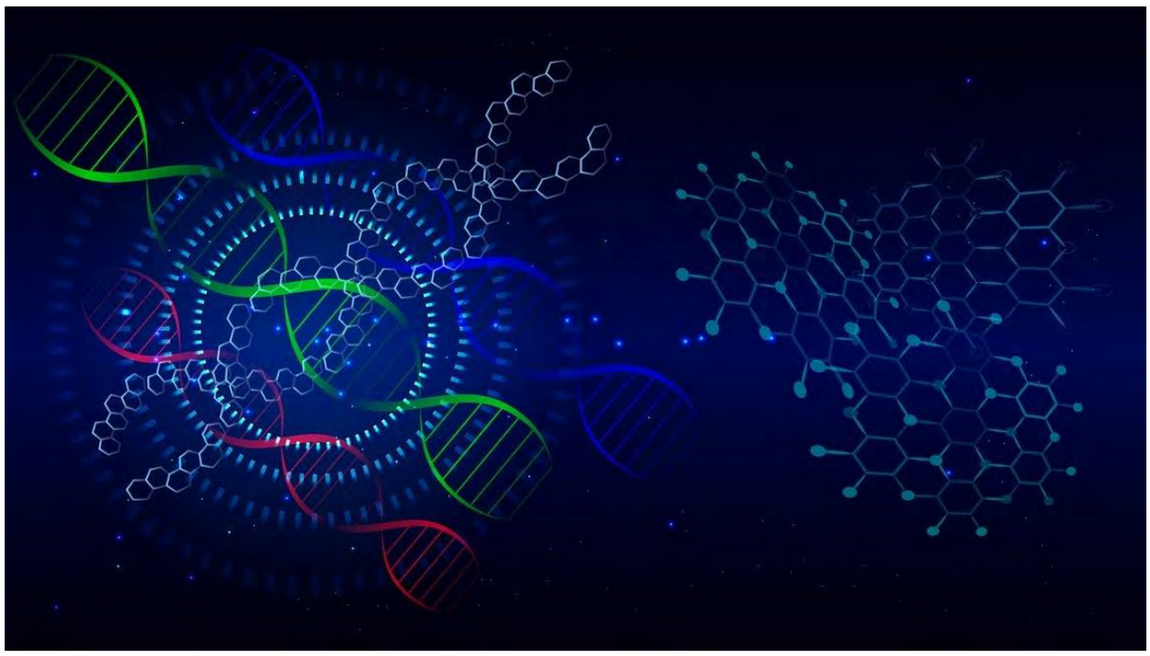
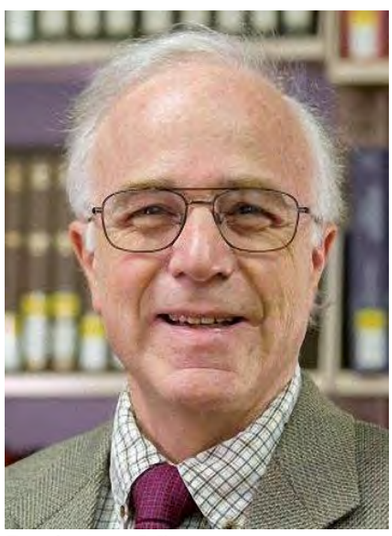
FFWPU Europe and Middle East: Epigenetics And New Holistic View Of Evolution

Knut Holdhus
May 6, 2024



DNA illustration by Epigenetics Vectors by Vecteezy

Academic explains how epigenetics provides missing link needed for holistic view of evolution that includes environmental factors



Dr. Andrew Wilson

Part 5 (final part) of "Evolutionary Creationism: A New Perspective on Purpose and Human Origins", a presentation by Dr. Andrew Wilson, Professor of Scriptural Studies at HJ International Graduate School for Peace and Public Leadership (HJI), New York, USA, given on a special online program 23rd April 2024 hosted by HJI and the Higher Purpose Forum (HPF).

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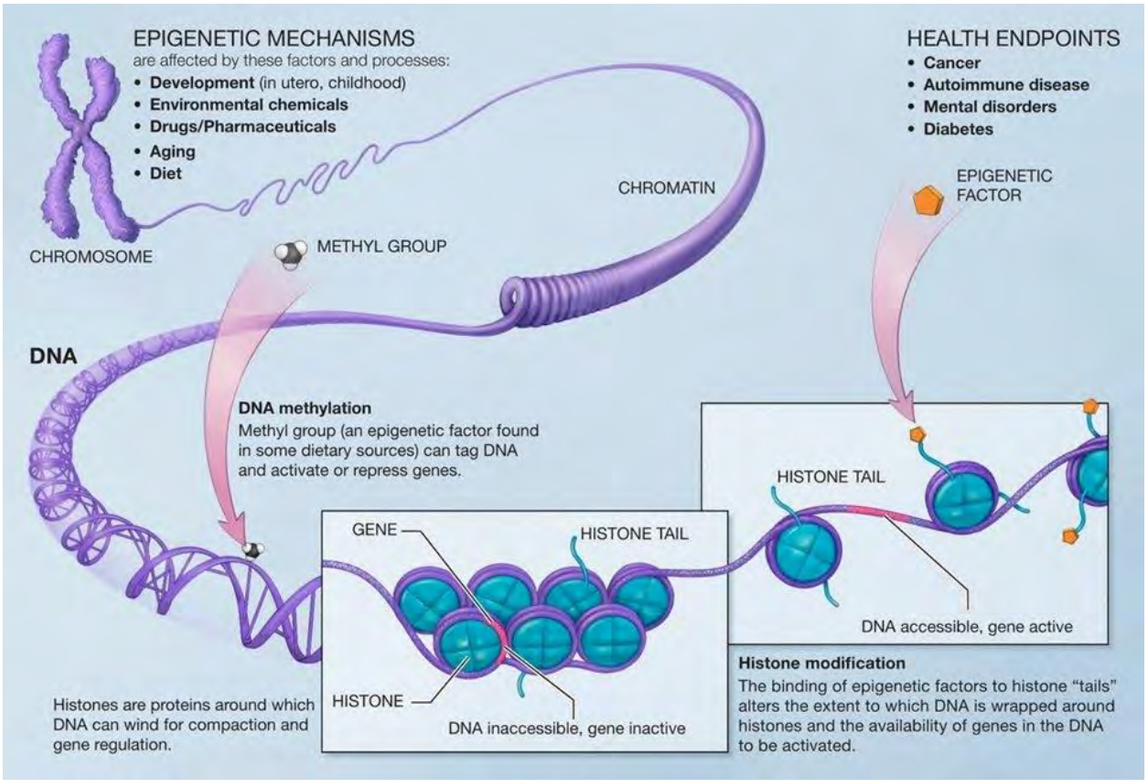
Let's look at one more aspect of this, and that is epigenetics.

This is also brand-new stuff. It's only been coming out in the past few years.

Epigenetics states that we are not only the product of our genes. Genes have to be turned on and off. There are proteins called histones, that turn the genes on and off.



Epigenetic mechanisms are affected by several factors and processes including development in utero and in childhood, environmental chemicals, drugs and pharmaceuticals, aging, and diet. Illustration: National Institutes of Health

So our organism is not only defined by our genes, but just as important are the mechanisms that control when the genes are turned on and off. All of our DNA exists in a matrix of these proteins.

These proteins can either open the DNA for activity, or they can block the DNA from acting. And this protein activity can be impacted by environmental changes.


Jean-Baptiste de Lamarck (1744-1829), French naturalist, biologist, and academic. Proposed theory that acquired traits can be inherited

Therefore, genetics can change through the environment. This takes us back to Lamarck, actually, who said that giraffes grew long necks because they could reach higher in trees for food.

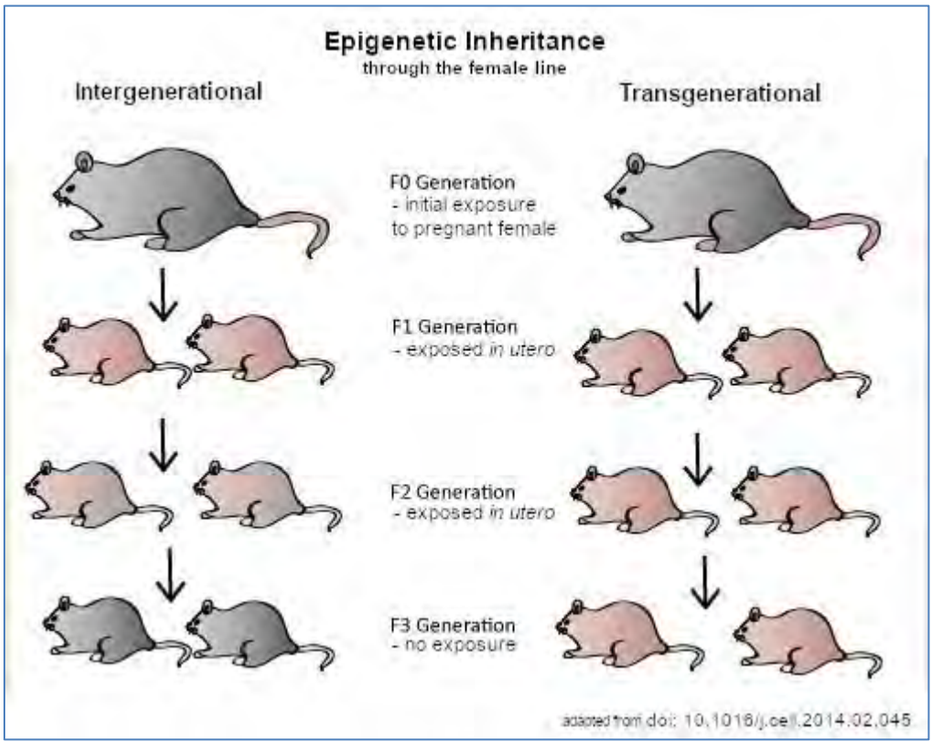
There's something of truth in that, because scientists are noting that if people have certain bad health habits, like smoking cigarettes or alcoholism, it persists through two or three generations.

Why does it persist through the generations? Epigenetic changes that take place because of that behavior in the first generation change gene expression in the succeeding generations, and this manifests in bad health habits in their lives as well.

Conversely, good health habits introduce healthy epigenetic changes in the gene expression in the next several generations, and therefore have lasting impact in a good way. Thus, epigenetics has come to be understood as the route for the transmission of heritable traits in terms of disease and fitness.

What this means, is that both genetics and the environment determine who we are.

We are not just determined by our genes. We are also determined by the environment in which our parents grew up. And that environment in which our parents grew up introduced epigenetic modifications that change the way our genes express themselves.



A diagram showing the difference between Intergeneration and Transgenerational epigenetic inheritance in females. "Intergenerational" is when the effect lasts through to the F2 generation (both F1/2 were potentially exposed in utero since a female's eggs develop during the foetal stage). "Transgenerational" inheritance is then the effect lasts until at least the F3 generation (no direct exposure)

And thus we, the phenotype - the phenomena manifesting in our lives - arise both from the genotype, i.e. our genes, and from the environment through epigenetics.

If you want to figure out a theological explanation for original sin, and the inheritance of fallen lineage, you can go to epigenetics to begin to understand how that could happen. Epigenetic modifications provide a mechanism for spiritual factors to influence evolution.

Gregor Mendel (1822-1884), Austrian-Czech biologist, mathematician, friar and abbot. Founder of science of genetics. Mendel's experiments with pea plants from 1856 to 1863 established many of the principles of heredity, now alluded to as the laws of Mendelian inheritance

This, to me, is the missing link that allows us to tie the material world to higher causes when it comes to evolution.

And thus Darwinism is out of date. Scientists are beginning to develop a new holistic conceptual framework for how evolution takes place.

Darwinism, and its modern synthesis Neo-Darwinism, only looked at the DNA. It looked at the genes and saw gene mutation and inheritance through Mendelian genetics as the only driver of inheritance.

And thus, if changes were to happen, they would have to arise by survival of the fittest.

But in the larger integrated synthesis that science is coming to understand, we also have epigenetic inheritance.

That means that the expression of genes is plastic and can accommodate different environments, and that the genome can evolve through environmental causes.

This creates a more holistic understanding of a human being and its ability to develop and evolve. I think it is going to be very powerful in terms of explaining a lot of phenomena in medicine and health.

So the conclusion - getting back to my main theme: evolutionary creationism:

> The universe was designed for a purpose.
>
> Evolution is a phenomenon of creation: Growth through three stages to realize God's purpose appears to be evolution, but it is actually growth through stages to realize God's purpose.
>
> The main driver of evolution is give and receive action.
>
> > Sex, sexual selection
> > Symbiosis
> > Interactions with the environment through epigenetics.
>
> Survival of the fittest plays only a supporting role.
>
> Modern plants and animals that exist today are the result of stage-wise creation to form an environment for human beings, the crown of creation and the fulfillment of God's purpose.

Even our development as human beings can be explained in this way.

Thank you for listening to my presentation.

See part 1, part 2, part 3, part 4

"Epigenetics and New Holistic View of Evolution" - text: Dr. Andrew Wilson

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Evolution By Principle Of Giving And Receiving

May 4, 2024 • Knut Holdhus

Academic reveals how it is not survival of the fittest that drives evolution, but the universal principle of giving and receiving

Part 4 *of "Evolutionary Creationism: A New Perspective on Purpose and Human Origins", a presentation by Dr. Andrew Wilson, Professor of Scriptural Studies at HJ International*

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Dr. Andrew Wilson. Photo: HJI

Studies at HJI International Graduate School for Peace and Public Leadership (HJI), New York, USA, given on a special online program 23rd April 2024 hosted by HJI and the Higher Purpose Forum (HPF).

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Another aspect of the principles of creation that we see in evolution is giving and receiving.

As I said, Darwin looked from the perspective of individual species and saw evolution and survival of fittest.

But if we look at the whole ecosystem, species exist in harmony with one another. Predators and prey are in balance. And these species, whether they're predator species or prey species, evolve together.

If we only look at the individual level, we see survival fittest. But if we look at the whole of life, we see ecosystems in which predators and prey are evolving in some kind of balance. There's giving and receiving going on.

For example, we can talk about symbiosis where lichens are the example. A classic, textbook example is a symbiosis of fungi and algae. So, there's a fungus, and the algae is living inside the fungus.

Lichens on a branch. Photo: Mathieu Landretti / Wikimedia Commons. License: CC ASA 4.0 Int. Cropped

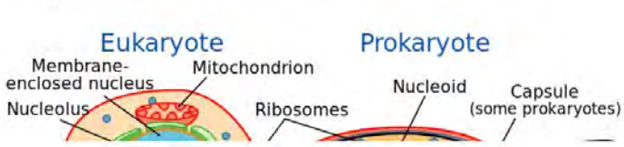
The fungus provides protection to the algae. The algae provide the energy for the fungus through photosynthesis. There's giving and receiving, and both benefit.

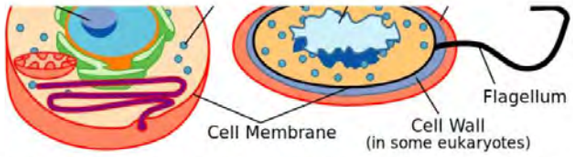
Beetle pollination: Trichiotinus lunulatus, the Emerald Flower Scarab beetle on Redring Milkweed (Asclepias variegata). Pollinia can be seen attached to the right rear tarsus. Photo: James Leon Young / Wikimedia Commons. License: CC ASA 4.0 Int

This is how life evolved, actually. For example, insects and flowering plants developed in a symbiotic relationship, where the insects consume pollen and nectar from the plants. The insects spread the plant seeds, and the plants developed flowers with colors and scent to attract insects.

And the insects, in turn, evolved mouthparts and digestive systems to be able to feed on flowers.

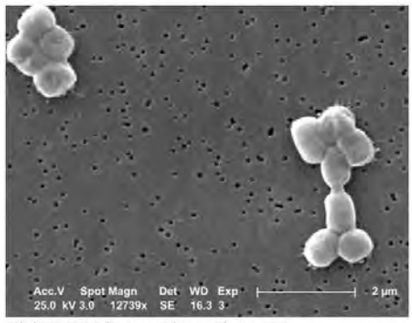
Every type of flower is connected to a different type of insect, whether a fly a beetle, a rodent, a moth, or a bee. And this development occurred simultaneously within a larger symbiotic relationship.





Comparison of eukaryotes vs. prokaryotes. Illustration: Science Primer (National Center for Biotechnology Information). Vectorized by Mortadelo2005. / Wikimedia Commons. Public domain image

Or going back even further, the development of all life began from prokaryotes, that is, cells without nuclei, like bacteria. And these bacteria then join together to form eukaryotic cells, which are cells that have a nucleus, mitochondria – and if they are plant cells – they have chloroplasts for photosynthesis. And this was a symbiotic process.



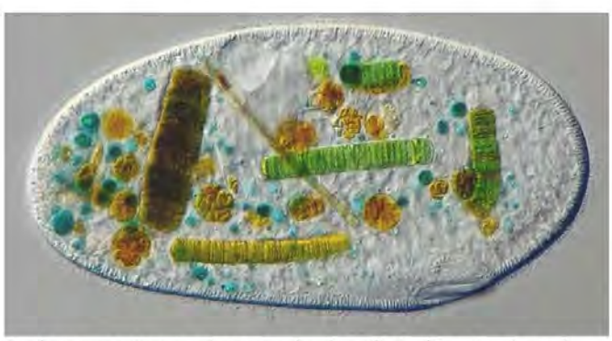
This SEM (scanning electron microscope) depicts a couple of clusters of aerobic Gram-negative, non-motile Acinetobacter baumannii bacteria as seen under a magnification of 12,739x. Photo: Janice Carr / Wikimedia Commons. Public domain image. Cropped

You had aerobic bacteria, which means bacteria that can breathe oxygen. And they entered and developed a symbiotic relationship with cells which had a more primitive metabolism that was anaerobic.

I'm using big words here. Anaerobic metabolism means energy-producing chemical reactions without air. For example, when you start running, your muscles can't get enough oxygen to keep up, so they generate energy by converting sugar into lactic acid, which accumulates in the blood and makes you feel tired. That's anaerobic metabolism because it doesn't involve air.

But then, as your breathing gets stronger and you inhale more oxygen, your body can clear the lactic acid and your muscles can generate much more energy by the aerobic process of burning sugar with oxygen – aerobic metabolism. That aerobic process requires mitochondria.

The primitive chemical reactions of the anaerobic cells that could not burn oxygen were very inefficient in terms of producing energy, but once those cells joined with the aerobic bacteria, the prokaryotes that burned oxygen, they benefited tremendously. The aerobic bacteria became mitochondria, an organelle within the cell. The bacteria also benefited by the protection they received from the cell. That symbiotic relationship between the primitive cell and the formerly aerobic bacteria – now mitochondria – is a feature of all eukaryotes, the basic form of all animal cells.



A phase-contrast micrograph of a ciliate (Frontonia sp.) digesting blue-green algae (cyanobacteria). The cytostome (the "mouth" of the cell) is seen on the right side down. Photo: Wiedehopf20 / Wikimedia Commons. License: CC ASA 4.0 Int. Cropped

And the same with chloroplasts. There were independent cyanobacteria that mastered photosynthesis; they could grow and get energy by metabolizing carbon dioxide and sunlight. These cyanobacteria were incorporated into primitive plant

cells and became chloroplasts. They endowed the plant cell with the ability of photosynthesis. At the same time, the host cell provided the bacteria, now chloroplast, with protection and nutrients. So, both the host cell and the bacteria benefitted from the arrangement.

Thus, symbiosis was fundamental to establishing higher life forms. These big steps in the evolution of animals and plants occurred by give and receive action, by the Principle.

So, both the host cell and the primitive bacteria benefited from this arrangement. And this was fundamental to establishing higher life forms. It happened by give and receive action, by symbiosis.

Even in the evolution of the brain symbiosis is involved. We have these retroviruses in the environment, which join into our DNA and become fixated in the DNA and are passed down through the generations.

And it turns out that a lot of human cells have retrovirus DNA in them. And some of the retrovirus DNA and nerve cells were essential for the production of myelin, which is like an insulating material in nerves.

And this is all very new. This is from a Neuroscience article from February 2024. It said,

> "Ancient viruses played a pivotal role in the development of myelin, crucial for complex vertebrate brains. The discovery of 'RetroMyelin', a retrovirus-derived element [in the DNA] essential for myelin production across mammals, amphibians, and fish, underscores the impact of viral genes on vertebrate evolution." (Neuroscience News, Feb. 15, 2024)

So, we even should be grateful to viruses, because we would not exist if it wasn't for some primitive creature, you know, primitive fish or something, that ingested these retroviruses, that produce myelin, that help to develop the structures of the modern vertebrate brain and spinal cord and nerves and so on, that allow these life forms to take the shape that they have.

Another form of give and receive action is sex. Sex is very inefficient. When creatures engage in sex, they become vulnerable to be eaten by predators, and they have to spend a lot of time, energy, to attract mates. So, why not just divide like yeast and not even worry about sex? Yeast reproduces asexually, by budding, producing daughter cells.

But from the point of view of the Principle of creation, it's to manifest God's form of duality, of giving and receiving. Thereby they share the best genes.

Peacock trying to woo peahen at Warwick Castle, England in 2003. Photo: ToastyKen / Wikimedia Commons. License: CC Attr 3.0 Unp. Cropped

So, in science, we talk about sex as a way of selecting the best genes. Males, like a male peacock here, display fitness by

having a glorious display to attract the best females.

Females value the males with the greatest fitness. They invest in caring for his valuable progeny. And thus, we have the evolution of beauty in the animal world as a result of giving and receiving, manifesting God's form.

So, giving and receiving according to the Principle of creation drives evolution. That's my conclusion.

Giving and receiving by the Principle of creation is the primary driver of evolution, far more important than survival of the fittest.

Survival of the fittest is just for cleanup in evolution, because it is giving and receiving by the Principle of creation that manifests the three stages of growth of the Principle of creation.

Continued in part 5

See part 1, part 2, part 3, part 5

***Featured image** above: Hover fly pollinating. Photo: Steve Colwell, Channel City Camera Club, Santa Barbara, USA / Wikimedia Commons. License: CC Attr 2.0 Gen*

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