Pages/Education/GeneticTimeline.pdf> summaries in plain English.

Buddhism: see Wikipedia on Buddhism, Karma, Akasha, Rishis, Chakras, Mantras.

Anthroposophical use of Karma, Hierarchies, etc. are referred to by GA # that may be found in the Steiner Archives (<https://rsarchive.org/>), especially GA 235-240.

BUDDHIST PRINCIPLES

1. Buddhism is non-theistic. The main teachings of Buddhism revolve around the Four Noble Truths and the Eightfold Path. The Four Noble Truths are: the truth of suffering (*dukkha: incapable of satisfying or not able to bear or withstand anything*), the origin of suffering (*samudaya: craving or attachment*), the cessation of suffering (*nirvana*), and the path leading to the cessation of suffering (*magga*), which is subdivided into the Eightfold Path consisting of: (1) right view, (2) right intention, (3) right speech, (4) right action, (5) right livelihood, (6) right effort, (7) right mindfulness, and (8) right concentration. These teachings emphasize understanding the nature of reality, ethical conduct, and mental discipline to achieve spiritual enlightenment and liberation from the cycle of rebirths. *Karma* is a Sanskrit word meaning "action" – the law of karma is a law of cause and effect, and reincarnation or what gets reborn is our neurosis (Britannica). On the other hand, Hindus understand reincarnation as a soul that survives death and is reborn into a new body. The cycle of rebirth (*samsāra*) is a beginningless and ever-ongoing process - liberation from *samsāra* can be attained by following the Buddhist path.

DNA

A brief summary of the principles of DNA follows (Figs 4 and 5):

- DNA (deoxyribonucleic acid) make up double helix strings in the chromosomes, of which there are 46 (23 pairs) in each nucleus of the cell, 22 autosomal pairs and 1 allosomal pair (sex chromosome). Each individual has two copies of each chromosome, one inherited from each parent, which enhances genetic diversity. There are 23 chromosomes in each sperm and egg, which combine to form a fertilized egg.
- DNA duplicates itself by **replication**, splits by **transcription** to form RNA (ribonucleic acid), which **translates** into proteins. Both DNA and RNA consists of strings of molecules made up of a pentose sugar, a phosphate group and a nitrogenous base built from adenine (A), guanine (G), cytosine (C), and thymine (T) in DNA : in RNA, uracil (U) replaces thymine.
- The helix consists of two strands running in opposite direction, each with a sugar-phosphate backbone, held together by a weak hydrogen bond between the bases A-T (two hydrogen bonds) and C-G (three hydrogen bonds) that have complementary shapes facilitating duplication - DNA Polymerase makes sure exact duplication has taken place. The sequence of the bases determines the nature of the genetic characteristic.
- There are 3.1 billion base pairs in the human genome with 25,000 genes in the human genome. The DNA sequence in any two people is 99.9% identical leaving only 0.1% as unique.

- A gene segment of DNA tells the cell how to make a certain protein. RNA editing make upto 500 different proteins from one supposed “gene”, built by combining amino acids end to end to make the protein.
- Inheritance of a variant depends on whether the autosomal gene is dominant in one parent or recessive in both parents.
- The brain is a fascinating organ that is receiving input from your senses (mainly sights, sounds, tastes, smells and touch), from your spirit (reading, thinking, interacting with people and culture). and works to create thoughts, memories and ideas.
- The neurons are tiny cells that send and receive signals and messages – we humans have 80-100 billion neurons. When you have a thought, neurons in your brain fire up and create electrical impulses releasing tiny chemicals called neurotransmitters as they travel along nerve pathways. The neurons create, destroy, modify, and build new cells and neural pathways in a process called neuroplasticity in milliseconds too small to measure. The more you practice, the more the neurons fire together creating neural networks (Lieff, 2013) "Neurons that fire together wire together."
- Have you ever experienced an "eureka" moment when a brilliant idea appears apparently from nowhere? Eureka moments generally occur after a good nights' sleep, and are experienced in deep sleep (non-Rapid Eye Movement phase of sleep)(Lipton, 2013).
- Meditation can change your perception, your mind can alter the activity of your genes and create over thirty thousand variations of products from each gene, and can rewrite those genetic programs through changing your blood chemistry. “The function of the mind is to create coherence between our beliefs and the reality we experience,” (Lipton, 2013)
- There is no evidence, or viable theory, of a brain centre of conscious subjective experience.
- A thought occurs on a broad range of scales from the quantum to cosmic scales.
- The brain needs nutrients and oxygen to function at its best and to boost thinking power.
- Activities that challenge you are also great initiators, e.g. reading, doing puzzles, playing music.
- A theory apparently developing in the mind actually occurs in all of nature.
- Ongoing research includes the functions of DNA and genes, and environmental factors that lead to variants or mutations (epigenetics). **Epigenetics** is the study of heritable traits - a stable change of cell function can happen without changes to the DNA sequence, and usually involves a change which is not erased by cell division that may result from environmental factors, or be part of normal development (<https://www.whatisepigenetics.com/what-is-epigenetics/>). It includes functionally relevant alterations to the genome that do not involve mutation, such as DNA and methylation (the addition of -CH₃ to DNA). Furthermore, non-coding RNA sequences regulate gene expression that acts to repress protein, which determines a cell's specialization (e.g., skin cell, blood cell, hair cell, liver cells, etc.) and silences regions of the DNA. Epigenetic factors (e.g. what you eat, where you live, who you interact with, when you sleep, how you exercise, even aging) can eventually cause chemical modifications, however these changes are reversible. These epigenetic changes may last through cell divisions and may also last for multiple generations. Ionizing radiation, which includes sunlight, gamma rays, X-rays, CT scans, neutrons, alpha and beta particles, can damage or cause mutations of the cells. Ionization radiation may or may not cause cell death or DNA damage, which can prevent correct replication of DNA. (Lipton 2013).

DNA AND BUDDHISM

Now let us see what DNA principles are compatible with Buddhism.

An in-depth study by Denver (2022) reveals that three general Buddhist hypotheses are amenable to testing of compatibility with DNA principles: (i) impermanence (anitya), (ii) lack a self-nature (anatman), (iii) a mutual cause-and-effect framework of dependent arising (*pratityasamputpada*). Denver (2022) found that all three hypotheses are compatible with DNA principles. Buddhist hypotheses of suffering and rebirth were not considered.

Quotes or slightly modified quotes from Denver (2022) are in italics:

- *A conceptual template for reproduction in humans and other animals, underpinning modern genetic thinking and education, was constructed from a generalized fusion of Gregor Mendel's experiments (1865 – English translation by Bateson, 1909) and the chromosomal theory of heredity formulated by the American biologist Walter Sutton and the German biologist Theodor Boveri in 1902. In 1952, Hershey and Chase revealed DNA as the carrier molecule of genetic information*
- *A human body is composed of many trillions of constituent cells, all derived from a single zygote (fertilized ovum) that previously derived from the union of sperm and egg. The DNA present inside the nuclei of all those cells resulted from numerous successive rounds of DNA replication events accompanying cell divisions.*
- *Conceptual models of inheritance gave rise to the the development of “tree of life” concepts, such as that developed by Charles Darwin (phylogenetics, vertical inheritance). In addition, horizontal DNA inheritance (archæa, bacteria, and eukaryotes) led to the hypothesis of LUCA, the Last Universal Common Ancestor, and the “web of life”, which spawned different forms of life to be incorporated, such as ribosomal RNA genes or mitochondrial DNA (Figs. 6- 8).*
- *DNA, a diploid gamete, is known as the molecule of inheritance, however haploid gametes can fuse to form new diploid organisms in the next generation, e.g. clonal propagation of haploid bacteria through cellular fission leads to the replication of single-stranded DNA virus molecules inside their bacterial hosts,*
- *Asexual reproduction, e.g. the production of offspring by females without male fertilization— was reported for Komodo dragons and hammerhead sharks, and an Australian lizard species, Heteronotia binoei, with three sets of chromosomes.*
- *Many viruses utilize DNA as their genetic material, but others use RNA, e.g, Hepatitis B, Cauliflower mosaic virus and HIV, which use reverse transcription that ultimately produces a double-stranded DNA molecule that becomes integrated into the nuclear genome of the host human cell, and may be transmitted to succeeding generations.*
- *Other kinds of RNA viruses replicate in a fashion without any sort of DNA intermediary, e.g. Hepatitis C, SARS, SARS-CoV-2 =. COVID-19,*
- *Medical interventions such as blood transfusions and trans-plantations can also lead to somatic variability within a human body called macrochimeras, (see Valera, 2001).*
- *Many people are born with any of several different kinds of variations in sex-related traits (e.g., chromosomes, gonads, hormones, genitalia) that do not fit into the typical binary conceptual framings of male and female bodies that are pervasive in human societies, especially in the West: called intersex*
- *Rare reverse inheritance: transfer of genetic traits are passed from fetus to mother*
- *Sexual identity is sometimes determined by environmental rather than genetic factors. In a variety of lizard, snake, and turtle species, biological sex is determined by temperature, often*

during the middle third of embryonic development. Epigenetics is the study of heritable changes that **do not** involve changes in the DNA sequence. Epigenetics provides additional examples of DNA-free heredity, in cellular life forms by various mechanisms of RNA- and protein-based inheritance: (i) chemical DNA modifications (e.g., cytosine methylation), (ii) Mammalian sperm, (iii) histone proteins interactions with DNA molecules may impact transcription, (iv) other proteins are capable of both self-replicating and transmitting across generations, e.g. rapidly self-replicating molecules produce diseases such as Scrapie in sheep and goat, and Mad-Cow disease, and (v) inheritance of environmentally derived traits.

DNA AND ANTHROPOSOLOGY

Steiners' life (1861-1925) overlapped the discovery of Genetics, DNA and Chromosomes.

1865 Genetics was discovered by Mendel, and mentioned by Steiner in 1922 (GA 214).

1869 Friedrich Miescher isolated **DNA** (called the nuclein at that time).

1878 Walther Flemming saw chromatins (**chromosomes**) subdividing by mitosis.

1900 DeVries, Correns, and von Tschermak independently rediscovered Mendel's work

1902 Walter Sutton and Theodor Boveri formulated the **chromosomal theory of heredity**.

1902 Archibald Garrod observes the Orderly Inheritance of Disease.

1910-12 Thomas Hunt Morgan linked **genes to chromosomes**..

1929 Phoebus Levene identified the components of DNA.

1952 Alfred Hershey & Martha Chase show that Genes Are Made of DNA.

1953 Francis H. Crick and James D. Watson describe the Double Helix structure of DNA.

from "Genetic Timeline" *National Human Genome Research Institute*, Genome.gov,

<https://www.genome.gov/Pages/Education/GeneticTimeline.pdf> .

What is Karma?

In Steiners' 1924 lectures (GA 235-240) one can intuit the influence DNA had on Steiners' spiritual view of Karma in the human being. It is clear from the statement that the *Karma* \equiv *previous earth lives* translates as DNA of a single human genome in modern scientific terminology (Table 1). Furthermore, it is clear that the *Akashic Record* translates as the combined genome of all living things from the present to the past and into the future beginning with the Last Universal Common Ancestor, 4.3 billion years ago (Fig. 6 and 7).

What is the Akashic Record?

Scott-Elliot (1904) attributes his copies of the maps of Atlantis and Lemuria to Hæckel (1876) (Fig. 9), however Hæckels' map is a present-day global map that merely indicates the location of Lemuria in the Indian Ocean using the word Lemuria. On the other hand, although Steiner uses Scott-Elliots' maps he suggests that the maps were derived from the Akashic Record using clairvoyance (GA 11), N.B. Steiner admits that the Akashic Record may be misread. On these maps, Atlantis and Lemuria are continents that sank to the bottom of the Atlantic and Pacific oceans, respectively, (GA 11) (Fig. 9). However, the discovery of magnetic stripes in the Atlantic, Indian and Pacific oceans in the mid-twentieth century (McElhinny and McFadden, 2000) showed the floor of these oceans is oceanic crust, not continental crust (Fig. 9). The geometric similarity of these maps to those of Scott-Elliot led Keppie (2018a) to propose that Atlantis represented the juxtaposition of the Americas with Africa and western Europe, and that Lemuria was recorded by a completely subducted plate beneath the Indian Ocean. The plot thickens with the recent translation of Plato's *Timæus* and *Critias* by George

Sarantitis, who suggests that Atlantis lay on *the* NW Coast of Africa, not in the middle of the Atlantic Ocean (Fig. 8)(<https://platoproject.gr/> and <https://www.earthancients.com/?portfolio=george-a-sarantitis-platos-atlantis>).

On the other hand, Keppie (2018a) suggests that the subducted plate beneath the Indian Ocean could represent Lemuria (Fig. 10). The existence of such a subducted plate does not apply to Atlantis because the magnetic stripes in Atlantic Ocean show that it was produced by extension/separation between the Americas and Africa/Europe, not subduction.

What is a thought?

Steiner indicates that the human body is composed of the physical body, the etheric body, the astral body and the ego. During sleep the physical body and etheric body separate from the astral and ego. The physical and etheric bodies fall asleep and become active in the nervous and sympathetic systems, with the nerve chords and ganglia producing currents in the etheric body that are the fore-runners of the physical body organs (GA 90b). Deep, non-REM sleep is a meditative mode where thoughts can be generated. Upon waking, one may experience an “eureka” moment, which probably starts as a thought.

This may be compared with modern scientific analysis of a thought (Lieff, 2013), summarized below *in italics* has shown that:

- *with each mental event, dramatic structural changes occur instantaneously inside large numbers of neurons, outside of neurons in the extracellular space, at the synapses between neurons and in glial brain cells or neuroglia that do not produce electrical impulses.*
- *with each new learning event new cells are minted from stem cells and incorporated into the neuronal circuits and massive transit systems where neurons build, modify and prune neuronal centres, scaffolding and dendrites, synchronously transmitting messages by electrical and chemical means.*
- *repeated use of these systems leads to their development into ‘major highways’ and neuronal centres,*
- *the neuron manufactures new material almost instantly by transmitting and editing codes from DNA to the RNA to protein production via transcription and translation, i.e. producing new cells and organs,*
- *the shape of the protein is critical because it responds to changes in the neural network using special chaperone molecules that fold the protein into primary, secondary, tertiary and quaternary folds in a millisecond to participate in neuroplasticity events,*
- *recently, meditation and pleasure derived from finding meaning or helping society showed major gene expression changes involving an increase in anti-inflammatory factors and increase in anti-viral factors, Both of these are major drivers of many illnesses. What is very surprising is that pleasure associated with enjoying something such as a meal, or a possession did not have this effect.*
- *at least 20% of the total DNA produces small and large RNAs, which serve to direct much of the process. Recently, it has been found that most mental events are not located in a small region or hub of the brain, but occur all over the brain in very complex networks in the realm of milliseconds,*
- *a surge in calcium triggers new types of “memory proteins,*
- *mitochondria in the dendrite alter the strength of the signal,*
- *focused attention changes synapse structure,*
- *the stimulus for mental events comes from a wide variety of sources—sensory stimulation from the environment, reading, thinking, and interacting with people and culture,*

- *separation of events, the quantum level of brain regions from the large cosmic connections, is impossible,*
- *recently, quantum effects have been found in many living organisms: calcium signalling in the brain, chemical reactions in the cell, navigation in birds, and the efficient mechanisms of photosynthesis*
- *molecules such as actin, myosin, and the microtubules operate as an intelligent organisms,*
- *the structures of the scaffolding and their very complex molecules appear to be a language of the mental event in the cell,*
- *the life of each thought in the brain includes huge orders of magnitude at the same time: quantum effects, small and large molecules, cellular motors, scaffolding structures, organelles, neurons and glial cells, brain hubs, brain regions, total brain, interactions with others, science, society and culture.*
- *despite huge efforts of almost half a million neuroscientists in the world for many years, there is no evidence, or viable theory, of a brain centre of conscious subjective experience - there is no physical brain region that represents subjective experience. i.e. it is impossible to separate the levels of magnitude in human existence,*
- *where is the direction for all of this activity spanning 12 orders of magnitude? Somehow, the mind as we know it, interacts on all of these levels at once. How, exactly, mental events trigger this vast array of activity still remains to be seen, but, it certainly implies that a theory of mind in all of nature might be a far better way to understand these phenomenon than the current approaches.*

The analysis of Lieff (2013) shows that the spiritual and material flow back-and-forth across the boundary between them. This parallels the Einstein's classic equation, $E=mc^2$ where E is kinetic energy, m is mass, and C is the speed of light, regarded as a constant. These factors are measured as follows: E in joules, m in kilograms, and C in metres per second. Thus, mass and energy are interchangeable i.e. a material object ◀-▶ a spiritual entity.

Resurrection/Reincarnation

An anthroposophist needs to believe in the eternal law of the cycle of life, that resurrection follows death (GA 334). The Law of Karma and Reincarnation, of repeated lives on Earth, comes in for the fiercest possible attacks from the opponents of Spiritual Science (GA 96). Such attacks arise from the common resistance to new ideas, which leaves the enlightened researcher as an outcast, and include the assumptions outlined earlier: such as, the assumption that one cannot improve on Steiner.

Using a DNA perspective, the replication of DNA can be regarded as a process of resurrection, which is reflected in the fact that the DNA sequence in any two people is 99.9% identical. The fertilized egg carries 50% DNA from each parent: i.e. 23 chromosomes from each parent. It is amazing that a single egg cell carries all the information required to build another human being from numerous successive rounds of DNA replication events accompanying cell divisions producing our human genome. In 2016 researchers compared the sequences of some six million **protein**-coding genes from prokaryotic organisms; 355 of the sequences were concluded to have likely originated from LUCA (Fig. 6). Shared biochemical processes within cells have also been investigated (Britannica). Research has shown, for instance, that species in Bacteria, Archæa, and Eukarya have conserved core metabolic pathways for the **synthesis** of amino acids, ;o[ids, nucleoyifrd, sugars. and organic cofactors. Because it is highly unlikely that organisms in the three domains would have developed identical pathways independently, scientists suggest that LUCA must have laid down this original metabolic core.

Furthermore, our DNA carries a record of previous “earth lives” back to the birth of life (LUCA) some 4.3 billion years ago, i.e. the Akashic Record. On the other hand, analysis has found that modern human beings are a combination of our own DNA (43%), plus the DNA of our gut microbes. which includes bacteria, viruses, fungi and archæa (Lim, 2023)..

WHAT IS A HUMAN BEING?

Human cells make up 43% of the body's total cell count. The rest are microscopic colonists. Human beings are a combination of our own DNA, plus the DNA of our gut microbes. This includes bacteria, viruses, fungi and archæa. The human genome is made up of 20,000 genes. Our microbiome has between 2 & 20 million microbial genes. The greatest concentration of this microscopic life is in the dark murky depths of our oxygen-deprived bowels. The microbiome plays an important role in digestion, regulating the immune system, protecting against disease and manufacturing vital vitamins. Antibiotics and vaccines have been the weapons unleashed against the likes of smallpox, Mycobacterium tuberculosis or MRSA. That's been a good thing and has saved large numbers of lives. **But** some researchers are concerned that our assault on the bad guys has done untold damage to our "good bacteria". We have over the past 50 years done a terrific job of eliminating infectious disease. **But** we have seen an enormous and terrifying increase in autoimmune disease and in allergy. The microbiome is also being linked to diseases including inflammatory bowel disease, Parkinson's, if cancer drugs work, obesity and even depression and autism, Maybe 10 or 15 bugs may repair someone's microbiome "can actually lead to remission" in diseases such as ulcerative colitis.

At or before ca, 2400 & 550-850 Ma on Earth, oxygen-producing cyanobacteria & nitrogen-fixing-bacteria were ingested by algae to live in symbiosis.

<https://www.bbc.com/news/health-43674270>

Steiner (GA 82) realized that meditation can lead to looking at one's self and events of the previous earth lives, i.e KARMA

The Mineral World

Finally one can ask the question: is the mineral world alive? Steiner repeatedly says the mineral kingdom ‘*appears*’ to be dead or lifeless. (GA 235). It is important to note the word, “appears”, because progress through the life of a mineral is so slow (generally measured in millions of years) that it goes unrecognized during the relatively short life of human beings (generally less than 100 years). Furthermore, the mineral has an astral body in ‘*Devachan*’. and an Ego in the higher Devachan (Arupic) world, and experiences joy and pain (GA 98). This has been elaborated by Keppie (2018b, 2018c), who showed that the rocks and minerals have a living cycle or (Fig. 11), and that the earth consists of a body, a soul, and a spirit. One criteria to distinguish living from dead is that life gives rise to life by means of the **germ** (GA 9). Crystals also start from a seed and propagate by growth.

DNA is composed of deoxyribonucleic acid crystals (hexagonal and pentagonal shaped, and tetragonal pyramidal crystals) composed of H, O, N, C, and P elements that are combined into double helix strings in the chromosomes (Fig.12). Most rock-forming minerals are silicates composed of Si, O, H, Mg, Fe, Ca, Na, K, and Al that are combined in a variety of crystal structures (prismatic, pseudo-hexagonal, tetrahedral, octahedral, and A-dodecahedral) that are assembled into single tetrahedra, single and double chains, and framework pyramids –in the case of quartz. the silicate tetrahedra form single helices that are either right- or left-handed (Keppie, 2018c). Crystal structures in DNA and silicate minerals share tetrahedra and pyramidal shapes and some helical chains. With the exception of O and H, DNA and silicate minerals have different suites of elements. This comparison

suggests that whereas DNA and mineral crystals share similar crystalline structures and life cycles, they generally contain different elements, gases versus metals. Thus, whereas they are both alive, they speak different *LANGUAGES (so to speak), where the letters=elements, words=basic crystal structure, and sentences=strings of structures*. Silicate minerals fall into families with different crystal structures where the metallic elements distinguish the individuals. The silicate language is here named, 'silicish'. This may be extended to other mineral types, such as with oxides, halides and sulphides

REFERENCES

- Barkhoff, M. 1998. Anthroposophy Worldwide.
- Bateson, W. 1909 Principles of Heredity. 209p. Cambridge University Press
- Denver, D. 2022. The Dharma in DNA, 212p. Oxford University Press.
- Hershey, A., and Chase, M. 1952. Independent Functions of Viral Protein and Nucleic Acid in Growth of Bacteriophage, *Journal of General Physiology* 36 (1952): 39–56.
- Keppie, J.D. 2018a. Found? The lost continents of Atlantis and Lemuria? <https://anthroposophy.ca/en/research/>
- Keppie, J.D. 2018b. Body, Soul and Spirit of the Earth. <https://anthroposophy.ca/en/research>
- Keppie, J.D. 2018c. The Rock Cycle: the rocks are alive: if only we could “hear” them, what have they to tell us? <https://anthroposophy.ca/en/research/>
- Kirschhoff, B. 2025. The Three Jewels of Buddhism in relation to Anthroposophy. Southern Cross Review.org > 16 > kirchoff.
- Lieff, J. 2013. The Life of A Thought in the Brain, Human Brain. <https://jonlieffmd.com/blog/the-life-of-a-thought-in-the-brain>.
- Lim, P. 2023. The Human Gut Microbiome: An Overview. International Foundation for Gastrointestinal Disorders (www.iffgd.org),
- Lipton, B. 2013. Scientists Finally Show How Your Thoughts Can Cause Specific Molecular Changes To Your Genes. https://blog.kareldonk.com/wp-content/uploads/2015/01/epigenetics_lipton.pdf
- McElhinny, M.W., and McFadden, P.L. 2000. Paleomagnetism: Continents and Oceans. Academic Press, San Diego, CA. Maps opposite pages 206 and 207.
- Mendel, G. J. 1865. Versuche über Pflanzen-Hybriden, *Verh. naturf. Ver. in Brünn*, Band IV., 1865, *Abhandlungen*, p. 1; reprinted in *Flora*, 1901, and in Ostwald's *Klassiker d. exakten Wiss.* English translation in *Jour. R. Hort. Soc.*, 1901, XXVI.
- Nusslock R., Balgopal, M.M, Hue, G., Zivot, J., Negi, L.T., and Eisen, A. 2021. Editorial: The Emory-Communication, doi: 10.3389/fcomm.2021.765368.
- Moodley, (Reid), D. 2003. Hindu moral implications of genetic engineering in a plural society. *Nidan : International Journal for Indian Studies*, v. 2003 Issue 15.
- Palmer, O. 1925. Rudolf Steiner on his book *The Philosophy of Freedom*/ 123p.
- Scott-Elliot, W. 1896. The story of Atlantis. <http://www.sacred-texts.com/atl/soa/index.htm>
- Scott-Elliot, W. 1904. The Lost Lemuria. <http://www.sacred-texts.com/atl/tll/index.htm>
- Valera, F.J. 2001. Intimate Distances—Fragments for a Phenomenology of Organ Transplantation,” *Journal of Consciousness Studies* 8 (2001): 259–271.

ROCK OF AGES

J. Duncan Keppie

On a rock I sat, the rock sat under me,
Linked together, in boundless reverie,
Granite, crystals wink an astral welcome,
Rain fell, skipping off to play and vanish,
Some rested, settling in for the long-run,
Transforming crystals into little flakes,
Who swam off floating afar,
O'er river banks, onto fields,
Spreading their essence far and wide,
Climbing aloft to airy worlds,
Or hitch a ride wi' a wee beastie.
Freedom.. I'm feeling o' so sleepy.
Sit me down on this rock, so hearty,
Haven't I been here before?Aye!
I am the rock, the Rock, 'tis I.
Eureka! The Rock of Ages.

The Mi'kmaq traditional spirituality recognizes and acknowledges the living spirit within all things: the entire animal kingdom, the spirit within plants, rocks and waters of our world. and our kin to each other: i.e. All are My Relations \equiv Msit No'kmaq in Mi'kmawisimk. In practice, we take nothing we don't need, we waste nothing, and we offer thanks for everything we do take including Animals, Plants and Mother Earth.